CMD 25-H12-REF5 CNSC Staff Submission

Reference Package 5 for CMD 25-H12 CNSC Staff Submission on NexGen Energy Ltd. Licence Application to Prepare Site and Construct the Rook I Project

Classification	Unclassified
Type of CMD	References
CMD Number	CMD 25-H12.REF5
Original CMD	CMD 25-H12
Public hearing date	09-12 February 2026
SharePoint ID	QQQVZZNDK725-166150894-9662
Summary	This document contains documents referenced in the Environmental Assessment Report appended to 25-H12, to be placed on the Record for the proceeding.
Actions required	There are no actions requested of the Commission. This CMD is in support of the actions and recommendations set out in CNSC staff CMD 25-H12.

CMD 25-H12-REF5 Soumission par le personnel de la CCSN

Références liées 5 au CMD 25-H12 Soumission par le personnel de la CCSN la demande de permis de préparation de l'emplacement et de construction du projet de Rook I présentée par NexGen Energy Ltd.

Classification	NON CLASSIFIÉ
Type de CMD	Références
Numéro de CMD	CMD 25-H12.REF5
CMD Original	CMD 25-H12
Date de l'audience	09 au 12 février 2026
SharePoint ID	QQQVZZNDK725-166150894-9662
Résumé	Ce document contient les documents cités dans le rapport d'évaluation environnementale annexé à 25-H12, qui seront versés au dossier de l'instance.
Mesures requises	Aucune mesure n'est requise de la Commission. Le présent CMD appuie les mesures et les recommandations énoncées dans le CMD CMD 25-H12 du personnel de la CCSN.

CMD 25-H12-REF5

Reference Package 5 for CMD 25-H12 CNSC Staff Submission on NexGen Energy Ltd. Licence Application to Prepare Site and Construct the Rook I Project

Signed by: 2026-01-09

X DBeaton

Signed by: Beaton, Dana

Dana Beaton
Director General, DERPA

Written Submission from

Ya'thi Néné Land and Resource Office

In the Matter of;

NexGen Energy Ltd. Rook I Project Description

Garrett Schmidt

Executive Director

Ya'thi Néné Land and Resource Office

Saskatoon, SK

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Introduction

The Ya'thi Néné Land and Resource Office (Ya'thi Néné), on behalf of the Athabasca First Nations of Black Lake, Fond du Lac and Hatchet Lake, and the municipalities of Camsell Portage, Stony Rapids, Uranium City, and Wollaston Lake, have reviewed the Rook I Project, *Project Description*, as submitted by NexGen Energy Ltd. A summary of comments pertaining to the *Project Description* is contained within the document below. By participating in the *Project Description* review, Ya'thi Néné expects to begin building a positive and long-lasting relationship with NexGen Energy Ltd and looks forward to collaborating throughout the lifecycle of this project.

Ya'thi Néné is well informed regarding resource extraction and energy projects located throughout our Traditional Territory in the Athabasca Basin. The organization is mandated to be the interface between industry and community. We interact with various stakeholders and industries to understand and participate in a multitude of current and future projects occurring throughout the Athabasca Basin.

Comments

Section 2.0

2.4 Water Management

The sustainable and responsible use of water resources should be a top priority for NexGen when operating the Rook I Project site. Residents use the multiple lakes, ponds, and rivers for a variety of purposes and highly value the environmental protection of water. Community members will want to be assured that water resources are safe and respected. All efforts should be made to design a water management system that minimizes fresh water intake by reusing and recycling water on-site whenever possible. Additionally, it is important to closely monitor groundwater and the release of effluent from any site related activity back into the environment. Effluent must be properly treated and tested before release. All monitoring results should be made available and regularly reviewed with Athabasca Basin communities.

2.7 Waste Management

The Project as currently identified includes both on-site and off-site disposal of the identified waste streams expected to be generated as part of the Project. Due to the remoteness of the site, it is encouraged that NexGen will recycle and reuse as many materials as possible during all phases of the operation. Waste management programs will decrease the amount of materials going to a landfill or dump site, while also decreasing the environmental footprint of the Project.

The Underground Tailings Management Facility will be a topic of interest for members of the Athabasca Basin, as tailings management methods can pose significant environmental concerns. Ya'thi Néné looks forward to learning more about the proposed tailings management facility of the Rook I Project site.

2.8 Human Resources

"NexGen will focus on maximizing employment of a local workforce, derived from northern Saskatchewan" (NexGen Energy Ltd., 2019). It is highly recommended that NexGen make a proactive commitment of hiring a certain percentage of its workforce from the Athabasca Basin communities during all phases of the project lifecycle. Effective training and education programs will positively benefit all organizations involved in the Rook I Project.

2.9 Project Decommissioning and Closure

In order to achieve effective decommissioning and closure of the Rook I Project, the end of state conditions must be reflective of pre-disturbance conditions and meet designated land use objectives. This process will only occur though proactive engagement and communication with local land users, and the development of the decommissioning plan that has been written in collaboration with all potentially impacted groups. Traditional land users from the Athabasca Basin will have valuable insights when developing a plan to return the site to a state free of access restrictions and suitable for recreational and traditional land uses.

Section 3.0

3.1 Regional Environmental Studies

It should be noted that the Rook I Project site will also be subject to the CNSC's Independent Environmental Monitoring Program. The information obtained from these monitoring programs help Ya'thi Néné inform community members of environmental activity and associated monitoring at various Project sites. Athabasca Basin traditional land users will want to participate in the environmental monitoring programs and community members will want to be informed of results.

Section 4.0

4.2.3 Surface Water and Aquatic Environment

Many Athabasca Basin community members are traditional land users that rely on hunting, fishing and trapping to support their families and communities. Protection of the ecological systems that support traditional land use is critical.

4.2.4 Terrestrial Environment

It is recommended that NexGen proactively plan to optimize the footprint of the Rook I Project site to reduce its impact on the terrestrial environment. Efficient planning to optimize the movement of heavy vehicles and equipment will help in reducing the footprint of the site.

4.2.7 Socio-Economic Environment

"Potential effects from the Project to the socio-economic environment will likely be assessed through predicting positive and negative changes to a number of components such as employment, training, economic development and community services" (NexGen Energy Ltd., 2019). NexGen should contract local or community owned businesses for services and employ residents from the Athabasca Basin with defined employment objectives. There are many positive socio-economic opportunities that come with

a new uranium mine site development, and Ya'thi Néné anticipates to see as many of these benefits made available to local/community owned businesses and residents as possible.

Section 5.0

5.1 Regulatory Engagement

The exploration program completed to-date has been subject to regulation and permitting under the authority of the Government of Saskatchewan. NexGen appears to be progressing through the proper regulatory channels with regards to the Rook I Project, and according to Table 5.1-1: *Summary of NexGen Regulatory Engagement Activities To-Date* (NexGen Energy Ltd., 2019), has been engaging with a variety of provincial ministries and agencies.

The anticipated process of regulatory engagement going forward involves written correspondence, meetings, workshops and guided site tours. This process should continue throughout the various development phases of the project.

5.2 Indigenous Engagement

The Rook I Project site is located within the traditional Treaty 8 territory of the Fond du Lac First Nation and Black Lake First Nation. As part of a Collaboration Agreement, Ya'thi Néné works with both Fond du Lac and Black Lake as well as other northern communities (Hatchet Lake First Nation [Treaty 10], Uranium City, Camsell Portage, Stony Rapids and Wollaston Lake) on a variety of environmental and socio-economic projects. As such, Ya'thi Néné requests to be formally engaged on all aspects of the Rook I Project as there will be direct impacts to communities located within the Athabasca Basin.

Section 5.2 Indigenous Engagement states, "NexGen is committed to conducting meaningful engagement with Indigenous communities potentially affected by, or with expressed interest in the Project and to maintaining relationships with these communities throughout all phases of the Project" (NexGen Energy Ltd., 2019). It is encouraging to see positive statements such as this, but to accomplish meaningful engagement there needs to be a well-established plan with clearly defined goals and commitments that are mutually agreed upon between NexGen and the Athabasca Basin communities.

"It is critical that exploration companies respect and value the relationship Indigenous peoples have with the environment, the rights of Indigenous peoples with respect to the land, and recognize the importance of full and open discussion with interested or effected Indigenous communities regarding the development, operation and decommissioning of the Project" (NexGen Energy Ltd., 2019). Achieving the following engagement objectives will encourage a positive path forward for the Rook 1 Project;

1. Develop sustainable relationships with the Athabasca communities based on trust and respect;
    - Trust and respect are developed over time. It is encouraging to see that NexGen has been proactive in engaging with various Indigenous groups but disappointing that minimal to no

engagement has occurred with the Athabasca communities especially since the proposed project site is within the Traditional Territory of the Athabasca Denesuline. Ya'thi Néné expects the relationship between the Athabasca Basin communities and NexGen will grow and evolve as the Project advances.

2. Clear communication using appropriate language and approved formats;
    - Being honest and accommodating with communication will benefit NexGen's engagement strategies and relationships.
    - Translation of this information into a form that is effectively understood by community members will be important.

3. Provide Athabasca Basin communities with proactive and accurate information on the Project including information about potential environmental effects and monitoring results, training and employment opportunities and business development opportunities for all phases of the Project;
    - Ya'thi Néné has the capacity to assist in achieving this objective and can work closely with NexGen to develop and deliver information in a form that will be most appropriate.

4. Understand how the proposed development of the Project may impact Indigenous peoples' ability to use the land for hunting, fishing, trapping;
    - Concerns regarding these topics should become evident as early engagement activities occur. Ya'thi Néné expects continued conversations regarding these topics throughout the duration of the project. It will be beneficial to have up-to-date monitoring reports and information available to present and share during community engagement meetings. Ya'thi Néné would also recommend NexGen representatives be available for community meetings. Members will have questions for company representatives and will appreciate NexGen representatives visiting the communities. Ya'thi Néné will be available to help organize, prepare and guide these interactions.

5.2.1 Identified Communities

NexGen has developed a list of communities identified for engagement throughout the project. This list of communities is outlined in 'Table 5.2-1: Indigenous Groups Identified in Relation to the Rook I Project' (NexGen Energy Ltd., 2019). The communities outlined on the list have already been engaged with in some aspect and have expressed interest in continual follow-up. The environmental, social, and economical (both positive and negative) impacts of this project are wide reaching and will impact numerous communities throughout Northern Saskatchewan and particularly within the Athabasca Basin. For this reason, Ya'thi Néné expects NexGen to develop a presence and relationship with Athabasca Basin communities, and to increase engagement efforts with these communities.

5.2.3 Indigenous Engagement Plan

NexGen has developed an engagement plan specific to the Project and the Environmental Assessment process. The proposed Indigenous Engagement Plan follows a relatively standard approach and should accomplish most of the objectives as outlined by NexGen. Ya'thi Néné would recommend that a high degree of flexibility be maintained throughout the duration of the engagement process, as timelines and deliverables may change depending on feedback and insights provided from community leadership and members.

5.2.3 Capacity Funding to Support Engagement

Funding opportunities need to be clearly communicated and widely promoted, particularly to impacted communities. Additionally, there should be a relatively flexible period of time to accept applications and funding proposals.

The availability of funding to support land use studies, technical reviews, community workshops, and continued engagement will be beneficial for supporting a long lasting, and positive relationship between NexGen, industry regulators and the Athabasca Basin communities.

Closing Remarks

The NexGen Rook I Project is located within the Traditional Territory of the Athabasca Denesuline. Ya'thi Néné looks forward to building and maintaining a positive relationship with NexGen Energy Ltd. as the project continues to develop. We appreciate the opportunity to review and provide comments on the Rook I Project Description and participate early in the Environmental Assessment development and Indigenous engagement process. Such engagement opportunities are critical to ensure the consistent and timely flow of information from proponents to communities. Ya'thi Néné highly values knowledge sharing and meaningful engagement as it is essential to ensure our community members are meaningfully informed.

Works Cited

NexGen Energy Ltd. (2019). *Rook I Project.* Saskatoon : NexGen Energy Ltd.

CASSELS BROCK
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June 20, 2019

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Nicole Frigault
Environmental Assessment Specialist, Technical Support Branch
Canadian Nuclear Safety Commission / Government of Canada

Dear Nicole Frigault:

Re: Comments on NexGen Energy Ltd. Project Description

On behalf of Métis Nation - Saskatchewan - Northern Region II and the Métis Nation – Saskatchewan ("MNS"), I would like to thank you for reviewing our concerns set out in this letter. As you may be aware, the MNS is different from other Indigenous governments. As the democratically constituted representative for the Métis in Saskatchewan, the MNS may require additional time and engagement through the consultation process. MNS has a unique relationship with Canada which has been recognized in a number of relevant and important documents, including the July 20, 2018 Framework Agreement for Advancing Reconciliation between Métis Nation - Saskatchewan and Canada.

The MNS has, at present, significant concerns regarding the Rook I Project ("Project"), and seeks to be fully engaged throughout the federal and provincial EA processes. The Project is occurring on Métis lands which are the subject of a land claim. Canada agreed to address this land claim in the July 20, 2018 Framework Agreement for Advancing Reconciliation. Given the importance of these lands to MNS Citizens, and Canada's express commitments made less than one year ago, we encourage you and the proponent to work cooperatively with MNS with the objective of achieving MNS's consent for any development.

Full engagement must also include, but is not limited to, being provided sufficient time to engage with MNS Citizens on matters brought forward by NexGen Energy Ltd. ("NexGen") and the Crown, and the allocation of appropriate capacity funding.

Our initial comments on the Rook I Project Description dated April 2019 ("Project Description") are below. The MNS expects to be engaged throughout this regulatory process, including through opportunities to review and reply to responses from NexGen.

A. Technical Proposal under The Environmental Assessment Act

Section 1.1 of the Project Description states that it is being provided as the Technical Proposal for the *Environmental Assessment Act*. We have not conducted a full review, but note that the Project Description does not appear to satisfy the Technical Proposal Guidelines ("Guidelines"). In particular we note:

a. The Project Description does not appear to include ***examples*** of how best management practices will be incorporated into construction, operation, and decommissioning, as required by the Guidelines. Please outline the relevant management best practices and identify the example of how they will be incorporated. Responses must go beyond simply asserting that activities will be conducted in accordance with best management practices.

b. The Project Description does not satisfactorily address cumulative impacts as described in the Guidelines. We note in particular that, to our understanding, this is one of several proposed mines in a small local area.

c. The Project Description does not satisfactorily identify all possible environmental impacts and measures planned to reduce or avoid these impacts as described in the Guidelines.

d. The Project Description does not outline negative impacts on social or economic factors, as described in the Guidelines.

e. Generally, the Project Description appears to be deficient as against the various requirements of the Guidelines. The MNS is prepared to identify additional deficiencies as against the Guidelines if requested.

B. Prescribed Information for the Description of a Designated Project Regulations

Section 1.1 of the Project Description states that it contains all of the information prescribed in the *Prescribed Information for the Description of a Designated Project Regulations* ("Regulations"). We have not conducted a full review, but note that the Project Description does not appear to satisfy the Regulations. In particular we note:

a. Regulations Section 3 requires a description of, and the results of, any consultations undertaken with Aboriginal peoples. As drafted, the Project Description does not clearly communicate how consultation will be conducted, other than stating that "NexGen's approach to engagement is not intended to replace the government's duty to consult obligations". NexGen has identified that they have engaged with a number of communities, but have had very limited engagement with Northern Region II, which is the democratically elected representative of the MNS Citizens in the area of the Project. NexGen's scattershot approach undermines the value of "engagement" and raises questions about whether consultation has occurred. Canadian courts have repeatedly emphasized the importance of consultation being conducted in a forthright manner. We consider the CNSC to be the Crown entity responsible for duty to consult, and if any of this responsibility is assigned to the proponent we must be made aware of the nature and scope of this assignment.

b. Regulation 12(d) requires a description of the Project's proximity to traditional territories. NexGen has not provided such disclosure, mentioning only in Table 5.2-1 that there is "potential overlap with traditional territory" for a number of

Métis Locals. This lacks the specificity required in Regulation 12(d), and fails to appropriately recognize that the relevant traditional territory should not be considered in respect of a single local, but in respect of the MNS and MNS Citizens as a whole.

c. Regulation 17 requires a description of any changes that may be caused to fish and fish habitat, aquatic species, and migratory birds. No such description is provided.

d. Regulation 18 requires a description of any changes to the environment that may occur on federal lands outside of the province. Potential effects to federal lands due to the migration of airborne and waterborne waste and tailings has not been identified.

e. Regulation 19 requires information on the effects on Aboriginal peoples of any changes to the environment that may be caused as a result of carrying out the Project, including effects on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. NexGen has not satisfied this requirement.

C. General

The following comments are not specific to any section of the Project Description, but should be considered in relation to the Project Description as a whole.

a. NexGen incorrectly refers to the Métis Nation - Saskatchewan – Northern Region II as Métis Nation of Saskatchewan – Region 2.

b. To understand Project impacts to MNS Citizens, NexGen must recognize and describe in the Project Description the Métis value of Connectivity, arising from Indigenous and natural law, and its role in the spiritual, social, cultural, legal, and economic nature of Indigenous decision-making.

c. To conduct an effective review of the Project, NexGen must acknowledge the historic adverse effects of mining on Indigenous peoples, including on Indigenous rights and lands, Indigenous culture, Indigenous health and safety, and Indigenous governance. NexGen must also recognize the effects that colonialism, and colonial mining practices specifically, have had in advancing Canada's cultural genocide against Indigenous peoples, including MNS Citizens.

d. To properly understanding the impacts to MNS Citizens, NexGen must recognize that the Project area belongs to the MNS and is the subject of a land claim which Canada has recently agreed to address.

e. NexGen does not articulate the duty to consult and accommodate within the Project Description. The duty to consult and accommodate is a constitutional obligation on the Crown and cannot be avoided. Effective consultation requires seeking to address Indigenous concerns, and must contemplate acceptable accommodation.

D. Specific Comments

We note the following challenges and deficiencies in the Project Description as set out below.

a. Reference is made in Section 1.2 to the Project residing in Treaty 8 territory, however the Project Description should also identify that the Project is located within the traditional territory of the MNS and is subject to a land claim which Canada has agreed to address.

b. Greater detail should be provided with regard to the 24-year operating period referred to in Section 1.2. It is not clear if 24 years represents the full period of construction, extraction, and reclamation, or some other period. NexGen should ensure that its disclosure is consistent with its NI 43-101 report which describes a 9 year period of extraction.

c. Section 1.4 refers to the need and benefits related to nuclear fuel. This description is biased, referring to international benefits while omitting international existential threats posed by the use of nuclear fuel, and the catastrophic long term regional effects potentially caused by the storage and release of hazardous materials.

d. In describing the Environmental Assessment and Regulatory Requirements in Section 1.5, NexGen must reference the relevance of the following legislation, law, and relevant principles:

    i. Section 35 of the *Constitution Act, 1982*;

    ii. *R. v Powley*, 2003 SCC 43;

    iii. *Daniels v. Canada (Indian Affairs and Northern Development)*, 2016 SCC 12;

    iv. *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73;

    v. The United Nations Declaration on the Rights of Indigenous Peoples;

    vi. July 20, 2018 Framework Agreement for Advancing Reconciliation between Métis Nation - Saskatchewan and Canada;

    vii. Call to Action #92 from *Truth and Reconciliation Commission of Canada: Calls to Action*; and

    viii. Calls for Justice #4.2, 13.1, 13.2, & 13.5 from *Reclaiming Power and Place: The Final Report of the National Inquiry into Missing and Murdered Indigenous Women and Girls*.

e. Please explain why CEAA 2012 is the appropriate framework for assessing the Project given the pending implementation of Bill C-69. Please also explain how the honour of the Crown can be maintained by proceeding with CEAA 2012, given the protections for Indigenous peoples under Bill C-69.

f. Please explain how NexGen will alter its engagement process and regulatory approach if Bill C-262 is passed, which requires that all Canadian laws be brought into conformance with the United Nations Declaration on the Rights of Indigenous Peoples, and why such steps are not being adopted at this time.

g. The objectives in Section 2.0 must be expanded to:

    i. identify and prevent adverse effects to Métis rights and interests, and to implement accommodation measures agreed to with MNS where adverse effects cannot be prevented;

    ii. maximize benefits from the Project for section 35 rights holders with traditional territories overlapping with the Project, through negotiations aimed at achieving the consent of the Indigenous party;

    iii. replace language which appears to prioritize the interests of non-rights holders, including non-Canadians, ahead of section 35 *Constitution Act, 1982* rights holders who are also significantly more likely to experience the adverse effects of the Project:

        1. [original] “maximize the value of the Project for all shareholders by reducing operating and capital costs necessary to achieve safe production without compromising any of the objectives outlined above.”

        2. [new] “maximize the value of the Project for all shareholders and impacted Section 35 rights holders by, where appropriate, reducing operating and capital costs necessary to achieve safe production without compromising any of the objectives outlined above, recognizing that Indigenous peoples have a right to choose how their traditional territories are used and to meaningfully share in the resource wealth of their traditional territories.”

h. Section 2.3.2.2 notes that the Project is anticipated to have a life of 24 years. NexGen must, in its assessment, consider potential impacts of longer and shorter operational lifespans, including in the context of factors such as:

    i. increased birthrates among Métis Citizens as compared to other Canadians;

    ii. the potential for the Project to prompt the development of infrastructure through Métis traditional territory, including electrical transmission works, roads, rail, and airports, including the potential impact of such works; and

    iii. the impact on MNS’s right to self-government and capacity to limit or encourage future development within the Métis traditional territory.

i. Section 2.4 states that runoff prevention will be prepared for a 1:100 year storm event. Please explain:
    i. how the 1:100 year flood was calculated;
    ii. how such prevention will manage a flood that is greater in magnitude than a 1:100 year flood;
    iii. why 1:100 is an appropriate measurement, given the importance of the area to MNS Citizens and the movement of culturally harvested species through the Project area;
    iv. what is the methodology for incorporating changes to the 1:100 year event stemming from the range of anticipated climate change scenarios;
    v. how NexGen will consider the significant effects of climate change when evaluating the potential flood risk, throughout the life of the Project as projected and as may be further extended as a result of changing prices, technology, and resource definition; and
    vi. what methodology is proposed to continually refine the model, and to modify the surface runoff regime if needed?

j. NexGen must consider the impact of additional truck traffic, including on dust, wildlife, visual values of land to Métis Citizens, and the Métis sense of place and territory, as well as the risk for potential accidents and releases of materials during transport.

k. NexGen must consider the impact of low level flights in and out of the Project's airstrip on wildlife, the visual values of the land to Métis Citizens, and the Métis sense of place and territory.

l. Reference is made in Section 3.8.1 to treaties, but the Project Description does not identify how Métis traditional land use and resource use has been identified.

m. The Project Description provides no description of the history the Métis Nation in Saskatchewan or the MNS.

n. The Project Description incorrectly states that the nearest Indigenous community is approximately 150 km south of the Project, while also identifying that the Métis of Descharme Lake are located within 75 km of the Project.

o. Reference is made in 3.8.2 to recreational and commercial fishing, but not to food, social, and ceremonial harvesting and uses of fish, including as may be protected as Section 35 *Constitution Act, 1982* Aboriginal rights.

p. Under Section 2.8, NexGen must ensure that its Human Resources and Development Program:
    i. includes a requirement that all Project employees and contractors complete awareness training on Indigenous cultures, including Métis culture;

ii. addresses systemic disparities and obstacles experienced by Métis peoples, including a legacy of cultural genocide in Canada;

iii. is developed, periodically reviewed, and updated in collaboration with MNS, so as to reflect Métis values, interests, and concerns; and

iv. promotes opportunities and equity for Métis peoples, including in relation to employment and training opportunities, promotion opportunities, and fair representation of MNS Citizens among Project senior managers.

q. NexGen must include the MNS in all discussions, processes, and decisions relating to tailings management throughout the life of the Project and afterwards.

r. NexGen should work with the MNS to prepare a comprehensive study of the socio-economic effects of the Cluff Lake mine, as this information will be relevant to understanding the potential effects of the Project.

s. To better understand the potential effects of the Project, NexGen must disclose in Section 3.2.1 anticipated changes to the climate over the life of the Project and for as long as toxic waste or other pollutants remain within the Project area.

t. Noise, air quality, and light testing described in Section 3.2.2, 3.2.3, and 3.2.4 are based on existing circumstances, including ongoing activities which were authorized prior to the Crown's duty to consult being meaningfully articulated and enforceable. Noise and air quality values should be amended to recognize that higher standards for Indigenous engagement and the pursuit of Indigenous consent will result in fewer project approvals, and together with the declining lifespan of existing activities, will result in an improving "base rate" over the coming decades.

u. Section 3.6 should be expanded to identify how NexGen intends to address forest fire risks, how forest fire suppression activities around the Project could impact local ecosystems, and the risk of promoting catastrophic forest fires within the MNS traditional territory.

v. Section 3.6.2 should identify the need to consider cumulative effects on caribou populations and other relevant species, and to assess causes of significant species declines where applicable.

w. NexGen should disclose how it will work with the MNS to review and assess the adequacy of cultural resource studies. NexGen must also be forthright in acknowledging that only MNS can appropriately assess cultural resources.

x. Section 3.8.2 must refer to other cultural activities, including spiritual activities, camping and cultural teachings, instruction, and mentorship.

y. The statement in Section 3.8.2 that "there are no communities located in the immediate vicinity of the Project": appears to be based on colonial concepts of land use and proximity; marginalizes Métis perceptions of community areas and land use areas; and is not an objectively true statement.

z. Section 3.9.2 identifies infrastructure and services. To provide context, NexGen must also describe outcomes to capture the effectiveness, adequacy, and pressure on infrastructure and services, including education outcomes, health outcomes, emergency service outcomes, transportation outcomes, and economic outcomes. While NexGen does identify housing outcomes, it must incorporate this information into each relevant step of the Project impact assessment.

aa. Section 3.9.3 lacks a description of the presence and role of the traditional economies within communities, including Métis traditional economies.

bb. Section 3.9.3 fails to provide relevant information regarding:

i. economic capacity;

ii. local skills and skills capacity;

iii. rates of poverty and economic stress;

iv. representation of Indigenous peoples, including Métis specifically, in management, leadership and high-compensation employment roles;

v. economic marginalization and systemic discrimination experienced by Indigenous peoples, including Métis specifically;

vi. resources available to Indigenous entrepreneurs, including Métis specifically, the existence of systemic discrimination in the allocation of resources, including financial resources, and the ability for Métis entrepreneurs to access financial resources; and

vii. the disparate treatment of, and resources made available to, Métis peoples and those Aboriginal peoples included in the *Indian Act,* by Canada and Saskatchewan.

cc. We note that the potential areas of concern identified for the Project in Section 4.1 should be expanded to include:

i. effects on wildlife, including caribou, migratory bird species, and other animals with cultural significance to the Métis;

ii. effects on fish;

iii. effects on heritage resources;

iv. effects on the ability to fully exercise the Métis right of self-government;

v. effects on Métis sense of place, particularly in the context of the risk of very long term environmental contamination and perceived risks and heightened stress within Métis communities as a consequence of uranium mining activities;

vi. effects on Métis Aboriginal title, including as a consequence of permanently altering lands subject to an Aboriginal title claim and the long term storage of hazardous materials therein;

vii. the use and storage of materials, fuel and waste, including long-term storage after the closure of the Project; and

viii. effects on climate and the acceleration of the climate emergency.

dd. Section 4.2.4 makes reference to land clearing and construction, but does not appropriately identify terrestrial changes as a result of the placement of waste rock, including how the structure and grade of such materials may impact wildlife, traditional land use, and the Métis sense of place.

ee. Section 4.2.4 does not appropriately identify impacts to psychological health, including as may be impacted by the perceived risks of radioactive materials on lands, foods, family and community members, the exercise of spiritual and cultural practices, and on the Métis sense of place.

ff. Section 4.7.2 identifies uses of "water, plants, animals, and other biophysical properties" but lacks a clear reference to the cultural significance of the lands themselves.

gg. Section 4.7.2 suggests that socio-economic effects will likely be assessed through positive and negative changes to employment, training, economic development, and community services. This is an incomplete approach that appears to bias the analysis in favour of outcomes correlated with resource development. An analysis of impacts to the socio-economic environment must consider the potential impacts of the Project on:

i. family structures and the communication and conveyance of cultural values between generations, including traditional knowledge keeping;

ii. Indigenous women, girls, and 2SLGBTQQIA individuals (including in contemplation of The Final Report of the National Inquiry into Missing and Murdered Indigenous Women and Girls);

iii. the elderly, including their role and position in Métis society and potential risks of elder violence;

iv. the right of MNS Citizens to benefit from resources on their lands, the economic consequences of resources being extracted prior to the resolution of the Métis claim to Aboriginal title, and the right for MNS to choose how and when resources on Aboriginal title lands will be extracted once its claim to Aboriginal title is resolved;

v. educational outcomes, including for Métis youth;

vi. the migration of peoples and the potential dilution of a Métis voice;

vii. public safety and the adequacy of resources (including crime and violence, access to justice, and resources for both victims and perpetrators of crimes);

viii. addiction and mental health;

ix. experiences of racial and cultural prejudice and violence;

x. physical health and diet;

xi. Métis sense of place; and

xii. the legacy of abuse and cultural genocide perpetuated against Métis peoples (including as referred to in the Final Report of the Truth and Reconciliation Commission).

hh. Section 4.3 should explicitly include, at all steps, engagement with the MNS through a process which provides appropriate resources for the MNS to engage the Métis community, technical experts, and other necessary administrative and legal support.

ii. NexGen's reference in Section 5.0 referring to all communities, residents, businesses, organizations, and land users as "stakeholders" is inappropriate. The Métis are not "stakeholders". They are peoples holding constitutionally protected rights across their traditional territory, and represented by the MNS. Grouping Métis with "stakeholders" misrepresents the unique Nation-to-Nation relationship between Canada and the MNS.

jj. NexGen's statement in Section 5.0 that "[s]ince exploration commenced in 2013, NexGen has undertaken to meet regularly with identified stakeholders" is misleading, and conflates stakeholders with constitutionally protected rights holding peoples. A review of Table 5.2-2 shows that engagement has been mostly limited to the most recent two years, and only two meetings have been held with Métis Nation - Saskatchewan – Northern Region II, the designated consultation representative for locally impacted MNS Citizens.

kk. Section 5.2 states that NexGen has prepared an Indigenous Engagement Report. We request a copy of this report and may provide additional comments.

ll. Section 5.2 does not reference other relevant rights of the Métis, including the right of self government and the claimed Métis right to Aboriginal title.

mm. Section 5.2 must include an objective of working with the MNS to identify, discuss, and agree upon accommodation measures.

nn. Section 5.2.1 should include, as an indicia of a relevant community, the existence of agreements with Canada, such as the Framework Agreement for Advancing Reconciliation, dated July 20, 2018 and entered into between the Métis Nation - Saskatchewan and Her Majesty the Queen in Right of Canada.

oo. Section 5.2.1 refers to the Comprehensive Study Report for the Cluff Lake Decommissioning project. We note that this study predates the Supreme Court of Canada's decisions in *R v Powley* and *Daniels*, which are both relevant to understanding the rights of Métis peoples.

pp. Table 2.2-1 contains a number of Métis Locals, but does not contain Métis Nation - Saskatchewan – Northern Region II, which is the relevant section of the Métis

Nation - Saskatchewan authorized to consult with NexGen. NexGen needs to work with Métis Nation - Saskatchewan – Northern Region II, which represents Métis peoples in the Project region, including those in each identified local.

qq. Figure 5.2-2 provides CNSC's consultation activity spectrum. Please advise whether a strength of claim assessment has been prepared and will be shared with the MNS.

rr. NexGen should include rights recognition language, including the words used in the statement of Prime Minister Justin Trudeau: "*For too long, Indigenous peoples have had to prove their rights exist and fight to have them fully recognized and implemented*." NexGen should also incorporate reference to the Prime Minister's commitment to respect "*the inherent right of self-government – and move towards a Canada where Indigenous peoples thrive and have full control over their lives and their future.*"

ss. The MNS faces ongoing challenges resourcing consultation, particularly as consultation requirements grow. As part of capacity outlined in Section 5.2.3, NexGen must also provide reasonable capacity funding that recognizes the significance of the Project and the desire of the MNS to fully engage with the associated regulatory process. The MNS also requires funding for legal support, as it works to identify and express its rights-based concerns, represent each of the Locals identified by NexGen (and all other Métis), and to understand and mobilize to effectively engage with a process that NexGen has had years to formulate

tt. Section 5.2.3 identifies an "engagement plan". MNS must be provided with the engagement plan and provided the opportunities and resources necessary to review and respond with concerns.

uu. Section 5.2.3 must include a process whereby MNS can review and comment on any meeting minutes promptly following the meeting, so as to avoid any misrepresentation.

vv. NexGen must describe how it will identify rights-based concerns raised by MNS Citizens and collected through the public engagement process (rather than directly from MNS), so as to ensure that they are appropriately communicated to MNS, and where endorsed by MNS, considered and accommodated by NexGen and Canada.

ww. In Table 5.2-3, NexGen states that in response to a question regarding Impact Benefits Agreement, NexGen stated that it is not in a position to discuss formal agreements at this point in time. NexGen should update this response to reflect its letter of June 4, 2019 which proposed discussions regarding Impact Benefit Agreements.

E. Amended Submission

Attached hereto is an amended submission for consideration, previously shared by MNS.

F. Responses

MNS looks forward to reviewing responses to its concerns outlined above and to reviewing the amended Project Description.

Yours truly,

Arend J.A. Hoekstra

Submission to the Canadian Nuclear Safety Commission and Saskatchewan Ministry of the Environment re: NexGen Rook 1 Project

Submitted by: NexGen Energy Ltd.

Reference Document: Rook 1 Project, Project Description, April 2019
Submitted by Metis Nation of Saskatchewan

Introduction

The Metis Nation of Saskatchewan (MN-S) is comprised of several regions and locals all falling under the jurisdiction of provincial governance. MN-S is a governing member of the Metis National Council, along with Metis Nation British Columbia, Metis Nation of Alberta, Manitoba Metis Federation and the Metis Nation of Ontario.

Citizens of MN-S have a unique culture that has evolved from people of North American Indian and European ancestry who coalesced into a distinct nation in the northwest in the late 18th century. “Historic Métis Nation Homeland” means the area of land in west central North America used and occupied as the traditional territory of the Métis or Half-Breeds as they were then known. The MN-S includes values of both rural and urban citizens. Citizenship is predicated on individuals demonstrating this genealogy and cultural connection to that time and place and is governed by MN-S through the citizenship registry.

Under Section 35 of the *Constitution Act 1982*, Citizens of MN-S are defined as Indigenous. This confers all respective rights and obligations as defined therein to MN-S as a Rights Bearing Nation and to the Crown and/or it’s agents. The Framework Agreement for Advancing Reconciliation was executed between the Metis Nation - Saskatchewan and the Crown on July 20, 2018 and defines that the parties may address environmental assessment as a subject matter (section 2, subsection h page 11). The MN-S recognizes the Canadian Nuclear Assessment Agency as an agent of the Crown and therefore bound by the framework agreement.

The MN-S has available on its website guidelines and principles concerning engagement, consultation and accommodation (https://metisnationsk.com/land/#duty). These are summarized below:

- The fulfillment of the duty requires good faith on the part of all parties and consultations must be conducted in equitable, transparent and respectful manner.
- Timelines must be reasonable and provide sufficient opportunity for the Métis to review and assess the information provided by the Crown or industry.
- The Crown must recognize and support the unique capacity needs and realities of the Métis people and their elected governance structures.

- The Crown must provide the necessary funding/capacity to MN-S or ensure the necessary funding/capacity is provided to MN-S to engage with government and/or industry, as well as with Métis Citizens.
- Consultations must be with the Métis government structures that are elected and supported by the Métis Citizens. Consultations with individual Métis and Métis Locals, service delivery organizations, mayors and municipal councils, and pan-Aboriginal structures cannot discharge the duty owed to the Métis, as a rights–bearing people.
- Métis government has the responsibility to consult with its citizens and represent its citizens, not the Crown or industry.
- Métis consultation processes must provide all Métis Citizens and their representatives the opportunity to participate and be heard (i.e. public meetings, timely information, etc.)
- Ultimate decision-making with respect to consultation and accommodation must rest with the MN-S and its Citizens.

Our goals in providing this document are as follows:

- Provide a summary of engagement between MN-S and Nexgen
- Provide our project specific perspectives on Indigenous Knowledge and Protocols
- Provide an overview of project specific environmental concerns

Engagement with Nexgen

It is critical for the regulator and proponent to understand that unlike First Nations, where Section 35 rights stem from the individual First Nation which then may be part of a larger organization such as a Tribal Council, Metis Rights stem from the provincial body (MN-S) and are organized then to the regional and local levels. Both the Crown and proponent must engage with MN-S, through Métis Nation – Saskatchewan, Northern Region II, as the body representing Metis Rights under Section 35. We welcome a discussion regarding next steps in this process.

Indigenous Knowledge and Protocol

Present legislation and regulatory guidelines do not create a meaningful methodology to bring forth and properly consider Indigenous Knowledge with regards to projects subject to federal environmental assessments nor are these factors considered when developing and implementing environmental protection plans. This circumstance arises from a number of factors:

- Legislative gaps: As written and applied legislated standards do not consider Indigenous Knowledge. Two specific examples would be the gap in the provincial Heritage Property Act which may recognize Indigenous sites as having heritage resource value but does not require Indigenous participation or feedback in the desktop or field assessment of known sites, or in the field investigation of areas without known resources. Additionally, the Species at Risk Act especially as applied to rare plants does not consider species that are important to the Indigenous community. Under legislation, and environmental protection plan may ignore these culturally significant species.
- Indigenous Knowledge as accommodation: Traditionally the completion of Traditional Land Use studies has been done as a form of accommodation for impacted Nations and considered for accommodation. This principle is evident in the spirit and execution of Impact Benefit Agreements, where some set of impacts (often poorly defined) to Rights Holders is balanced by benefits to the Rights Holder as negotiated between the proponent and the Rights Holder.
- Indigenous Protocol: Ensuring projects are done 'the right way' is of high priority to Rights Holders. Recent projects have shown that Nations are much more comfortable with projects if there is an acceptance on behalf of the proponent to allow for and facilitate protocol as defined by the Nation. This activity also significantly builds trust between the proponent and the Rights Holder.

We acknowledge that from a regulatory point of view that our concerns are not addressed directly. MN-S asserts that they have a strong claim of interest in this project (CNSC REGDOC-3.3.2, page 86). We view this document as an opportunity to raise these points and work together with the proponent and regulator to come up with co-managed solutions. It is our opinion that the most effective way to ensure these outcomes is to fully participate in a CNSC environmental assessment of the project. We feel that an essential tool to fulfill the obligation of the MN-S to its citizens is to have an independent Traditional Land Use study completed prior to, or concurrent with work supporting an environmental assessment.

Project Specific Environmental Concerns

We have reviewed the project description and have the following comments. Note that we understand that this project description does not comprise a complete environmental assessment but we are hopeful that our comments help the regulator and proponent further scope the pending environmental assessment. These comments are predicated on the assumption that appropriate resourcing, through a capacity funding agreement, will be provided to the MN-S.

- Integration of Indigenous Knowledge and Protocols into the assessment plan: In most cases the approved environmental assessment forms the basis for the environmental protection plan for the project. Without the inclusion of Indigenous Knowledge and Protocols into the environmental assessment, there

is only the opportunity to have an environmental protection plan address these as an accommodation in an ad hoc manner.

- Our understanding is that baseline studies have already taken place. The MNS requests disclosure of these studies for our review and comment to inform the environmental assessment process and subsequent steps.
- MN-S requests that we are given the opportunity to assess from a technical point of view the following project specific scopes and plans (when available):
    - Traffic modeling and assessment
    - Spill response and event specific remediation
    - Integrated waste management plan
    - Emergency response procedures and planning
- As with other remote sites with poor instrumental record summaries for hydroclimatological data, the MNS has identified the need to gather and interpret baseline monitoring data as a key function to evaluate the performance of site models. We strongly feel that a meteorological station with real time reporting is warranted and should be in place as soon as possible.
- MN-S would like to know if the proponent is planning on installing cellular network coverage for the mine site, and if so, when this is anticipated.
- MN-S would like to request any and all information relevant to the protection of woodland caribou as pertains to present and planned site activities.
- MN-S requests any and all soil data for the site. We would also like to clarify whether permafrost may impact the surficial stability of the location over the short term or under accepted climate change scenarios.
- MN-S supports the integration of lower carbon emission power sources for this project.
- MN-S requests the opportunity to assess and comment on the site hydrological model for surface water and near surface groundwater as it pertains to site performance under expected conditions, extreme events and forecasted climate change scenarios.
- Given the significant gaps in legislation regarding Saskatchewan Heritage Resource Impact Assessments (HRIA), MN-S requests that an independently scoped HRIA assessment is completed. Although the provincial Heritage Conservation Branch has confirmed that not further work is required under legislation, MN-S strongly disputes this finding and notes that there was no engagement between the branch, Nexgen's agent CanNorth and the MNS who are the unique holders of cultural knowledge for the location.

Conclusion

We would like to thank the CNSC and the proponent in advance for their careful consideration of this submission. Our hope is to develop better relationships with each party and to work together in partnership to ensure the goals of every group are met

in an efficient and timely manner. We are always open to dialogue and engagement and invite formal or informal feedback.

We agree with the proponent that this project warrants a federal environmental assessment and meets the definition of a development under the guidelines of the Province of Saskatchewan. We look forward to collaborating on next steps.

Respectfully;

Reina Sinclair, Director of Environment Metis

Nation of Saskatchewan

Clearwater River Dene Nation

Comments on Project Description

NexGen Energy Ltd.'s Rook I Project

May 31, 2019

1.0 Introduction

This document provides the comments of Clearwater River Dene Nation ("CRDN") on NexGen Energy Ltd.'s project description (the "Project Description") for the Rook I Project (the "Project") as requested by the Canadian Nuclear Safety Commission ("CNSC").

The Rook I Project (Project) is a proposed new uranium mining and milling operation that is 100% owned by NexGen Energy Ltd. (NexGen). It is located adjacent to Patterson Lake in the southern Athabasca Basin in northern Saskatchewan approximately 155 km north of the town of La Loche, 80 km south of the former Cluff Lake Mine site (currently in decommissioning) and 640 km by air north west of Saskatoon. The mineral resource basis for the proposed Project is the Arrow deposit, a land-based, 100% basement hosted high grade uranium deposit.

The Project includes underground and surface facilities to support the mining and processing of uranium ore from the Arrow deposit. The main components included in the scope of the Project for environmental assessment purposes, include:

- underground mine development;
- an on-site mill to process an average of 1,400 tonnes of ore per day;
- surface facilities to support the short and long-term storage of waste rock and ore;
- an underground tailings management facility (UGTMF);
- water handling infrastructure and an effluent treatment circuit with associated treated effluent discharge; and
- additional infrastructure that will include a camp for personnel, an airstrip and supporting waste and water management facilities, a maintenance shop, warehouse, and offices.

In providing these comments, CRDN acknowledges that a project description is not a substitute for an environmental impact statement, which will be required for this Project, and which must provide detailed information regarding potential impacts to the environment and on CRDN's use of land and resources. However, a project description

is required so that Crown regulators and First Nations like CRDN may understand the scope and potential impacts of the project, so that parties can determine the issues that must be considered through an environmental assessment. CRDN's view is that this Project Description fails to provide sufficient information for CRDN and for Regulators to understand, at this preliminary stage, the types of impacts that may occur to CRDN, in particular the potential for the Project to impact the exercise of CRDN's Treaty 8 rights.

This Project is a significant development in an area proximate to CRDN's community, and will impose large scale and long lasting restrictions on the ability to CRDN members to continue to rely on land and resources within this area of its traditional territory. Despite this, the Project Description fails to provide any information on the traditional resources currently available in this area, and does not provide information on effects that may occur as a result of the Project. CRDN is concerned that these omissions are intended to obscure the potential for this Project to impact on the exercise of their members' Treaty 8 rights and unduly narrow the scope of issues to be considered by the CNSC as this assessment proceeds. Below, we set out comments on the Project Description, and we have provided background information on CRDN and the exercise of our Treaty 8 rights, to supplement the Project Description. We ask that the CNSC engage with our community as it proceeds to propose the scope of issues to be considered in this assessment.

2.0 Clearwater River Dene Background

By way of background, the CRDN are a Dene speaking people. At the time of contact our ancestors were present, occupying, utilizing and in possession of a large swath of land centered on the Clearwater River watershed and the Patterson Lake area and extending north from Patterson Lake to areas within the Carswell and Old Fort Rivers watersheds.

As part of our usual practices carried out before and at the time of the signing the Treaty 8, our ancestors hunted, trapped, harvested and fished a wide range of animal, bird, fish and plant species for subsistence, and for cultural, economic trade social and spiritual needs. Certain species and plants were of greater significance to fulfill these needs, but all species and plants were important to our way of life.

Whitefish Lake, now called Garson Lake, was already an old established Dene village of 50 people in 1880. On August 4, 1899 the residents were gathered in Fort McMurray and selected Adam Boucher as headman to represent them in the signing of Treaty 8.

The descendants of this group from Garson Lake became known as the Portage La Loche Band. At the La Loche Mission in 1907 these families asked that treaty payments be made to them at La Loche or Buffalo River so they wouldn't have to travel all the way to Fort McMurray. On July 17, 1911 they received their treaty payments at Portage La Loche (West La Loche).In 1920 the Portage La Loche Band (now known as the Clearwater River Dene Nation) had 66 members.

Our people adhered to Treaty 8 following the main signing of the Treaty that occurred at Lesser Slave Lake in 1899. Through oral promises of the parties and the written terms of Treaty 8, the Treaty established a set of reciprocal rights and obligations owed by the Crown to the Indigenous people, including our ancestors. In addition to guaranteeing the ongoing right to hunt, fish, trap, harvest and pursue their traditional livelihood, the treaty also provided rights to carry out activities incidental to the exercise of these rights including, but not limited to:

- rights to unrestricted access to preferred lands and waters of a sufficient quality and quantity necessary to exercise rights within their traditional lands;

- rights to sufficient and culturally appropriate land and resources to support the exercise of rights;

- rights to participate in the management of natural resources within their traditional lands;

- rights to gather various natural resources, including plants and berries, within their traditional lands;

- rights to establish the infrastructure necessary to exercise rights,

including by building trails, cabins, camps, traps; and

- rights to maintain and access sites where CRDN's culture and way of life can be taught to subsequent generations.

Our community members continue to actively exercise these treaty rights through our traditional territory. To this day, our families depend on our ancient lands for a range of cultural, sustenance, livelihood, spiritual and socio-economic purposes. Our ability to depend and rely on our lands is still critical to our community. Our families generally face high levels of unemployment and must continue to depend on the land to put food on the table. Any impact, disruption or diminution of our community's ability to rely on our wildlife, fish, berries, plants, forests and water resources can result in serious impacts and ramifications.

In recent years, the CRDN had the opportunity to conduct an initial traditional land and resource use study. The resulting maps and information confirm our people's historic, current and ongoing use of our traditional territory. Of significance, a locus and concentration of community land and resource utilization occurs around Patterson Lake, in and on Patterson Lake and areas extending north and south of the Patterson Lake area.

Based on information relayed to us by our elders, knowledge keepers and active land users, the CRDN is able to delineate a Traditional Territory within north-western Saskatchewan and north-eastern Alberta.

3.0 CRDN’s Exercise of Rights

The CRDN have and continue to exercise a wide range of rights and cultural practices throughout their Traditional Territory. Livelihood and cultural practices that existed at the

time of contact and at the time of the signing of treaty continue to the present day. There clearly has been some level of cultural change and modification in how these rights are exercised on the ground. With that said, the majority of CRDN members continue to need to be on the land, are required to be on the land and wish to be on the land as their ancestors and prior generations did. Trapping clearly spiked as an economic and trading activity as European demand for furs escalated through 18th century and into 19th century. Trapping has since declined in importance as principal economic and trading driver since the 1970's however numerous CRDN members continue to harvest fur bearers for a wide range of purposes.

It is possible to set out examples of CRDN rights exercised within its Traditional Territory and summarize these in the following way:

Right Exercised / Integral Activities / Cultural Practices	**Species Utilized / Value Referenced**
Right to Hunt Large Mammals - General	Large Mammals - General
Right to Hunt Moose	Moose
Right to Hunt Caribou(Woodland/Barren Ground)	Caribou (Woodland/Barren Ground)
Right to Hunt Mule Deer	Mule Deer
Right to Hunt White Tailed Deer	White Tailed Deer
Right to Hunt Kodiak Bear	Kodiak Bear
Right to Hunt Black Bear	Black Bear
Right to Hunt / Trap Small Mammals	Small Mammals - General
Right to Hunt / Trap Rabbit	Rabbit
Right to Hunt / Trap Beaver	Beaver
Right to Hunt / Trap Otter	Otter
Right to Hunt / Trap Muskrat	Muskrat
Right to Hunt / Trap Lynx	Lynx
Right to Hunt Wolverine	Wolverine

Right to Hunt Badger	Badger
Right to Hunt / Trap Weasel	Weasel
Right to Hunt / Trap Squirrel	Squirrel
Right to Hunt / Trap Marten	Marten
Right to Hunt / Trap Wolf	Wolf
Right to Hunt / Trap Coyote Right to Hunt / Trap Fox	Coyote Fox
Right to Hunt Birds - General	Birds – General
Right to Hunt Partridge	Partridge
Right to Hunt Grouse	Grouse
Right to Hunt Geese	Geese
Right to Hunt Ducks	Ducks
Right to Hunt Swan	Swan
Right to Harvest Duck Eggs	Duck Eggs
Right to Fish – General	Fish – General
Right to Fish Jackfish / Northern Pike	Jackfish / Northern Pike
Right to Fish Grayling	Grayling
Right to Fish Pickerel / Walleye	Pickerel / Walleye
Right to Fish Ling Cod	Ling Cod
Right to Fish Whitefish	Whitefish
Right to Fish Trout	Trout
Right to Harvest Berries – General	Berries – General
Right to Harvest Saskatoon Berries	Saskatoon Berries
Right to Harvest Wild Strawberries	Wild Strawberries
Right to Harvest Blueberries	Blueberries
Right to Harvest Raspberries	Raspberries
Right to Harvest Chokecherries	Chokecherries
Low Bush Cranberry	Low Bush Cranberry
High Bush Cranberry	High Bush Cranberry
Right to Harvest Plants – General	Plants – General

Right to Harvest Wood – General	Wood – General
Right to Harvest Wood for Cabins	Wood for Cabins
Right to Harvest Wood for Domestic Use	Wood for Domestic Use
Right to Harvest Wood for Tepees	Wood for Tepees
Right to Harvest Wood for Overnight Shelters	Wood for Overnight Shelters
Right to Harvest Wood for Fuel - Camps	Wood for Fuel - Camps
Right to Harvest Wood for Domestic Heating	Wood for Domestic Heating
Right to Quarry Rock – General	Rock – General
Right to Quarry Rock - Pipestone	Rock - Pipestone
Right to Quarry Rocks – Ceremonial Purposes	Rock – Ceremonial Purpose
Right to Collect Potable Water – For Camp	Water – For Camp
Right to Collect Potable Water – Domestic Purposes	Water – Domestic Purposes
Right to Construct / Maintain Cabins	Cabins
Right to Construct / Maintain Camps	Camps
Right to Construct / Maintain Overnight Shelters	Overnight Shelters
Right to Travel to / Access Hunting, Fishing, Trapping and Harvesting Areas	Travel to / Access Hunting, Fishing, Trapping and Harvesting Areas
Right to Build, Use and Maintain Trails	Build, Use and Maintain Trails
Right to Use Land / Water Travel Routes to Access Hunting, Fishing, Trapping and Harvesting Areas	Use Land / Water Travel Routes to Access Hunting, Fishing, Trapping and Harvesting Areas

To date, CRDN has not been afforded the opportunity or resources to undertake comprehensive rights and cultural research. Through 2010–2014, the CRDN was able to undertake an initial level of research on traditional land and resource use in certain

portions of CRDN's territory. A limited number of community members were involved in one-on-one map biography interviews and a series of thematic maps were produced depicting documented geo-spatial data. The focus of that initial research effort was related to a proposed oil sands development proposed west of Descharme Lake in areas along the Saskatchewan – Alberta border. CRDN Indigenous use and knowledge information contributed by CRDN elders, knowledge holders and land users were categorized into the following thematic areas:

- Dene Place Names
- Settlements
- Gathering Places
- Camps
- Cabins
- Rest Spots
- Land and Water Based Travel Routes
- Hunting
- Fishing
- Trapping
- Berry Harvesting
- Plant Harvesting
- Medicinal Plant Harvesting

While the focus of this research was not on the Project area, this initial survey confirmed historical and current use of the Project area for a variety of activities integral to the exercise of Treaty rights. This research confirmed what is well known in the community: that Patterson Lake forms an important area for our members. As this assessment process proceeds, CRDN intends, with the support of the CNSC and the proponent, to conduct specific research to inform the assessment of the impacts of this Project on CRDN Treaty rights, cultural heritage and the current use of lands for traditional purposes.

4.0 Comments on Project Description

At this stage, CRDN has not been provided capacity funding in order to allow it to provide technical review of any of the engineering or technical elements of the Project. Accordingly, for these comments, we have focused on two higher level concerns. First, CRDN is concerned that the scope of Project is being described inaccurately – CRDN's perspective is that there is at least one additional adjacent mining area that is likely to be developed in a way that will extend the Project's footprint, impacts and operational life. Second, CRDN is concerned that the Project description contains essentially no information about the potential impacts of the Project on Aboriginal groups, including on CRDN's exercise of Treaty 8 rights.

4.1 Description of Project and Project phases

The regulation under *CEAA, 2012*[1] sets out the required information to be included in the Project Description. This includes the requirements (in sections 7 – 11) that the Project Description describe "all physical works that are related to the project", "all activities to be performed in relation to the Project" and "anticipated phased of and schedule for" the construction, operation, and decommissioning of the project.

The Project Description provides a description of elements relating to the proposed mine and mill, and provides a proposed schedule for each phase (at Table 2.2-1). At this stage, CRDN does not have the capacity to review the technical sufficiency of these descriptions, but we do have a concern that this description has omitted consideration of an additional mine which may be proposed immediately adjacent to the Project.

CRDN has been made aware of exploration activities undertaken by Fission Uranium Corp at Patterson Lake, immediately adjacent to the Project. At this point, we understand that there are ongoing feasibility studies associated with those uranium deposits, but CRDN's concern is that the development of an additional mine at this site is inextricably linked to the Project proposed by NexGen. We have two related concerns in this regard. First, the addition of this mine would increase the lease area and footprint of industrial

[1] Prescribed Information for the Description of Designated Project Regulations (the "Regulation")

activity around Patterson Lake, causing more sizeable disturbances to CRDN's exercise of rights. Second, the addition of that mine is likely to change the proposed schedule for phases of the Project – in particular, it is highly unlikely that a new mill would be constructed to serve the prospective Fission Project, and if NexGen's mill is used, the time horizons for this Project are likely to be extended considerably.

While CRDN acknowledges that Fission has yet to provide a project description, our position is that it is not premature to request that the CNSC consider the potential *combined* impacts of these two reasonably foreseeable projects, given the proximity of these projects and the likelihood that these projects will be developed either simultaneously, or in very close connection to each other. The risk in the narrow description put forward by NexGen is that the assessment will be scoped overly narrowly, and thereby underestimate the potential impacts on the environment and on CRDN's Treaty 8 rights.

In addition to this, the Project Description is impermissible vague in relation to proposed facilities and activities relating to power generation. NexGen notes that the substantial power requirements of the Project will be met through on-site diesel generation or via some alternative based on gas generation or a renewable energy source. CRDN is of the view that how power is produced and is delivered to the Project site is a relevant issue. The power option eventually selected will have an attendant array of Project effects and potential impacts on CRDN's rights and practice of culture in the Project area and areas in the vicinity of the Project. Thus CRDN is of the view that additional detail should be made available at the Project Description stage rather than what has been provided which amounts to little more than a vague reference to power options. The Regulation requires a description of project elements and the assessment of this Project will require information on power component alternatives or alternate means of carrying out the Project. The Project Description's current exclusion of sufficient detail defeats the purpose of filing an adequately detailed Project Description and the *Act* itself.

4.2 Information on effects on Aboriginal peoples

Section 19 of the Regulation requires that a project description include:

> Information on the effects on Aboriginal peoples of any changes to the environment that may be caused as a result of carrying out the project, including effects on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

The proponent purports to comply this requirement through sections 3.8 and 4.0 of the Project Description. CRDN's overarching comment is that these sections provide essentially no information on the potential effects of the Project on CRDN, which is the closest Indigenous community to the Project. These sections demonstrate that the proponent has not sought to gather or consider information from CRDN regarding traditional land use, cultural heritage, human health community needs and interests and/or archaeological sites.

In section 3.8.1, the Proponent states that "the Project's remote location and the lack of public access mean that activities in proximity to the Project are somewhat limited." This statement, intended to diminish the potential effects of the Project, fails to account for CRDN's historic and current use of the Patterson Lake area for the exercise of Treaty 8 rights by CRDN members. The proponent's statement that the "public" lacks access to the Project area is misleading and this narrative stands in stark contrast to the intense historic and ongoing / current use activities by the CRDN community. CRDN members, as beneficiaries of Treaty 8, have the right to carry out their way of life, including through carrying out hunting, fishing, trapping, gathering and other incidental activities to all lands, both Crown and private, that have not been put to a visibly incompatible use. CRDN members, historically and currently, access the Project area and immediate vicinity, to exercise rights. Indeed, since the construction of 955, the Project area has become much more easily accessible by CRDN members.

The proponent's summary of potential effects of the Project on land and resource use (4.2.6) is similarly devoid of any information that could be relied upon by regulators, at this stage, to understand the scope of potential impacts on CRDN. In particular, this

section does not provide information on the types of impacts that might occur as a result of, for instance:

- the exclusion of CRDN members from the lease area;
- impacts on wildlife and fish habitat from construction and operations activities;
- long term exclusion of land users from the Project area during decommissioning and closure;
- degradation of habitat and species that CRDN relies upon due to increases in local population (i.e. work camps);
- avoidance of the area by CRDN members due to fears about health impacts associated with uranium mining and fears relating to management of wastewater;

Instead, the Project description appears to only acknowledge the possibility that workers (assumed to be derived from non-local population) may also hunt in this area (and the proponent states that restrictions on hunting by personnel may be inferred). The potential impacts of this project are plainly not confined to increased hunting competition from workers, yet the Project Description does not attempt to offer additional information on the potential effects of this project on Aboriginal peoples. It is apparent that the Project has been designed and proposed without considering the potential impacts on CRDN or other Indigenous groups. The proponent should be directed to engage with CRDN to understand these potential impacts so it may provide the information required pursuant to the Regulation.

ACFN
DENE LANDS AND RESOURCE MANAGEMENT (DLRM)

Via Email

July 26, 2019

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Re: NexGen Energy Ltd. Rook 1 Project

On behalf of the Athabasca Chipewyan First Nation ("ACFN"), ACFN Dene Lands and Resource Management ("DLRM") would like to comment on the Rook 1 Project ("the project"), based on NexGen Energy Ltd.'s project description (the "Project Description") as requested by the Canadian Nuclear Safety Commission ("CNSC").

ACFN acknowledges that the Rook 1 Project ("Project") is a proposed new uranium and milling operation that is 100% owned by NexGen Energy Ltd. ("NexGen"). The Project is located adjacent to Patterson Lake in the southern Athabasca Basin in northern Saskatchewan approximately 155 km north of the town of La Loche. More importantly it is also located 80 km south of the former Cluff Lake Mine site, and is in close proximity to ACFN homesteads and traplines.

A project description is not a substitute for an environmental impact assessment (EIA). An EIA should include detailed information regarding potential impacts to the environment and on ACFN's use of land and resources. ACFN acknowledges that the project description is a submission to CNSC for the issuance of a licence to construct and operate a new uranium mine, and is a requirement from NexGen. However, without an EIA, it's ACFN's view that the project description fails to provide sufficient information for ACFN and the regulators to understand, at this very preliminary stage, the types of potential impacts to the environment and to ACFN's Treaty 8 rights.

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To ACFN meaningful Consultation is an Aboriginal right in Canada guaranteed by Section 35 of the Constitution Act (1982). Under this Act, ACFN has the right to hunt, fish, trap, and gather, and when ACFN is not able to practice these rights; our Treaty Rights has been infringed.

To develop in or close proximity to areas that ACFN practices their right is a concern. As I stated earlier, ACFN member's homestead and trapline is in close proximity to the Rook 1 project. ACFN members still use the land and lake to hunt, fish, and trap. What kind of strategies does NexGen Energy Ltd. have to offer to address this concern?

A. Background on ACFN's Rights

ACFN holds Treaty and Aboriginal rights which are protected by section 35 of the **Constitution Act, 1982**. The Project is within the Tradition Lands of ACFN. Prior to the signing of the **Treaty 8** in 1899, the ancestors of what is now ACFN have lived in the vicinity of the Project and used the lands in those areas to sustain their traditional way of life.

Of ACFN's registered populations of 1287 members, approximately one third live in Fort Chipewyan, one third live in Fort McMurray and Fort McKay, with the reminder residing elsewhere. Members of ACFN continue to hold the rights guaranteed by **Treaty 8** which include hunting, trapping, gathering and fishing rights. ACFN members actively exercise their Treaty rights and carry out their traditional activities, as their ancestors have for generations, on ACFN's Traditional Lands and within the vicinity of the proposed project.

ACFN has eight reserves set aside for its use and benefit pursuant to the **Indian Act, R.S.C. 1995, c. 1-6**: Chipewyan 201, Chipewyan 201A, Chipewyan 201B, Chipewyan 201C, Chipewyan 201D, Chipewyan 201E, Chipewyan 201F, Chipewyan 201G and the N22 trapping block area of Saskatchewan.

The rights of ACFN members stand to be directly and adversely affected by the Project by the direct, indirect, and cumulative impacts on ACFN's **Treaty 8** rights to hunt, fish, trap, gather and carry out other traditional pursuits.

B. The Direct and Adverse Impacts of the Project

It was not possible to gather in-depth information in support analysis of the effects of the Project on ACFN. Instead, we undertook a preliminary review of existing information (ACFN's TUS database) contained in other projects specific interviews with ACFN members and submissions by ACFN. The results of this preliminary analysis are summarized below, please note that these results are not exhaustive presentations of ACFN land use and concerns in the region of the Project, and we are intended only to demonstrate the need for additional assessment and consultations with ACFN.

1. The Relationship between the Land and ACFN's Culture and Rights

ACFN has historically used all parts of their Treaty 8 area for a range of cultural practices that have been integral to its physical and cultural survival. Use of those lands for these purposes is extremely important to ACFN. The land sustains ACFN and is at the heart of their culture, traditions, identity, spirituality and rights.

ACFN members are very concerned with ensuring continuation of their culture and see the land

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as central to their ability to do so; for example, in the following quote, R. Cardinal explains how "traditional ways" and the "land" are integral to ACFN identity and culture:

> *"It is important for me to continue these traditional ways. It's been part of my family for hundreds and thousands of years. Hunting, fishing, camping, gathering food and medicines on our traditional lands, this is part of what it means to be ACFN…It's a connection to previous generations, and it's how we pass on and protect our traditional knowledge, culture and ways of being. I want to be able to pass it on to my children so that it can continue on.*
>
> *The land is what we use to fulfill ourselves, and I use to fulfill myself as a human. I need the connection to the land, the traditional foods, and the spiritual aspects of the land around Popular Point. Many have needs that they meet through their traditional practices in the area around Popular Point and they rely on them, if that area is developed then that will be taken away from us"*
>
> *"For my generation and past generations, traditional activities are very important. For the current generation, it's important to the ones that are interested in it. The future generations need accessible places to learn our culture." [1] (Cardinal, 2009:9)*

This deep cultural connection with the land is at the root of the Dene culture and identity. It is maintained by going out on the land, and practicing traditional activities. These practices continue to inform traditional and cultural values to ACFN members.

There is fear if lands are not protected; the young people will not be taught these ways, and the ACFN's Dene culture and language could be lost forever.

> *"The people today have to teach the young people about the traditional way of life and their culture… We often hear this from people, once our age group (Elders over 70 years of age) is gone, there's a chance that our culture, our language could be gone forever. That's a sad thing to think about let alone to see it happen…*
>
> *That's why when we talk about the land (we want) to protect and preserve it in order to help the young people learn about our way of life and to try to maintain the way of life in the future. We want to keep that culture alive…That will help reserve the way of life on the land." [2]*

The land, and access to it for cultural activities, is essential for teaching cultural knowledge and language, which are necessary to sustain in order to "preserve and protect" that livelihood.

ACFN members actively use lands within the vicinity of the project for a variety of purposes. While carrying out their traditional harvesting activities, many older ACFN members also pass down their knowledge and skills to younger ACFN members. The importing of traditional harvesting knowledge and skills is essential to the survival of the ACFN's culture and its distinctiveness as a people. It is clear that as development increases, it is becoming more difficult for ACFN to hunt, fish, trap and gather.

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[1]Cardinal R. 2009, in the Court of Queen's Bench of Alberta Judicial District of Edmonton between Athabasca Chipewyan First Nations and Minister of Energy, Canadian Coastal Resources Ltd, Standard Land Company Inc., and Shell Canada Ltd, Affidavit # of R. Cardinal sworn January 30, 2009 Action No. 0803 17419, Edmonton Registry

[2] Focus Group PA-1, 2009 ACFN Land Use Plan-Preservation Areas Study Focus Group PA-1, Fort Chipewyan, Alberta October 15 and October 19, 2009. Transcript is in the procession of ACFN DLRM, Fort McMurray, Alberta.

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The importance of land to First Nations is highlighted in the recent decision of Justice Smith of the Ontario Superior Court of Justice **in Platinex v. Kitchenuma et al.** (2006), 272 D.L.R. (4th) 727 at par. 80: It is crucial the nature of the potential loss (of Land) from an Aboriginal prospective. From that prospective, the relationship that aboriginal peoples have with the land cannot be understated. The land is the very essence of their being. It is their very heart and soul…Aboriginal identity spirituality, laws, traditions, culture and rights are connected to and arise from this relationship to the land. This is a perspective that is foreign to and often difficult to understand from a non-Aboriginal viewpoint.

C. **Need for Further Assessment to Support Consultation**

Any taking up of lands for development requires a proper assessment of the direct, indirect and cumulative impacts of development on Treaty and Aboriginal rights. ACFN's Traditional Lands are increasingly taken up by bitumen mines and associated plant facilities, in-situ wells, pipelines and facilities, gas wells, seismic lines, uranium mines, oil exploration wells and associated seasonal access and road ways. This activity is unrelenting: every year there are hundreds (or more) of new applications for oil and gas, forestry and other development with ACFN's Traditional Lands.

An assessment of the effects of this project on ACFN's rights and traditional uses must include an analysis of what lands have already been taken up by development and what lands are required to sustain ACFN's Section 35 rights.

D. **ACFN's Concern Not Addressed by Other Means**

Due to the gaps and deficiencies in information of the project description, and the lack of capacity to dedicate the time and personnel to an in-depth information gathering and analysis exercise, it is difficult for us to comment on the full impacts of the Project on ACFN's rights and traditional uses. If provided additional time, and capacity, ACFN may be able to identify even more direct and adverse impacts of the Project on their rights. These gaps and deficiencies in information ought to be of concern to the regulators involved with the Project.

It is also important to note; the materials NexGen has submitted as part the Project does not contain information about ACFN's Treaty and Aboriginal rights. In short, a number of the direct and adverse effects that the Project may have on ACFN's **Treaty 8** rights remain unaddressed. It is submitted that NexGen and the regulators simply lack sufficient information at this point to move forward with the Project.

Moreover, although numerous cases have made it abundantly clear that both Canada and Saskatchewan have a constitutional duty to consult with First Nations where projects (including environmental processes related to thereto) have the potential to adversely affect their rights, Saskatchewan has not yet engaged with ACFN in consultation with respect to the project and we look forward to this occurring.

ACFN's **Treaty 8** and Aboriginal rights stand to be directly and adversely affected by the Project as well as by the development that the Project will induce. Given that this constitutionally-protected right is at risk and given that the ability of ACFN members to exercise their rights within their Traditional Lands is steadily diminishing. The Project is within the Traditional Lands of ACFN. Our concerns regarding the health of the lakes, rivers and the landscapes continue to

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go unaddressed and cultural impacts continue to go unmitigated. ACFN submits that the Project should not be approved at this time.

It is further submitted that the impacts of the Project on ACFN's rights and the required mitigation measures (if the Project is approved) must be considered during the initial review process for the Project and not following on approval.

E. Technical Review and Land Use Study

The ACFN acknowledges NexGen's good faith in trying to protect the environment and ensuring that their operations and development are conducted in a safe, environmental and sustainable manner. How does NexGen Energy intent to ensure that their project will not have cumulative effects on the environment? How does NexGen Energy Ltd. intend to safely operate and develop their project and not affect the water quality, fish habitat, wildlife, and environment that our ACFN members rely on? In order to more fully consider the impacts of the Project, the DLRM maintains that it is necessary to complete a Technical Review as well as a Traditional Land Use Study.

F. Closing Remarks

ACFN DLRM has a policy that was put in place by the ACFN Board of Directors. The policy states that there are costs associated with consultation and engagement meetings. Proponents are given a preapproval form to review and approve prior to meetings. We also require funding from companies to review project applications that they submit to the regulators. In these reviews, we identify environmental issues and concerns that require mitigation measures, and accommodation.

Thank you for providing us this opportunity to review, comment and express our concerns regarding the Rook 1 Project. We request that the CNCS not grant approval until such time as the additional concerns expressed herein are addressed.

I look forward to your response.

Best Regards,

Rose Ross
Regulatory Officer

Cc: Lisa Tssessaze, ACFN DLRM Director
Maggie Farrington, ACFN CEO
Richard Snider, CNSC

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NexGen EIS Review – Primary Areas of Concern
From Ya'thi Néné Lands and Resources (YNLR)

Overview:

YNLR is a not-for-profit organization established by the Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, and Hatchet Lake Denesųłiné First Nation (collectively known as Athabasca Denesųłiné) and the municipalities of Camsell Portage, Uranium City, Stony Rapids and Wollaston Lake. YNLR has the authority to represent the communities in this EIS regulatory process. NexGen is proposing to develop an underground uranium mine at the Rook 1 project site located within Nuhenéné, the traditional territory of the Athabasca Denesųłiné (AD), near Patterson Lake.

YNLR's mission is to protect the lands and waters of Nuhenéné for the long-term benefit of its Denesųłiné First Nations and Athabasca communities, guided by their knowledge, traditions, and ambitions, while being a respected partner in relations with industries, governments, and organizations who seek to develop its resources.

Background and Critical Issue:

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019. Based on the early engagement, primary communities that were deemed most likely affected by the proposed Project were identified. Then using these identified communities as a guide, a LPA (local priority area) was established. NexGen engagement activities were focused on primary communities in the LPA. This approach has at least three flaws.

- First, it ignores or disregards the information provided by the Athabasca Denesųłiné in 2020 that clearly demonstrates their rights and interests in the vicinity of Rook 1. Clearly processes need to respond to the information available.
- Second, because the inclusion of communities in the LPA (and indeed the geographic extent of the LPA) is based on whether they were previously identified means that AD's exclusion is likely self-perpetuating. Since the Athabasca Denesųłiné were not involved in the early stages they could not possibly have been considered nor could the LPA area include them.
- Third. the proximity of our communities to the project site is downplayed in the EIS by using a road distance measure rather than the well documented cross-country routes our members generally use to access the portion of our territory near the Project. In fact, Fond du Lac is closer to the project site than several other groups considered primary! This exclusion of Athabasca Denesųłiné is erroneous and detrimental to the Athabasca Denesųłiné who are known to use the area around the proposed Project and who may be impacted by the Project.

In 2020, the Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – was prepared by the Athabasca Denesųłiné (with financial support from NexGen). This report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, way of life and dependence on the barren-ground caribou herds and other wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general. The traditional territory of the Athabasca Denesųłiné significantly overlaps with the various VC based Local Study Areas (LSA) and Regional Study Areas (RSA). The Athabasca Denesųłiné information provided was, in our opinion, sufficient to meet the CNSC and NexGen criteria for the identification of primary Indigenous Groups. It appears that this information was not considered when developing the list of primary Indigenous Groups.

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification, measurement, and validation, and mitigation of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of a Benefits Agreement. The inclusion of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples (e.g., 29 key meetings for the AD as compared to an average of 157 key meetings on average for each "primary" Indigenous group) and limits AD specific information incorporation into VCs, spatial boundaries, existing conditions descriptions, project interactions/mitigation, residual effects analysis, and monitoring, follow-up, and management. This is prejudicial and self-perpetuating.

The Athabasca Denesųłiné, having met all of the characteristics of a primary Indigenous Group and shown that their traditional territory, Treaty area, and land/resource use areas overlap with the Project, believe that they should be <u>full</u> participants in the EA process.

With this in mind, the following areas of the EIS are of the highest concern for YNLR and the Athabasca Denesųłiné́. YNLR's comments are presented below by EIS Section with the EIS text or concern identified by blue font and YNLR's comments in ***black italicized*** font.

1. Acknowledgement

In general, sources of Indigenous Knowledge were identified through methods associated with the signed individual Study Agreements (e.g., Joint Working Groups, Indigenous Knowledge and Traditional Land Use Studies) with each primary Indigenous Group and through the Study Funding Agreement with Ya'thi Néné Lands and Resources (page 24-4, EIS).

NexGen views ongoing engagement and knowledge sharing as a critical success factor for the Project; this practice would continue throughout the EIS review and into all future Project phases. As NexGen proceeds through the regulatory process and advances development of the Project, engagement activities would evolve as necessary to include Indigenous Groups and local communities in a manner that provides the opportunity for effective information exchange and dialogue specific to each stage of the Project (page 24-27, EIS).

As noted as a critical issue, YNLR and our respective communities need to be fully acknowledged within the EIS. YNLR is interested in establishing a collaborative and mutually beneficial relationship with NexGen.

2. Certainty

The Project is predicted to benefit local communities and broader society in the following ways: increased employment, increased income, increased education and training, broader economic benefits, and specific enhancement measures through Benefit Agreements (page 24-23, EIS).

Unlike the performance of past northern developments that have occurred with Nuhenéné, YNLR expects this project to deliver on the economic benefits promised to local and Indigenous people, while at the same time protecting the ecological health of the surrounding lands and waters. To this end, YNLR is interested to advance discussions related to a Benefit Agreement in order to facilitate increased certainty for the communities in Nuhenéné.

3. Project Residual and Cumulative Effects

The individual discipline sections predicted Project-specific residual effects for each VC or intermediate component as well as residual cumulative effects from the Project, other previous and existing projects and activities, and RFDs, where applicable (Table 20-3.1, pages 20-4 to 20-14).

There are a total of 24 VCs plus a number of other 'intermediate components' in the EIS, yet the residual and cumulative effects analyses are 'significant' for only one VC, the woodland caribou. While YNLR understands the important role of mitigation in reducing predicted impacts, we find this overall outcome somewhat questionable. YNLR believes that this overly optimistic conclusion results from a number of sources, ranging from a poor

selection of VCs to the largely subjective and qualitative nature of the impact assessment analyses, including the erroneous conclusions drawn for some VCs.

For example, the residual and cumulative impacts of the year-round work camps have been largely ignored in the EIS, especially with respect to the additional harvest pressure on fish and wildlife resources, both locally and regionally. This is particularly the case for the lake fish surveys in the EIS, which indicated that their populations were already too low to sustain additional harvest pressure from project workers. YNLR believes that this potential cumulative impact cannot be overlooked, and suspects there may be others.

4. Project Impacts on Woodland Caribou

The wildlife and wildlife habitat assessment concluded that effects on woodland caribou in the Base Case are already significant, as the amount of disturbance in the SK2 West is greater than the 35% threshold value as described in the federal woodland caribou recovery strategy (ECCC 2020). Therefore, any amount of incremental habitat loss from any development, including residual losses of habitat associated with the proposed Project, is considered significant for woodland caribou (page 24-22, EIS). *However, the Project is predicted to contribute little to the existing cumulative effects on woodland caribou.* (YNLR emphasis)

The situation for this important species in the region is already precarious and the Project will exacerbate this. The concluding sentence highlighted above is therefore overly optimistic and not in line with the actual effects assessment performed in the EIS, which concluded both residual and cumulative effects as 'significant' for woodland caribou. An Offset Plan for caribou has been proposed, which YNLR agrees with. However, YNLR would like to be involved with the development of this plan, and would like to see the plan largely finalized and agreed to before construction begins on the Project.

5. Project Monitoring

Monitoring has been proposed in the EIS to address uncertainties associated with the effects predictions. While the EIS has tended to minimize these uncertainties, YNLR would prefer to think that these uncertainties represent another opportunity for further collaboration between NexGen and the Denesųłiné people. Monitoring and follow-up programs are to be implemented to not only verify predicted effects, but also to evaluate the effectiveness of mitigation, and measure compliance with future permit conditions and statutory requirements. Monitoring will also be used to identify any unanticipated or unintended effects, and provide input into corrective actions or adaptive management to limit those effects (page 24-25, EIS).

While the physical footprint of the Project may be small, the nature and permanence of a uranium mine development does raise the risk level for Indigenous people. YNLR therefore expects to be fully involved with the design, implementation, and reporting of all monitoring programs for the Project, and expects such programs to be statistically robust and transparent to our communities.

NexGen EIS Review – Detailed Comments
From Ya'thi Néné Lands and Resources (YNLR)

YNLR's comments are presented below by EIS Section with the EIS text or concern identified by blue font and YNLR's comments in ***black italicized*** font. In addition, some parts of the EIS have been more or less duplicated prior to the comments for context and clarity for the reader

Section 1. Introduction (Page 1-1, EIS)

Our primary concern is the improper categorization of the YNLR as an "Other Indigenous Group" rather than a "Primary Indigenous Group".

Because the Athabasca Denesųłiné were not identified as a potential impacted group during early engagement, they were not considered in the LPA. This exclusion meant the Athabasca Denesųłiné missed out on NexGen developing "impactful community programs that focus on youth, with an emphasis on education, health and wellness, and building economic capacity" (p 1-11), and being part of NexGen processes aimed at (p 1-12, 1-13):

- Recognizing, accepting, and respecting the local communities' rights and cultural links and reliance upon the land and its resources to support current and future generations;
- Minimizing disturbances, to the extent possible and protecting the quality of the water, air, land, wildlife, and human health through all phases of the Project;
- Continued, effective, and respectful engagement with the local communities through all phases of the Project, including consideration of valuable feedback;
- Maximizing potential business and employment opportunities for local people through all phases of the Project to support current and future generations;
- Respecting the diverse cultures and perspectives of those with whom the Project interacts;
- Proactively and transparently engaging with Project -affected communities
- Enhancing workers' awareness of the history, traditions, and rights of Indigenous Peoples;
- Supporting the economic participation of local communities;
- seeking to provide opportunities resulting from a Project benefit agreement to local communities, especially opportunities with the ability to last beyond the Project lifespan;
- Providing clear and timely information to those who have a direct interest in the Project;
- Early and continuous Indigenous & public engagement on environmental protection;
- Designing and operating for responsible closure and long-term land use;
- Monitoring and adaptively managing the Project based on rigorous scientific practice and in consideration of Indigenous and Local Knowledge; and,
- Working with local Indigenous Groups to implement independent environmental monitoring.

1.2.2 Project Location and Setting

The NexGen Rook 1 Project is "*located entirely on Provincial Crown Land within Treaty 8 territory and the Métis Homeland, and adjacent to Treaty 10 territory*" (p 1-18).

For reference, there are only three First Nations in Saskatchewan that are signatories to Treaty 8. Two of these are Athabasca Denesųłiné (AD) communities: Black Lake Denesųłiné First Nation, and Fond du Lac Denesųłiné First Nation. Another of the communities represented by YNLR is Hatchet Lake Denesųłiné First Nation who is a signatory to Treaty 10, like many of the other Indigenous communities discussed within the NexGen EIS.

"*There are currently no land use plans that encompass the Project location*". (p 1-19)
This statement is questionable. The Athabasca communities approved a regional land use plan in 2008. The multiple use zone of this plan encompasses the NexGen Rook 1 project area. This information has been available to the public since 2008 prior to the beginning of NexGen's Rook 1 project. This plan is referenced on the YNLR website (www.yathinene.ca) and was available on the sites of our predecessor organizations through the Prince Albert Grand Council. This information was contained within the report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment - provided to NexGen in December 2020. Lastly, we include a copy of the plan here as **Figure 1**.

1.2.2 Indigenous and Community Setting
Of particular relevance in this section of the EIS (P 1- 20, 1-21, 1-22) are:
Figures 1.2-1 Location of the Rook 1 Project
Figures 1.2-2 Regional Area of the Rook 1 Project
Figures 1.2-3 Indigenous groups and communities in the regional area of the Rook 1 Project.

Figures 1.2-1, 1.2-2, and 1.2-3 show the Athabasca Denesųłiné reserves but do not name the First Nations or show community locations. Further, the maps do not show the Athabasca Denesųłiné traditional territory. The maps should show this information. This information has been available to the public since 2008 - prior to the beginning of NexGen's Rook 1 project. Our traditional territory is referenced on the YNLR website (www.yathinene.ca) and was available on the sites of our predecessor organization's through the Prince Albert Grand Council. This information was contained within the report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment - provided to NexGen in December 2020. Lastly, we include a map of the Athabasca Denesųłiné traditional territory here as **Figure 2**.

1.2.3 Indigenous and Community Setting
"Since 2013, NexGen has worked closely with the local communities and those expressing an interest in the Project to help develop meaningful relationships based on trust and respect. Prior to commencement of the EA process in 2019 through the submission of the Project Description for the Rook I Project (NexGen 2019), NexGen regularly engaged with local Indigenous Groups and communities on proposed exploration activities and early Project development aspects." (p 1-24)".

Unfortunately, NexGen did not seek to involve Athabasca Denesųłiné until May 2019. In 2020, the Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – was prepared by the Athabasca Denesųłiné with financial support from NexGen. This report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, way of life and dependence on the barren-ground caribou herds and other wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general.

Figure 1. Athabasca Land Use Vision

Athabasca Land Use Vision

Vision

To manage the use of the land and renewable resources of the Athabasca in an integrated and environmentally sound manner to ensure ecological, economic, social, cultural and spiritual benefits for present and future generations.

Background

Arising from the ashes of the Athabasca Land Use Interim Advisory Panel, three First Nation and four municipal communities, including Camsell Portage, Uranium City, Fond-du Lac, Stony Rapids, Black Lake, Wollaston and Hatchet Lake, united to prepare a Athabasca land use vision and plan. This land use vision applies to all First Nation reserves and provincial Crown lands within the Athabasca. The Athabasca vision and plan was coordinated and supported by the Prince Albert Grand Council.

Method

The planning area covers 132,300 sq. km. The land use zones illustrated on this poster are a result of years of community consultation, research, and data analysis modelling conservation, cultural, commercial renewable resources, and industrial development. The conservation zone is based on wildlife habitat, Athabasca Denesuline land use and occupancy and important natural areas. The multiple use zone is based on areas of commercial and industrial development. The special management zone is based on overlap between the conservation and multiple use zones. The infrastructure zone is a 10 km buffer around communities and a 1 km buffer along existing roads and the proposed Wollaston road.

Important Facts

•The Athabasca vision of land use and resource management is to work jointly with the governments of Canada and Saskatchewan in the sharing of the Athabasca Denesuline ancestral lands in the furtherance of the treaty relationship.

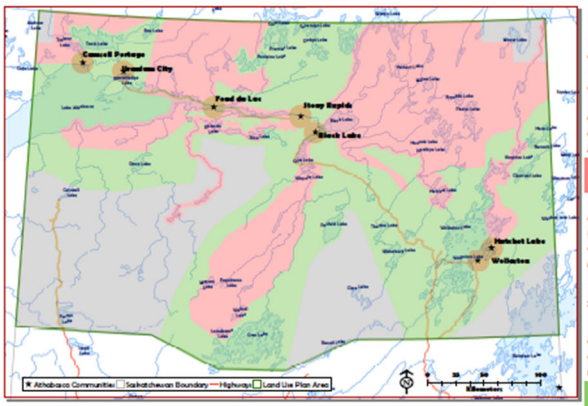
Letter of Approval for the Athabasca Land Use Vision

•70% of the planning area is potentially open for new development subject to the Athabasca land use planning guidelines.

•30% of the planning area is set aside to protect Athabasca Denesuline land use and occupancy, including cultural places, barren ground caribou habitat, other important terrestrial and aquatic species' habitats, and important ecological landscapes.

•Conservation of cultural places, drainage systems and wildlife habitat are paramount throughout the planning area.

Land Use Zones



What is allowed in each zone?

Land use activities & development	Nih bÿk'ÿsórÿdâí	Special Management	Multiple Use	Infrastructure
Land Use and Occupancy *	P	P	P	P
Low impact tourism**	P	P	P	P
Outfitting***	C	C	P	P
Commercial fishing	C	C	P	P
Mineral exploration	N*	C	P	P
Mineral extraction / mining	N*	C	P	P
Sand gravel extraction	N*	C	P	P
Roads & trails construction	N*	C	C	P
Lodge & infrastructure establishment	N	C	P	P
Waste disposal	N	C	P	P
Hydro development	N	C	P	P
Timber harvesting **	N	C	P	P

N = Not Permitted | C = Potentially Permitted with Special Conditions and Consultation | P = Potentially Permitted with Conditions and Consultation

* Land Use and occupancy includes hunting, fishing, trapping, gathering plants, gathering eggs, gathering ash.
** In low impact tourism there is minimal environmental disturbance. Activities include canoeing, skiing, hiking, land trips, motivation.
*** Outfitting includes guided fishing and hunting, land trips within allocation, snowmobile rides, ATV rides.
* Existing dispositions, licences, leases authorizations will be valid for the life of their tenure, but they will not be renewed.
** Includes fuelwood, existing and timber harvesting for subsistence and local commercial purposes.

Land Use Zone Policies

Overarching Policies

•Consultation with Aboriginal communities, including arrangements of socio-economic benefits, is necessary.

•Reporting and avoiding cultural places, archaeological sites, and caribou encountered during development is mandatory.

•Licences, permits or other government authorizations and their environmental protection terms are required. However, such authorizations may only be issued when consistent with the Athabasca land use vision and plan.

Nih bÿk'ÿsórÿdâí (Conservation) 30%

•The conservation zone was created to protect the ecological and cultural integrity of the landscape, with special attention to wildlife (especially barren ground caribou habitat), water, land use and occupancy, and important cultural sites. Nih bÿk'ÿsórÿdâí *means "to respect and keep in their natural state."*

•The Athabasca Sand Dunes Provincial Park is included in this zone.

•In this zone, new development is restricted to protect high concentrations of sensitive cultural sites and wildlife habitat. Existing authorizations will be valid for the life of their tenure; but they will not be renewed.

Special Management 40%

•In this zone, protection of cultural places and wildlife habitat are paramount. New development may be permitted providing that the impact on cultural and wildlife resources is minimal.

•New developments are subject to more rigorous up-front scoping and consultation to identify and protect significant natural and cultural values. The required consultation and investigations may be best accomplished through a social and environmental impact assessment of any proposed development.

Multiple Use 27%

•The multiple use zone is an area where commercial and industrial development are likely potentially compatible with or will probably have little direct impact on land use and occupancy.

•New development is potentially permitted under existing, approval, regulatory and environmental protection processes, and subject to the Athabasca land use planning guidelines.

Infrastructure 3%

•The infrastructure zone was created in anticipation of future community and infrastructure expansion, and also to protect land use and occupancy immediately surrounding the communities.

•New developments are directed towards community and public infrastructure, however, other forms of development are potentially permitted subject to the Athabasca land use planning guidelines.

The information on this poster is based on the current version of the "Athabasca Land Use Plan: A Northern Perspective" and is subject to revision as the plan develops. Please contact Diane McDonald for the most recent version of the plan.

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Map prepared by PACTeam Canada Inc.
May 1, 2008

Figure 2. Athabasca Denesųłiné traditional territory (https://www.yathinene.ca/about).

"During early engagement, an Indigenous Group and stakeholder engagement identification process was undertaken to understand the individuals and groups that would most likely be affected by the proposed Project. The establishment of a local priority area (LPA) stemmed from this identification process." (p 1-24)"

The establishment of an LPA (local priority area) that followed on from the identification of the groups "that would most likely be affected by the proposed Project" <u>during early engagement</u> has two flaws. First, it ignores or disregards the information provided by the Athabasca Denesųłiné in 2020 that clearly demonstrates their interests in the vicinity of Rook 1. Second, because the inclusion of communities in the LPA is based on whether or not they had been previously identified in early stages, means that AD's exclusion is likely self-perpetuating, since the Athabasca Denesųłiné were not involved in the early stages NexGen indicates commenced in 2013.

The EIS notes that LPA communities are those *"located along or accessed by Highways 155 and 955 north of the intersection of Highways 155 and 925"* (p 1-24)

The LPA (first shown on a map in Section 3, p 3-2) emphasizes the area to the south of the Project area along the highway, with much less emphasis to the north of the Project location. Road access is not a good surrogate for a community or its people to be 'most likely affected'. The Athabasca Denesųłiné generally access their traditional territory in the vicinity of the Rook 1 Project by means other than road. Figure 3 illustrates that traditional use that occurs in the Athabasca Denesųłiné traditional territory near the Project regardless of roads. Figure 4 enlarges the area adjacent to ROOK 1 to better show ADKLUO. A version of this map was provided to NexGen in our December 2020, ADKLUO study report. Note that the Local Priority Area (LPA) is introduced in EIS Section 1 but first shown on a map in Section 3, Figure 3.1-1 Indigenous Land and Resource Use LSA and RSA shown here are introduced in Section 16 Figure 16.2-1).

The EIS specifies that all *"LPA communities are within the Métis Nation – Saskatchewan (MN-S) Northern Region 2"* (p 1-24).

The outline of the Métis Nation – Saskatchewan Northern Region 2 is found on each map throughout the EIS titled "Location of the Rook I Project". The Athabasca Denesųłiné Traditional territory overlaps the Métis Nation – Saskatchewan (MN-S) Northern Region 2 area by nearly 60% (Figure 5). The Athabasca Denesųłiné Traditional territory (see previous Figure 1) should also have been included on all reference maps. Its exclusion means that the Athabasca Denesųłiné Traditional territory is given no significance and is therefore not known or properly considered by those involved with the Project.

Identification of "Potentially affected or interested Indigenous Groups and communities was informed through":
Direct correspondence and discussion with Indigenous leaders, community members, and other organizations in the region
Review of publicly available information
Guidance provided by provincial and federal regulatory agencies
(p 1-24)

It appears that the Athabasca Denesųłiné were not considered to be potentially interested or affected. This seems at odds with publicly available information and the project-specific materials provided to NexGen by the Athabasca Denesųłiné since 2019.

Figure 3. Traditional use occurs in the Athabasca Denesųłiné traditional territory regardless of roads.

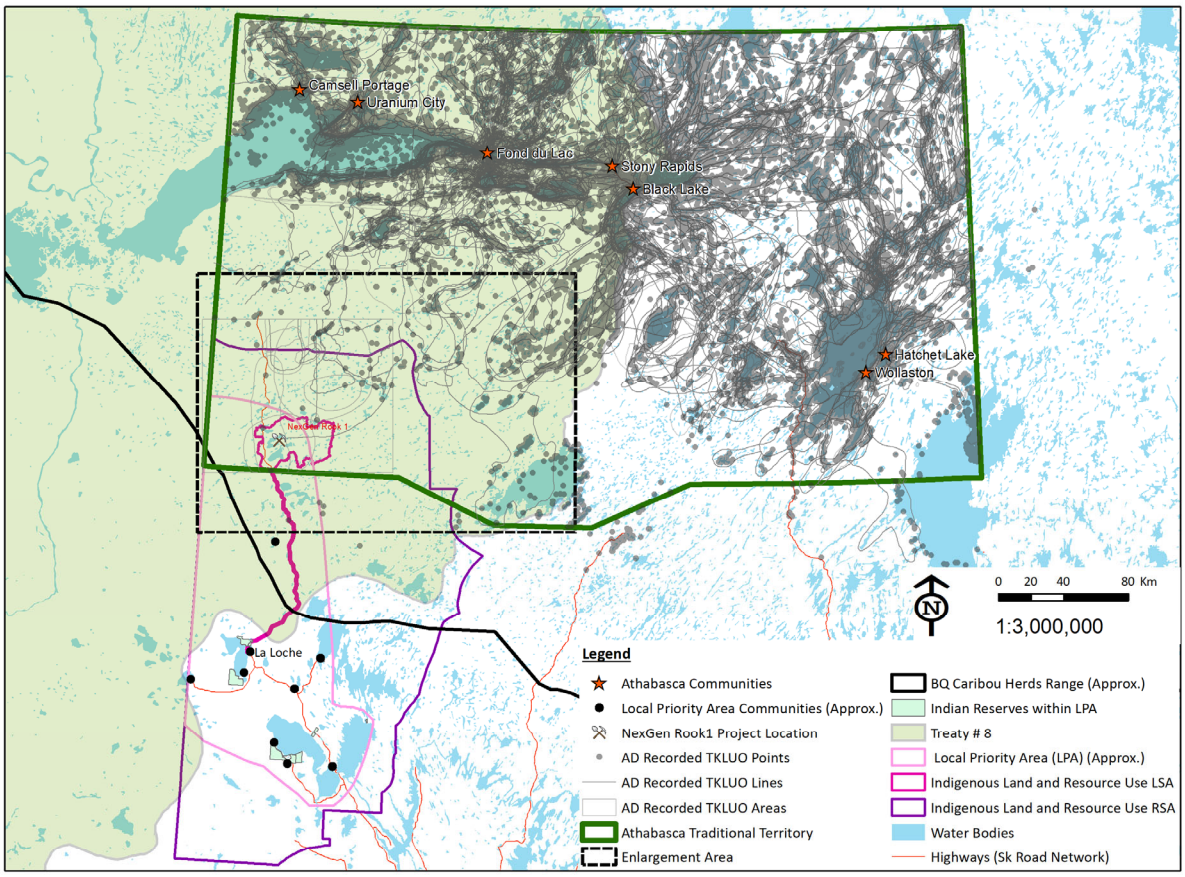


Figure 4. Athabasca Denesųłiné traditional territory and traditional use adjacent to ROOK 1.

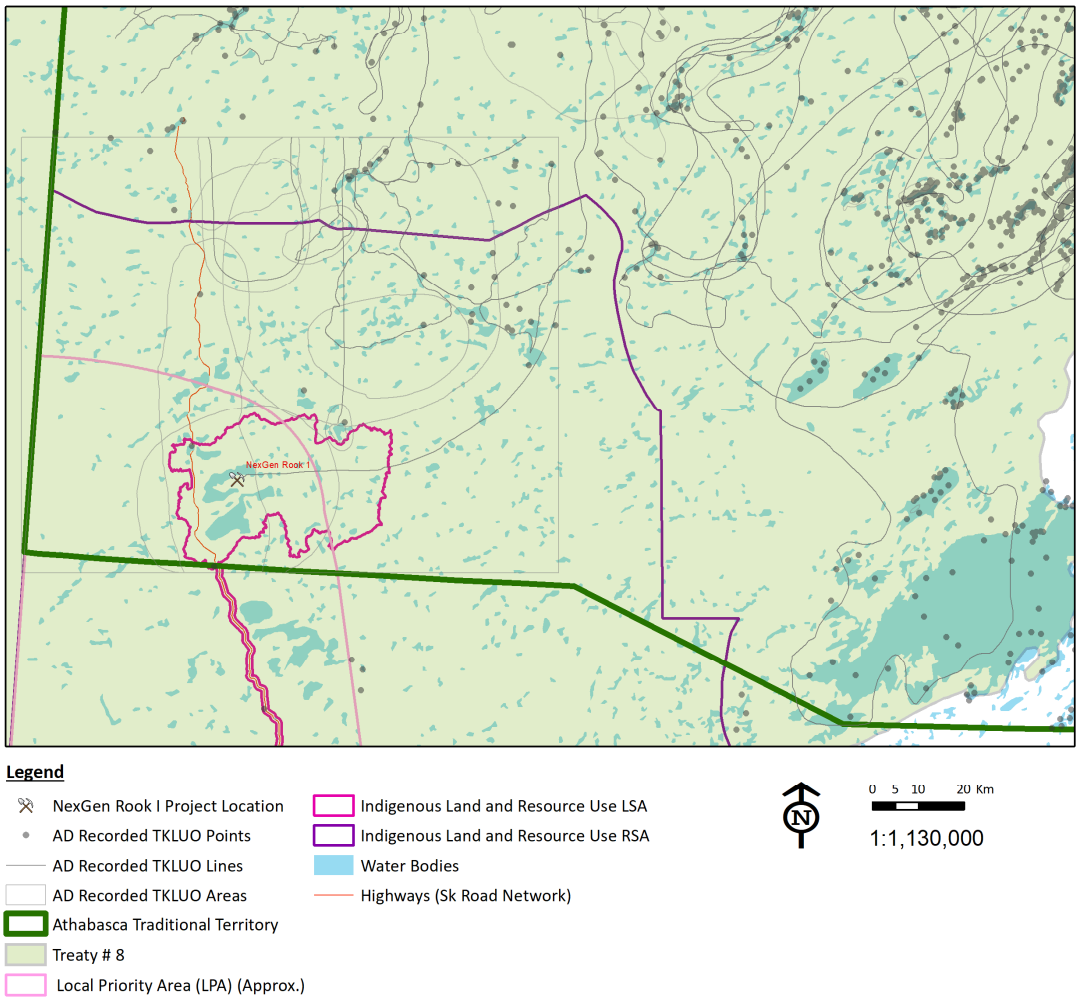
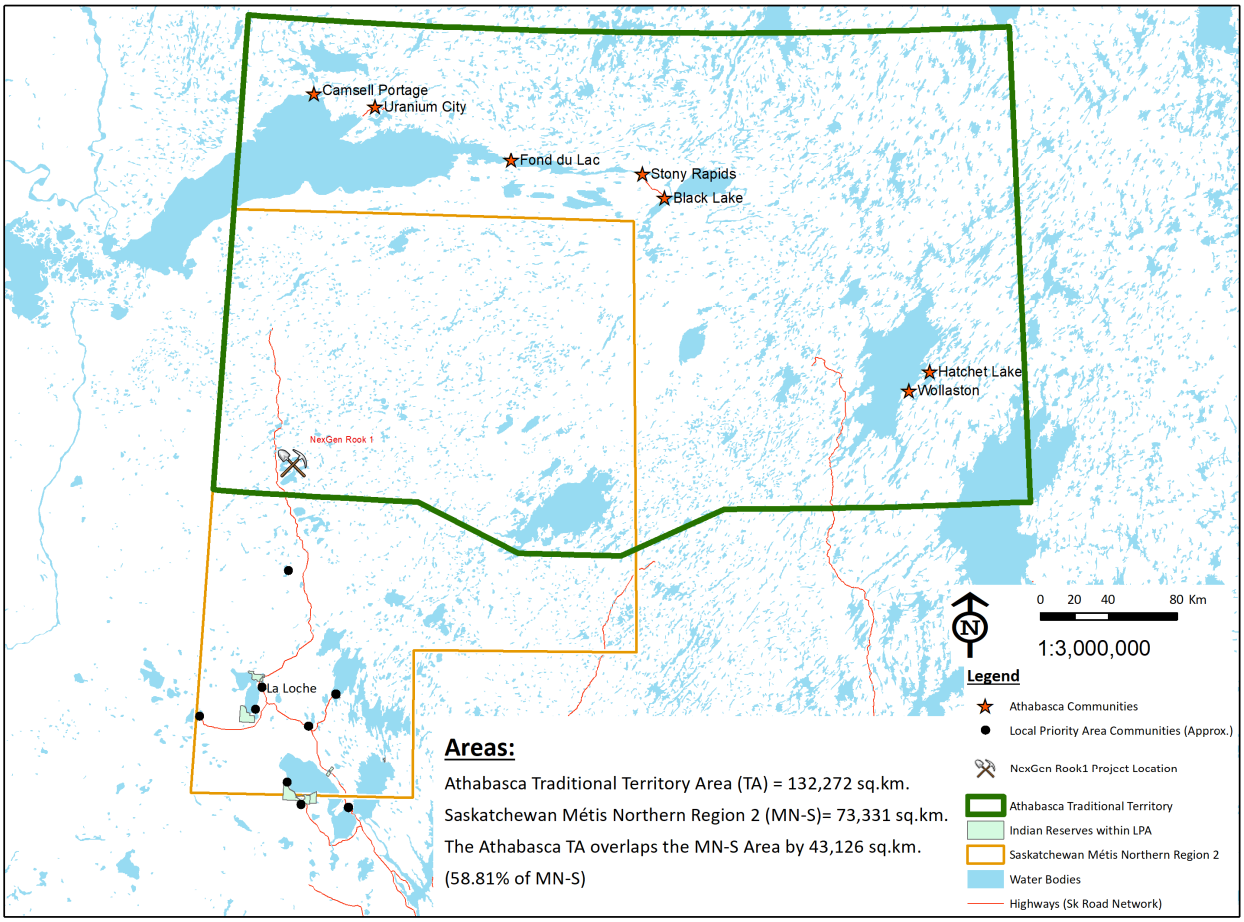


Figure 5. Overlap of Athabasca Denesųłiné Traditional Territory with Métis Nation – Saskatchewan (MN-S) Northern Region 2 (58.8% overlap)



The EIS states NexGen used CNSC REGDOC-3.2.2 Version 1.1, Indigenous Engagement (2019) when identifying Indigenous Groups for Engagement (p 1-25).

The key factors for determining the inclusion of an Indigenous Group as per the CNSC guidelines and the NexGen Rook 1 EIS (p 1-24, 1-25) are noted below, ***and key Athabasca Denesųłiné considerations follow.***

Historical and modern treaties in the region of the regulated facility

Key AD Considerations: The Rook 1 project is situated in Treaty 8 near the boundary of Treaty 10. There are only three First Nations in Saskatchewan that are signatories to Treaty 8: Two of these are Athabasca (AD) communities: Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation. Another of the communities represented by YNLR is Hatchet Lake Denesųłiné First Nation who is a signatory to Treaty 10 like many of the other Indigenous communities discussed in the NexGen EIS.

Potential impacts to the health and safety of the public, the environment and any potential or established Indigenous and/or treaty rights and related interests

Key AD Considerations: The Athabasca Denesųłiné has a long-established traditional territory and Treaty rights in the project area. Further there is documented Athabasca

Denesųłiné knowledge, land use, and occupancy in the project area. It is reasonable to conclude that the Athabasca Denesųłiné could be impacted.

Proximity of the regulated facility to Indigenous communities

Key AD Considerations: The Athabasca Denesųłiné has a long-established and documented traditional territory overlapping the area of the regulated facility. Further, our Treaty 8 Communities are180km and 260 km from the proposed Project. Generally, the area is not accessed via road. Travel to this part of our traditional territory is cross-country.

Existing relationships between Indigenous groups and licensees or the CNSC

Key AD Considerations: The Athabasca Denesųłiné have a well-established relationship with the CNSC. We have been developing a relationship with NexGen since 2019. Both should be aware of our Treaty and Traditional Territory.

Settled or ongoing litigation related to a potentially impacted group

Key AD Considerations: There is no on-going or settled litigation involving the Athabasca Denesųłiné in the project area. We believe that this is a positive condition.

Membership in a broader Indigenous collective or tribal council or Indigenous umbrella group

Key AD Considerations: YNLR is a not-for-profit organization established by the Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, and Hatchet Lake Denesųłiné First Nation (collectively known as Athabasca Denesųłiné) and the municipalities of Camsell Portage, Uranium City, Stony Rapids and Wollaston Lake. YNLR has the authority to represent the communities in this EIS regulatory process. The three First Nations are also members of the Prince Albert Grand Council.

It is unknown what specific guidance was provided by provincial and federal regulatory agencies to NexGen with regards to identifying primary Indigenous Groups, but a comparison situation with the stated identification criteria clearly shows that we should be considered a primary Indigenous group. The key Athabasca Denesųłiné considerations should have been well known by both NexGen and CNSC given materials provided and discussions undertaken. This is further elaborated below.

The following table from the EIS (P 1-26, 1-27) describes NexGen's rationale for the categorization of Athabasca Denesųłiné communities (Black Lake and Fond du Lac) as "Other Indigenous Groups". The highlighting has been added by AD.

Table 1.2-2: Other Indigenous Groups Identified in Relation to Rook I Project Engagement

Indigenous Group	Location	Rationale
Athabasca Chipewyan First Nation	Located in Alberta, approximately 130 km from the Project to the reserve boundary, or 620 km by road, including portion on a winter road; approximately 1,350 km by all-season road.	▪ Treaty 8 signatory ▪ Previous engagement with the CNSC on the Cluff Lake Project ▪ Potential overlap with traditional territory but no access link or known residency/land use
Black Lake Denesųłiné First Nation[a]	Populated reserve located on Black Lake, approximately 260 km from the Project to the reserve boundary, or 1,230 km by road, a portion of which is a winter road.	▪ Treaty 8 signatory ▪ Previous engagement with the CNSC on uranium mining/milling projects in Saskatchewan
Fond du Lac Denesųłiné First Nation[a]	Populated reserve located on Lake Athabasca, approximately 180 km from the Project to the reserve boundary, or 1,335 km by road, a portion of which is a winter road.	▪ Treaty 8 signatory ▪ Previous engagement with the CNSC on uranium mining/milling projects in Saskatchewan

a) Fond du Lac Denesųłiné First Nation and the Black Lake Denesųłiné First Nation, as represented by YNLR.
CNSC = Canadian Nuclear Safety Commission; YNLR = Ya'thi Néné Lands and Resources.

Comparing the information in EIS Table 1.2-2 with the identification criteria discussed above, several gaps are immediately evident. The overlap of the Athabasca Denesųłiné traditional territory with the project area is missing. The documented traditional use in the vicinity of the project is missing. The proximity of our communities to the project site are downplayed by using a road distance measure rather than the well documented cross-country routes our members generally use to access this portion of our territory. In fact, Fond du Lac is closer to the project site than a number of other groups considered primary.

"NexGen confirmed the designation of primary Indigenous Groups for the EA process through the signing of Study Agreements in 2019." (p 1-27) These confidential Agreements included commitments to:

- Develop a Joint Working Group structure for each Indigenous Group to support the inclusion of Indigenous Knowledge into the EA process and to facilitate regular, ongoing engagement
- Assist in the identification of valued components (VCs) for the EA
- Explore special interest topics for each Indigenous Group
- Support Indigenous Knowledge and Traditional Land Use (IKTLU) Studies in various forms particular to each Indigenous Group
- Establish a community Coordinator position in Each Indigenous Group to act as the primary contact between NexGen and the Indigenous Group

"Each study Agreement formalized an engagement process between NexGen and individual Indigenous Groups to, among other things, identify and characterize potential effects on Indigenous rights and socio-economic interests resulting from the project, ….." (p 1-27)

Additionally, the Study Agreements commit NexGen to negotiate in good faith to formalize a Benefit Agreement and NG to provide funding to assist in negotiating such an agreement. (p 1-28).

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The inclusion of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. This is prejudicial and self-perpetuating.

NexGen reports in the EIS that a limited Study Funding Agreement was signed with YNLR that was strictly for an IKTLU Study. (P 1-28).

In 2020, the Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – was prepared by the Athabasca Denesųłiné with financial support from NexGen. This report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, way of life and dependence on the barren-ground caribou herds and other wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general. The Athabasca Denesųłiné information provided was, in our opinion, sufficient to positively address each of the CNSC and NexGen criteria for the identification of primary Indigenous Groups. It appears that this information was not considered when developing the list of primary Indigenous Groups and thus Athabasca Denesųłiné were excluded with all of the ramifications discussed above.

The EIS notes that information from the IKTLU shows that Indigenous Groups use the area near the Project for hunting, fishing, trapping, gathering and other activities. (p 1-28).

We find it ironic that our traditional use of the project area as demonstrated in our ADKLUO study appears to be recognized by the Proponent, but this has not led to a greater and more appropriate consideration with the EA process.

1.3.2 Assessment of Impacts on Indigenous Rights

This section describes that the Crown's duty to consult and accommodate prior to making decisions that may adversely impact established or claimed Aboriginal or Treaty rights protected by the Constitution remains despite the undertakings of NexGen. It is recognized that

results from this EA process may inform the Crown's consultation process. Further, the EIS notes that Benefit Agreements reached between NexGen and Indigenous Peoples is indicative of Indigenous group support and consent for the Project. (p 1-43)

The Athabasca Denesųłiné remind all parties that the consideration of the impacts of the NexGen project on our rights and interests is incomplete as discussed herein.

Sustainability is embedded in all of NexGen's business and operational decisions, and has been since the company's inception. NexGen is maximizing value to all stakeholders in a way that makes a lasting positive impact environmentally, socially, and economically. This is achieved through responsible development that is underpinned by effort and dedication towards environmental protection, cultural respect, health and wellness, education, careers, and training and economic capacity building (Page 1-4, EIS).

Transparent discussion and meaningful collaboration are at the core of NexGen's approach to Indigenous, regulatory, and public engagement. Encouraging progressive, broader thinking balanced with technical competence and a deep and abiding respect for the local Indigenous Peoples' and communities' understanding of the local area, site specifics, and industry best practice, is key in this approach (Page 1-11, EIS.)

Recognizing the importance of Indigenous Group and community input, NexGen continually considers and strives to acknowledge and incorporate key community feedback in the design and development of the proposed Project. Key themes NexGen has heard and addressed include (Page 1-12, EIS):

Recognizing, accepting, and respecting the local community's rights and cultural links to and reliance upon the land and its resources to support current and future generations
Minimizing disturbances, to the extent possible, and protecting the quality of the water, air, land, wildlife, and human health through all phases of the Project
Continued, effective, and respectful engagement with the local communities through all phases of the Project, including consideration of valuable feedback
Maximizing potential business and employment opportunities for local people through all phases of the Project to support current and future generations

YNLR identifies with this company philosophy and approach, which mirrors its own for the sustainable development of northern resources that provides long-lasting benefits for its aboriginal people. As such, YNLR expects to be closely engaged by NexGen as the Project unfolds.

NexGen is dedicated to minimizing potential effects on the environment throughout all phases of the Project, incorporating proven best practices and designs around mine planning, tailings, and mine rock management, and reducing the operational footprint. NexGen delivers innovative solutions to complement proven technologies while recognizing and valuing the importance of protecting and preserving the environment throughout the Project lifespan and beyond (Page 1-13, EIS).

Following meaningful engagement with YNLR community members, YNLR places the protection and conservation of the natural environment as a very high priority. The local people will still be living in the area long after the uranium ore has been mined out. The quality of their lives, and the lives of their descendants should not be impacted by any social, economic, or environmental damage that could result from the Project.

Knowledge of community values, commitment to high standards, and understanding of lessons learned from other mining operations complement NexGen's life cycle engagement for the Project that is early, often, lasting, and transparent (Page 1-14, EIS).

Identification, presentation, and due consideration of local Indigenous Groups' input through the early and ongoing engagement processes has validated, informed, and influenced aspects of Project design. These aspects include the deposition of all tailings underground, minimization of the total site disturbance footprint, optimization of water management strategies and infrastructure, and commitment to fund and support independent Indigenous Monitors chosen by each primary Indigenous Group for opportunities to participate in environmental monitoring programs for the Project through all phases (Page 1-14, EIS).

YNLR concurs with these statements. Too many mining projects ignore the context and lessons from the past, and indigenous people are rarely involved with such aspects as project monitoring.

Some key aspects of the Project design that reflect NexGen's commitment to protecting the environment and the safety of workers and the public include (Page 1-31, EIS:

Deposition of tailings underground (i.e., the UGTMF), as opposed to on or near surface, to eliminate surface infrastructure and the associated risk
Intentional consolidation and limiting of the total Project footprint as much as practical to minimize the loss of land use by Indigenous Peoples and others; minimize loss of wildlife habitat; and increase the ease and rate of progressive reclamation
Use of primarily liquid natural gas for power generation to reduce Project GHG emissions

YNLR supports these decisions that minimize the footprint and associated environmental risks of the Project.

Year-round vehicle and heavy equipment access to the proposed Project would involve upgrading the existing all-season access road from Highway 955. The access road would be used to transport equipment, materials, personnel, and supplies to and from the Project, as well as for hauling the uranium concentrate product off site.
During Construction, contractors would be transported by bus to site from La Loche until the airstrip is completed. During Operations and Closure, Project staff and contractors would be transported to and from site by aircraft (Page 1-32, EIS).

YNLR supports the planning that precludes new roads, which act to increase the direct and indirect disturbance to fish and wildlife.

Section 2: Indigenous, Regulatory, and Public Engagement

This section documents Indigenous (First Nation and Métis), regulatory, and public engagement activities for the Project in support of the Environmental Assessment (EA).

2.1 Introduction

Footnote on p 2-2 notes that "engagement efforts for the Project were specifically focused on communities local to the proposed Project". (p 2-2)

Given that engagement efforts are directed at local communities, the exclusion of the Athabasca Denesųłiné is prejudicial and ensures that our rights and interests cannot be fully considered. It is the opinion of the Athabasca Denesųłiné that we are a local community.

Figure 2.1-1. Location of the Rook 1 Project (p 2-4)

Figures 2.1-1 shows the Athabasca Denesųłiné reserves but does not name the First Nations or show community location. Further, the map does not show the Athabasca Denesųłiné traditional territory. The maps should show this information. This information has been available to the public since 2008 - prior to the beginning of NexGen's Rook 1 project. Our traditional territory is referenced on the YNLR website (www.yathinene.ca) and was available on the sites of our predecessor organisations through the Prince Albert Grand Council. This information was contained within the report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment - provided to NexGen in December 2020. Lastly, we include a map of the Athabasca Denesųłiné traditional territory herein as Figure 2.

2.2.2 Community Initiatives

Initiatives noted in the EIS include (p 2-7, 2-8):
Summer student program (starting 2016), scholarships for local students (since 2017 for students in LPA), School breakfast program (since 2017), Youth sports program (since 2017), Recreational program (since 2018), Other community initiatives (since 2018), Dog adoption program (since 2015).

Athabasca Denesųłiné were not included in such programs.

2.3 Engagement Framework

The EIS notes that engagement is primarily focussed on collaboration with "directly affected (i.e., primary) Indigenous Groups for meaningful information sharing, Indigenous and Local Knowledge to be captured and appropriately considered within the EA and promotion of a life cycle planning approach by starting with the end in mind." (p 2-8, 2-9)

Further the EIS notes that YNLR is considered a stakeholder in the broader region and will be informed and presented an opportunity to provide comments and feedback. (p 2-9)

The process to identify primary Indigenous communities and the development of a Local Project Area (LPA) began in 2013. Unfortunately, NexGen did not seek to involve Athabasca Denesųłiné until May 2019. In 2020, the Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – was prepared by the Athabasca Denesųłiné with financial support from NexGen. This report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, way of life and dependence on the barren-ground caribou herds and other wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general. The Athabasca Denesųłiné information provided was, in our opinion, sufficient to meet the CNSC and NexGen criteria for the identification of primary Indigenous Groups. It appears that this information was not considered when developing the list of primary Indigenous Groups.

As the Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group and were not afforded the opportunity to sign a fulsome Study Agreement that would have allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The involvement of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné rights and interests and how they might be impacted by the Rook 1 Project and would have helped ensure that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. This is prejudicial and self-perpetuating.

2.3.1 NexGen Standards

EIS page 2-10 lists key engagement objectives that are incorporated specific to the Project and approach to engagement for the EA.

Since Athabasca Denesųłiné were not considered a "primary" Indigenous group, but rather "other", the Athabasca Denesųłiné were perhaps not provided with an opportunity for meaningful engagement; full consideration of our rights, interests, traditional knowledge; and the chance to have our issues and concerns understood and responded to adequately.

2.3.2.1 Federal Regulatory Guidance

EIA states that NexGen's approach to consultation and engagement aligns with the approach outlined in these documents (p 2-13).

REGDOC-3.2.2 Version 1.1, Indigenous Engagement (CNSC 2019)
(http://www.nuclearsafety.gc.ca/pubs_catalogue/uploads/REGDOC-3-2-2-Aboriginal-Engagement-version-1.1-eng.pdf)
REGDOC-3.2.1, Public Information and Disclosure (CNSC 2018)

As noted in our comments on section 1.2.3 above and section 2.4.1 below, Athabasca Denesųłiné believes that we have fully met the "key factors" for consideration as a primary Indigenous group deserving of consultation on the high end of the spectrum.

The EIS references Technical Support Document (TSD) I, Indigenous Engagement Report that was prepared and submitted with the EIS. This report provides information on Indigenous engagement activities completed up to 28 February 2022 (p 2-13)

We don't believe that we have received this report.

2.3.2.2 Provincial Regulatory

The EIS indicates that Provincial guidance is found in 3 documents (p 2-14))

1. First Nation and Métis Consultation Policy Framework (Govt of Saskatchewan)

https://pubsaskdev.blob.core.windows.net/pubsask-prod/98187/98187-Consultation_Policy_Framework.pdf

2. Proponent Handbook – Voluntary Engagement with First Nations and Métis Communities to Inform Government's Duty to Consult Process (Government of Saskatchewan)

https://pubsaskdev.blob.core.windows.net/pubsask-prod/94455/94455-Proponent_Handbook.pdf

3. Proponents Guide – Consultation with First Nations and Métis in Saskatchewan Environmental Impact Statement (Government of Saskatchewan)

http://www.environment.gov.sk.ca/eaproponentconsultationguidelines

The Athabasca Denesųłiné believe that the information provided to the Proponent including the 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – which was prepared by the Athabasca Denesųłiné with financial support from NexGen substantially contributes to meeting the many aspects of the identified guidelines. The report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, and way of life and their dependence on the barren-ground caribou herds and other wildlife, Nuhenéné (AD traditional territory) and provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general. Based on this information greater consultative efforts and considerations are required.

2.4 Indigenous Group and Stakeholder Identification

The EIS states "Prior to commencement of the EA process in 2019 through the submission of the Project Description, NexGen regularly engaged with local Indigenous Groups and communities on proposed exploration activities and early Project development aspects" (p 2-14)

Further the EIS says "A key focus of the Indigenous Group …identification process was to understand [those] that would most likely be affected by the proposed Project. The establishment of an LPA stemmed from this identification process. The LPA consists of the local communities closest to the Project that would experience most of the Project effects and for which NexGen would prioritize local training, employment, and business opportunities for the Project." (p 2-14, 2-15)

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019.

Based on the early engagement (e.g., pre-2019) primary communities deemed most likely affected by the proposed Project were identified. Then using these identified communities as a guide, a LPA (local priority area) was established. NexGen engagement activities were focused on primary communities in the LPA. This approach has at least three flaws. First, it ignores or disregards the information provided by the Athabasca Denesųłiné in 2020 that clearly demonstrates their interests in the vicinity of Rook 1. Clearly processes need to respond to the information available. Second, because the inclusion of communities in the LPA (and indeed the geographic extent of the LPA) is based on whether or not they were previously identified means that AD's exclusion is likely self-perpetuating. The Athabasca Denesųłiné were not involved in the early stages so they could not possibly have been considered nor could the LPA area include them. Third, the proximity of our communities to the project site is downplayed in the EIS by using a road distance measure rather than the well documented cross-country routes our members generally use to access the portion of our territory near the Project. In fact, Fond du Lac is closer to the project site than a number of other groups considered primary!

2.4.1 Identification of Indigenous Groups for Engagement

The EIS states that the NexGen process to determine engagement requirements for Indigenous Groups included consideration of (CNSC 2019) the key points of which are outlined below (p 2-17), ***and key Athabasca Denesųłiné considerations follow:***

- Historical and modern treaties
  - ***Key AD Considerations: The Rook 1 project is situated in Treaty 8 near the boundary of Treaty 10. There are only three First Nations in Saskatchewan that are signatories to Treaty 8. Two of these are Athabasca (AD) communities: Black Lake Denesųłiné First Nation, and Fond du Lac Denesųłiné First Nation. Another of the communities represented by YNLR is Hatchet Lake Denesųłiné First Nation who is a signatory to Treaty 10 like many of the other Indigenous communities discussed in the NexGen EIS.***
- Proximity of the Project to Indigenous communities
  - ***Key AD Considerations: The Athabasca Denesųłiné has a long-established and documented traditional territory overlapping the area of the regulated facility. Further, our Treaty 8***

Communities are180 km and 260 km from the proposed Project. Generally, the area is not accessed via road. Travel to this part of our traditional territory is cross-country.

- Traditional territories
- ***Key AD Considerations: Athabasca Denesųłiné has a long-established and documented traditional territory. This information has been available to the public since 2008 - prior to the beginning of NexGen's Rook 1 project. In addition, our traditional territory has been previously discussed in other regulatory proceedings as well as in interactions with the CNSC, the Province, and industry. Further our traditional territory is referenced on the YNLR website (www.yathinene.ca) and was available on the sites of our predecessor organisations through the Prince Albert Grand Council. This information was contained within the report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment - provided to NexGen in December 2020. Lastly, for reference, we include a map of the Athabasca Denesųłiné traditional territory herein as Figure 2.***
- Traditional and current land uses
- ***Key AD Considerations: In 2020, the Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – was prepared by the Athabasca Denesųłiné with financial support from NexGen. This report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, way of life and dependence on the barren-ground caribou herds and other wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general. Additional information was provided during the few engagement sessions held with YNLR and our communities.***
- Settled or ongoing land claims and/or litigation
- ***Key AD Considerations: There is no on-going or settled litigation involving the Athabasca Denesųłiné in the project area. We believe that this is a positive condition.***
- Existing relationships between Indigenous communities and NexGen or the CNSC; and
- ***Key AD Considerations: The Athabasca Denesųłiné have a well-established relationship with the CNSC. We have been developing a relationship with NexGen since 2019. Both should be aware of our Treaty and Traditional Territory.***
- Potential Project effects on health and safety, the environment, and any potential or established Aboriginal or treaty rights and related interests of Indigenous Groups
- ***Key AD Considerations: The Athabasca Denesųłiné has a long-established traditional territory and Treaty rights in the project area. Further there is documented Athabasca Denesųłiné knowledge, land use, and occupancy in the project area. It is reasonable to conclude that the Athabasca Denesųłiné could be impacted.***

It is unknown what specific guidance was provided by provincial and federal regulatory agencies to NexGen with regards to identifying primary Indigenous Groups, but a

comparison with the stated identification criteria clearly shows that we should be considered a primary Indigenous group. The key Athabasca Denesųłiné considerations should have been well known by both NexGen, CNSC, and the Province given materials provided and discussions undertaken. This is further elaborated below.

The EIS further describes a process involving engagement requirements, the CNSC consultation spectrum, and CNSC/ENV letters to Indigenous groups that resulted in the identification of primary Indigenous groups. These groups are then listed and the rationale for their designation described in Table 2.4-3. NexGen noted that this designation was confirmed through the signing of Study Agreements in 2019. (p 2-17, 2-18, 2-19, 2-20).

Despite the information provided by the Athabasca Denesųłiné and the interest shown in the Project, they were not categorized as a primary Indigenous Group. They were relegated to the "other" Indigenous group category that ensured less interaction and interaction at the lower end of the consultation spectrum.

The following table from the EIS (Table 2.4-4, p 2-20) describes NexGen's rationale for the categorization of Athabasca Denesųłiné communities (Black Lake and Fond du Lac) as "Other Indigenous Groups".

Table 2.4-4: Other Indigenous Groups Identified in Relation to the Rook I Project

Indigenous Group	Location	Rationale
English River First Nation	Population centre located on Highway 918, approximately 130 km from the Project to the closest reserve parcel, or 465 km by road from the Project	▪ Proximity of reserve land to the Project but no access link or known residency/land use ▪ Potential overlap with traditional territory ▪ Participation in engagement related to the Cluff Lake operation
Athabasca Chipewyan First Nation	Located in Alberta, approximately 130 km from the Project to the reserve boundary, or 620 km by road, including portion on a winter road; approximately 1,350 km by all-season road	▪ Treaty 8 signatory ▪ Previous engagement with the CNSC on the Cluff Lake Project ▪ Potential overlap with traditional territory but no access link or known residency/land use
Black Lake Denesųłiné First Nation[(a)]	Populated reserve located on Black Lake, approximately 260 km from the Project to the reserve boundary, or 1,230 km by road, a portion of which is a winter road	▪ Treaty 8 signatory ▪ Previous engagement with the CNSC on uranium mining/milling projects in Saskatchewan
Fond du Lac Denesųłiné First Nation[(a)]	Populated reserve located on Lake Athabasca, approximately 180 km from the Project to the reserve boundary, or 1,335 km by road, a portion of which is a winter road	▪ Treaty 8 signatory ▪ Previous engagement with the CNSC on uranium mining/milling projects in Saskatchewan

a) Fond du Lac Denesųłiné First Nation and the Black Lake Denesųłiné First Nation, as represented by Ya'thi Néné Lands and Resources
CNSC = Canadian Nuclear Safety Commission.

Comparing the information in EIS Table 12.4-4 with the identification criteria discussed above, several gaps are immediately evident. The overlap of the Athabasca Denesųłiné traditional territory with the project area is missing. The documented traditional use in the vicinity of the project is missing. The proximity of our communities to the project site are downplayed by using a road distance measure rather than the well documented cross-country routes our members generally use to access this portion of our territory. In fact, Fond du Lac is closer to the project site than a number of other groups considered primary.

2.5 Engagement Approach

The EIS states "During early engagement activities, NexGen developed an initial understanding of the Indigenous Groups and stakeholders with a potential interest in the Project, social

context and relationships, preferred engagement processes (e.g., formal and informal communication channels), and preferred engagement methods and needs". (p 2-24).

Further, NexGen and the primary Indigenous Groups defined the specific parameters for engagement through Study Agreements (Section 2.5.2.1) (P 2-24).

As the Athabasca Denesųłiné were not included during early engagement activities, nor were we considered a primary Indigenous Group, nor are we included with in the resultant LPA, it would have been difficult for NexGen to develop an understanding of the Athabasca Denesųłiné including our rights and interests and determine preferred engagement process and techniques as well as participate in a fulsome Study Agreement. Unfortunately, the Athabasca Denesųłiné were not engaged until 2019, and then only at the low end of the consultative spectrum, but it appears that the overall EIS process had difficulties incorporating and adjusting to new information.

The EIS also states that "NexGen …sought feedback from Indigenous Groups and stakeholders regarding future items to be discussed. This feedback resulted in customized engagement such as tailored presentations to Indigenous Groups on caribou and the EA process, as well as cultural share presentations by Indigenous Groups including stories, historical documents, animal furs, crafts, and culturally significant foods." (p 2-26)

Regrettably, the Athabasca Denesųłiné were not included in these engagements. Assuredly, the Athabasca Denesųłiné communities would have welcomed the opportunity to both learn more about the EA undertakings and to share their knowledge of the land, their traditional territory and their rights and interests.

2.5.1 General Communications Methods

There were multiple means and methods of communications during Project engagement including Face-to face meetings, Noticeboards, social media, websites, radio/television, newspapers, mail-outs, community events. (p 2-27, 2-28).

Most of these methods were targeted at, and specific to communities in the LPA, and therefore the Athabasca Denesųłiné were excluded.

2.5.2 Indigenous Engagement Methods

The EIS states that "primary Indigenous Groups were invited to engage fully with NexGen, while other Indigenous Groups were initially informed of the Project by the CNSC and ENV and invited by NexGen to remain informed throughout the EA process." (p 2-29)

Further the EIS notes that "The level to which any Indigenous Group has been and will continue to be engaged is determined through a process that includes consultation between the potentially affected Indigenous Group and NexGen and can evolve as the Project progresses." (p 2-29)

Mistakenly, the Athabasca Denesųłiné were categorized as "other" Indigenous Group rather than a "primary" Indigenous Group due to the engagement process followed and

were thus relegated to an "inform" designation along the spectrum of engagement. Following the provision of detailed information in our 2020 report and in discussions with NexGen and the CNSC, it was expected that our participation would evolve to reflect our situation, rights, and interests and be moved into the primary Indigenous Group category and to move further along the spectrum of engagement. Unfortunately, any increased consultation and engagement efforts and consideration were limited.

2.5.2.1 Study Agreements

Primary Indigenous Groups entered Study Agreements that were signed in September and October of 2019 that included:

- Develop a Joint Working Group structure for each Indigenous Group to support the inclusion of Indigenous Knowledge into the EA process and to facilitate regular, ongoing engagement
- Assist in the identification of valued components (VCs) for the EA
- Explore special interest topics for each Indigenous Group
- Support Indigenous Knowledge and Traditional Land Use (IKTLU) Studies in various forms particular to each Indigenous Group
- Establish a community Coordinator position in each Indigenous Group to act as the primary contact between NexGen and the Indigenous Group

Additionally, the Study Agreements commit NexGen to negotiate in good faith to formalize a Benefit Agreement and NexGen to provide funding to assist in negotiating such an agreement

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The inclusion of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. This is prejudicial and self-perpetuating.

NexGen notes in the EIS that a limited Study Funding Agreement was signed with YNLR that was strictly for an IKTLU Study. (p 2-30).

In 2020, the Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – was prepared by the Athabasca Denesųłiné with financial support from NexGen. This report provided an overview of the Athabasca Denesųłiné (AD) including culture, history,

Treaties, way of life and dependence on the barren-ground caribou herds and other wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general. The Athabasca Denesųłiné information provided was, in our opinion, sufficient to positively address each of the CNSC and NexGen criteria for the identification of primary Indigenous Groups. It appears that this information was not considered when developing the list of primary Indigenous Groups and thus Athabasca Denesųłiné were excluded with all of the ramifications discussed above.

2.5.2.2 Indigenous Group Engagement Methods Summary

Primary Indigenous Groups were engaged by:
JWG meetings, meeting information presentations, engagement update letters to community Coordinators, JWG presentation summaries, JWG breakout sessions, project information packages, additional information (JWG), KP (key person) interviews, Site tours, Project Liaison Manager. The purpose of these engagements was wide-ranging. (Table 2.5-1, p 2-32, p 2-33)

YNLR as an "other Indigenous Group" was engaged by:
Meetings (with a focus on informing), and project information updates. (Table 2.5-2).

The Athabasca Denesųłiné were engaged with using far fewer methods and with a much narrower focus than primary Indigenous groups. The greater involvement of Athabasca Denesųłiné within the engagement activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. This is prejudicial and self-perpetuating.

2.5.4 Public Engagement Methods (includes LPA communities identified as primary target audience

LPA communities were engaged by:
Project information packages, Newsletters, Emails, Letters, Telephone, in-person and virtual Meetings, Surveys and questionnaires, KP (key person) interviews, Community information sessions, Site tours, Project Liaison Manager. The purpose of these engagements was wide-ranging. (see Table 2.5-4) (p 2-36, 2-37)

Regrettably, the Athabasca Denesųłiné communities were not engaged in this manner. It constituted a lost opportunity for joint learning and sharing between Athabasca Denesųłiné and NexGen.

2.5.5 Incorporation of Indigenous and Local Knowledge

The EIS states that "Indigenous and Local Knowledge for the Project was collected through the IKTLU Studies, JWGs, community information sessions, site tours with community members, other formal and informal meetings, and research conducted as part of environmental and socio-economic baseline data collection programs" … "The majority of Local Knowledge was shared through EA baseline activities or other formal or informal individual and community events, including the community information sessions held in 2019 and KP interviews" (p 2-37).

With the exception of an Athabasca Denesųłiné IKTLU study, which was impacted by the COVID pandemic, the Athabasca Denesųłiné were not included in any of the other noted knowledge sharing processes.

The greater involvement of Athabasca Denesųłiné within these engagement activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the majority of these opportunities ensures that they are afforded less attention than other Indigenous peoples. This is prejudicial and self-perpetuating.

2.6.1 Indigenous Engagement

In the EIS Table 2.6-1 (p 2-40) summarizes Key Engagement Activities (but not all communication) with the four primary Indigenous Groups. A total of 631 Key Engagement Activities are recorded.

Table 2.6-2 summarises YNLR key engagement activities, including correspondence. (p 2-40)

This means there is an average of over 157 Key Engagement Activities per primary Indigenous Group. For comparison, YNLR had only 29 key engagement activities including 20 emails/letters of correspondence, and 9 meetings (in-person/video). The greater involvement of Athabasca Denesųłiné within these engagement activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the majority of these opportunities ensured that they were afforded less attention than other Indigenous peoples. This is prejudicial and self-perpetuating.

2.6.1.1.1 Summary of Joint Working Group Activities

"Joint Working Groups were established in late 2019…as a means of early engagement and collaboration…to facilitate regular, ongoing engagement during the EA process. A Community Coordinator for each Indigenous Group acts as a liaison and helps coordinate planning…the position is funded by NexGen" (p 2-41). JWG meeting Topics are listed in Table 2.6-3 and include VCs, assessments, Caribou, IKTLU, baseline studies, Monitoring and many more. (p 2-42)

Unfortunately, the Athabasca Denesųłiné were not included in the Joint Working Groups. Athabasca Denesųłiné may have had some good information to share and would have appreciated the opportunity to learn from others.

2.6.1.1.2 Joint Working Group Breakout Sessions

The EIS notes that additional JWG breakout sessions were held (p2-44).

Unfortunately, the Athabasca Denesųłiné were not included in the Joint Working Groups and their breakout sessions. Athabasca Denesųłiné may have had some good information to share and would have appreciated the opportunity to learn from others.

2.6.1.2.1 Primary Indigenous Groups

Detailed summaries of identified topics of interest, issues, and concerns for of each Primary Indigenous Group's issues are identified in text and in tables (p 2-46, 2-47, 2-48, 2-49, 2-50, 2-51) (Tables 2.6-5, 2.6-6. 2.6-7, 2.6-8)

AD notes that more meetings and engagement result in more detail. While fewer meetings and engagement result in less detail.

2.6.1.2.2 Other Indigenous Groups

The EIS states "Through their IKTLU Study (TSD VI: YNLR), the YNLR provided topics of interest, issues and concerns. In general, the YNLR have indicated an interest in economic opportunities being provided to communities across the Athabasca Basin. General concerns outlined by YNLR included potential effects to water quality within the Athabasca Basin, noise disturbances associated with increased traffic, and the potential impacts to community members' ability to access traditional land and resource, and the ability to utilize those resources." (p 2-51)

We are pleased that there is some reference to the Athabasca Denesųłiné, but we believe the summary is incomplete. The 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment –provided an overview of Athabasca Denesųłiné (AD) culture, history, Treaties, way of life, and Nuhenéné (AD traditional territory).Further, it provided information on traditional (including contemporary) land use and knowledge, provided thematic maps of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas, and Dene names. The report also identified primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general that include:
1.wildlife harvest and habitat
2.water resources,
3.the continued ability to exercise Treaty and Aboriginal Rights and the protection of Athabasca Denesųłiné rights.
Any reference to economic activities in the ADKLUO report was indirect, though important. To be clear, there was no reference to the wider Athabasca Basin. Further Athabasca

Denesųłiné Treaty and Aboriginal Rights and their protection seemed to be excluded from the NexGen summary.

These issues and concerns along with others were raised during meetings between AD and NexGen and/or the CNSC.

Again, we note that more meetings and engagement mean more detail. While fewer meetings and engagement mean less detail. Clearly more engagement with primary Indigenous groups lead to a greater elaboration and understanding of their issues. Less engagement with the YNLR lead to less elaboration and less understanding and appreciation of Athabasca Denesųłiné issues.

2.6.1.3 Validation of Identified Issues

Restates that JWG meetings have been a primary means by which Indigenous Group interests and issues were identified and discussed…and that the issues were accurately understood and recorded by

- Having an open discussion when raised
- Recording meeting minutes to be reviewed
- Opportunities to revisit or review previous issues
- Published presentation summaries (p 2-51)

The Athabasca Denesųłiné were not included in this process and therefore did not have the same opportunity to further discuss their issues and interests.

2.6.3 Public Engagement

2.6.3.1 Summary of Public Engagement Activities

2.6.3.1.1 Summary of Community Information Sessions

These EIS sections detail the various public engagement and community information activities. (p 2-54, 2-55, 2-56, 2-57). While many topics were discussed, a key one was the June 2019 community information sessions where attendees were surveyed about important components (VCs) and identified most commonly water, wildlife, plants, and employment/job opportunities. Additional information was provided in Appendices.

The Athabasca Denesųłiné were not included in these activities and sessions.

2.6.3.1.2 Summary of Key Person Interview Research Program

78 Key Person (KP) interviews were conducted as part of the socio-economic baseline program. (p 2-58)

The Athabasca Denesųłiné were not included in the KP Research Program.

2.6.3.1.3 Summary of Youth Workshop

Held March 2020 in La Loche. Incorporated into the KP interview program and the EIS as applicable.
(also Women's Interviews and Trappers Workshops) (p 2-58)

The Athabasca Denesųłiné were not included in the Youth or other Workshops.

2.7 Moving Forward
2.7.1 Ongoing and Planned Engagement Activities

There is no mention of "other Indigenous Groups", Athabasca Denesųłiné, or YNLR in this section. There should be.

Appendix 2A Summary of Indigenous Group Engagement Activities
Ya'thi Néné Lands and Resources Table 2A-7 (p 44)
These materials detail NexGen's interactions/engagement with the Athabasca Denesųłiné (YNLR, Black Lake Denesųłiné First Nation, Fond du Lac First Nation).

The Athabasca Denesųłiné acknowledges that discussions have occurred concerning project descriptions and updates, roles and responsibilities of the Proponent and the CNSC, administrative issues, the ADKLUO study, possible future engagement opportunities, and others.

Appendix 2B Summary of Issues Identified by Indigenous Groups
YNLR summary in Table 2B-5 (p 20) includes 4 issues (economic opportunities, water contamination, noise, access of traditional lands and resources and the ability to use those resources).

AD reminds NexGen that our concerns and issues go further than the four identified in their summary and we urge the reader to look at comments under 2.6.1.2.2 Other Indigenous Groups.

The 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – provided an overview of Athabasca Denesųłiné (AD) culture, history, Treaties, way of life, and Nuhenéné (AD traditional territory). Further it provided information on traditional (including contemporary) land use and knowledge in thematic maps of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The report also identified primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general that include:

1. ***wildlife harvest and habitat***
2. ***water resources,***
3. ***the continued ability to exercise Treaty and Aboriginal Rights and the protection of Athabasca Denesųłiné rights.***

Any reference to economic activities in the ADKLUO report was indirect, though important. To be clear, there was no reference to the wider Athabasca Basin. Further Athabasca Denesųłiné Treaty and Aboriginal Rights and their protection seemed to be excluded from the NexGen summary.

Section 3: Indigenous and Local Knowledge

3.1 Introduction

The EIS notes NexGen's commitment to the "meaningful inclusion and consideration of Indigenous and Local Knowledge in the EA process, which contributes to a holistic and robust EIS for the Project. NexGen has been meeting with potentially affected or interested First Nation and Métis Groups (collectively referred to as Indigenous Groups) and local communities on the Project since 2013 (i.e., prior to exploration drilling), and is committed to fostering relationships that facilitate collaboration and respect diverse perspectives. NexGen will continue to work with Indigenous Groups to provide meaningful opportunities for Indigenous and Local Knowledge to be shared and incorporated into the EA." (p 3-1)

The Athabasca Denesųłiné are pleased with NexGen's commitments but have concerns about NexGen's approach to identifying primary and other Indigenous groups and the local priority area (LPA). The lesser level of involvement afforded to us due to our characterisation as a non-primary Indigenous Group, the modest consideration of our traditional territory, way-of-life, knowledge, land and resource use, and Treaty and Aboriginal rights is problematic. We have elaborated on these concerns in previous sections and will continue to elaborate on them within this section.

Figure 3.1-1 Project Location and Local Priority Area (p 3-2)

Figure 3.1-1 shows the reserves but does not name the First Nations or show community locations. Further, the maps do not show the Athabasca Denesųłiné traditional territory. The maps should show this information. This information has been available to the public since 2008 - prior to the beginning of NexGen's Rook 1 project. Our traditional territory is referenced on the YNLR website (www.yathinene.ca) and was available on the sites of our predecessor organisations through the Prince Albert Grand Council. This information was contained within the report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment - provided to NexGen in December 2020. Lastly, we include a map of the Athabasca Denesųłiné traditional territory here as Figure 2.

3.1.1 Inclusion of Indigenous and Local Knowledge in the Environmental Assessment – General Context

Section 3.1.1 (p 2-4) of the EIS begins with the ways Indigenous Knowledge is valuable to the EA process and to decision makers, and can contribute to:

- Key issues and interests of Indigenous Groups early in the process (AD Emphasis).
- Influencing the selection of Valued Components (VCs)
- Informing study design…based on Indigenous Knowledge…including important traditional use areas or culture sites
- Past and existing environmental or social conditions, including trends over time, based on experiences and long-term observations over multiple generations, and improve the understanding of the extent of potential cumulative effects on Indigenous Peoples, their rights, and other interests
- Links between components of the environment and understanding their relationships together and with spiritual and cultural contexts

- Understanding potential effects on VCs. Especially those important to Indigenous Peoples
- Mitigation measures to avoid or minimize effects on culturally sensitive sites and traditional resources.
- More effective long-term monitoring programs including involving IK holders to observe and collect monitoring data

The Athabasca Denesųłiné agree that Indigenous Knowledge is incredibly important and a cornerstone of modern EA. That is why we lobbied for greater involvement, prepared our report "Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment", participated in every meeting to which we were invited, and are commenting on the EIS.

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019.

Our ADKLUO report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, and way of life and their dependence on the barren-ground caribou herds and other wildlife, Nuhenéné (AD traditional territory). It further provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identified our primary concerns and potential impacts related to the NexGen Rook 1 Project and industrial development in general.

3.2 Indigenous Groups and Local Priority Area Communities

3.2.1 Indigenous Groups

Section 3.2.1 describes one of the "formative means by which Indigenous Groups were initially identified for inclusion in the EA process…through letters of notification issued by the CNSC and the Saskatchewan Ministry of Environment inviting Indigenous Groups to participate" (p 3-5). The letters "established those groups who should be considered as primary groups for engagement based on likely Project effects, and those who should be considered as other groups for NO] engagement." The primary Indigenous Groups (Clearwater River Dene, Métis Nation, Birch Narrows Dene, Buffalo River Dene) were "actively consulted" and given opportunities to be involved and were collaborated with throughout project development. Further NexGen has explored socio-economic and history and settlement patterns with those groups (p 3-6). Athabasca Denesųłiné is to be "informed" as the project advances.

Mistakenly, the Athabasca Denesųłiné were categorized as an "other" Indigenous Group rather than a "primary" Indigenous Group due to the engagement process followed and were thus relegated to an "inform" designation along the spectrum of engagement. Following the provision of detailed information in our 2020 report and in discussions with NexGen and the CNSC, it was expected that our participation would evolve to reflect our situation, rights, and interests and be moved into the primary Indigenous Group category

and to move further along the spectrum of engagement. Unfortunately, any increased consultation and engagement efforts were limited.

As noted in our comments on 2.6.1 above, there was an average of over 157 Key Engagement Activities per primary Indigenous Group while there were only 29 key engagement activities for YNLR. Greater involvement of Athabasca Denesųłiné within these engagement activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests, and how they might be impacted by the Rook 1 Project. This would have assisted NexGen (and the Regulators) to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. Our exclusion from the majority of these opportunities ensured that we were afforded less attention than other Indigenous peoples. This is prejudicial and self-perpetuating

See additional comments under 3.3.2 below.

3.2.1.5 Ya'thi Néné Lands and Resources

Section 3.2.1.5 (p 3-7) notes that the YNLR represents the Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, and Hatchet Lake Denesųłiné First Nation (collectively known as Athabasca Denesųłiné) and the municipalities of Camsell Portage, Uranium City, Stony Rapids and Wollaston Lake in this EIS regulatory process. The EIS acknowledges the traditional territory of the Athabasca Denesųłiné, and that the First Nation's are signatory to Treat 8 and Treaty 10. Further, the EIS states that "current land use activities [of the AD] are well documented in the vicinity of the proposed Project."

Given these acknowledgements, it is difficult to understand why the Athabasca Denesųłiné were not categorized as a Primary Indigenous Group. This shortcoming is discussed throughout this document.

3.2.2 Local Priority Area Communities

Section 3.2.2 describes again the **LPA** being communities with access from the highways north of the intersection of Highway 155 and Highway 955.

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019.

Based on the early engagement (e.g., pre-2019), primary communities that were deemed most likely affected by the proposed Project were identified. Then using these identified communities as a guide, a LPA (local priority area) was established. NexGen engagement activities were focused on primary communities in the LPA. This approach has at least three flaws. First, it ignores or disregards the information provided by the Athabasca Denesųłiné in 2020 that clearly demonstrates their interests in the vicinity of Rook 1. Clearly processes need to respond to the information available. Second, because the inclusion of communities in the LPA (and indeed the geographic extent of the LPA) is based on whether or not they were previously identified means that AD's exclusion is likely self-perpetuating. Since the Athabasca Denesųłiné were not involved in the early stages they could not possibly have been considered nor could the LPA area include them. Third. the

proximity of our communities to the project site is downplayed in the EIS by using a road distance measure rather than the well documented cross-country routes our members generally use to access the portion of our territory near the Project. In fact, Fond du Lac is closer to the project site than a number of other groups considered primary!

This exclusion of Athabasca Denesųłiné is erroneous and detrimental to the Athabasca Denesųłiné who are known to use the area around the proposed Project and who may be impacted by the Project.

Figure 3.2-1 Indigenous Groups and Local Priority Area Communities in the Vicinity of the Project

Figure 3.2-1 (p 3-8) ***shows the Athabasca Denesųłiné reserves but does not show our First Nations or community locations. Further, the maps do not show the Athabasca Denesųłiné traditional territory. The maps should show this information. This information has been available to the public since 2008 - prior to the beginning of NexGen's Rook 1 project. Our traditional territory is referenced on the YNLR website (www.yathinene.ca) and was available on the sites of our predecessor organisations through the Prince Albert Grand Council. This information was contained within the report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment - provided to NexGen in December 2020. Lastly, we include a map of the Athabasca Denesųłiné traditional territory herein as*** **Figure 2**.

3.3 Indigenous and Local Knowledge Framework
3.3.2 Study Agreements

Study agreements (Section 3.3.2, p 3-11) were signed in 2019 with primary Indigenous groups. The study Agreements are confidential but each agreement with Primary Indigenous Groups contained

- Develop a Joint Working Group structure for each Indigenous Group to support the inclusion of Indigenous Knowledge into the EA process and to facilitate regular, ongoing engagement
- Assist in the identification of valued components (VCs) for the EA
- Explore special interest topics for each Indigenous Group
- Support Indigenous Knowledge and Traditional Land Use (IKTLU) Studies in various forms particular to each Indigenous Group
- Establish a community Coordinator position in Each Indigenous Group to act as the primary contact between NexGen and the Indigenous Group

Additionally, the Study Agreements commit NG to negotiate in good faith to formalize a Benefit Agreement and to provide funding to assist in negotiating such an agreement

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison

position and for the ultimate development of Benefits Agreement. The inclusion of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. This is prejudicial and self-perpetuating.

NexGen notes in the EIS that a limited Study Funding Agreement was signed with YNLR in 2020 that was strictly for an IKTLU Study. (p 3-12).

In 2020, the Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – was prepared by the Athabasca Denesųłiné with financial support from NexGen. This report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, way of life and dependence on the barren-ground caribou herds and other wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general. The Athabasca Denesųłiné information provided was, in our opinion, sufficient to positively address each of the CNSC and NexGen criteria for the identification of primary Indigenous Groups. It appears that this information was not considered when developing the list of primary Indigenous Groups and thus Athabasca Denesųłiné were excluded with all of the ramifications discussed above.

3.3.3 Application of Indigenous Knowledge in the Environmental Assessment (p 3-12)
This EIS section (p 3-12, 3-13) discusses the application/ incorporation of Indigenous Knowledge in the EA and feedback received from Indigenous groups on this approach.

Unfortunately, most of the Indigenous Group feedback was provided via the JWGs that did not include the Athabasca Denesųłiné. For instance, seven (7) of the nine (9) comments raised were via JWGs.

3.5.1 Joint Working Groups
Section 3.5.1 (p 3-20) provides information about Joint Working Groups.

Unfortunately, the Athabasca Denesųłiné were not included in the Joint Working Groups.

3.5.2 Indigenous Knowledge and Traditional Land Use Studies
Section 3.5.2 (p 3-21) notes that YNLR prepared an Indigenous Knowledge and Traditional Land Use Study in 2020. This section further notes that some Indigenous groups, in addition to

preparing IKTLU studies, also undertook traditional foods studies and/or community led household harvest surveys.

Indeed, the YNLR prepared the 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – was prepared by the Athabasca Denesųłiné with financial support from NexGen. This report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, way of life and dependence on the barren-ground caribou herds and other wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general.

3.5.3 Sources of Local Knowledge

Section 3.5.3(p 3-21, 3-22) mentions that Local Knowledge for environmental and socio-economic baseline programs were derived through key person (KP) interviews, and workshops. Further there was employment from local Indigenous Groups and communities, and a summer student program that hired students from the LPA communities.

YNLR communities were not included in these programs.

3.6.2 Approach and Methods

3.6.2.1 Gathering Indigenous and Local Knowledge

At JWG meetings in late 2019 and mid 2021 (3.6.2.1 p 3-24 – 3-25), NexGen presented the list of preliminary Valued Components (VCs) for fish and fish habitat, vegetation, wildlife and wildlife habitat, and social, cultural, and economic VCs, which were informed in part by input received during community information sessions. Feedback from Indigenous Groups was then used to refine the list of VCs.

The Athabasca Denesųłiné were not part of these community information sessions or the JWGs. Therefore, we were not able to effectively participate in VC selection. Continued JWG meetings with other topics also excluded the Athabasca Denesųłiné.

3.6.2.2 Incorporating Indigenous and Local Knowledge
and
3.7 Influence on Project Planning and Design
and
3.8 Influence on the Environmental Assessment

Table 3.8-1 (p 3-36 to 3-39) Incorporation of Indigenous and Local Knowledge in the EA in each discipline (Air quality, noise, Climate change, Hydrogeology, Hydrology, Surface water quality and sediment quality, Fish and fish habitat, Terrain and soils, Vegetation, Wildlife and wildlife habitat, Human health, Cultural and heritage resources and Indigenous land and resource use, Other land and resource use, Economy, Community well-being,

The EIS (p 3-26) notes that the guidance document included instructions to discipline leads to include Indigenous and Local Knowledge alongside scientific information in the relative assessment subsections by incorporating and viewing Indigenous and Local Knowledge as equally valuable, complementary, and influential information alongside Western science. Discipline leads were also instructed to limit any analysis or interpretations of the Indigenous and Local Knowledge shared, to present it as closely as possible to the original source, and to quote directly where appropriate. To guide discipline leads in considering how Indigenous and Local Knowledge influenced their respective assessments, they were asked if Indigenous and Local Knowledge:

- Confirmed or verified currently known information;
- Improved or enhanced known information;
- Contradicted current information, and if so, whether there were any perspectives shared that were critical to the Project assessment; and
- Informed methods, mitigation, analysis, or the monitoring approach/design.

The incorporation of Indigenous and Local Knowledge into each discipline assessment was reviewed by an EA coordinator with experience incorporating Indigenous and Local Knowledge into EAs for accuracy and consistency, and to determine if there was any additional information to be considered by cross-referencing Indigenous and Local Knowledge that was used in the assessments with what was available in the sources provided. This step served as an additional check that available and applicable Indigenous and Local Knowledge was captured in the appropriate way and was not misinterpreted or taken out of context.

The AD would caution that EAs need to be able to respectfully and meaningfully, incorporate Indigenous knowledge (e.g., ways of knowing) and that this is not something easily achieved. Effective incorporation needs to go beyond checks, balances, comparisons, and verifications to move towards a shared understanding. When discussing the balancing or melding of traditional knowledge with northern Canadian resource management boards, White (2020)[1] discusses that traditional knowledge is really about a way of life or ways of knowing. While resource management focuses much on the natural environment and human interactions elements of traditional knowledge, they find it difficult to deal with social, philosophical, and spiritual aspects. Key challenges include Language (and the lack of concepts and terms); inadequacy of communications methods; formal, written, and impersonal procedures; and confidentiality concerns. Perhaps the NexGen EA approach was less effective with regards to incorporation and influence of YNLR information since Athabasca Denesųłiné traditional territory and Traditional knowledge seem not to have been incorporated in a fulsome way. AD had limited or non-existant contributions to such issues as "selection of VCs, existing conditions, Project interactions and mitigation measures, residual effects analysis, monitoring programs" (p 3-27), or "VCs and intermediate components; component methods; existing conditions; scoping and pathways analysis; mitigation measures; and monitoring, follow-up, and adaptive management" (3.8

[1] White, G. 2020. Indigenous empowerment through co-management: land claims boards, wildlife management, and environmental regulation. UBC Press. Vancouver.

Influence on the Environmental Assessment p 3-34). Further, Athabasca Denesųłiné knowledge was not sought -during the EA process (Joint Working Groups, ongoing engagement, scoping, environmental assessment Figure 3.1-6 p 3-28)

Table 3.8-1 p 3-39 "The spatial boundary selected for the LSA reflects shared Indigenous and Local Knowledge regarding the specific locations of travel routes used to access trapping and other harvesting areas, including travel from routes from Highway 955, along the existing access road and east to destinations on the Clearwater and Mirror rivers."

Unfortunately, the delineation of the spatial boundary for the LSA does not appear to include inputs and information from the Athabasca Denesųłiné.

3.9 Use of Indigenous and Local Knowledge through the Project Lifespan

Section 3.9 states that "NexGen is committed to incorporating Indigenous and Local Knowledge throughout the Project lifespan. This approach has been consistent through early engagement activities (starting in 2013) and during the EA process, and will continue as more opportunities to share knowledge become available through engagement activities with Indigenous Groups and LPA communities" (3-40)

As noted throughout this document, the Athabasca Denesųłiné believe that we should have been included in the many processes undertaken for the collection and use of Indigenous Knowledge. The inclusion of Athabasca Denesųłiné within the many engagement activities noted within the EIS would have allowed for a much more complete exploration of Athabasca Denesųłiné rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. In particular, the exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. This is prejudicial and self-perpetuating.

Section 4. Project Alternatives (Page 4-1, EIS)

This section of the EIS outlines the alternatives assessments completed for the proposed Rook I Project, and includes the purpose of, alternatives to, and the analysis conducted to evaluate alternative means of carrying out the Project (Page 4-1, EIS)

The assessment of alternatives has been informed by NexGen's vision and values (Section 1.1.2, NexGen Vision, Values, and Approach) and input received from potentially affected First Nations and Métis Groups (collectively referred to as Indigenous Groups) (including Indigenous Knowledge), local communities, and regulatory authorities through engagement activities (Section 2, Indigenous, Regulatory, and Public Engagement, and Section 3, Indigenous and Local Knowledge) (Page 4-1, EIS).

Through planning for consistent and reliable operation of equipment and processes, design standards would promote the protection of the public, workers, and the environment in all phases of the Project. The approach to carrying out the Project would be routinely reviewed

and optimized as updates are issued by legislative and guiding bodies, additional data are collected, feedback from Indigenous Groups and the public are received, experience is gained based on site-specific operations, new technologies are introduced, and research is advanced (Pages 4-1,2, EIS).

YNLR supports the iterative and adaptive approach to improving sustainability performance of the mine over time, especially with ongoing input from indigenous people.

Reducing carbon emissions in Saskatchewan's electricity production by 2030 is a stated objective of the Government of Saskatchewan's Growth Plan, with a target of a 40% reduction in carbon emissions from 2005 levels by 2030 (Government of Saskatchewan 2020). Even if achieving this target reduction through increasing the amount of renewable electricity, 50% or more of the Saskatchewan's power would continue to come from fossil fuels, requiring additional strategies as part of the energy mix. Incorporating nuclear power into Saskatchewan's energy mix could provide up to 80% of the province's electricity through zero-emission sources, and the province is pursuing small modular reactor operation in the early to mid 2030s (Government of Saskatchewan 2020) (Page 4-4, EIS).

As previously stated, YNLR supports the efforts to reduce the release of GHGs in Saskatchewan and Canada. However, the benefits to indigenous people from such a strategy must also be maximized, notwithstanding their desire to also protect the northern environment that they are dependent on.

Key themes NexGen heard and considered in the alternatives assessments included:

Environment: minimizing disturbances to and protecting the quality of the air, water, land and wildlife, protection of Patterson Lake, and preference for alternatives with smaller footprints and thus lesser potential effects on vegetation and wildlife throughout all phases of the Project, including post-closure (Page 4-12, EIS).

YNLR supports the use of environmental sustainability as a key theme in the Project alternatives assessment.

YNLR also notes the use of the terms 'ecological integrity' and 'ecological health' throughout the EIS. However, neither term seems to be defined in the EIS, and seem to be used interchangeably. What does NexGen mean by ecological integrity and ecological health?

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for primary mining method for the Project was underground mining. Key considerations included (Page 4-20, EIS):

- Technical and economic feasibility of accessing the full extent of the target ore
- Ability to minimize surface disturbance and the overall Project footprint
- Significantly reduced water management quantity and complexity for surface and groundwater flows

- Avoiding the permanent storage of tailings on surface
- Minimizing direct and indirect effects on Patterson Lake

YNLR supports the selection of underground mining as the primary mining method due to its much-reduced environmental impacts.

Aligned with the gypsum assessment summary (Table 4.5-12) and with the majority of cases in the sensitivity analysis (Table 4.5-13), the selected alternative for mine waste storage of gypsum for the Project was underground with tailings in UGTMF (Under Ground Tailings Management Facility)(Page 4-47, EIS).

YNLR also concurs with this decision and the waste rock management decision (Page 4-59, EIS) as it reduces environmental risks and impacts.

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for fuel delivery method for the Project was fuel delivery by truck. This selection is based on the prohibitive costs and timeline associated with pipeline construction, as well as large surface area disturbance that would be associated with a new pipeline right-of-way. Air transport was not considered feasible due to costs, logistics, and additional emissions associated with transporting large volumes of LNG by air (Page 4-68, EIS).

YNLR has concerns with the resulting increase in traffic between La Loche and the Project. Aside from human safety considerations, there will be additional direct and indirect impacts on wildlife.

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for camp location for the Project was the west location. As discussed in Section 4.4.2.1, consolidating the site footprint to reduce the overall Project disturbance area (e.g., integrating the camp within the main mine development area and less additional on-site road development) was a key consideration in the selection of this alternative (Page 4-72, EIS).

This decision for a permanent on-site worker camp seems to be at odds with statements regarding the transportation of workers to the Project (Page 1-32, EIS).

It is acknowledged many alternative options are not mutually exclusive, and that different alternative options could be employed in parallel, in series, or in conjunction to meet the long-term needs of the proposed Project. Given that multiple alternative options could be utilized, the selected alternative for each waste type for the Project was determined based on the certainty of achievability and in consideration of the precautionary (i.e., conservative) approach for determining potential effects of the Project on the environment (Page 4-135, Table 4.6-1, page 4-136, EIS).

This summary of selected alternatives for the Project is very clear and useful. In general, YNLR supports the selections made.

Section 5. Project Description (Page 5-1, EIS)

5.1.3 Indigenous and Community Feedback

The EIS (p 5-8) notes that NexGen worked closely with "local communities" from 2013 and prior to starting "the EA process in 2019 through the submission of the Project Description for the Rook I Project (NexGen 2019)"

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019.

Based on the early engagement (e.g., pre-2019), primary communities that were deemed most likely affected by the proposed Project were identified. Then, using these identified communities as a guide, a LPA (local priority area) was established. NexGen engagement activities were focused on primary communities in the LPA. This approach has at least three flaws. First, it ignores or disregards the information provided by the Athabasca Denesųłiné in 2020 that clearly demonstrates their interests in the vicinity of Rook 1. Clearly processes need to respond to the information available. Second, because the inclusion of communities in the LPA (and indeed the geographic extent of the LPA) is based on whether or not they were previously identified means that AD's exclusion is likely self-perpetuating. Since the Athabasca Denesųłiné were not involved in the early stages they could not possibly have been considered nor could the LPA area include them. Third, the proximity of our communities to the project site is downplayed in the EIS by using a road distance measure rather than the well documented cross-country routes our members generally use to access the portion of our territory near the Project. In fact, Fond du Lac is closer to the project site than a number of other groups considered primary!

5.2.4 Local Indigenous Groups and Communities

This section of the EIS describes the categorization of primary and other Indigenous Groups and what this means in terms of EA participation.
It also re-states that "a Study Funding Agreement was also signed with the YNLR … as the YNLR identified an interest in sharing Indigenous Knowledge through an IKTLU Study

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group (and were excluded from the LPA) and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of a Benefits Agreement. The inclusion of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples (e.g., 29 key meetings for the

AD as compared to an average of 157 key meetings on average for each "primary" Indigenous group (See EIS Table 2.6-1)) and limits AD specific information incorporation into VCs, spatial boundaries, existing conditions descriptions, project interactions/mitigation, residual effects analysis, and monitoring, follow-up, and management. This is prejudicial and self-perpetuating

The YNLR prepared (with financial support from NexGen under a limited Study Agreement) the 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – on behalf of the Athabasca Denesųłiné communities including Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, and the Hatchet Lake Denesųłiné First Nation. This study clearly shows that our traditional territory, Treaty, and land use overlap the Project Area.

5.3 Project Design Considerations

The EIS notes that the Project will provide meaningful opportunities for local Indigenous Groups and communities.

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group (and were excluded from the LPA) and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The greater involvement of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. For example, the EIS identified an average of 157 key engagement activities for each primary Indigenous group while the YNLR (and AD communities) had only 29. This is prejudicial and self-perpetuating.

5.3.2 Design Objectives and Guiding Principles

The EIS notes:

- "In addition to developing and operating the Project in accordance with …standards…NexGen's goal is to leave lasting benefits to local communities…with consideration of current and future generations…incorporating environmental stewardship, social advancement, and sustainable long-term economic benefits for local Indigenous Groups, communities and other stakeholders."
- "commitment to fund and support independent Indigenous Monitors chosen by each primary Indigenous Group for opportunities to participate in environmental monitoring programs for the Project through all phases."

The Athabasca Denesųłiné believe that their categorization as an "other" Indigenous group is incorrect since they have the attributes of a primary Indigenous group. As such, they should be <u>full</u> participants in engagement activities and in any environmental committees and independent monitoring endeavours.

5.6.3 Business and Contracting Opportunities

The EIS discusses "developing and maintaining a business opportunities workplan that would describe the steps that NexGen and each primary Indigenous Group would follow to qualify for business opportunities with the Project."

The Athabasca Denesųłiné believe that their categorization as an "other" Indigenous group is incorrect because they have the attributes of a primary Indigenous Group. The Athabasca Denesųłiné were also excluded from the LPA. The Athabasca Denesųłiné should be categorized as a primary Indigenous group, be part of the LPA, and further, they should be <u>full</u> participants in business and contracting opportunities.

This section of the EIS provides a description of the proposed Rook I Project, including information on the setting, design, components, and activities. It also includes information on the Project's human resource requirements, management system framework, and ongoing review and optimization process during the Project's lifespan. The purpose of the section is to provide the Project details necessary to support the assessment of potential effects on components and attributes of the biophysical, cultural, and socio-economic environments, including ecological health and human health.

The Project would span a 43-year period from the beginning of Construction, through Operations, to the end of Closure. Construction is expected to take place over approximately four years and include activities such as site preparation and infrastructure development. Operation is expected to last for 24 years and include mining and processing and the associated tailings, waste, and water management. Closure would follow, with an expected duration of 15 years. The anticipated physical footprint of the mine site and access road is approximately 228 ha, and would include the following key facilities (Page 5-5, EIS):

- Underground mine development
- Process plant buildings, including uranium concentrate packaging facilities
- Paste tailings distribution system
- Underground tailings management facility (UGTMF)
- Potentially acid generating (PAG) waste rock storage area (WRSA)
- Non-potentially acid generating (NPAG) WRSA
- Special low grade mineralized waste rock and ore storage stockpiles
- Surface and underground water management infrastructure, including water management ponds, effluent treatment plant (ETP), and sewage treatment plant (STP)
- Conventional waste management facilities and fuel storage facilities
- Ancillary infrastructure, including maintenance shop, warehouse, administration building, and camp
- Airstrip and associated infrastructure

- Access road to the Project and site roads

YNLR recognizes NexGen's efforts at minimizing the Project's footprint. However, given the 43-year Project window and the additional decades for full vegetation recovery, YNLR feels that any wildlife habitat destroyed should be offset in the same manner as destroyed fish habitat is under federal law. YNLR generally supports the alternatives assessment selection for each of the above facilities as outlined in Section 4 of the EIS. If there are temporary and permanent camps, YNLR expects that the increased pressure on fish and wildlife harvest in the area will be assessed and mitigated for in some fashion.

Approximately 92 active mineral dispositions, issued to twelve companies, exist within the general area of the proposed Project (Figure 5.2-2). Although mineral dispositions are in the area, they do not necessarily lead to the development of resources due to many factors (e.g., resource geology, environment, technical and economic feasibility, markets). The proposed Patterson Lake South Property, which is planned by Fission Uranium Corp. and is also located on Patterson Lake, approximately 5 km from the proposed Project, recently commenced the EA process per the requirements of The Environmental Assessment Act (Page 5-11, EIS).

YNLR believes that if NexGen is adopting the precautionary principle as stated in earlier sections of the EIS, it cannot minimize the potential of other mining developments in the area in a cumulative effects analysis. This is especially true given the substantial length of time the Rook Project will be operating over, including the decommissioning and reclamation phases, and the fact that uranium will be in increasing demand.

As NexGen has advanced development of the Project, review has been undertaken to confirm those Indigenous communities who may be affected by or have an interest in the Project. Identification of potentially affected or interested Indigenous Groups and communities has been informed through direct correspondence and discussion with Indigenous leaders, community members, and other organizations in the region; review of publicly available information; and guidance provided by provincial and federal regulatory agencies. Further information on the process for the identification of local Indigenous Groups and communities can be found in Section 2.4, Indigenous Group and Stakeholder Identification (Page 5-17, EIS).

YNLR expects to be involved throughout the lifetime of this project. Perhaps NexGen would be interested in co-signing a 'development agreement' of some sort with YNLR in order to facilitate this collaboration?

NexGen's overall philosophy is to design, construct, commission, operate, decommission, reclaim, and close the Project with fit-for-purpose approaches to mine design, management, and operations to deliver enhanced environmental, social, and economic performance. Design of the proposed Project considered the following key principles:

- The Project will be designed and operated to ensure the safety of workers, Indigenous and local communities, and the public.

- The Project will provide site-specific, industry-leading environmental, social, and economic performance.
- The Project will provide meaningful opportunities for local Indigenous Groups and communities.

Project design to date has incorporated applicable regulatory guidance, design standards, and the local environment and been influenced by Indigenous and Local Knowledge (Page 5-25).

NexGen's development philosophy largely meshes with that of YNLR. However, YNLR expects the interaction between the company and indigenous people to be ongoing throughout the lifetime of the project.

NexGen is dedicated to minimizing potential effects on the environment throughout all phases of the Project; incorporating proven best practices and designs around mine planning, tailings and mine rock management; and reducing the operational footprint. NexGen delivers innovative solutions to complement proven technologies while recognizing and valuing the importance of protecting and preserving the environment throughout the Project lifespan and beyond. NexGen's approach to responsible development includes (Page 5-29, EIS):

- Early and continuous Indigenous and public engagement on environmental protection
- Exercising responsible stewardship of air, land, and water resources
- Applying economically viable best available technology and techniques
- Avoiding or minimizing Project effects
- Designing and operating for responsible closure and long-term land use
- Minimizing the generation of waste
- Responsibly managing tailings and waste facilities
- Respecting the principles of pollution prevention
- Responsibly managing energy use and greenhouse gas emissions
- Maximizing the application of the reduce, reuse, and recycle principles
- Monitoring and adaptively managing the Project based on rigorous scientific practice and in consideration of Indigenous and Local Knowledge
- Working with local Indigenous Groups to implement independent environmental monitoring

NexGen's environmental protection philosophy largely meshes with that of YNLR. However, YNLR expects the interaction between the company and indigenous people to be ongoing throughout the life of the project. Indigenous people are not stakeholders; they are rights-holders.

The Project's decommissioning and reclamation objectives are intended to establish a closure landscape that would be (Page 5-29, EIS):

- Geotechnically, geochemically, and radiologically stable and remain stable under a natural disturbance regime typical for the Project location
- Able to support the sustainable management of surface water and groundwater quantity and quality on and off site such that it safely sustains fish and wildlife populations and is safe for human use

- Capable of supporting a functioning, self-sustaining ecosystem with diverse fish and wildlife habitats that retains the landscape and its function as designed over time and that requires no or minimal maintenance post-closure
- Accessible for unrestricted traditional use by Indigenous Groups and local communities
- Integrated with the adjacent natural landforms and drainage systems in the Patterson Lake watershed and have a natural appearance

Key documents in planning for the effective closure of the Project would include decommissioning and reclamation plans. A Preliminary Decommissioning and Reclamation Plan is currently under development and will provide a conceptual overview of the strategy for decommissioning and reclaiming the proposed Project (Page 5-30, EIS).

YNLR believes that effective follow up and monitoring is one of the key measures of sustainability, whether social, economic, or environmental. As such, YNLR expects to be involved in the design and implementation of monitoring programs over the life of the Project.

The Project components are summarized within this subsection by key area (Page 5-41, EIS):

- Mining
- Processing
- Tailings management
- Mine rock management
- Site water management
- Conventional waste management
- Supporting infrastructure
- Off-site infrastructure

Other than the direct and indirect surface disturbance generated by the Project, YNLR is highly concerned with the potential for contamination of soils and water from these components, especially in Patterson Lake. This concern also holds for the various Project activities including construction, commissioning, operation, decommissioning, and reclamation of the Project.

During Construction and Operations, an increase in traffic volumes is expected along Highway 155 and 955 associated with the proposed Project. Details associated with predicted traffic volumes during Construction and Operations are provided in Table 5.5-4 and Table 5.5-5, respectively.

The predicted traffic tables referred to are somewhat confusing to understand and don't reference any baseline conditions, hence it is difficult to assess the impact of increased vehicular traffic created by the Project.

NexGen is committed to the following measures to enhance employment opportunities at the proposed Project (Page 5-110, EIS):

- Implementing a tailored local workforce recruitment strategy to confirm that local residents are fully aware of and understand how to access Project employment opportunities
- Working with local communities to develop culturally sensitive employment policies, including addressing recruitment and retention barriers
- Using best efforts to provide qualified local residents with a first preference for employment and training opportunities to achieve a long-term aspirational target of 75% of the Project's workforce being compose of local residents
- Establishing a mentoring program to support long-term participation of local residents in the Project workforce
- Prioritizing advancement opportunities for qualified local residents into increasingly senior positions
- Providing dedicated space for Elders to be available to support Indigenous employees and assist with employee retention

YNLR is hopeful that this Project will generate the promised significant employment, training, business, and contracting opportunities for local and indigenous people. However, ongoing dialogue is needed.

The purpose of this Project description is to provide the Project details necessary to support the assessment of potential effects on components and attributes of the biophysical, cultural, and socio-economic environments, including ecological health and human health. The proposed Project components, activities, and systems described herein have been developed following NexGen's design objectives, guiding principles, and commitment to protecting the environment and the safety of workers and the public as described in Section 5.3.2. Some key aspects of the Project description that reflect this approach include (Page 5-116, EIS):

- Deposition of tailings underground (as opposed to on or near surface), to eliminate surface tailings storage infrastructure and the associated risks and the potential long-term effects on the lands and waters, including water quality and fish habitat
- Permanent underground tailings storage with engineered barriers to minimize seepage into groundwater and potential effects on aquatic organisms in Patterson Lake and the people who may use these resources
- Intentional consolidation and limiting of the total Project footprint (e.g., clustering buildings, optimizing the use of cleared areas, using existing road infrastructure) as much as practical to minimize the loss of land use by Indigenous Peoples and others, minimize loss of wildlife habitat, increase the ease and rate of reclamation, and focus on end land use
- Separate management and storage strategies for PAG and NPAG materials
- Installation of an engineered cover on PAG material to minimize the long-term risks from seepage of constituents of potential concern into the ground and surface waters, and subsequent uptake by vegetation and transfer up the food chain
- A focus on holistic water management that maximizes non-contact water diversion and provides for controlled and flexible release of contact water meeting discharge criteria
- Design and placement of the treated effluent diffuser to reduce potential effects on the water and fish habitat of Patterson Lake
- Use of primarily LNG for power generation to reduce Project greenhouse gas emissions

YNLR supports NexGen's design efforts to minimize the environmental impacts of the Project to date. However, ongoing dialogue will be needed.

It is recognized that review and optimization of Project components and activities described herein would be undertaken throughout the Project lifespan with the objective of identifying opportunities to further enhance the environmental, technical, economic, and social performance of the Project. Where potential adverse effects are identified, either during design, Construction, Operations, or Closure, feasible environmental design features and/or mitigation practices would be implemented to avoid and minimize the potential adverse effects (Page 5-116, EIS).

YNLR supports the application of adaptive management throughout the Project's lifespan, but expects such changes to be open, transparent, and collaborative in nature.

Project review and optimization would be proactively pursued following the precautionary principle, and with the intent that any potential design iterations and mitigations would be improvements on, and within the current considerations of, the assumptions carried within the EA (i.e., within the scope of the Project as defined for assessment). The precautionary principle states "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (Page 5-116, EIS).

YNLR supports the application of the Precautionary Principle throughout the Project's lifespan.

Section 6. Environmental Assessment Approach and Methods (Page 6-1, EIS)

The purpose of Section 6, Environmental Assessment Approach and Methods, is to describe the scope and general approach and methods applied for the Project EA. The scope and general approach and methods have been designed to meet both the Terms of Reference for the Project submitted to the Saskatchewan Ministry of
Environment and the Canadian Nuclear Safety Commission (CNSC) Generic Guidelines for the Preparation of an Environmental Impact Statement – Pursuant to the Canadian Environmental Assessment Act, 2012 (Appendix 1A, Concordance Tables) (Page 6-5, EIS).

The general approach to an EA entails a systematic consideration of how project components and activities may interact with the environment and result in effects on the biophysical, cultural, and socio-economic environments. Where potential adverse effects are identified, either from normal operating activities or from potential accidents and malfunctions, feasible environmental design features and/or mitigation practices are implemented to avoid or minimize these potential adverse effects. Applying such mitigation follows the Precautionary Principle, which states "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (Page 6-5, EIS).

YNLR understands and supports the use of the Precautionary Principle. However, at what point is it usual to say we have too little, or too much information? Isn't that being somewhat subjective?

The existing or current conditions of the biophysical, cultural, and socio-economic environments are described in the Environmental Impact Statement (EIS) as a basis to identify, assess, and determine the significance of potential adverse effects of the Project. Baseline studies were conducted to support the characterization of the environment before disturbance from the Project. Baseline studies involved the collection of data from field programs and socio-economic studies. The understanding of the existing conditions also informed Project design features and potential mitigation measures that might be required (Page 6-5, EIS). In addition to assessing the effects from a project, the assessment must include an analysis of the cumulative effects that are likely to result from a project in combination with other developments (Page 6-6, EIS).

YNLR is very concerned about the long-term ramifications of cumulative effects, especially when northern Saskatchewan is facing a time of greatly accelerating development. One species, woodland caribou, already seems to have fallen victim to such effects.

The following EA approach was applied to individual components such as air quality, hydrology, Indigenous land and resource use, etc., as described in Sections 7 to 19 of the EIS, and included the following steps (Page 6-6, Figure 6.1-4, EIS):

- Describe how Indigenous Knowledge was collected and incorporated into the EIS (Section 6.2)
- Define the valued components (VCs) and intermediate components, as well as the associated assessment endpoints and measurement indicators, for the biophysical, social, heritage, cultural, and economic aspects of the environment that could be potentially affected by the Project (Section 6.3)
- Define the spatial and temporal boundaries of the EA (Section 6.4)
- Describe the assessment cases, which consider existing conditions, the Project, and other reasonably foreseeable developments (Section 6.5)
- Describe the existing conditions, which include the combined effects of previous, existing, and approved projects, to provide context for evaluating potential incremental project effects (i.e., Project-specific) and cumulative effects (Section 6.6)
- Provide the definitions of pathways and general approach and methods for evaluating relevant effects' pathways (i.e., interactions) between the Project and biophysical, cultural, socio-economic, and human health VCs (Section 6.7). This step included consideration of environmental design features and mitigation
- Complete an assessment for associated primary pathways to predict Project-specific residual effects for each VC and as well as residual cumulative effects from the Project (Section 6.8)
- Classify and tabulate residual effects using the following criteria: direction, magnitude, geographic extent, duration, frequency, reversibility, and probability of occurrence to provide structure and comparability across VCs. Once residual effects were defined, a significance determination for VCs was completed (Section 6.9)

- Identify key uncertainties in the EA and describe how these uncertainties were addressed to achieve a precautionary assessment. Discuss the implications of the approaches used to address uncertainties and the level of confidence in the residual effects analysis (Section 6.10)
- Propose monitoring and follow-up activities to verify the predicted residual effects; evaluate the effectiveness of planned mitigation designs, policies, and practices; and address key sources of uncertainty (Section 6.11)

YNLR will be interested to see how indigenous knowledge is incorporated into this standard EA approach, together with how it is integrated with knowledge derived from more conventional scientific methods.

Valued Components (VCs) are aspects of the biophysical, cultural, and socio-economic environments that are considered to have scientific, social, cultural, economic, historical, archaeological, or aesthetic importance (CNSC 2021). Valued components are identified to be of concern by the proponent, scientists, government agencies, Indigenous Peoples, or the public (CEA Agency 2018). The selection of appropriate VCs allows an EA to be focused on those aspects of the biophysical, cultural, and socio-economic environments that are of greatest importance to both society and species conservation (Page 6-9, EIS).

In addition, the local indigenous BNDN and BRDN define VCs as tangible biophysical resources (e.g., particular places and species) and less tangible (i.e., intangible, not physical) social, economic, cultural, health, and knowledge-based values
(e.g., social cohesion, place names, Indigenous language). Additionally, the Canadian Environmental Assessment Agency (CEA Agency 2015) was cited in an IKTLU study, which stated (Page 6-9, EIS):

Physical and cultural heritage refers to the "important aspects of human history and culture [that] encompass various social, economic, political, environmental, scientific, natural and cultural dimensions . . . Spiritual and cultural practices of Aboriginal Groups" are often integrally linked to specific locations and surrounding landscape features, as well as objects of social significance.

Valued components were selected using the results from baseline studies and IKTLU Studies and feedback from engagement with regulators, Indigenous Groups, and the public. The following factors were considered when developing the list of VCs for the Project (Page 6-9, EIS):

- Potential for interaction with the Project and degree of interaction, including presence, abundance, and amount of spatial overlap of a VC with the Project
- Sensitivity of a VC to potential Project effects and level of damage or harm that could be realized should an adverse effect occur
- Species conservation status or concern (e.g., rarity, sensitivity, uniqueness)
- Indigenous and Local Knowledge obtained from feedback during community engagement sessions for the Project in La Loche, Turnor Lake, Buffalo River, and Buffalo Narrows (Sections 2 and 3); information provided by IKTLU Studies, including YNLR, and obtained through discussions with the JWGs

- Ecological and socio-economic/cultural value to communities, government agencies, and the public
- Inclusion in Appendix C of REGDOC 2.9.1 (CNSC 2020)
- Recent experience with similar projects in Saskatchewan and other jurisdictions in Canada
- Avoidance of redundancy with other VCs; if two potential VCs represent the same issues, mitigation actions, and potential effects from the Project, only one was evaluated as part of the assessment

The correct selection of VCs is critical to the successful outcome of an EA. Poorly thought out VC selection can lead to erroneous conclusions from the modeling, resulting in potential harm to people and the environment. YNLR is pleased that the YNLR study and other indigenous knowledge and values were included in the analysis. However, YNLR questions the statement regarding avoidance of VC redundancy – strictly speaking, a species can only indicate itself because every species has its own ecological niche. For example, two songbird species can inhabit the same habitat and serve as indicators for that habitat, but other aspects of their ecological niches (e.g. diet, behaviour) can be entirely different. Arbitrarily dropping one from an impact analysis could therefore lead to erroneous results.

Each VC assessment used assessment endpoints and measurement indicators to structure the analyses and facilitate assessment conclusions and determination of significance. Assessment endpoints are qualitative expressions that represent the key properties of VCs that should be protected. These endpoints provide additional definition to VCs to support the residual effects assessment and significance determination. Measurement indicators represent physical and biological/human attributes of the biophysical, cultural, and socio-economic environments that can be measured to help inform the assessment of VCs (Page 6-10,EIS).

Assessment endpoints incorporate the concept of sustainability. In this context, sustainability means "the ability to protect the environment, contribute to the social and economic well-being of the people of Canada, and preserve their health in a manner that benefits present and future generations" (IAAC 2020a). At a high level, sustainability means meeting this generation's needs without compromising the ability of future generations to meet their own needs. Environmental sustainability considers the maintenance of ecological integrity, and social sustainability considers economic stability and healthy communities (Page 6-10, EIS).

This definition of sustainability meshes with that of YNLR. However, while YNLR understands that measurement indicators need to be more quantitative than endpoints, it is not clear at this stage (Table 6.3-1 notwithstanding) which measurement indicators could be readily used to calibrate an endpoint like 'cultural integrity' or 'indigenous resource use' in the same way as they are used to calibrate ecological integrity.

Valued Components and Associated Assessment Endpoints and Measurement Indicators (Table 6.3-1, Page 6-12, EIS).

Notwithstanding the rationale behind VC selection provided in earlier sections, YNLR questions some of the resulting selections in Table 6.3-1. Why are some species and habitats selected but not others? For example, upland and riparian ecosystems are identified but only from amount, distribution, and integrity perspectives. Shouldn't post fire age of upland ecosystems be considered here, especially from the perspective of woodland caribou or other species dependent on older forest seral stages? The same applies to the mammal species selected as VCs. Why only one species of furbearer? Why was the wolverine omitted? Canada Lynx etc? For birds, why are species like olive-sided flycatcher and rusty blackbird selected, but not a variety of other forest songbirds that are considered at risk, such as the bank swallow, barn swallow, and Canada warbler. No aerial feeders are included, such as common nighthawk, also a species at risk. Two species of ducks are selected as VCs, but not the horned grebe, again an at risk species. What about the validity of the leopard frog as a VC?

On the human side, YNLR questions how the VC of Indigenous Land and Resource Use is effectively measured from the following somewhat vague and subjective measurement indicators (Table 6.3-1):

- ***Changes to access to and area available for Indigenous land and resource use***
- ***Changes to the availability and quality of fish, plants, and wildlife for harvesting***
- ***Changes to the quality of the Indigenous land use***

The same is true for the VCs such as 'Other Land and Resource Use' and 'Community Well-Being. Their measurement indicators are again somewhat vague and subjective.

Intermediate components of the biophysical environment were also assessed to support VC assessments. Intermediate components include physical attributes of the biophysical environment or media upon which VCs rely, such as air quality and hydrology (Table 6.3-2). Intermediate components are identified using the same process described for VCs (Section 6.3.1, Valued Components). Similarly, VCs and intermediate components are assessed using the same steps. However, unlike
VCs, intermediate components do not have assessment endpoints or significance criteria (Page 6-14).

The maintenance of air and water quality over the long term is a very high priority for YNLR, which expects monitoring programs to be properly designed and implemented with YNLR participation in order to detect significant deviations from baseline conditions.

An environmental risk assessment (ERA) was completed for the Project that included a human health risk assessment and an ecological risk assessment. The ERA examined both aquatic and terrestrial ecosystems. Healthy lakes, rivers, plants, fish, and wildlife are important to Indigenous land and resource use in the area of the Project. People from the local communities and Indigenous Groups expressed concerns about potential contaminants entering the environment and making it unsafe for people to drink the water and eat the plants and animals (Page 6-16, EIS).

The ERA is a holistic assessment of the overall ecosystem and human environment that considers multiple pathways from potential sources of chemical and radiological exposure through environmental media to biological receptors. Receptors represent people and aquatic and terrestrial plants and animals that might be exposed to air pollutants, metals, and other harmful substances related to Project activities. These harmful substances are called constituents of potential concern (COPCs). The receptor selection process for the ERA considered some of the same criteria as for VCs, such as the presence and abundance of the species in the area of the Project, value or importance to Indigenous communities and other land and resource users in the area, and species conservation status or concern (Page 6-16, EIS).

The human health assessment is provided in Section 15, Human Health, and results from the ecological health risk assessment are provided in relevant sections such as Fish and Fish Habitat (Section 11), Vegetation (Section 13), and Wildlife and Wildlife Habitat (Section 14) (Page 6-17, EIS).

YNLR supports the use of an ERA to predict the potential exposure of people and the environment to harmful contaminants. We will carefully consider its findings.

The biophysical VCs and assessment endpoints in Table 6.3-1 were selected in a manner that allowed potential effects on biodiversity to be evaluated. Biodiversity can be defined as the abundance and variety of living organisms and ecosystems on Earth, and it includes life at all levels of biological and ecological organization such as species, communities, habitats, ecosystems, and their interactions as well as the ecosystem services they provide. Biodiversity conservation often considers both a coarse-filter and fine-filter approach. The coarse-filter approach involves maintaining a diversity of structures within forest stands and a diversity of ecosystems across the landscape to meet most of the habitat requirements for the majority of the native species. The fine-filter approach is directed toward particular habitats or species that may be threatened or endangered and might fail to be identified through a coarse filter (Page 6-17, EIS).

Project-specific and cumulative effects on biodiversity were evaluated for the biophysical VCs in the fish and fish habitat, vegetation, and wildlife and wildlife habitat disciplines in Section 11, Section 13, and Section 14 of the EIS, respectively. The effects assessment for biodiversity was completed through the assessment of changes in measurement indicators for fish and fish habitat, vegetation ecosystems and traditional use plants, and wildlife and wildlife habitat. Combined, these discipline sections provide a holistic coarse- and fine-filter assessment of the potential effects of the Project on biodiversity (Page 6-17, EIS).

YNLR supports the conservation of all living things as represented by the concept of biodiversity, and supports the application of both fine (species) and coarse (ecosystem) filter management approaches in achieving this. However, YNLR recognizes that the few biological VCs selected for this EIS represent a very small fraction of the many thousands of species that exist in the boreal forest. <u>It is misleading to suggest that a handful of species can represent the many other thousands of species in the boreal forest and its ecological</u>

<u>health/integrity</u>. In addition, the likelihood of the EIS effects modeling committing Type 2 statistical errors cannot be dismissed, which is why rigorous follow up and statistically valid monitoring are so critical.

Assessment boundaries define the geographic (spatial) and temporal extents of the assessment for each technical discipline. Although additional spatial scales are possible for individual VCs and intermediate components, spatial scales typically include a minimum of a site study area (the Project), a local study area (LSA), and a regional study area (RSA; CNSC 2021). The LSAs used within discipline assessments were defined at a scale that contains most or all of the expected effects of the Project on a VC and supporting intermediate components; as such, more detailed data were collected in the LSA to describe existing conditions. The RSAs used within discipline assessments included larger areas designed to provide broader context for the assessment of Project effects on VCs and intermediate components and the appropriate scale to assess cumulative effects from the Project combined with existing conditions and other 'reasonably' foreseeable developments. For VCs with extensive distributions, such as fish that can move within a watershed and wildlife species (e.g. woodland caribou) that move within large seasonal ranges, effects from the Project have a higher likelihood of combining with effects from other human developments and activities at a larger geographical scale. Regional study area boundaries were defined to capture such potential interactions for each VC. The spatial boundaries considered for VCs and intermediate components and the rationale for the selection of these boundaries are identified in each discipline section of the EIS (Page 6-18, EIS).

YNLR believes a figure for illustration purposes would have been useful here, although the text suggests that more than one LSA and RSA were used for the assessments. Certainly, the RSA(s) for woodland caribou and larger carnivores need to be large enough to reflect the home ranges of the species under consideration. YNLR is very concerned with cumulative effects, and will carefully consider what the EIS decides on what is a 'reasonably' foreseeable development and what is not. For example, the area is covered with mineral claims.

The temporal scope of the EA focuses on the 43-year period from initial Construction to the end of Decommissioning and Reclamation (i.e., Closure). The temporal scope of the EA is intended to evaluate the shorter- and longer-term changes from the Project and the associated Project-specific and cumulative effects on the biophysical, cultural, and socio-economic environments. While the temporal scope varies by VC, the minimum temporal boundary for the EA is defined by the following Project phases (Page 6-19, EIS):

- Construction 4 years
- Operations 24 years
- Decommissioning and reclamation 15 years

In certain circumstances, the duration of effects may extend beyond specific phases of the Project, including Closure, depending on the physical, biological, social, and/or cultural properties and resilience of VCs and intermediate components. Under these circumstances, effects from the Project that may occur well beyond closure were also assessed using a far-

future scenario. This far-future scenario is not a Project phase; it encompasses the long-term period during extremely slow migration of COPCs from the underground tailings management facility and waste rock storage areas to the environment are anticipated (i.e., more than 5,000 years).
The temporal boundaries used in the EA were specific to the VCs and intermediate components and considered the identified Project phases. For some VCs and intermediate components, residual effects were assessed for all phases of the Project. For other VCs and intermediate components, residual effects were only relevant to specific Project phases (Page 6-19, EIS).

As with spatial boundaries, there appears to be more than one temporal boundary. The presence of the far-future scenario really underscores the need for the Project to be carefully designed and implemented, and for thorough follow up and monitoring. It also reinforces the need for open and transparent involvement with the local and indigenous people.

Assessment cases are development scenarios that distinguish between existing, proposed, and future projects so that the results of each scenario can be compared to each other. The concept of assessment cases was applied to the assessment boundaries of the associated VCs and intermediate components to estimate the incremental and cumulative effects from the Project and other developments. The approach incorporated temporal boundaries for analyzing the potential effects from previous, existing, and approved projects and RFDs before, during, and after the anticipated lifespan of the Project. The assessment cases comprised (Page 6-20, EIS):

- Base Case (Existing)
- Application Case (Base + Project)
- RFD Case (Application + Reasonable Foreseeable Developments)

For the purposes of the EA, RFDs are defined as projects and activities that fit any of the first three and both of the last two criteria from the list below (Page 6-20, EIS):

- Are currently under regulatory review or have officially entered a formal regulatory application process
- Have been publicly disclosed by other proponents
- May be induced by the Project
- Have the potential to change the Project or the effects predictions
- Occur in the spatial assessment boundary defined by the VCs and intermediate components

An additional key criterion for selecting other projects to include in the EA for a discipline is that those projects must cause similar effects on the same VCs or intermediate components influenced by the Project (Hegmann et al. 1999).
Accordingly, an RFD Case was not required for all VCs and intermediate components as it depended on whether or not effects from the RFDs would have the potential to overlap with the selected VCs and intermediate components within the spatial and temporal assessment boundaries defined for the Project (Page 6-20, EIS).

YNLR believes these criteria are very restrictive and/or subjective in nature and will preclude many RFDs that might otherwise increase cumulative effects in conjunction with

the NexGen Project. Why so narrow an approach? Why not instead model various levels of RFD to generate future potential scenarios of cumulative effects? Furthermore, it appears that a lower number of VCs leads to a lower likelihood of a CEA being triggered, which shouldn't be the case. The two variables should be independent of one another.

Indigenous Knowledge indicated concerns about cumulative effects from human development and policies and climate change. The CRDN specifically mentioned the risk of cumulative effects from the Project and the nearby proposed Fission Patterson Lake South Property, which is planned by Fission Uranium Corp (Page 6-21, EIS).

The Fission Patterson Lake South Property was therefore designated as an RFD in the EA and applied to the RFD Case for VCs and intermediate components. Exceptions were climate change, hydrogeology, and terrain and soils, which did not assess an RFD Case and the rationale is provided in these discipline sections. Additional RFDs were identified and included in the assessment of cumulative effects for applicable VCs (e.g., woodland caribou). The minimum temporal overlap of potential cumulative effects from the Project and the Fission Patterson Lake Property was assumed to be 15 years. Depending on the amount of time for effects to be reversed, the duration of cumulative effects from the two projects would vary among VCs and intermediate components (Page 6-22, EIS).

YNLR has echoed these indigenous concerns to both Fission and NexGen so is pleased a CEA was triggered in this case. YNLR will pressure Fission to do the same. However, we note that an overlap of 15 years is a <u>minimum</u> and it should be treated as such. In the case of woodland caribou, it is been established for some time now that their populations decline due to the cumulative effects of both human and natural disturbance, so this analysis should be taken seriously.

Pathways analysis is a process that is used to develop an understanding of how a project may affect VCs and intermediate components. Potential Project effect pathways are identified, and mitigation that can be incorporated into the Project to minimize adverse effects is reviewed to assess if, after incorporation of mitigation, there is still potential for a project to cause residual effects (Page 6-23, EIS). Following pathway identification, the next step of pathway analysis includes the development of environmental design features and mitigation that could be incorporated into a project to remove a pathway or limit the effects on VCs and intermediate components. This step includes the application of the precautionary principle. Mitigation involves measures to avoid, eliminate, minimize, control, reclaim or offset the adverse effects of a project, and it includes restitution for any damage caused by those effects through replacement, restoration, compensation, or other means (Page 6-24, EIS).

Proponents should offset effects that cannot be fully mitigated through avoidance, minimization, and reclamation measures or when temporal losses to the environment would compromise the viability or function of aspects of the environment. Offsetting measures typically counterbalance this loss through positive contributions to the ecosystem. Offsets may include compensation or community enhancement. Offsetting requirements are determined through regulatory processes and engagement, and monitoring is needed to determine effectiveness (Page 6-25, EIS).

YNLR understands the concept of pathways analysis and the resulting mitigation measures, including offsetting. Earlier in this review, YNLR argued that wildlife habitats functionally lost for several decades should be offset in the same way that fish habitats are under federal law. The above statement referring to temporal losses to the environment would appear to support this.

Given the uncertainty and time lag inherent in reclamation and offsetting, a precautionary approach was applied to the assessment, and reclamation and offsetting were not used to remove pathways (Page 6-25, EIS).

YNLR questions why uncertainty and time lag would always preclude offsets. In fact, the longer that habitats are non-functional, the stronger the case for offsetting them. For some reason, fish habitat offsets under federal law are not mentioned in this part of the EIS, which is unfortunate.

To focus the residual effects analysis on the most important and meaningful changes from a project, pathways are screened for each VC and intermediate component. For the Project, each potential effect pathway was evaluated using proposed mitigation to predict whether the pathway had the potential to cause residual adverse effects. The effectiveness of mitigation proposed for each pathway analysis was assessed to determine whether the mitigation would address the potential Project effect such that the pathway was eliminated or would result in a negligible adverse effect on a VC or intermediate component (Page 6-26, EIS).

Residual effects are those effects that remain after mitigation has been applied with known or expected success. A residual effects analysis is a method to determine the residual effects for a given VC or intermediate component. As part of the residual effects analysis, the predicted environmental changes for primary pathways were evaluated using methods appropriate for each discipline. The methods used to make predictions varied by VC and intermediate component and are described in the applicable discipline section (Sections 7 to 19). Where possible and appropriate, each analysis was quantitative and included data from field studies, modeling results, scientific literature, government publications, monitoring reports, and personal communications. Environmental changes were then predicted for the Application Case (Project effects) and RFD Case (Cumulative effects – see above) for VCs and intermediate components within the defined spatial and temporal assessment boundaries (Page 6-27, EIS). The methods and results of the residual effects analysis for VCs and intermediate components are provided in each discipline section (Section 7 to Section 19) with appendices to provide comprehensive details associated with data, analysis, and modeling, where appropriate (Page 6-28, EIS).

YNLR will reserve comments on this for the results section of the residual effects analysis.

The residual effects analysis generated the information required for the classification of effects and determination of significance. For VCs, the outcomes of the residual effects analysis were described considering the influence on assessment endpoints (Page 6-29, EIS).

The purpose of the residual effects classification is to describe the residual incremental and cumulative adverse effects from previous and existing developments and the Project (Application Case) and potential future developments (i.e., RFD Case). Residual effects on VCs and intermediate components are described using a set of common words or effects criteria. The use of effects criteria to facilitate classification of adverse residual effects is an accepted practice in EAs (CEA Agency 2018; CNSC 2021). The residual effects classification uses direction, magnitude, geographic extent, duration, reversibility, frequency, and probability of occurrence as criteria. It is not possible to define meaningful effects criteria and significance that are universally applicable to all VCs and intermediate components. Consequently, definitions for each effect criterion are presented in each discipline section (Page 6-29, EIS).

Following the classification of residual adverse effects, a determination of significance was completed for VCs, as VCs have assessment endpoints or qualitatively defined significance thresholds (Section 6.3.1). Significance determination was binary, such that adverse effects were either deemed significant or not significant for each VC. Although the positive residual effects associated with the Project are reported in the EIS, these residual effects were not assessed for significance (Page 6-31, EIS).

Given the binary, and therefore somewhat subjective application of significance, YNLR wonders whether the precautionary principle was applied in this exercise? Furthermore, why only binary? Why not additional degrees of significance?

The Canadian Environmental Assessment Agency (CEA Agency 2015, 2018a) recommends that significance be determined for both the residual effects of the Project alone and the cumulative effects of the Project combined with other developments (CEA Agency 2015, 2018a). Generally, a determination of significance cannot be accomplished without a cumulative effects assessment because the effects of a single project seldom cause an environmentally significant effect on their own (McCold and Saulsbury 1996), and many environmental effects of primary concern are cumulative (Canter and Ross 2010). Significance was determined for the Application Case and RFD Case, as applicable (Page 6-31, EIS).

YNLR questions the statement that a single project seldom causes an environmentally significant effect on its own. Surely this is a scale dependent question, depending on the extent of the spatial and temporal boundaries selected?

Key factors that were considered in the determination of significance for VCs are summarized as follows: Magnitude, geographic extent, and duration were the primary criteria used to determine significance, while other criteria such as frequency, reversibility, and probability of occurrence were used as modifiers.
Effects were predicted to be less harmful if the probability of occurrence of the effect was unlikely as supported by the assessment results and scientific studies (Page 6-31, EIS)

YNLR notes that much of the overall effects analysis is fairly qualitative and therefore subjective in nature. It will be interesting to see how this translates under the various discipline sections of the EIS.

Applicable ecological or socio-economic context and uncertainty in effects predictions were also evaluated against assessment endpoints for each VC.
A major element of the EA is the prediction of future conditions of the biophysical, cultural, and socio-economic environments as a result of the Project, previous, existing, and approved projects, and RFDs. Given that biophysical, cultural, and socio-economic environments change naturally and continually through time and across space, assessments of effects and predictions about future conditions embody some degree of uncertainty (CEAA 2018). The purpose of the Prediction Confidence and Uncertainty sections of the EIS is to identify the key sources of uncertainty and qualitatively describe how uncertainty was addressed to increase the level of confidence that effects would not be larger than predicted. Additionally, this information can be used to inform the monitoring and follow-up programs that can reduce uncertainty over time (Page 6-33, EIS).

Each discipline section includes a discussion of how uncertainty was addressed and provides a qualitative evaluation of the resulting level of confidence. The implications of uncertainty are also included in the residual effects analysis and classification (i.e., probability of occurrence criterion) and the determination of significance. Where necessary, residual uncertainty is addressed by proposing additional mitigation, compliance monitoring programs, and/or follow-up monitoring programs (Page 6-34, EIS).

See previous comment on the largely qualitative nature of the assessment.

Once a project is approved, environmental monitoring is used to verify the predicted effects and to measure compliance with future permit conditions. Monitoring is also used to identify any unanticipated effects and provide input into adaptive management to limit these effects. Typically, monitoring includes one or more of the following categories, which may be applied during the development of the Project (Page 6-34, EIS):

- Regulatory compliance monitoring to confirm the implementation of approved design standards, mitigation, conditions of approval, and NexGen commitments. Compliance monitoring also confirms that project activities do not exceed environmental conditions within or below protective thresholds.
- Follow-up monitoring to test the accuracy of effects predictions, reduce or address uncertainties, determine the effectiveness of mitigation, or provide adaptive management for operations.

Given the significant nature of the Project and its impact assessment, YNLR is strongly supportive of well-designed, transparent, and statistically valid monitoring programs and expects YNLR community member involvement with their inception and implementation.

Section 7. Air Quality, Noise, and Climate Change (Page 7-1, EIS)

This section of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Project on the atmospheric environment. The assessment of the atmospheric environment encompassed the following three discipline components:

- Air quality

- Noise
- Climate change

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This atmospheric assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments (RFDs). The assessment for Section 7 used widely accepted scientific practices and incorporated Indigenous and Local Knowledge (Page i, Section 7, EIS).

YNLR is concerned with how the Project is going to affect both air quality (including dust) and noise, not only from the standpoint of people, but also from the standpoint of wildlife and the general environment. Are roads and the increased associated traffic considered to influence air quality and noise in the EIS?

Air quality represented an intermediate component in the Environmental Assessment (EA); the selection was based on the connection of air quality to soil and water and the health of vegetation, wildlife, and people. Unlike VCs, intermediate components, such as air quality, were not assessed for significance.

The local study area (LSA) for the air quality assessment was defined as a 90,000 ha (900 km2) area centred on the Project. The LSA is the area within which air quality effects due to the Project may be highest and can be predicted or measured with reasonable certainty. The LSA encompasses the local lakes surrounding the Project (e.g., Patterson Lake, Broach Lake, Jed Lake, Forrest Lake, Beet Lake, Naomi Lake) that are important to the assessments of other disciplines. The regional study area (RSA) was defined as a 640,000 ha (6,400 km2) area centred on the Project. The RSA encompasses large waterbodies (e.g., Preston Lake and Lloyd Lake) and areas that are more than 20 km from the proposed Project site. The RSA was designed to provide broader context for the assessment of Project effects on air quality and was the appropriate scale for the assessment of cumulative effects (Page i, Section 7, EIS).

The air dispersion modeling domain was defined as a 1,000,000 ha (10,000 km2) area centred on the Project and included the entire LSA and RSA. This area was designed to be large enough so that the predictions made within the RSA either reach background levels or are less than 10% of the air quality criteria.

These airshed study areas seem to be reasonable and cover very important aquatic ecosystems. YNLR understands that air quality effects are scale dependent, but doesn't completely follow the logic behind the statement referencing '10% of the air quality criteria'.

A baseline field study and desktop study were undertaken to characterize air quality within the LSA and RSA. Ambient levels of SO2 exceeded the provincial guideline. Background concentrations of PM2.5, PM10, total suspended particulates (TSP), carbon dioxide, nitrogen dioxide, sulphur dioxide were modeled as required by Saskatchewan Ministry of Environment guidance. The background concentrations are representative of a rural setting, being relatively unaffected by outside influences on air quality. Based on the monitoring results, existing air

quality conditions were close to or lower than the prescribed background concentrations in the Saskatchewan Air Quality Model Guideline.

An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially affect air quality. The evaluation also considered similar combined effects from the Fission Patterson Lake South Property, the identified RFD for the air quality assessment. Project activities that would have the potential to affect air quality during the Project lifespan include:

- Combustion of fossil fuels in stationary, mobile, and heavy equipment
- Handling and stockpiling of waste rock, special waste rock, and ore
- Gypsum storage in waste rock storage areas
- Underground drilling and blasting
- Waste incineration

As part of the pathway analysis, proposed environmental design features and mitigation measures were considered to determine whether effects to the environment could be avoided or reduced to negligible levels, thereby removing the pathway. These included application of water and/or chemical suppressants to site roads, access road, and airstrip to mitigate dust emissions (Page ii, Section 7, EIS).

Airborne dust from local roads will apparently be mitigated, but what about the increased dust from the elevated traffic levels on Highway 955 between La Loche and the Project?

A residual effects analysis was conducted to determine the potential effects on air quality under two assessment cases: effects of the Project (i.e., Application Case), and combined effects of the Project and the Fission Patterson Lake South Property (i.e., the RFD Case). The residual effects analysis considered seven measurement indicators. A dispersion modeling approach was used to predict concentrations of CACs (criteria air contaminants) from the Project and the Fission Patterson Lake South Property. Model results were then compared to baseline conditions and the relevant air quality criteria. Air quality is predicted to change from existing conditions due to both the Project and the Fission Patterson Lake South Property.
However, most of the CACs are predicted to remain compliant with provincial guidelines or below the applicable ambient criteria for all Project phases within the RSA. Short-term concentrations of 24-hour PM10 and 24-hour TSP are predicted to be above the guideline but the exceedance frequencies remain low, and the exceedance areas are localized to within a few hundred metres of the maximum disturbance area for the Project. The duration of this effect will be 4 years (construction), 24 years (operation), and 5 years during closure, a total of 33 years. Monitoring and follow-up programs will be used to verify these predictions and the effectiveness of mitigation measures (Page iii-iv, Section 7, EIS).

YNLR understands that air quality standards will be somewhat exceeded in the local area of the Project and supports ongoing monitoring. However, shouldn't consideration be given for offsets given the length of time of these impacts? What will be the effect on the water quality of Patterson Lake?

Noise represented an intermediate component in the EA; the selection was based on the potential for increased noise emissions from the Project to influence wildlife and land users. The noise assessment provided information that was used to support VC assessments such as wildlife and wildlife habitat, Indigenous land and resource use, and other land and resource use. Intermediate components, such as noise, were not assessed for significance. A maximum disturbance area was delineated around the anticipated Project footprint, and an LSA (6,629 ha) and RSA (61,544 ha) were then defined for the noise assessment.

The LSA and RSA are generally composed of forested landscape intermixed with water and wetland features. Given the remote setting of the area, existing noise from anthropogenic (i.e., human-related) features and activities is mainly from Highway 955, mineral exploration, recreation (e.g., hunting, fishing), and Indigenous land and resource use. A baseline field study was undertaken at three locations within the LSA and RSA to measure existing noise levels that may be experienced by wildlife, Indigenous Peoples, and recreational users. The locations were selected to be representative of different settings within the LSA and RSA. Existing noise levels in the LSA and RSA vary based on time of day and local conditions, and existing noise level measurements at all locations in the LSA and RSA are less than noise thresholds outlined in federal and provincial guidelines (Page iv, Section 7, EIS). The measured baseline noise levels were used to determine existing daytime and nighttime noise levels at key receptor locations within the LSA and RSA. Sixteen noise receptor locations were identified through engagement and Joint Working Group meetings with Indigenous Groups (Page v, Section 7, EIS).

An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially affect noise. The evaluation also considered similar combined effects from the Fission Patterson Lake South Property, the identified RFD for the noise assessment.

Noise emissions from equipment and mining-related activities that would have the potential to increase noise levels during the Project lifespan include (Page v, Section 7, EIS):

- Land clearing
- Site preparation
- Construction of facilities and infrastructure
- Underground mine development
- Power plant operation
- Airstrip traffic
- Milling and underground operations
- Decommissioning and reclamation activities

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As part of the pathways analysis, proposed environmental design features and mitigation measures were considered to determine whether effects to the environment could be avoided or reduced to negligible levels, thereby removing the pathway.

What about the increased noise levels coming from the elevated traffic levels locally and on Highway 955?

A residual effects analysis was conducted to determine the potential effects on noise under two assessment cases: effects of the Project (i.e., Application Case), and combined effects of the Project and the Fission Patterson Lake South Property (i.e., RFD Case). The analysis indicated that noise from the Project and the Fission Patterson Lake South Property is predicted to result in detectable changes from existing conditions. However, cumulative noise levels are predicted to be
of low magnitude, and noise at all receptors considered in this assessment would remain below federal and provincial thresholds (Page vi, Section 7, EIS).

For the purposes of the EA, climate change represents the change in global or regional climate patterns primarily attributed to increased atmospheric concentrations of greenhouse gases (GHGs) (Government of Canada
2021). Assessing GHGs is the most effective method for estimating a project's effect on climate change, as GHGs contribute to the greenhouse effect by absorbing infrared radiation in the atmosphere, increasing temperature, and changing weather patterns (Government of Canada 2015). The climate change assessment considered effects from the Project in the context of provincial and federal GHG emission levels (Page vii, Section 7, EIS).

An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially contribute to climate change. A specific assessment of other RFDs was not completed as the Application Case provided all required information for the federal government to consider the Project relative to the cumulative effects of historical, existing, and future projects.
As part of the pathways analysis, proposed mitigation measures, policies, and actions were considered to determine whether the Project's GHG emissions and effects to the environment could be avoided or reduced to negligible levels, thereby removing the pathway. While mitigation measures would reduce potential GHG emissions, the Project is expected to emit GHGs throughout Construction, Operations, and Closure through different sources that produce carbon dioxide, methane, and nitrous oxide. Also, given the socio-economic and cultural importance of climate change, and international, federal, and provincial commitments to reduce GHGs, the Project GHG emissions and contributions to climate change were identified as a pathway and carried forward into the residual effects analysis (Page viii, Section 7, EIS).

The residual effects of the estimated maximum annual Project GHG emissions from each Project phase on provincial, national sector, and federal levels were assessed through the comparison to the most recent available emission totals for Saskatchewan and Canada. From this comparison, Project GHG emissions are predicted to have an adverse effect on climate change due to the global and permanent nature of GHG emissions; however, total Project emissions are expected to be low in magnitude, with the Project contributing less than 0.5% of the provincial annual total emissions and less than 0.1% of the federal annual total emissions. Effects to the climate change VC as a result of the Project were assessed to be not significant. The assessment determined that the Project GHG emissions would be of low magnitude and would not meaningfully affect Saskatchewan's and Canada's ability to reach climate change commitments within the current regulatory framework. In addition, the potential effects of the Project's emissions in the overall context of the downstream nuclear power generation were also considered. Due to the low GHG emissions associated with nuclear power generation compared

to coal and natural gas power generation, the downstream effects of the Project are predicted to increase Canada's ability to meet the national emission reduction targets (CNSC 2017)(Page ix, Section 7, EIS).

YNLR supports NexGen's efforts to reduce GHGs through the life of the Project, but recognizes that it will be a net contributor to the problem. However, the longer downstream effects of increased nuclear power generation as a result of the Project should presumably offset these impacts.

Section 8. Hydrogeology (Page 8-1, EIS)

Section 8 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Rook I Project (Project) on hydrogeology, which includes both groundwater quantity and quality. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments (RFDs). The hydrogeology assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge. Hydrogeology represented an intermediate component in the Environmental Assessment (EA); the selection was based on how changes in groundwater quantity and quality could influence surface water quality and alter aquatic and terrestrial ecosystems, which could in turn affect the biota and people who use these natural resources. Intermediate components, such as hydrogeology, were not assessed for significance (Page i, Section 8, EIS)

YNLR is very concerned about the potential for groundwater and surface water contamination from the Project.

The hydrogeology assessment focused on a local study area (LSA), which is in the area of the Project where direct environmental effects are most likely, and a regional study area (RSA) where cumulative effects may occur. The LSA is defined by the Clearwater River watershed boundary up to the Naomi Lake outlet and covers a surface area of 685 km2. The RSA is defined by the Clearwater River watershed boundary upstream of the confluence with the Mirror River and covers an area of 1,076 km2 (Page i, Section 8, EIS).

Watershed boundaries are a logical way of delineating the extents of the LSA and RSA for groundwater and hydrology assessments.

An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially affect hydrogeology. The evaluation also considered combined effects from the Fission Patterson Lake South Property, the identified RFD for the hydrogeology assessment. Project activities that would have the potential to affect hydrogeology during the Project lifespan include (Page ii, Section 8, EIS):

- Underground mine development
- Underground operations
- Storage and handling of waste rock, special waste rock (low grade mineralized), and ore
- Storage of cemented paste tailings in the underground tailings management facility (UGTMF)

- Storage of cemented paste backfill in the mined-out underground production stopes

As the pathways associated with these activities do not have the potential to overlap with the pathways of the Fission Patterson Lake South Property, only the potential effects of the Project were considered in the subsequent steps of the assessment process (Page ii, Section 8, EIS).

It is not clear to YNLR why the pathways from both projects lack the potential to overlap? Can groundwater contamination from the Fission LSA reach the NexGen LSA and vice versa?

As part of the pathways analysis, proposed environmental design features and mitigation measures were considered to determine whether effects on the environment could be avoided or reduced to negligible levels, thereby removing the pathway. After mitigation measures were considered, the pathways screening analysis determined that the Project could adversely affect hydrogeology from the following pathways (Page iii, Section 8, EIS):

- Groundwater inflow to the underground mine
- Seepage from the waste rock storage areas (WRSAs) during Construction, Operations, and Closure
- Seepage from the WRSAs after Closure
- Seepage from the UGTMF and backfilled stopes after Closure

Therefore, these pathways were carried forward into the residual effects analysis. A residual effects analysis was conducted to determine the potential effects of the Project on hydrogeology. The residual effects analysis considered three measurement indicators:

- Groundwater elevations
- Groundwater flow directions and rates
- Groundwater quality

During Operations, seepage to the underground mine would result in a depressurization of the surrounding bedrock, which would be observed as a reduction in groundwater elevation at monitoring locations. The extent of the simulated groundwater drawdown in bedrock resulting from the mine dewatering at the end of Operations extends approximately 2 km to the north, 4 km to the south, and 3.5 km in both the east and west directions. The maximum simulated drawdown within the sandstone was estimated to be less than 5 m in the immediate area of the mine workings. During Operations, the groundwater seepage collected from the underground mine would be treated, monitored, and discharged to Patterson Lake. Assuming that all groundwater seepage collected at the underground mine originates as surface infiltration from the Patterson Lake catchment, the resulting long-term net change to the overall water balance of the surface water system was identified to be negligible. Based on the particle tracking modeling, groundwater originating at the UGTMF and production stope backfill source areas is predicted to migrate vertically upward primarily through the fault and shear zones, then laterally through the sandstone, before discharging within Patterson Lake. The approximate advective groundwater travel time from the upper horizon of the mine to the discharge location at Patterson Lake is estimated to be approximately 1,000 years. Seepage from beneath the WRSAs (waste rock storage areas) was predicted to infiltrate vertically to the water table,

then laterally towards Patterson Lake in both the northerly and southerly directions. For the overburden groundwater flow paths, the approximate advective groundwater travel time from the WRSAs to Patterson Lake was 43 years to the north and 77 years to the south (Page iv, Section 8, EIS).

YNLR understands that the impact of the Project on groundwater quantity (distribution) seems to be significant over time and space. The discharge of potentially contaminated water into Patterson Lake from the mine, TMF, and rock storage area is of high concern.

Based on modeling of groundwater quality, the magnitude of the effects was variable and specific to the solute being modeled. Solute-specific effects ranged from negligible effects beyond background values to multiple orders of magnitude above background values. Spatially, these effects were considered to be limited to the groundwater discharge within Patterson Lake. The temporal scale of these effects was long-term, spanning a period from the late stages of Operations to long-term following Closure (i.e., permanent). Changes to groundwater quality that affect surface water quality in the receiving environment were subsequently considered in the surface water and sediment quality assessment (Section 10) (Page iv, Section 8, EIS).

This result is somewhat alarming and raises questions about the long-term ecological health of Patterson Lake, and its connected waters.

Follow-up and monitoring programs would be implemented to monitor for changes in groundwater quantity and quality, including continued monitoring of background wells located upgradient of the Project footprint (Page iv, Section 8, EIS).

YNLR strongly supports this as a result of the groundwater modeling. However, YNLR wonders if a risk assessment and contingency plans should be developed should monitoring eventually reveal larger than expected impacts on the environment.

Section 9. Hydrology (Section 9-1, EIS)

Section 9 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Project on hydrology. Hydrology is the study of the distribution and circulation of water in the environment. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments (RFDs). The hydrology assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge (Page i, Section 9, EIS). Hydrology represented an intermediate component in the Environmental Assessment (EA); the selection was based on water being the basis of healthy, functioning, and resilient aquatic and terrestrial ecosystems and a conduit for transportation. The hydrology assessment provided information that was used to support valued component (VC) assessments such as fish and fish habitat, vegetation, wildlife and wildlife habitat, as well as the assessments of other intermediate components such as surface water quality, sediment quality, terrain, and soils. Intermediate components, such as hydrology, were not assessed for significance (Page i, Section 9, EIS).

YNLR is very concerned about the potential for streams, rivers, wetlands, and lakes to become contaminated by the Project.

The LSA and RSA for the hydrology assessment was the same as for Hydrogeology (Section 8). The waterbodies in the LSA and RSA are used by humans for navigation, recreation, and fishing, and the river is an important aspect of culture and heritage. An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially affect hydrology. The evaluation also considered similar combined effects from the Fission Patterson Lake South Property, the identified RFD for the hydrology assessment. Project activities that would have the potential to affect hydrology during the Project lifespan include (Page ii, Section 9, EIS):

- Land clearing
- Site preparation
- Construction of facilities and infrastructure
- Handling of ore and waste rock
- Discharge of treated effluent and treated sewage
- Underground operations
- Removal of infrastructure during decommissioning and reclamation activities

As part of the pathways analysis, proposed environmental design features and mitigation measures were considered to determine whether effects on the environment could be avoided or reduced to negligible levels, thereby removing the pathway. After mitigation measures were considered, the pathways screening analysis determined that the Project could still adversely affect hydrology from the following pathways (Page iii, Section 9, EIS):

- Diversion of site runoff from its natural course and change in drainage areas during the life of the Project
- Activities may affect basin yields, and in turn, affect waterbody water surface elevations (WSEs) and watercourse flows through changes in water balance and hydrological processes in the upstream contributing area during the life of the Project
- Changes in watercourse flows during Construction and Operations that may cause erosion downstream, alter stream channel sediment transport and stream channel parameters, and affect shoreline integrity

Therefore, these pathways were carried forward into the residual effects analysis. A residual effects analysis was conducted to determine the potential effects on hydrology under two assessment cases: effects of the Project (i.e., Application Case), and combined effects of the Project and the Fission Patterson Lake South Property (i.e., RFD Case). The residual effects analysis considered four measurement indicators (Page iii, Section 9, EIS):

- Waterbody WSE (water surface elevation)
- Watercourse flow rate;
- Stream channel parameters
- Fluvial sediment transport

In the Application Case, the Project would result in a net discharge of water to Patterson Lake from Construction through the Active Closure Stage, which is predicted to result in small but

undetectable increases in WSEs and watercourse flow rates in the receiving environment. The magnitude of changes to WSEs and flows along the Clearwater River are predicted to be well within the range of natural seasonal and annual variability and are not expected to affect navigation. In the RFD Case, increases are expected in WSEs and in watercourse flow rates on the Clearwater River downstream of Patterson Lake. As with the Application Case, the magnitude of these effects is expected to be well within the range of seasonal and annual variability.

For both the Application Case and the RFD Case, increases to watercourse flow rates are predicted to result in both increased erosion at the upstream reach and increased sedimentation at downstream reaches. However, all assessment cases resulted in negligible changes in net transport of sediment for the Clearwater River reach between Patterson and Forrest Lake, compared to existing conditions.

Small changes in stream channel parameters are anticipated in both the Application Case and the RFD Case due to the increased mean annual daily flow downstream of the Project. However, in the RFD Case, there is predicted to be an increase in width and depth for the Clearwater River below Patterson Lake. In all scenarios, these changes are within the range of natural variation and are not expected to be large enough in magnitude to change how the watercourses are used by humans for navigation (Pages iii-iv, Section 9, EIS).

The predicted impacts to surface water hydrology appear to be negligible which is reassuring. However, the potential long-term impact of the groundwater disruption (Section 8) on surface waters still requires clarification. Surface water quality is also a question at present (Section 10).

Section 10. Surface Water Quality and Sediment Quality (Page 10-1, EIS)

Section 10 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Rook I Project (Project) on surface water quality and sediment quality. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments (RFDs). The surface water quality and sediment quality assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge. Surface water quality and sediment quality represented intermediate components in the Environmental Assessment (EA); the selection was based on how changes in surface water quality and sediment quality could influence the health of fish, plants, wildlife, and the people that use natural resources. The surface water quality and sediment quality assessment provided information that was used to support valued component (VC) assessments such as fish and fish habitat, vegetation, wildlife and wildlife habitat. Intermediate components, such as surface water quality and sediment quality, were not assessed for significance (Page i, Section 10, EIS).

The maintenance of surface water quality is a very high priority for YNLR.

The LSA and RSA were delineated the same as for the groundwater and hydrology assessments. The conditions for surface waterbodies in the LSA were determined from baseline studies conducted between 2015 and 2020. The water quality of the waterbodies and watercourses in the LSA is consistent with typical lakes located in the Canadian Shield in that the water quality:

- Exhibits high water clarity, due to low amounts of total suspended solids
- Has near-neutral pH
- Has wide-ranging surface water temperatures that vary seasonally

In Patterson Lake, there was notable variability in sediment composition between basins and study years. Generally, sediment concentrations of metals and radionuclides in waterbodies in the LSA were low and below environmental thresholds. An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially affect surface water quality and sediment quality. The evaluation also considered similar combined effects from the Fission Patterson Lake South Property, the identified RFD for the surface water quality and sediment quality assessment. Project activities that would have the potential to affect surface water quality and sediment quality during the
Project lifespan include (Page ii, Section 10, EIS):

- Handling and storage of waste rock and special waste rock and ore
- Runoff and seepage from the waste rock storage areas (WRSAs)
- Groundwater flow from the underground tailings management facility (UGTMF) – see Section 8
- Discharge of treated effluent
- Discharge of treated sewage

Similar activities that could affect surface water quality and sediment quality would be expected to occur for the Fission Patterson Lake South Property, with the exception of potential effects associated with a UGTMF, as the Fission Patterson Lake South Property has been designed with an above-ground tailings management facility. As part of the pathways analysis, proposed environmental design features and mitigation measures were considered to determine whether effects on the environment could be avoided or reduced to negligible levels, thereby removing the pathway (Page ii, Section 10, EIS).

It seems that the potential cumulative effects of the Fission TMF has been dismissed because it is aboveground. However, doesn't it still have the potential to contaminate surface waters irrespective of where it's positioned?

After mitigation considerations, it was identified that the Project could still adversely affect surface water quality from the following pathways (Page iii, Section 10, EIS):

- Deposition of fugitive dust emissions (e.g., particulate matter, metals, radionuclides) on local and regional waterbodies and watercourses
- Deposition of criteria air contaminants emissions (e.g., particulate matter, sulphur, nitrogen oxides) on local and regional waterbodies and watercourses
- Direct discharge of treated effluent during Construction, Operations, and Closure to Patterson Lake
- Direct discharge of treated sewage during Construction, Operations, and Closure to Patterson Lake

- Seepage from the WRSAs during Construction and Operations to groundwater that may flow into Patterson Lake
- Runoff and seepage from the WRSAs and groundwater flow from the UGTMF to Patterson Lake after Closure

Only surface water quality pathways were carried forward into the residual effects analysis as no pathways were identified for potential sediment quality effects.

A residual effects analysis was conducted to determine the potential effects on surface water quality under two assessment cases: effects of the Project (i.e., Application Case), and combined effects of the Project and the Fission Patterson Lake South Property (i.e., RFD Case). The focus of the surface water assessment for the Project was to predict changes in surface water quality in the receiving environment from direct discharges from the Project, deposition of Project air emissions during the Project lifespan, and post-closure Project effects in the far future (e.g., runoff from the reclaimed Project footprint, groundwater inflows).

The residual effects analysis for surface water quality considered three measurement indicators (Page iii, Section 10, EIS):

- Constituent concentrations associated with water quality (i.e., those constituents that apply to the protection to aquatic and terrestrial life)
- Drinking water quality (i.e., those constituents that apply to the suitability of drinking water)
- Productivity status (i.e., the ability of a waterbody to support an aquatic food web)

During the lifespan of the Project in the Application Case and the RFD Case, overall COPC (constituents of potential concern) concentrations would increase locally, though the predicted concentrations would not result in any threshold exceedances in any measurement indicators during the Project lifespan. Similarly, air deposition effects during the Project lifespan in the Application Case and RFD Case would also result in minor, localized changes to the surface water COPC concentrations; however, such changes in COPC concentrations would not result in any COPC threshold exceedances.

In the Application Case and RFD Case far-future projections, seepage from the potentially acid generating (PAG) WRSA would cause a long-term continuous period of extremely slow migration of COPC metals and radionuclides to the receiving environment via shallow groundwater. The COPC concentrations in the far-future projection would be greater than peak concentrations for many of the COPCs modeled during the Project lifespan, because active water treatment was not assumed to continue after Closure. Under this scenario, concentrations of cobalt and copper were predicted to exceed surface water quality thresholds (Page iv, Section 10, EIS).

YNLR is very concerned with the far-future, cumulative contamination prediction for Patterson Lake.

To minimize the potential for effects to the receiving environment (e.g., aquatic habitat), source control measures would be implemented for the PAG WRSA. This mitigation would be expected

to result in reductions in the mass loading of cobalt and copper, and other COPCs, to Patterson Lake.

This statement does not assuage YNLR's concerns. In addition, the long-term contamination from the NexGen and Fission TMFs seems to be unresolved.

The Environmental Protection Program, Environmental Monitoring Plan, Effluent Monitoring Plan, and associated environmental monitoring would be implemented to verify effects predictions and effectiveness of mitigation on protection of the aquatic environment, identify unanticipated effects, and apply adaptive management (Page iv, Section 10, EIS).

YNLR believes this is absolutely critical given the contaminant predictions and expects to be consulted as a result. YNLR also expects the monitoring programs to be open, transparent, and statistically robust.

Section 11. Fish and Fish Habitat (Page 11-1, EIS)

Section 11 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Rook I Project (Project) on fish and fish habitat. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments (RFDs). The fish and fish habitat assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge (Page i, Section 11, EIS).

The assessment of potential effects on fish and fish habitat was informed by the assessments completed for air quality, hydrogeology, hydrology, and surface water quality, as well as the results of the Project ecological risk assessment (EcoRA). The fish and fish habitat assessment provided information that was used to support other VC assessments such as wildlife and wildlife habitat, human health, Indigenous land and resource use, and other land and resource use (Page i, Section 11, EIS).

Assessment of the VC's selected (whitefish, lake trout, northern pike and walleye) included biological effects in a number of categories (hydrology, surface water quality, etc.). However, the EIS does not take into account changes in harvest pressure on these species due to increased human activity and access as a result of the Project.

Effects on aquatic biodiversity were evaluated based on the completed fish VC assessment. The EcoRA and aquatic health assessment results indicated that, after Closure and in the far future, limited effects would be possible on individual taxa or species that may be sensitive to elevated copper concentrations in Patterson Lake. However, based on the predicted level of exposure and limited spatial extent of elevated copper concentrations, population-level effects are not expected to occur. Therefore, the predicted effects of the Project and RFDs on aquatic biodiversity were considered negligible (Page v-vi, Section 11, EIS).

Effects on biodiversity were based on the completed fish VC assessment and were therefore determined to be negligible. The selected VC's while appropriate for fish use and sustainability may not be at all useful as indicators for overall biodiversity in the affected water bodies.

The weight of evidence from the analysis predicts that changes to the habitat availability, habitat distribution, and survival and reproduction of fish VCs (i.e., lake trout, lake whitefish, walleye, northern pike) in the RSA would be within the resilience and adaptability limits for these VCs. The residual effects on fish VCs in the Application Case are predicted to be not significant. The incremental and cumulative effects resulting from the Project, previous and existing developments, and the Fission Patterson Lake South Property on fish and fish habitat are also predicted to be not significant (Page vi, Section 11, EIS).

Again, the determination and assumptions leading to the fish species and habitat effects assessment are identified as "not significant". A broader range of factors (such as increased harvest levels) in fish management should be taken into account in developing this conclusion.

Indigenous and Local Knowledge included in the assessment of fish and fish habitat was shared by potentially affected First Nations and Métis Groups (collectively referred to as Indigenous Groups) and local priority area (LPA) community members through the Project engagement process. The overall approach and methods for the incorporation of Indigenous and Local Knowledge into the EA is discussed in detail in Section 3, Indigenous and Local Knowledge. Issues and concerns related to fish and fish habitat raised by Indigenous Groups and LPA community members, and how these comments were addressed, are summarized in Appendix 2B, Summary of Indigenous Concerns, and identified and addressed in this assessment, where applicable (Page 11-8, EIS).

Incorporating indigenous and local knowledge with scientific information provides a much more complete view of the issues of significance in the EIS. NexGen's report is to be complimented for taking the time to obtain and utilize the TK.

Fishing plays an important role in the relationship Indigenous Groups have with their traditional lands, especially in their connection to the lakes and rivers in the region (TSD II: BRDN). Their long history of fishing in the same lakes and rivers over generations contributes to sense of place, which is "intricately connected to land and place", is tied to people's attachment and affiliation with the land, and is an expression of identity and familiarity (TSD II: BNDN; TSD III: BRDN). Sense of place "depends on particular places… along with their particular features (physical, social, and symbolic) and the values and activities these features foster and enable"
(TSD II: BNDN). Indigenous Groups and LPA community members indicated that land users target a variety of fish species in lakes in the area of the Project (Table 11.2-1) (Page 11-13, EIS):

- The CRDN identified grayling, (Arctic grayling [Thymallus arcticus]), jackfish (northern pike [Esox lucius]), herring (cisco; Coregonus artedi), lake trout (Salvelinus namaycush), ling cod (burbot [Lota lota]), pickerel (walleye [Sander vitreus]), suckers (white sucker [Catostomus

commersonii] and/or longnose sucker[Catostomus catostomus]), and minnows as species that are considered important to community members (TSD V.1: CRDN; TSD V.2: CRDN)

- Members of the MN-S identified all manner of fish, including trout, whitefish, jack (jackfish, or northern pike), pickerel, suckers, burbot, and catfish as being consumed (TSD IV: MN-S; MN-S-JWG 2019a)
- Members of the BNDN pursue and rely on a variety of fish species, including lake trout, whitefish (lake whitefish [Coregonus clupeaformis]), jackfish, pickerel (walleye), suckers, and mariah (burbot) (TSD II: BNDN; BNDN-JWG 2019)
- Members of the BRDN described fishing for lake whitefish, lake trout, jackfish, pickerel, and perch (yellow perch [Perca flavescens]), and highlighted the importance of Patterson Lake as providing high quality fishing, particularly for species such as lake trout and lake whitefish (TSD III: BRDN; BRDN-JWG 2019a; BRDN-JWG 2020)
- The YNLR identified lake trout, whitefish, northern pike, suckers, and pickerel as species that are considered important to community members (TSD VI: YNLR)

Each discussion with community representatives demonstrated the historical, cultural and importance of fish as food. Note that the YNLR identified suckers as being important to community members. Despite this, these species (longnose and white suckers) were not identified as VCs.

Monitoring programs are proposed to address the uncertainties associated with the effects predictions and to evaluate the performance of mitigation. In general, monitoring is used to verify the effects predictions. Monitoring is also used to identify any unanticipated effects and to support the implementation of adaptive management to limit these effects. Typically, monitoring includes one or both of the following categories that may be applied during the Project lifespan (Page 11-42, EIS:

- Regulatory compliance monitoring: monitoring activities, procedures, and programs undertaken to confirm the implementation of approved design standards, mitigation and conditions of approval, and NexGen commitments (e.g., inspecting the installation of a silt fence, monitoring the quality of water discharge from the Project)
- Follow-up monitoring: programs designed to test the accuracy of effects predictions, reduce or address uncertainties, determine the effectiveness of mitigation, or provide appropriate feedback to operations for modifying or adopting new mitigation designs, policies and practices (e.g., implementation of adaptive management). Results from these programs can be used to increase the certainty of effect predictions in future EAs

The EIS suggests that "adaptive management measures may also be proposed to address uncertainties…". The implementation of long-term monitoring being very important and being requested by indigenous groups should also include an adaptive management process.

The results of field studies in Patterson Lake were corroborated by Indigenous and Local Knowledge shared by Indigenous Groups and LPA community members. The CRDN, BNDN, BRDN and MN-S identified Patterson Lake as an important area for fishing (TSD II: BNDN; TSD III: BRDN; TSD IV: MN-S; TSD V.1: CRDN; TSD V.2:

CRDN). The YNLR identified Patterson Lake as an important area for fish (TSD VI: YNLR). The CRDN noted that the Patterson Lake area has an abundance of resources and is intensively used by community members for harvesting. The BNDN noted that Patterson Lake supports numerous key fish species of historically high quality and large size (TSD II: BNDN). Species that are fished in Patterson Lake include lake trout (BRDN-JWG 2020; TSD II: BNDN; NexGen 2019), whitefish (TSD II: BNDN), walleye (TSD II: BNDN; NexGen 2019), suckers (TSD II: BNDN) and northern pike (TSD II: BNDN; NexGen 2019) (Page 11-61, EIS).

Patterson Lake was identified as being intensively used by community members for fish harvesting. This lake will continue to receive increasing fish harvest pressure with the increased number of individuals associated with the mining activity near the lake coupled with easy road access.

Morphology and catch data for walleye based on fishing efforts in the LSA and RSA are presented in Table 11.3-5. A total of 336 walleye were captured during baseline sampling in the LSA or RSA. However, a large majority of the walleye documented were captured in the Clearwater River above Patterson Lake (n = 298; Table 11.3-5). Of the 336 walleye captured, 109 were captured in Patterson Lake. In Patterson Lake, walleye ranged in size from 26.6 cm to 66.5 cm for length and 140 g to 2,720 g for weight (Table 11.3-5) (Page 11-69, EIS).

There appears to be a discrepancy between Table 11.3-5 (Page 11-70, EIS) which identified Patterson Lake Walleye at N = 10 and identification within the above text of Patterson Lake walleye n=109?

Table 11.4-1. Potential Effects Pathways for Fish and Fish Habitat (Page 11-73, EIS)

Table 11.4 -1 describes in some detail "Environmental Design Features and Mitigation" but it does not mention participation in management and harvest (recreational and commercial), which should be addressed at the onset of the predicted increased human activity in the Patterson Lake area. This will be one of the most important management tools that can be implemented to sustain the local fish populations.

Blasting for the Project would occur in conjunction with development of the underground mine and UGTMF at the locations of the production and exhaust shafts. All Project blasting would occur on land and not in Patterson Lake. The minimum separation distance between Patterson Lake and the anticipated location of Project blasting is 345 m; however, much of the blasting activity would occur at distances typically greater than away 450 m (UGTMF blasting) to 750 m (production blasting) from Patterson Lake. Peak pressure level and peak particle velocity vibration levels were predicted for Project blasting at the nearest anticipated location to Patterson Lake. Blasting activities would be located at distances greater than the DFO recommended setback distances referenced above (TSD X, Vibration Effects Analysis Report), and thus avoid harm to fish. If these setback distances are approached, site-specific operating mitigations could be implemented, as required, to protect fish. Thus, survival and reproduction rates of fish in nearby surface waters would remain unchanged as a result of the use of explosives during Project Construction and Operations. Therefore, the effect of pressure changes and vibrations from blasting on fish is considered as no pathway because blasting

would occur at a considerable distance from Patterson Lake. As a result, there are no predicted residual effects on lake trout, lake whitefish, walleye, and northern pike survival and reproduction, and this pathway was not carried forward in the assessment (Page 11-79,80, EIS).

While the EIS surmises that on site blasting is being carried out at a safe distance from Patterson Lake and therefore "there are no predicted residual effects on the VC's", monitoring should be carried out to confirm that this is indeed accurate considering that there were local concerns identified by YNLR (Page 11-79, EIS).

Through the described mitigation, the loading of phosphorus from Project activities and discharge to Patterson Lake is predicted to result in a minimal increase in TP concentration in the aquatic receiving environment with no changes to lake trophic status expected for any of the water bodies assessed. An increase in TP concentrations may result in minor changes to primary productivity and in potentially negligible and non-measurable effects on the productivity of lower trophic level consumers (e.g., zooplankton and benthic invertebrates). Effects on the productivity of fish, particularly piscivorous, upper trophic level consumers, are not expected. Therefore, this pathway is expected to have negligible effects on fish habitat quality and, survival and reproduction of fish VCs, and was not carried forward for further assessment (Page 11-102, EIS).

This section states that "An increase in TP (total phosphorus) may result in minor changes to primary productivity with virtually no effects on upper-level consumers" (i.e. piscivorous). Adding additional oligotrophic species such as suckers to monitoring programs would therefore be prudent.

Through the use of appropriate design, mitigation, and management practices, effects from installation of in-water developments are expected to have negligible effects on fish VCs. Overall, the physical habitat loss associated with these structures is predicted to result in a small change to habitat availability for fish VCs in
Patterson Lake and no change to distribution relative to existing conditions. If required by DFO, fish habitat lost or altered because of the developments would be offset with habitat created, restored, or enhanced. Therefore, this pathway was classified as a secondary pathway and not carried forward for further assessment (Page 11-109, EIS).

"…fish habitat lost or altered because of the development would be offset with habitat created, restored or enhanced." Restoring habitat is technically not an offset although it is important as part of the mitigation.

Development of the Project would result in an increase in the density of people in the area due to employees and contractors during Construction, Operations, and the Active Closure Stage. New roads would also be developed on the Project site, which would improve access to Patterson Lake for employees and contractors who may wish to fish recreationally during their time off shift while on site. The increase in density of people around the area of the Project, combined with the development of new site roads that improve access to Patterson Lake, could increase recreational angling in the area and, therefore, increase rates of fish injury or

mortality. The survival of fish VCs may be adversely affected due to an increase in harvesting of fish, or as a result of incidental injuries or mortality related to catch-and-release fishing. NexGen is exploring the possibility of implementing a policy that would prohibit or restrict fishing by employees and contractors on the Project site and along the existing access road while on rotation or residing in the camp. As NexGen plans to prioritize employment from local communities where possible, engagement with these communities would be undertaken to gather feedback on whether a no fishing policy is a desired mitigation to reduce effects on harvested fish populations from increased fishing pressure. However, for the purpose of the effects assessment, and to provide a conservative evaluation of potential effects on fish VCs, it was assumed that employees and contractors would be permitted to fish recreationally during their time off while on site, as well as along the existing access road Page 11-114, EIS).

NexGen "exploring the possibility of implementing a policy that would prohibit or restrict fishing" while laudable, would have a minimal effect on fish harvest. For example, the company cannot remove indigenous rights to fish. The EIS recognizes that changes to public access and the increased density of people may affect the viability of fish populations. It is therefore important for the company, indigenous representatives, and the Provincial Government to review and alter season and catch limits in the area at the onset of the project.

Estimated HQs for the far future were predicted to be below the benchmark of 1 for all COPCs, except for copper in the Application Case and reasonable upper bound scenario. Although cobalt concentrations were predicted to exceed surface water quality guidelines (Section 11.5.2.1), estimated HQs for cobalt were less than 1 in all assessment cases and for all aquatic receptors; therefore, cobalt was not considered further. The maximum HQ for copper was predicted to exceed 1 in Patterson Lake North Arm – West Basin for benthic invertebrates, zooplankton, and forage fish (represented by lake whitefish in the EcoRA) in the far future for the Application Case and the reasonable upper bound scenario. Additionally, the estimated HQ for copper was predicted to exceed 1 in Patterson Lake South Arm for the same three receptors in the far future in the reasonable upper bound scenario. All other modeled water bodies in the receiving environment had predicted HQs below 1 for the Application Case and reasonable upper bound scenario. There were no predicted exceedances of the 9.6 mGy/d radiation dose benchmark for aquatic biota (UNSCEAR 2008; CSA Group 2012) for the far future (Page 11-125, EIS).

The EIS recognizes that copper concentrations will exceed minimum acceptable levels during the life of the project; however, analysis indicated that there would be minimal effects on aquatic populations and communities. The only mitigation measure to affect this outcome would be to limit the copper concentration levels, if this is possible.

Overall, the predicted effects of the Project and RFDs on aquatic biodiversity were considered to be negligible. As exposure of aquatic biota to elevated copper concentrations would be restricted to Patterson Lake North Arm – West Basin, the geographic extent of effects was considered local. The duration and reversibility of the predicted effects would be permanent and not reversible. The probability of occurrence was characterized as possible, meaning that effects are unlikely, but may occur (Page 11-141, EIS).

Overall predicted effects on aquatic biodiversity considered as negligible neglects the cumulative effects of other mine sites such as Fission Uranium even though this factor has been identified in the EIS.

Overall, the predicted effects on fish habitat availability and survival and reproduction are expected to be negligible to low in magnitude and likely not distinguishable from natural background variability. Exposure of aquatic biota to maximum copper concentrations would be limited spatially to the North Arm – West Basin of Patterson Lake and temporally limited to dry climate years when there is a lower natural runoff to the lake. The predicted effects are considered possible, meaning that the changes may occur but are not likely permanent in duration and are irreversible. The effects of the Fission Patterson South Property on surface water quality during the far future are not expected to result in any changes to these effects predictions for fish VCs (Page 11-148, EIS).

Analysis of the residual effects on fish, particularly the VC's is concluded to be "not distinguishable from natural background variability" without any in-depth analysis of increased and persistent fish harvest due to the major changes in public access.

Section 12. Terrain and Soils (Page 12-1, EIS)

Section 12 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Rook I Project (Project) on terrain and soils. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments (RFDs). The terrain and soils assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge.

The local study area (LSA) for the terrain and soils assessment is within the Firebag Hills Landscape Area of the Mid-Boreal Upland Ecoregion of the Boreal Plain Ecozone of Saskatchewan (Acton et al. 1998). No unique terrain or soil features were identified within the LSA, much of which has been burned by forest fires in the past 40 years. Fire is the primary disturbance factor in the region. Terrain in the LSA is primarily undulating to hummocky upland landscape. The slope of the local terrain ranges from relatively level to slopes of 25% or greater, with an average slope of about 7%. The LSA is composed of four terrain units, which are approximately distributed as follows (Page i, Section 12, EIS):

- 79% glaciofluvial deposits
- 14% water
- 4% fen peat (i.e., Organic)
- 4% anthropogenic (i.e., human-derived) disturbance

Project activities that would have the potential to affect terrain and soils during the Project lifespan include (Page ii, Section 12, EIS):

- Land clearing
- Site preparation
- Construction of facilities and infrastructure

- Handling of ore and waste rock
- Changes to air and water quality
- Other supporting mining construction, operation, and decommissioning and reclamation activities

With no overlap with Fission, no cumulative effects were assessed. As part of the pathways analysis, proposed environmental design features and mitigation measures were considered to determine whether effects to the environment could be avoided or reduced to negligible levels, thereby removing the pathway. After mitigation measures were considered, the pathways screening analysis determined that the alteration of soil and terrain conditions (i.e., quantity, quality, and distribution) could still adversely affect soil productivity and the types of ecosystems that could be reclaimed on the landscape. Therefore, this pathway was carried forward into the residual effects analysis. A residual effects analysis was conducted to determine the potential effects of the Project on terrain and soils under two assessment cases: effects of the Project (i.e., Application Case), and combined effects of the Project and the Fission Patterson Lake South Property (i.e., RFD Case). The residual effects analysis considered three measurement indicators (Page iii, Section 12, EIS):

- Quantity and distribution of terrain units
- Quantity and distribution of soil map units
- Soil quality, which focused on soil suitability for reclamation

The residual effects analysis followed a precautionary approach by using an assessment area, referred to as the maximum disturbance area, which assumes disturbance of an area approximately four times larger than the currently anticipated Project footprint. During the Application Case, 897.8 ha of new disturbance would be added to the 82.2 ha of existing disturbance in the maximum disturbance area for a total area of 980 ha. Effects on terrain and soil map units covered with permanent facilities of the Project (e.g., waste rock storage areas) would be irreversible. The effects from disturbance on terrain and soil map units not covered by permanent facilities would be reversible over a long-term duration.

YNLR understood that the waste rock would be put back underground as part of reclamation, so how can the impact on the waste rock storage areas be irreversible?

Section 13. Vegetation (Page 13-1, EIS)

Section 13 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Rook I Project (Project) on vegetation, including ecosystems and traditional use plants. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments (RFDs). The vegetation assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge. Three vegetation ecosystems (i.e., upland ecosystems, wetland ecosystems, and riparian ecosystems) and traditional use plants represented valued components (VCs) in the Environmental Assessment (EA). The assessment of vegetation ecosystems and traditional use plants provided information that was used to

support VC assessments such as wildlife and wildlife habitat, human health, Indigenous land and resource use, and other land and resource use (Page i, Section 13, EIS).

YNLR believes that the use of only three vegetation ecosystem VCs is too coarse an approach that may miss many important finer elements. For example, woodland caribou are dependent on older seral stages of coniferous forest for lichens as food. Were the three ecosystems subdivided any further to enable more refined impact assessments? Isn't it possible to miss potential impacts by not doing so?

The local study area (LSA; 2,832 ha) and the anticipated Project footprint (228 ha) are located within the Mid-Boreal Upland Ecoregion of the Boreal Plain Ecozone of Saskatchewan (Acton et al. 1998). The regional study area (RSA) of 107,491 ha overlaps the transition between the Boreal Shield and Boreal Plain ecozones; Patterson Lake also overlaps this ecozone transition. The existing amounts of natural and human ecosystems follow:

Ecosystem Type	**LSA**	**RSA**
Upland	77%	70%
Wetland	20%	30%
Human	4%	<1%

Riparian ecosystems, which were identified as a subset of both upland and wetland ecosystems, cover 7% and 9% of the LSA and RSA, respectively. Over the last 40 years, 65,296 ha (61%) of the RSA has been burned in historical fires. However, historical fire extents overlap each other within the RSA; therefore, the amount of area within the RSA classified as burned is 61,997 ha (58%).

An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially affect vegetation. The evaluation also considered similar combined effects from the Fission Patterson Lake South Property, the identified RFD for the vegetation assessment. Project activities that would have the potential to affect vegetation during the Project lifespan include Page ii, Section 13, EIS):

- Land clearing
- Site preparation
- Construction of facilities and infrastructure
- Handling of ore and waste rock
- Changes to water and air quality
- Other supporting mining construction, operation, and decommissioning and reclamation activities

YNLR is very concerned about the introduction of invasive plant species into the forest ecosystems by the increased level of human disturbance.

As part of the pathways analysis, proposed environmental design features and mitigation measures were considered to determine whether effects on the environment could be avoided or reduced to negligible levels, thereby removing the pathway. After mitigation measures were considered, the pathways analysis determined that many of the potential pathways from the Project to the environment could be removed. However, it was identified that the Project could still adversely affect vegetation from the following pathways:

- Direct loss, alteration, and fragmentation of upland, wetland, and riparian ecosystems and traditional use plants
- Alteration of the final terrain, soil conditions, and/or plant species composition, which could change the types of ecosystems and traditional use plants that can be reclaimed on the landscape and adversely affect ecosystem availability, distribution, and condition

Therefore, these pathways were carried forward into the residual effects analysis. A residual effects analysis was conducted to determine the potential effects on vegetation ecosystems and traditional use plants under two assessment cases: effects of the Project (i.e., Application Case), and combined effects of the Project and the Fission Patterson Lake South Property (i.e., RFD Case). For upland, wetland, and riparian ecosystems, three measurement indicators were considered Page iii, Section 13, EIS):

- Ecosystem availability
- Ecosystem distribution
- Ecosystem condition.

For traditional use plant species, two measurement indicators were considered:

- Traditional plant habitat availability
- Traditional plant distribution

The residual effects analysis followed a precautionary approach by using an assessment area, referred to as the maximum disturbance area, which assumed disturbance of an area approximately four times larger than the currently anticipated Project footprint. In the RFD Case, a precautionary approach was used by applying a maximum disturbance area to the Fission Patterson Lake South Property using the same assumptions made for the Project; this approach resulted in a maximum disturbance area approximately six times larger than the footprint presented in the Fission (2019) prefeasibility study. Similar conservatism was incorporated into the overlapping temporal boundaries for the Project and RFD. The assessment assumed the period of residual effects from the Fission Patterson Lake South Property would completely overlap with similar effects associated with the Project for a maximum duration of 95 years.

YNLR believes that these residual effects assessment areas following application of the precautionary approach are reasonable.

Upland ecosystems would be expected to experience the following residual effects Page iii, Section 13, EIS):

- The Project is predicted to contribute to a loss in availability of approximately 868 ha of upland ecosystems, which represents 1.2% of upland ecosystems in the RSA (i.e., low magnitude)

- The Fission Patterson Lake South Property activities are predicted to contribute an incremental loss of 1,450 ha of upland ecosystems availability in the RSA
- In combination, the Project, Fission Patterson Lake South Property, and existing anthropogenic disturbance (e.g., Highway 955, seismic lines) would account for 2,390 ha (3.1%) of disturbance across upland ecosystem types in the RSA (i.e., low magnitude)

Despite the loss of upland ecosystems that would occur as a result of the Project and the Fission Patterson Lake South Property, the distribution of most upland ecosystems would remain abundant and well connected across the RSA.

If these upland ecosystems are either lost permanently or for several decades, YNLR believes that there should be some sort of no net loss offset applied, as it is for fish habitat under federal law (see before and below).

Wetland ecosystems would be expected to experience the following residual effects Page iv, Section 13, EIS):

- The Project is predicted to contribute to a loss in availability of approximately 28 ha of wetland ecosystems (i.e., less than 0.1% of the RSA), which would be limited to the Project's maximum disturbance area (i.e., low magnitude)
- Cumulatively, the Project and the Fission Patterson Lake South Property are predicted to contribute to a loss in availability of approximately 56 ha (i.e., 0.1% of the RSA) of wetland ecosystems (i.e., low magnitude)

Following Decommissioning and Reclamation (i.e., Closure), it is anticipated that wetland ecosystems would be reclaimed to the extent possible in an attempt to achieve no net loss of wetland functions, consistent with the guideline of the Federal Policy on Wetland Conservation (Government of Canada 1991). Although the establishment of functioning wetland ecosystems following the Active Closure Stage was considered possible, restoration of wetland species composition and ecological function similar to the wetland ecosystems observed under existing conditions would be unlikely. As such, the loss of all wetland ecosystems was conservatively assumed to be permanent.

This statement is somewhat confusing. Will lost wetlands be restored or not? If the wetland loss is permanent or long lasting, YNLR believes that a no net loss offset should be applied.

Riparian ecosystems would be expected to experience the following residual effects Page iv, Section 13, EIS):

- The Project is predicted to contribute to a loss in availability of approximately 40 ha of riparian ecosystems (i.e., 0.4% of the RSA), which would be limited to the Project's maximum disturbance area (i.e., low magnitude)
- Cumulatively, the Project and the Fission Patterson Lake South Property are predicted to contribute to a loss in availability of approximately 103 ha (i.e., 1.1% of the RSA) of riparian ecosystems (i.e., low magnitude).
- The majority of Project infrastructure would be set back from Patterson Lake, and the final disturbance with riparian ecosystems would be minimized

Despite the potential for fragmentation due to losses from the Project and the Fission Patterson Lake South Property, most riparian-associated wetland ecosystems would remain abundant and well connected across the RSA. The loss of riparian ecosystems in the RSA would result in localized minor changes in riparian distribution around Patterson Lake, and these effects were assumed to be long term for upland ecological land classification (ELC) units and permanent for wetland ELC units within riparian ecosystems.

What is the distance of the riparian set back? How was it arrived at? Again if riparian loss is permanent or long lasting, YNLR believes that a no net loss offset should be applied.

Under existing conditions, the total amount of traditional use plant habitat within the LSA is 721.6 ha (25.5%) and within the RSA is 24,988 ha (23.2%). Traditional use plants would be expected to experience the following residual effects (Page v, Section 13, EIS):

- The Project is predicted to contribute to a loss in availability of approximately 282 ha (1.1% of the RSA) of traditional use plant habitat, which would be limited to the Project's maximum disturbance area (i.e., low magnitude)
- Cumulatively, the Project and the Fission Patterson Lake South Property are predicted to contribute to a loss in availability of approximately 732 ha (i.e., 2.9% of the RSA) of traditional use plant habitat (i.e., low magnitude)
- Traditional use plant habitat is predicted to remain abundant across the RSA

Again, YNLR believes that permanent losses in traditional plant use habitats should be offset in some manner.

The Environmental Protection Program, Environmental Monitoring Plan, and associated environmental monitoring would be implemented to verify effects predictions and effectiveness of mitigation on vegetation, identify unanticipated effects (i.e., manage the residual uncertainty in the effects prediction), and apply adaptive management, if required. A noxious and nuisance weeds follow-up study would be carried out for weed management to monitor the establishment of designated weed species within the disturbance area and apply appropriate mitigation to avoid the unintended spread of such species.

YNLR believes that such monitoring is critical in order to maintain the ecological health of the forest.

Section 14. Wildlife and Wildlife Habitat (Page 14-1, EIS)

Section 14 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Rook I Project (Project) on wildlife and wildlife habitat. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments (RFDs). The wildlife and wildlife habitat assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge.

Eleven wildlife species represented valued components (VCs) in the Environmental Assessment (EA). These eleven wildlife and wildlife habitat VCs included (Page i, Section 14, EIS):

- Woodland caribou
- Moose
- Grey wolf
- Black bear
- Beaver
- Little brown myotis
- Olive-sided flycatcher
- Rusty blackbird
- Common goldeneye
- Mallard
- Canadian toad

The selection of VCs was based on several factors including, but not limited to, the potential level of interaction between the Project and the VCs, the sensitivity of the VCs to potential effects from the Project, species conservation status or concern, and feedback from Indigenous Groups and local communities.

YNLR has concerns about the breadth and composition of these wildlife VCs, which are essentially indicators of ecological health with respect to the impacts of the Project. Eleven species represent a very tiny proportion of the total number of wildlife species present in the boreal forest, especially if one considers invertebrates to be also 'wildlife'. Can only 11 wildlife species represent this vast and complex ecosystem even at the scale of the Project? For example, 6 of the VCs are mammals out of more than 85 species of boreal forest mammal, and only 4 are birds out of more than 300 boreal forest bird species.

Notwithstanding how they were chosen (Appendix 14A), YNLR also questions their individual selection with the omission of many others. For example, only two species of furbearer are selected, despite the importance of trapping to northern indigenous people. Species like Canada lynx, wolverine, fisher, mink and marten are omitted. Why? Only two species of songbird and two waterfowl species are selected. Why? No aerial feeders are included such as common nighthawk, barn swallow and bank swallow. Why? Is NexGen confident that a sufficient number and variety of VCs have been selected?

The assessment of wildlife and wildlife habitat used the same spatial boundaries as vegetation, which consist of local study area (LSA) of 2,832 ha and regional study area (RSA) of 107,491 ha. The exception was for woodland caribou, which included additional spatial boundaries required for the assessment of Project-specific and cumulative effects: caribou home range of 43,521 ha and SK2 West Caribou Administration Unit (SK2 West) of 48,287 km2.

YNLR supports the selection of woodland caribou as a VC, and believes it deserves special consideration for this assessment.

Existing baseline conditions for the selected wildlife and wildlife habitat were characterized based on results from field studies carried out between 2018 and 2020, Indigenous and Local Knowledge, and other available data sources (Page ii, Section 14, EIS).

Woodland Caribou (Page ii, Section 14, EIS)
The Project would be located in the north sub-unit of SK2 West, with the caribou home range and RSA overlapping both the SK1 and SK2 West. Under existing conditions (i.e., Base Case), caribou populations in the SK2 are ranked "as likely as not self-sustaining" (ECCC 2020) as the minimum 65% undisturbed critical habitat threshold necessary to support a self-sustaining population does not exist (ECCC 2020). In the SK1, Environment and Climate Change Canada's critical habitat assessment found that the caribou population(s) were considered self-sustaining (McLoughlin et al. 2019; ECCC 2020). In the Base Case, approximately 97% of the LSA, 66% of the caribou home range, 68% of the RSA, and 43% of the SK2 West is considered disturbed.

During baseline surveys in 2018 and 2019, woodland caribou or caribou sign (e.g., cratering, tracks, and scat [also referred to as pellets]) were observed in four locations, most frequently in open bog and black spruce/Labrador tea/feathermoss habitat. A herd of approximately 150 to 200 caribou was reported in
March 2020 by the CRDN between Lloyd Lake and Preston Lake within SK1, immediately east of SK2 West (CRDN-JWG 2020b). Indigenous Groups indicated that caribou populations have decreased substantially, but still occur in the Project area.

Wolf density was mentioned as a potential mitigating factor for moose below. YNLR wonders why there is no mention of wolf density in the baseline woodland caribou description. Human hunting pressure may increase on this species once the Project is underway, due to the presence of camps.

Moose (Page ii, Section 14, EIS)
The Project is located within Moose Management Unit 19, which is composed of Wildlife Management Zones 74, 75, and 76. Indigenous Groups identified moose as a key part of their culture and traditional diets, and hunting moose as important for community well-being and maintaining traditional ways of life. In the Base Case, suitable moose habitat is common and well distributed in the RSA. Moose habitat is relatively less abundant in the LSA largely due to the aggregation of existing anthropogenic disturbance. Under existing conditions, it is reasonable to assume that Highway 955 and the existing access road may be affecting moose, particularly during periods of higher exploration activity when there are more vehicles on the roads. The existing habitat conditions in the RSA are expected to support a healthy moose population. The low level of existing anthropogenic disturbance and low wolf density suggest that the moose population overlapping the RSA is likely self-sustaining and ecologically effective. During baseline studies, moose were detected using a variety of habitat types during winter and summer, including along roads and other anthropogenic features.

YNLR supports the selection of moose as a VC and is concerned about the impact that the increased levels of traffic and human disturbance will have on it. Hunting pressure may increase on this species once the Project is underway due to the presence of camps.

Grey Wolf (Page iii, Section 14, EIS)
The grey wolf is considered a habitat generalist, capable of exploiting a variety of habitat types on the landscape as long as the animals are mostly free from trapping or hunting and ungulate densities are sufficient to support a population. Habitat suitability models developed for the grey wolf identified that patches of high and moderate suitability habitat extend throughout the LSA, interspersed with low suitability habitat. Wolves are highly mobile with strong dispersal ability and flexibility in habitat preferences; for these reasons, the species is likely resilient to moderate levels of fragmentation on the landscape (Serrouya et al. 2017). In the Base Case, disturbances created by forest fires and human development are unlikely to be negatively affecting habitat availability for wolves in the RSA. Therefore, under existing conditions, the wolf population overlapping the RSA is expected to be healthy, with survival and reproduction rates linked to available prey. During baseline studies, grey wolves were detected using roads and trails in the RSA.

As an important predator of caribou and moose, YNLR supports its selection as a VC. Hunting and trapping pressure may increase on this species once the Project is underway due to the presence of camps.

Black Bear
Black bears are considered habitat generalists and occupy coniferous, deciduous, and mixed wood forest habitat types throughout the year in response to the shifting availability of forage and prey. Overall, suitable black bear spring and fall habitat is common, well distributed, and connected across the LSA and RSA in the Base Case. In the Base Case, it was assumed that black bears use regenerating burn areas in the RSA in the fall for feeding on berries prior to denning, and areas near Highway 955 in the RSA in the spring. Baseline surveys confirmed black bear use within the RSA, but black bear density was not measured. It was assumed that the black bear population overlapping the RSA is stable or increasing under existing conditions.

YNLR is concerned with an increase in human-bear conflict once the Project in underway. Their attraction to refuse dumps needs to be carefully managed. Hunting pressure may increase on this species once the Project is underway due to the presence of camps.

Beaver (Page iii, Section 14, EIS)
Beavers are expected to have the capacity to adapt and be resilient to existing human-related disturbances and associated variations in habitat availability. The majority of the LSA and RSA contains poor suitability beaver habitat, which is likely partially related to the extent of burned upland forest in the region; this is supported by observations made by members of the Birch Narrows Dene Nation (BNDN) about beavers not occupying burned habitat. The LSA and RSA contain large lakes that are also classified as poor habitat for beaver. Beavers are not considered sensitive to anthropogenic disturbance as dams are often created at human-made structures. In the Base Case, disturbances created by human development are unlikely to be negatively affecting habitat availability for beavers in the RSA.
The main limiting factors or threats affecting beaver survival, abundance, and distribution are likely harvest pressure and the availability of suitable habitat.

Baseline surveys for the Project detected beaver and beaver sign along shorelines of waterbodies in the LSA and RSA (Omnia 2020a). Runs and feeding marks were the most often detected signs of beaver, followed by inactive lodges and active lodges. Beaver dams were observed at two waterbodies near the Project.

YNLR supports the selection of the beaver as a VC owing to its status as a furbearer and riparian dweller. Trapping pressure on the species is likely to increase once the Project is underway due to the presence of camps.

Little Brown Myotis (Page iv, Section 14, EIS)
The little brown myotis is an endangered species under Schedule 1 of the federal Species at Risk Act (SARA; Government of Canada 2021a) due to dramatic population declines caused by white nose syndrome (WNS). Because WNS results in substantial declines in bat survival once a colony is infected, the resiliency of little brown myotis populations in the RSA is expected to be very low once the disease has spread to the area. As of 15 September 2021, the fungus that causes WNS in bats had been detected in eastern Saskatchewan, suggesting that the disease could be soon affecting Saskatchewan populations (Global News 2021). Suitable roosting habitat was identified and mapped in the Base Case; the resulting model suggests that the LSA and RSA contain limited suitable roosting habitat. Baseline bat surveys for the Project were completed between late May and early October 2018, and between early May and late September 2020. Based on detection data, it was assumed that creek, bog, and coniferous forest habitat are used by little brown myotis for foraging in the RSA.

Given the fact that white nose disease is likely to have a much greater impact than the Project itself, YNLR questions the selection of this species as a VC.

Olive-sided Flycatcher (Page iv, Section 14, EIS)
Suitable olive-sided flycatcher nesting forest habitat was identified and mapped in the Base Case. Habitat types known to have the potential to support olive-sided flycatchers were fairly common and widespread in the LSA and areas surrounding Patterson Lake. Existing anthropogenic disturbance is low in the RSA and it was assumed that most linear features in the RSA (i.e., trails, rough roads, and seismic/ cutlines) do not functionally affect the movement and habitat connectivity of olive-sided flycatcher in the Base Case. During baseline breeding bird surveys, olive-sided flycatcher was detected throughout the LSA and surrounding area around Patterson Lake with 13 observations at 12 survey sites. In the Base Case, it was assumed that olive-sided flycatcher survival and reproduction likely support a stable population given the current change in status from Threatened to Special Concern (COSEWIC 2018), the availability of suitable nesting habitat in the RSA, and the results of the baseline surveys.

YNLR is unclear why this species was selected as a VC for the Project assessment.

Rusty Blackbird (Page v, Section 14, EIS)
In Saskatchewan, rusty blackbirds are a common summer resident in boreal bogs and fens (Smith 1996). In the Base Case, the majority of the LSA and RSA contain poor suitability habitat. Large patches of open land cover associated with recent burns and early-stage regenerating

ecosites in the LSA and RSA may affect movements of rusty blackbirds. Anthropogenic disturbance in the RSA may have decreased and altered potential rusty blackbird habitat under existing conditions; however, baseline surveys recorded rusty blackbird in low suitability and poor suitability habitats during the nesting period. During baseline surveys for the Project, four rusty blackbirds were detected among three locations.

Given the apparent lack of suitable habitat and the low number of birds detected, YNLR questions the selection of this species as a VC.

Common Goldeneye (Page v, Section 14, EIS)
Common goldeneye is a species of duck that breeds in mature trees with suitable nest cavities along wetlands, lakes, and rivers. The assessment of habitat suitability for common goldeneye was focused on defining nesting habitat during the breeding period. The model predicted nesting habitat suitability to be highest at shoreline, but available up to 1.3 km from the edge of open water, and that common goldeneye primarily use waterbodies between 1.5 ha and 20 ha in size. In the Base Case, it was assumed that nesting territories in the RSA are at a density of 0.09 pairs/ha and that disturbance to nesting is negligible. Common goldeneye populations remain relatively stable despite threats from hunting, pesticides and contaminants, and degradation of habitat (Eadie et al. 2020). In the Base Case, it was assumed that the common goldeneye population overlapping the RSA is likely stable. During baseline surveys, eight pairs of common goldeneye were observed during the July waterfowl survey and 16 individuals were observed during the June migration survey.

This is a good indicator of intact riparian habitat and so useful as a VC in the assessment. Hunting pressure on this species will likely increase due to the presence of camps.

Mallard (Page vi, Section 14, EIS)
The mallard is the most abundant duck species in North America. Suitable nesting habitat was identified and mapped in the Base Case. The moderate amount of suitable mallard habitat available in the Base Case suggests that habitat availability is not limiting for this species in the LSA and RSA. Suitable nesting habitat for mallard in the LSA is patchily distributed, with high suitability habitat associated with wetland habitat or areas within 150 m of open water. Based on the available information, it was assumed that the population in the RSA may be decreasing in the Base Case. However, based on low level of disturbance, it was assumed that there are negligible threats to mallard survival and reproduction in the RSA in the Base Case. During baseline studies, 61 mallard individuals were detected.

Hunting pressure on this species will likely increase due to the presence of camps.

Canadian Toad (Page vi, Section 14, EIS)
Characterizing habitat suitability for Canadian toad focused on defining breeding habitat. In the Base Case, the LSA contains 4.8% of suitable breeding habitat for Canadian toad, most of which is surrounded by either large waterbodies or burned, pine-dominated upland habitat. The availability of suitable breeding habitat in the RSA is 14.3% but is limited by the amount of open wetland ecosites. The amount of existing anthropogenic disturbance in the RSA is low (i.e., 0.4% of the RSA) and expected to have had little influence on Canadian toad populations.

Highway 955 is likely a partial barrier to toad movement and dispersal, particularly during periods of high traffic volume, but the current density of linear features in the RSA is likely causing negligible adverse effects on Canadian toads. Canadian toad detections occurred in seven different ecosite/vegetation cover types in the LSA. Existing anthropogenic disturbance in wetland and pond habitat is limited and is likely having a negligible effect on Canadian toad breeding habitat.

YNLR agrees this is a potentially useful indicator and VC. However, were leopard frogs or other amphibians included in the surveys, and thus potentially serve as VCs?

An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially affect wildlife and wildlife habitat. The evaluation also considered similar combined effects from the Fission Patterson Lake South Property, the identified RFD for the wildlife and wildlife habitat assessment. Project activities that would have the potential to affect wildlife and wildlife habitat during the Project lifespan include (Page vii, Section 14, EIS):

- Land clearing
- Site preparation
- Construction of facilities and infrastructure
- Handling of ore and waste rock
- Changes to water and air quality
- Other supporting mining construction, operation, and decommissioning and reclamation (i.e., closure) activities

As part of the pathways analysis, proposed environmental design features and mitigation measures were considered to determine whether effects on wildlife and wildlife habitat VCs could be avoided or reduced to negligible levels, thereby removing the pathway. After mitigation measures were considered, the pathways screening analysis determined that many of the potential pathways from the Project to the environment could be removed. However, it was identified that the
Project could still adversely affect wildlife and wildlife habitat from the following pathways:

- Direct removal or alteration of soil and vegetation can cause loss of wildlife habitat and affect wildlife abundance and distribution
- Alteration of final terrain and soil conditions, and/or plant species composition, could change the types of ecosystems that can be reclaimed on the landscape and adversely affect wildlife habitat availability and distribution, and survival and reproduction
- Sensory disturbance (e.g., presence of people, air traffic, lights, dust, smells, noise) can alter wildlife movement and behaviour and adversely affect wildlife habitat availability and wildlife abundance and distribution.

Therefore, these pathways were carried forward to the residual effects analysis.

The sensory disturbance comes not only from the Project activities, but also from the elevated numbers of people living at the camp. Camp workers will likely be fishing and/or

hunting thereby increasing the level of harvest pressure on local and regional wildlife. ATV and snowmobile use may well increase too.

A residual effects analysis was conducted to determine the potential effects on wildlife and wildlife habitat under two assessment cases: effects of the Project (i.e., Application Case), and combined effects of the Project and the Fission Patterson Lake South Property (i.e., RFD Case). For wildlife and wildlife habitat, three measurement indicators were considered:

- Habitat availability
- Habitat distribution
- Survival and reproduction

The residual effects analysis followed a precautionary approach by using an assessment area, referred to as the maximum disturbance area, which assumes disturbance of an area approximately four times larger than the currently anticipated Project footprint. In the RFD Case, a precautionary approach was used by applying a maximum disturbance area to the Fission Patterson Lake South Property using the same assumptions made for the Project; this resulted in a maximum disturbance area approximately six times larger than the footprint presented in the Fission (2019) prefeasibility study. Similar conservatism was incorporated into the overlapping temporal boundaries for the Project and RFD. The assessment assumed the period of residual effects from the Fission Patterson Lake South Property would completely overlap with similar effects associated with the Project, a maximum duration of 95 years.

Woodland Caribou (Page viii, Section 14, EIS)
Under existing conditions, the provincial management threshold of limiting the amount of natural and anthropogenic disturbance within the caribou range to a maximum of 35% has already been exceeded; therefore, any amount of incremental habitat loss from any development, including residual losses of habitat associated with the proposed Project, is considered significant for woodland caribou. The Project is expected to affect caribou habitat availability in the LSA, caribou home range, RSA, and SK2 West by causing an incremental increase in the amount of disturbance. The changes would include both direct (i.e., physical footprint) and indirect (i.e., sensory disturbance/perceived predation risk) effects. Overall, the proportion of disturbance in the caribou home range is expected to increase by 0.3% with development of the Project, resulting in a decrease of 0.6% of suitable caribou habitat. In SK2 West, the proportion of disturbance is expected to increase by less than 0.1%, resulting in a decrease of less than 0.1% of suitable caribou habitat. In the RFD Case, a loss of 1.3% of suitable caribou habitat is expected in the caribou home range as a result of the Project and the Fission Patterson Lake South Property; in SK2 West, a loss of less than 1% of suitable caribou habitat is expected to occur.

YNLR believes that the NexGen and the Fission projects will make a bad situation worse for woodland caribou over the long term. The only mitigating factor might be long-term regional forest recovery in the absence of forest fires, but climate predictions suggest otherwise (Page ix). Given the significance of this assessment, YNLR would like to see a woodland caribou offset plan negotiated before the Project begins (see below).

Other Wildlife VCs

The Project is expected to result in habitat loss, habitat alteration, and sensory disturbance for all VCs during all Project phases. The magnitude of loss from the proposed Project would be less than 1.5% of suitable habitats in the RSA for all VCs. Cumulative habitat loss in the RFD Case would be less than 3.5% of suitable habitat in the RSA for all VCs. During Operations and Closure, habitats would be progressively reclaimed to the extent possible. Habitat distribution for all VCs in both the Application Case and RFD Case is expected to remain well connected throughout the RSA. Although there is variability on effects for individual animals, overall, all VC populations are expected to remain self-sustaining and ecologically effective.

Some of these other VCs are listed as species at risk, therefore any decrease in habitat over long periods could be considered as significant.

Woodland caribou is listed as vulnerable/rare to uncommon (S3) in Saskatchewan and is Threatened and on Schedule 1 of the SARA. Under existing conditions, the SK2 West does not meet the minimum 65% undisturbed habitat threshold necessary to support a self-sustaining population. Therefore, the amount of incremental habitat loss from any development, including residual losses of habitat associated with the proposed Project and the Project combined with the Fission Patterson Lake South Property, would further reduce the ability for woodland caribou to be self -sustaining. As a result, residual adverse effects to woodland caribou for both the Application Case and RFD Case are predicted to be significant.

See comment above.

NexGen is committed to reclaiming habitat disturbed by the Project footprint and offsetting the incremental loss of caribou habitat to help achieve self-sustaining and ecologically effective caribou populations. Trial reclamation to restore caribou habitat along linear features has commenced, which demonstrates this commitment. NexGen is also committed to developing and implementing a Caribou Mitigation and Offsetting Plan (CMOP) through engagement with the ENV and Indigenous Groups. Implementation of the CMOP is expected to result in a net increase in functional caribou habitat. In keeping with the Province's SK2 range plan, it is also anticipated that other future developments would implement similar mitigation actions to support a trajectory towards conserving caribou.

YNLR supports this commitment and expects to be involved in any future decisions regarding woodland caribou conservation.

Surveillance monitoring completed as part of the Environmental Protection Program, and associated environmental monitoring, would be implemented to verify effects predictions and effectiveness of mitigation measures for wildlife and wildlife habitat, identify unanticipated effects (i.e., manage the residual uncertainty in the effects prediction), and apply adaptive management, if required. The Decommissioning and Reclamation Plan would be implemented for long-term reclamation and establishment of vegetation communities that contribute to the maintenance of self-sustaining and ecologically effective wildlife populations and biodiversity. Monitoring and follow-up would be implemented to verify that reclamation was trending towards the successful regeneration and succession of vegetation communities that are

functionally similar to natural wildlife habitat in the region. Results from monitoring would be used to modify or apply different reclamation procedures through the process of adaptive management.

As with other Project monitoring commitments, YNLR will be looking to see that such programs are open, transparent, and statistically robust.

General comment on Sections 6, 11, 13, and 14: The EIS asserts in a number of places that the selected ecological VCs are representative of all boreal forest biodiversity and ecological health/integrity. This is an invalid assumption and oversimplification of the actual situation, which is far more complex.

Section 15. Human Health (Page 15-1, EIS)

15.2.1 Incorporation of Indigenous and Local Knowledge
15.2.2.1 Valued Components and Receptors

These sections of the EIS discuss the participation of Indigenous groups, the incorporation of their traditional knowledge, with specific reference to VCs.

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group (and were excluded from the LPA) and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The greater involvement of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. For example, the EIS identified an average of 157 key engagement activities for each primary Indigenous group while the YNLR (and AD communities) had only 29. This is prejudicial and self-perpetuating.

15.2.3 Spatial boundaries

The EIS indicates that "the approach used to select spatial boundaries aligns with Indigenous and Local Knowledge shared by Indigenous Groups about the interconnectedness of the region's waterways, and how rivers and lakes cannot be viewed in isolation".

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group (and were excluded from the LPA) and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue,

for the identification of valued components, for the discussion of other important issues (e.g., spatial boundaries and ADKLUO and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The greater involvement of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. For example, the EIS identified an average of 157 key engagement activities for each primary Indigenous group while the YNLR (and AD communities) had only 29. This is prejudicial and self-perpetuating

Section 15 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Rook I Project (Project) on human health. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments
(RFDs). The human health assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge. Human health represented a valued component (VC) in the Environmental Assessment (EA); the selection was based on the Project's potential to cause exposures to hazards and sources of constituents of potential concern (COPCs) (i.e., chemical compounds, metals, and radionuclides). Atmospheric emissions from waste rock and ore handling and storage could produce air and dust emissions that could be inhaled by humans and deposited on soil. Release of treated effluent, runoff, and seepage into Patterson Lake may cause changes to surface water quality, which could be transferred to sediment, plants, fish, and wildlife. People ingesting water, plants, fish, and wildlife or contacting water and sediment, could subsequently be exposed to these constituents, which could adversely affect their health (Page i, Section 15, EIS).

The human health assessment focused on a local study area (LSA) of 685 km2, which is in the area of the proposed Project where direct environmental effects would be most likely to occur, and a regional study area (RSA) of 1,076 km2, where cumulative effects may occur.

To characterize existing conditions, baseline data from several other disciplines were used to support the human health assessment, including air quality, water and sediment quality, and soil quality. In addition to the information provided above, data collected with respect to blueberry and lichen quality, fish tissue, and wildlife were also used in the human health risk assessment (HHRA). There are no known existing anthropogenic sources of radiation or radioactivity in the LSA and RSA (Page ii, Section 15, EIS).

YNLR wonders whether data and experience gathered on human health effects at other uranium mining projects would have been included? What are the human health records from other uranium mines?

Project activities that would have the potential to affect human health during the Project lifespan include (Page ii, Section 15, EIS):

- Land clearing
- Site preparation
- Site traffic
- Construction of facilities and infrastructure
- Handling and storage of waste rock, special waste rock, and ore
- Storage of tailings in the underground tailings management facility (UGTMF) and mined out underground production stopes;
- Transportation of personnel and materials to and from the site
- Power generation
- Process plant and underground operations
- Non-hazardous waste incineration
- Discharge of treated effluent
- Removal of infrastructure, and reclamation and re-vegetation of facilities and infrastructure

Similar activities that could affect human health would be expected to occur for the Fission Patterson Lake South Property, with the exception of potential effects associated with an above ground TMF. As part of the pathways analysis, proposed environmental design features and mitigation measures were considered to determine whether effects on the environment could be avoided or reduced to negligible levels, thereby removing the pathway. Project environmental design features such as the UGTMF and the engineered cemented paste tailings were designed to minimize the Project's effects on human health. In addition, proposed mitigation measures that would reduce effects on human health include (Page iii, Section 15, EIS):

- Erosion and sediment control
- Progressive reclamation and re-vegetation of disturbed areas and areas where non-permanent Project features have been removed
- Treatment of effluent prior to discharging
- Recycling and reuse of process plant water
- Regular equipment maintenance
- Primarily using liquid natural gas for power generation
- Diffuser design to provide effective treated effluent mixing and to limit the area of the receiving water expected to have elevated COPC concentrations
- Application of water and/or suppressants to the access road, site roads, and the airstrip

After mitigation measures were considered, the pathways analysis determined that many of the potential pathways from the Project to the environment could be removed from the assessment. However, it was identified that the Project could still adversely affect human health from the following pathways (Page iii, Section 15, EIS):

- Emission and deposition of fugitive dust and radon
- Emission and deposition of criteria air contaminants and suspended solids
- Release of treated effluent, including changes to surface water quality, and indirectly, sediment quality
- Site runoff

- Seepage from waste rock storage areas (WRSAs) causing changes to groundwater and surface water quality; and
- Post-closure runoff and seepage from WRSAs and the UGTMF.

Therefore, these pathways were carried forward into a residual effects analysis.

To support the assessment of the human health VC, an HHRA was conducted to determine the potential effects on human health under two assessment cases: effects of the Project (i.e., Application Case), and combined effects of the Project and the Fission Patterson Lake South Property (i.e., RFD Case). The HHRA formed the basis for the characterization of risk to human health and the determination of significance. The HHRA considered four human health receptor groups (Page iv, Section 15, EIS):

- Camp worker at the Project
- Subsistence harvester
- Seasonal resident / lodge operator
- Future permanent resident of the Patterson Lake North Arm area.

The assessment of each receptor group included consideration of both and adult and a one-year-old child.

The selection of these four groups was based on members of the public potentially being exposed to low levels of airborne or waterborne constituents at locations on the landscape identified as important by Indigenous Groups and community members. Consistent with guidance in the Canadian Standards Association Group CSA N288.6-12 (CSA 2012), nuclear energy workers were excluded from the assessment since it is assumed these workers would participate in the Radiation Protection Program and Health and Safety Program. However, a worker at the Project camp (i.e., an individual working in food services) was included in the HHRA, since it was assumed that the camp worker consumes Traditional Foods fished, hunted, and harvested from within the LSA when not working.

It is likely that many nuclear energy workers will also consume traditional foods (see Page 18-57).

- The HHRA focused on COPCs that exceeded screening values in air and water based on predicted atmospheric releases and aqueous releases (i.e., treated effluent, treated sewage, site runoff, and groundwater solute releases) from the Project as well as considered COPCs predicted to exceed screening values in soil and sediment. The measurement indicators used to assess potential effects on human health were (Page iv, Section 15, EIS):
- Hazard quotient (HQ) – a measure of the ratio of the predicted exposure (i.e., daily dose) to a non-carcinogen relative to the toxicity reference value (TRV)
- Incremental lifetime cancer risk (ILCR) – the predicted increase in lifetime cancer risk from exposure to a carcinogen related to Project activities; represents risk above background cancer risk
- Radiation dose – a measure of the risk to the overall health of the human body due to an exposure to ionizing radiation

Non-Carcinogens
As a result of releases from the Project, no significant adverse effect on any human receptors would be likely during the Project lifespan for the Application Case, reasonable upper bound sensitivity scenario, or the RFD Case. All estimated Project HQs for all non-carcinogenic COPCs remained below the acceptable risk level of 0.2 per pathway for the one-year-old and adult age groups assessed.

Carcinogens
Incremental cancer risk was predicted to exceed the negligible cancer risk level of 1 in 100,000 for the relevant human receptors (i.e., camp worker, subsistence harvester, seasonal resident) in the LSA just outside the Project footprint, but did not exceed the negligible cancer risk within the RSA farther from the Project. The predicted incremental risk is in the negligible to low category, as the calculated ILCR is 4 in 100,000 for the Application Case, compared to a background level of approximately 50,000 in 100,000 (Page v, Section 15, EIS).

Radionuclides/Radon
The incremental radiation dose to all human receptors during the Project lifespan and the far-future projection were predicted to be below the regulatory public dose limit of 1 mSv/yr for the Application Case, upper bound sensitivity scenario, and RFD Case. In the far-future projection, a future permanent resident living at the location of the previous camp could receive a dose up to 0.1 mSv/yr, which is well below the regulatory public dose limit and the dose constraint. Overall, since the radiation dose estimates are below the public dose limit; no discernable health effects are anticipated due to potential exposure of these receptors to radioactive releases from the Project. The incremental radon concentration at the camp worker location for the Application Case, upper bound sensitivity scenario, and RFD Case would be below the CNSC limit of 60 Bq/m3; therefore, effects due to exposure to radon would not be anticipated (Page v, Section 15, EIS).

The weight of evidence from the analysis predicts that although changes to COPCs and the incremental radiation dose are possible, the predicted effects would be below the acceptable risk level and regulatory public dose limit for human health VC receptors. The residual effects on human health in the Application Case are therefore predicted to be not significant. The incremental and cumulative effects resulting from the Project, previous and existing developments, and the
Fission Patterson Lake South Property on human health are also predicted to be not significant.

The Environmental Protection Program, Environmental Monitoring Plan,
Industrial Air Source Environmental Protection Plan, and Traditional Foods Study would be implemented to verify effects predictions and effectiveness of mitigation on human health, identify unanticipated effects, and apply adaptive management.

See previous comments on Project follow up and monitoring.

Section 16 Cultural and Heritage Resources and Indigenous Land and Resource Use (Page 16-1, EIS)

16.1 Introduction

Figure 16.1-1 Location of the Rook 1 Project.

Figures 16.1-1 shows the Athabasca Denesųłiné reserves but does not name the First Nations or show our community locations. Further, the map does not show the Athabasca Denesųłiné traditional territory. The map should show this information. This information has been available to the public since 2008 - prior to the beginning of NexGen's Rook 1 project. Our traditional territory is referenced on the YNLR website (www.yathinene.ca) and was available on the sites of our predecessor organizations through the Prince Albert Grand Council. This information was contained within the report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment - provided to NexGen in December 2020. Lastly, we include a map of the Athabasca Denesųłiné traditional territory herein as Figure 2.

16.1.2 Purpose and Approach to the Assessment

The EIS (p 16-8) notes the primary steps in the assessment:

1. Measure and assess effects and cumulative effects
2. Characterize existing conditions
3. Evaluate interactions and mitigations
4. Analyse residual effects
5. Determine significance
6. Uncertainty and prediction confidence
7. Monitoring and follow-up

The Athabasca Denesųłiné question how Step 2 "characterize existing conditions" can be appropriately met given that the AD were excluded from fulsome consideration as a primary Indigenous group. See below for elaboration. The limited consideration of the Athabasca Denesųłiné during Step 2 has implications for subsequent steps.

16.2 Component Methods

16.2.1 Incorporation of Indigenous and Local Knowledge

The EIS (p 16-9, 16-10, 16-11. 16-12) provides recognition of the communities included within the local priority area (LPA). It furthers describes the sources of the incorporated Indigenous and local knowledge including IKTLU studies (lists on pages 16-9 to 16-10) and special studies (e.g., harvest study, foods studies). The EIS also notes that another key source of Indigenous and Local Knowledge was the Joint Working Groups that were established with/for primary Indigenous groups. Lastly the EIS indicates that information was also shared/gathered during engagement activities (e.g., community information sessions, site tours, baseline data collection, workshops, formal and informal meetings, others). The EIS notes (p16-11, 16-12) that the Indigenous and local knowledge was incorporated into VCs, spatial boundaries, existing conditions descriptions, project interactions/mitigation, residual effects analysis, and monitoring, follow-up, and management.

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019.

Based on the early engagement (e.g., pre-2019), primary communities that were deemed most likely affected by the proposed Project were identified. Then, using these identified communities as a guide, a LPA (local priority area) was established. NexGen engagement activities were focused on primary communities in the LPA. This approach has at least three flaws. First, it ignores or disregards the information provided by the Athabasca Denesųłiné in 2020 that clearly demonstrates their interests in the vicinity of Rook 1. Clearly processes need to respond to the information available. Second, because the inclusion of communities in the LPA (and indeed the geographic extent of the LPA) is based on whether or not they were previously identified means that AD's exclusion is likely self-perpetuating. Since the Athabasca Denesųłiné were not involved in the early stages they could not possibly have been considered nor could the LPA area include them. Third. the proximity of our communities to the project site is downplayed in the EIS by using a road distance measure rather than the well documented cross-country routes our members generally use to access the portion of our territory near the Project. In fact, Fond du Lac is closer to the project site than a number of other groups considered primary!

While the YNLR prepared (with financial support from NexGen) the 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – on behalf of the Athabasca Denesųłiné communities, they did not undertake traditional foods studies and/or community led household harvest surveys and had far fewer interactions with NexGen where this information could have been discussed.

For reference, the ADKLUO study report provided an overview of the Athabasca Denesųłiné (AD) including culture, history, Treaties, way of life and relationships with the caribou and other wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The later sections identified primary concerns of the Athabasca Denesųłiné, and potential impacts related to the NexGen Rook 1 Project and industrial development in general.

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The inclusion of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the

Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples (e.g., 29 key meetings for the AD as compared to an average of 157 key meetings on average for each "primary" Indigenous group (See EIS Table 2.6-1)) and limits AD specific information incorporation into VCs, spatial boundaries, existing conditions descriptions, project interactions/mitigation, residual effects analysis, and monitoring, follow-up, and management. This is prejudicial and self-perpetuating

Further, the reference to the Athabasca Denesųłiné IKTLU study (p 16-10) was footnoted as follows: "A Study Funding Agreement was signed with Ya'thi Néné Lands and Resources (YNLR) representing the Black Lake Denesųłiné First Nation and the Fond du Lac Denesųłiné First Nation: however, this agreement was limited to funding a self-directed IKTLU Study, and not a JWG process due to the level of engagement designated to the YNLR by the CNSC, ENV, and accepted by NexGen."

The YNLR prepared (with financial support from NexGen) the 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – on behalf of the Athabasca Denesųłiné communities including Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, and the Hatchet Lake Denesųłiné First Nation. Lastly, the comment that the level of AD engagement was designated by the CNSC and ENV and accepted by NexGen does not appear to be congruent with the selection criteria that NexGen identified within the EIS to determine primary Indigenous groups (See YNLR comments on EIS Sections 1.2.3 and 2.4.1 as well as comments below). Did NexGen apply the criteria or not? Either way, the Athabasca Denesųłiné have been improperly excluded from the primary Indigenous group category.

16.2.2 Valued components, Measurement Indicators, and Assessment Endpoints
16.2.2.1 Valued Components
This section (p 16-12, 16-13, 16-14) of the EIS discusses the identification of valued components, and the cultural and heritage resources and the Indigenous land and resource use VCs in particular.

The EIS notes that the selection of "VCs was supported by feedback provided during community information sessions for the Project in La Loch, Turnor Lake, Buffalo River, and Buffalo Narrows, …" (p16-13). It further describes that "the Indigenous land and resource use VC focussed on use by CRDN, MN-S, BNDN, and BRDN." (p16-13).

The EIS stated "More broadly, the Fond du Lac Denesųłiné First Nation and the Black Lake Denesųłiné First Nation of the Athabasca Denesųłiné, are interested parties for the Project, and are represented by Ya'thi Néné Lands and Resources (YNLR). While the YNLR is not a primary Indigenous Group as identified by the CNSC, ENV, and NexGen, they have also expressed interest in the potential effects of the Project on Indigenous land and resource use." (p 16-13). There is also a footnote that states "Note the Athabasca Denesųłiné is the collective name of Black Lake, Hatchet Lake, and Fond du Lac Denesųłiné First Nations; however, the Hatchet Lake

Denesųłiné First Nation's traditional territory does not overlap the Project, and as such they were not included in the YNLR representation".

The EIS noted that the cultural and heritage resources and the Indigenous land and resource use VCs were shared with, supported by, and progressively discussed, with, the JWGs. The EIS also notes that further validation using the IKTLU Studies occurred. The importance of large game by the AD as a foundation of their culture and way of life was noted in the EIS.

As previously noted, the Athabasca Denesųłiné were not involved in the community information sessions referenced, nor were they included in JWGs or its discussions, nor did the EA process engage with them as actively and deeply as with those deemed "primary" Indigenous groups. These exclusions are unfortunate as it means AD's core method for providing relevant information was via the 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – prepared by YNLR on behalf of the Athabasca Denesųłiné communities including Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, and the Hatchet Lake Denesųłiné First Nation without the benefit of continuous and supporting discussion with NexGen.

16.2.2.2 Measurement Indicators

The EIS (p 16-14) describes the measurement indicators for the Indigenous land and resource use VC as (i) changes to access and area available for Indigenous traditional activity;(ii) changes to the availability and quality of wildlife, fish, and plants; and (iii) changes in the quality of Indigenous land use experience.

As noted herein, the Athabasca Denesųłiné have had limited input, mainly due to their exclusion from the primary Indigenous group category, into the development of the VCs. This ensures that some elements are overlooked. For example, the Athabasca Denesųłiné generally use to access the portions of their traditional territory near the Project via cross-country routes. A focus on road access or proximity will overlook this fact.

16.2.3 Spatial Boundaries.

The EIS (16-16, 16-17, 16-18, 16-19) describes that the Local Study Area (LSA) and Regional Study Area (RSA) for the Indigenous land and resource use VC were developed to reflect the spatial extent of anticipated direct and indirect Project effects on supporting intermediate components and VCs, along with known and documented land use patterns by Indigenous Groups across the landscape. Land use patterns were important to consider in defining the LSA and RSA because of the importance of Indigenous Groups' spiritual and cultural relationship with the broader landscape as reflected in habitation, travel, and access. Potential Project effects on Indigenous land and resource use may not only be specific to a location but may more broadly affect use across the landscape. Indigenous Groups have indicated the need for a large land base to successfully practise land and resource use activities such as hunting, trapping, fishing, gathering, travel, habitation, and cultural practices (multiple Indigenous groups cited ***but excludes the Athabasca Denesųłiné*** ***(AD emphasis added))***

Unfortunately, the omission of the Athabasca Denesųłiné means that their traditional territory, Treaty area, traditional land and resource uses, and their cultural connections to the landscape were missed. Please see below for additional information.

EIS Figure 16.2-1 (p 19-19) displays the Indigenous Land and Resource Local and Regional Study Areas

Figure 3 overlays the Athabasca Denesųłiné traditional territory, Treaty 8 boundary, and traditional land and resources uses with the EIS map of the LSA and the RSA. Figure 4 is an enlargement of same information in the area near the Project. Clearly there is overlap between rights and interests and both the LSA and RSA. In fact, Athabasca Denesųłiné traditional territory covers approximately 86% of the LSA. the This Athabasca Denesųłiné traditional territory information has been publicly available since at least 2008 (before the NexGen Rook 1 Project) and other information was provided directly to NexGen during the EA process. [Note these figures appear in early section comments].

Figure 3. Athabasca Denesųłiné traditional territory, Treaty 8 boundary, and traditional land and resources uses overlayed with the EIS LSA and RSA

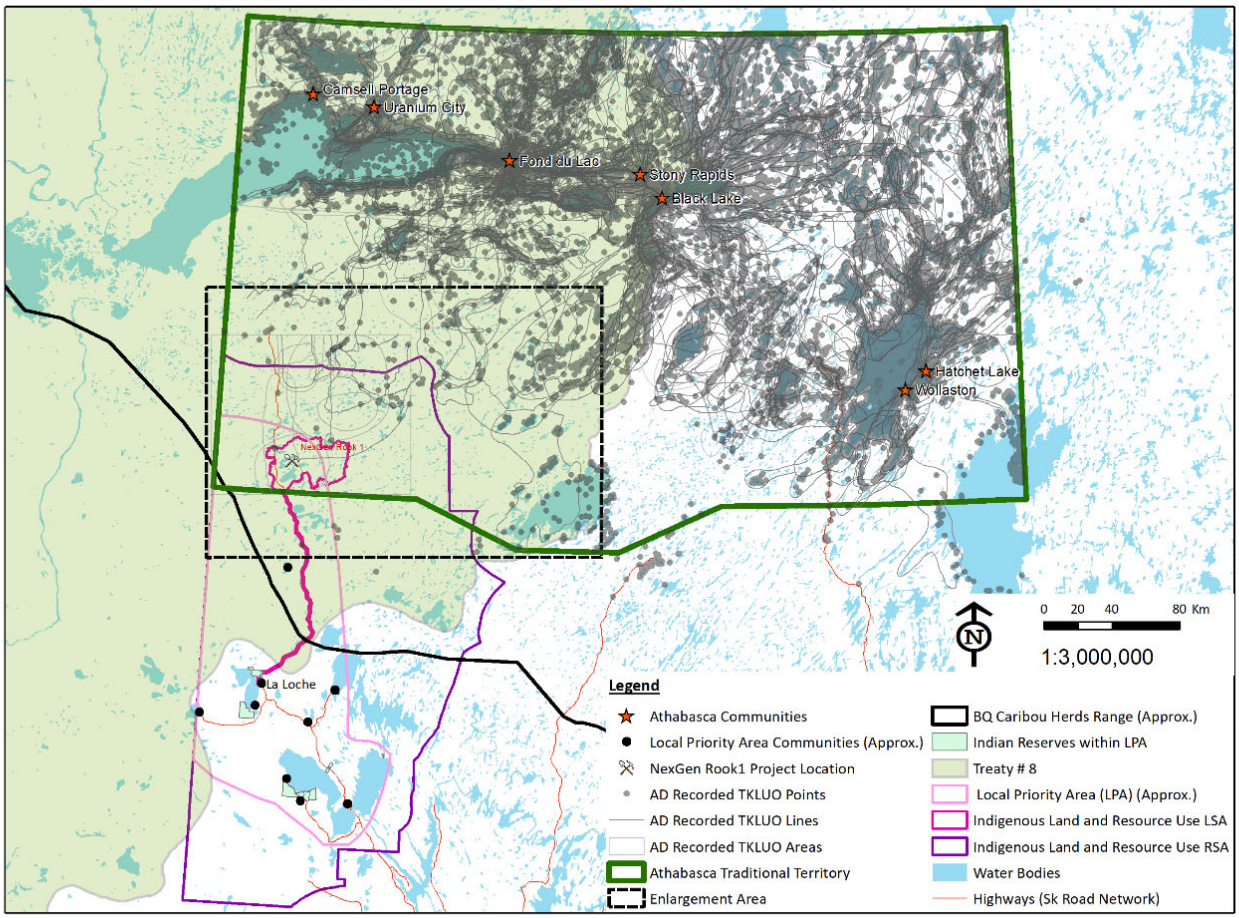
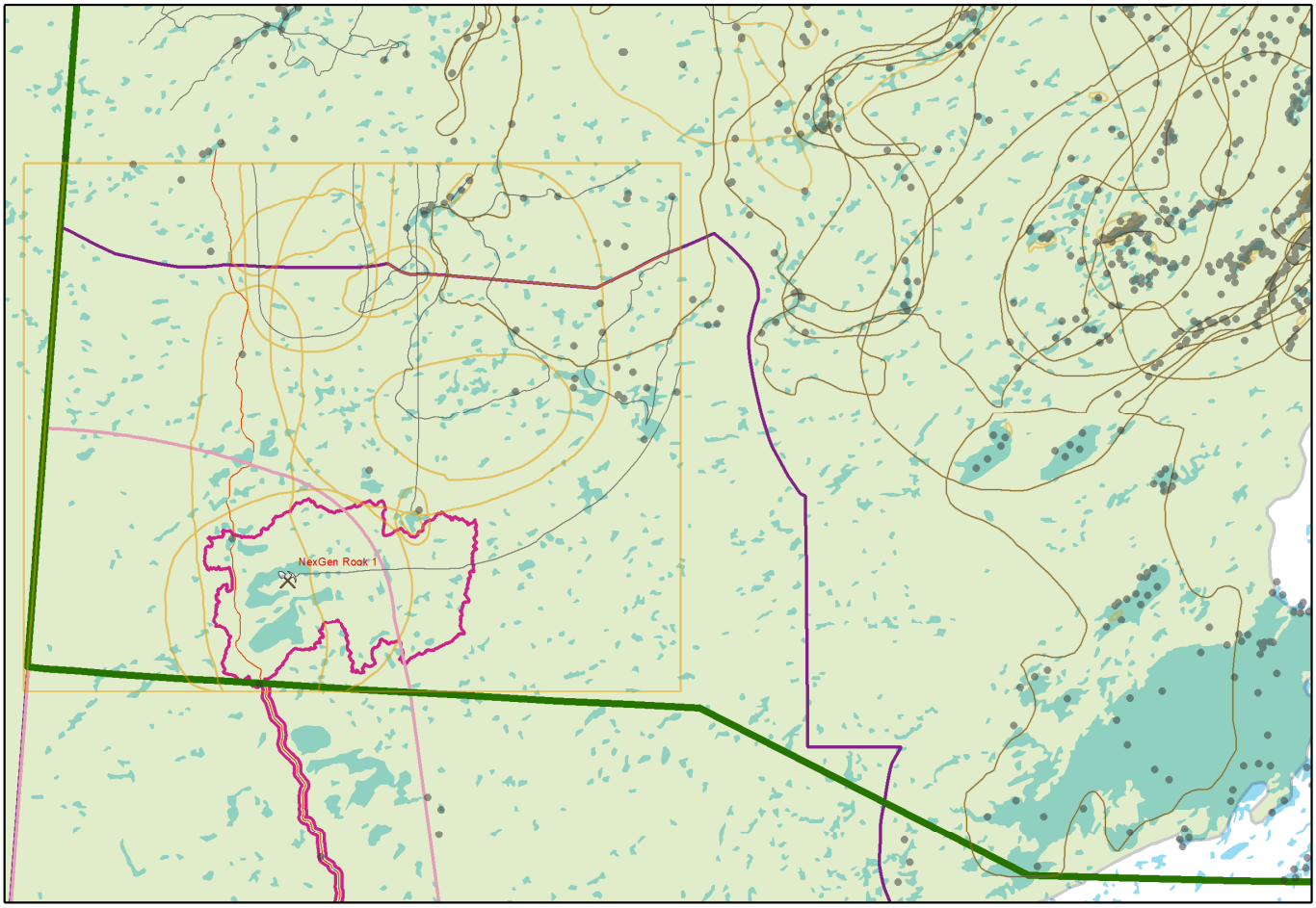


Figure 4. Athabasca Denesųłiné traditional territory, Treaty 8 boundary, and traditional land and resources uses overlayed with the EIS LSA and RSA. Enlarged for the vicinity of the Project.



16.2.4 Temporal Boundaries

The EIS (p 16-20) notes that the temporal scope for the assessment is 43 years from Construction to Operations to Decommissioning and Reclamation phases.

The potential impacts to Athabasca Denesųłiné rights and interests over such a lengthy period of time makes their limited inclusion in the EIS all the more egregious.

16.2.6 Existing conditions

The EIS (p 16-24) explained the characterisation of existing conditions (linked to the measurement indicators discussed above in Section 16.2.2.2) in order to provide context for the incremental and cumulative effects from the Project. Information sources included socio-economic baseline, IKTLU Studies (including YNLR), JWG meetings. KP Interviews, a trapper's workshop, other regulatory documents (including YNLR comments on Project Description), as well as archival and historical documents.

While the Athabasca Denesųłiné were able to provide some information through their IKTLU study and comments on the Project Description, they were not provided the opportunity to provide supporting and supplemental information through JWG meetings, workshops, KP Interviews, baseline study.

16.2.8 Residual Effects Analysis

The EIS (p 16-26, 16-27, 16, 28) described the residual effects analysis using each of the measurement indicators (see EIS 16.2.2.2 above) identified for the Indigenous land and resource use VC in the LSA and RSA. The section ends with a note that that a key component of the quality of [Indigenous land use] experience is the concept of cultural landscape as a more holistic approach that goes beyond site-specific inventories. It was then noted that changes to cultural landscape were qualitatively assessed considering the assessment of sensory disturbances, safety and the perceptions of the quality of resource harvested.

The Athabasca Denesųłiné see the cultural landscape assessment criteria as limited and not reflective of their broader rights and interests given the incomplete appreciation of their traditional territory and other information provided along with the limited engagement opportunity to ensure NexGen's appreciation.

16.3 Existing Conditions

16.3.2 Overview of Indigenous Groups

The EIS (p 16-31) again states again that "Primary Indigenous Groups were the focus for a deeper level of engagement, while other Indigenous Groups were offered to receive information (i.e., be informed) on the Project. NexGen has been engaging with the following other Indigenous Groups on the Project, consistent with CNSC and ENV direction indicating these groups would be informed of the Project:

- Black Lake Denesųłiné First nation, as represented by the YNLR;
- Fond du Lac Denesųłiné First Nation, as represented by the YNLR;
- others

The EIS also re-states that "a Study Funding Agreement was also signed with the YNLR … as the YNLR identified an interest in sharing Indigenous Knowledge through an IKTLU Study

The Athabasca Denesųłiné have repeatedly raised their issues with their categorization as an "other Indigenous group rather than a "primary" Indigenous group and the resulting lesser level of engagement and consideration in the Project EA.

16.3.3 Contemporary Indigenous Land and Resource Use

The EIS then describes, for each Indigenous Group the following:

- Occupancy, habitation, and access
- Fishing
- Gathering
- Hunting
- Trapping
- Culturally important sites

The information from the primary Indigenous groups is very detailed and the result of a long-term, focused engagement process. A process that placed less attention on the AD. The Athabasca Denesųłiné are not questioning the inclusion any of the other Indigenous groups within the EIS. They are merely pointing out inconsistent treatment and highlighting its ramifications. Further, we note within the descriptions of these groups that there are a number of references that support the Athabasca Denesųłiné assertions of traditional territory and land use.

16.3.3.3.1 Birch Narrow Dene Nation

The EIS (p 16-49) mentioned travel between Turnor Lake and Lake Athabasca and noted that Athabasca Denesųłiné travel south to the communities (AD added emphasis)

16.3.3.4 Buffalo River Dene Nation

16.3.3.4.1 Occupancy, Habitation, and Access

The EIS (p 16-53) mentions that travel between the community and the communities of the Athabasca Basin has always been important and noted the travel to, and family ties with, the AD Communities. Travel was via waterways and trails) including the community member quote:

"I hear a little bit of a talk… from the [E]lders. They're all gone now. People used to travel between Buffalo River, Cold Lake, Black Lake. We had our own, mostly water systems. And probably trails too. So, people – not as much as today, but you know, people still travelled in between those places….But usually the main rivers like Clearwater…There was probably people up at Cluff Lake….they got there somehow ….up at Uranium City and Camsell Portage and Black Lake and Stoney Rapids, Fond du Lac. They – I don't know the history and I don't know how they got there, but there was intermarriage and inter travel between these places." (TSD III: BRDN) (AD added emphasis)

The Athabasca Denesųłiné note that within the descriptions of these groups, their neighbors, that there are a number of references that support the assertions of AD traditional territory, land use, and travel patterns.

16.3.3.5 Athabasca Denesųłiné

The EIS (p 16-57) states that "Existing conditions are described for the YNLR for context, noting the YNLR traditional use area does not overlap the LSA and the YNLR is not a primary Indigenous Group as identified by the CNSC, ENV and NexGen. NexGen agreed to a Study Funding Agreement with the YNLR to support development of an IKTLU Study (TSD VI: YNLR), which has been incorporated in the …description as appropriate.

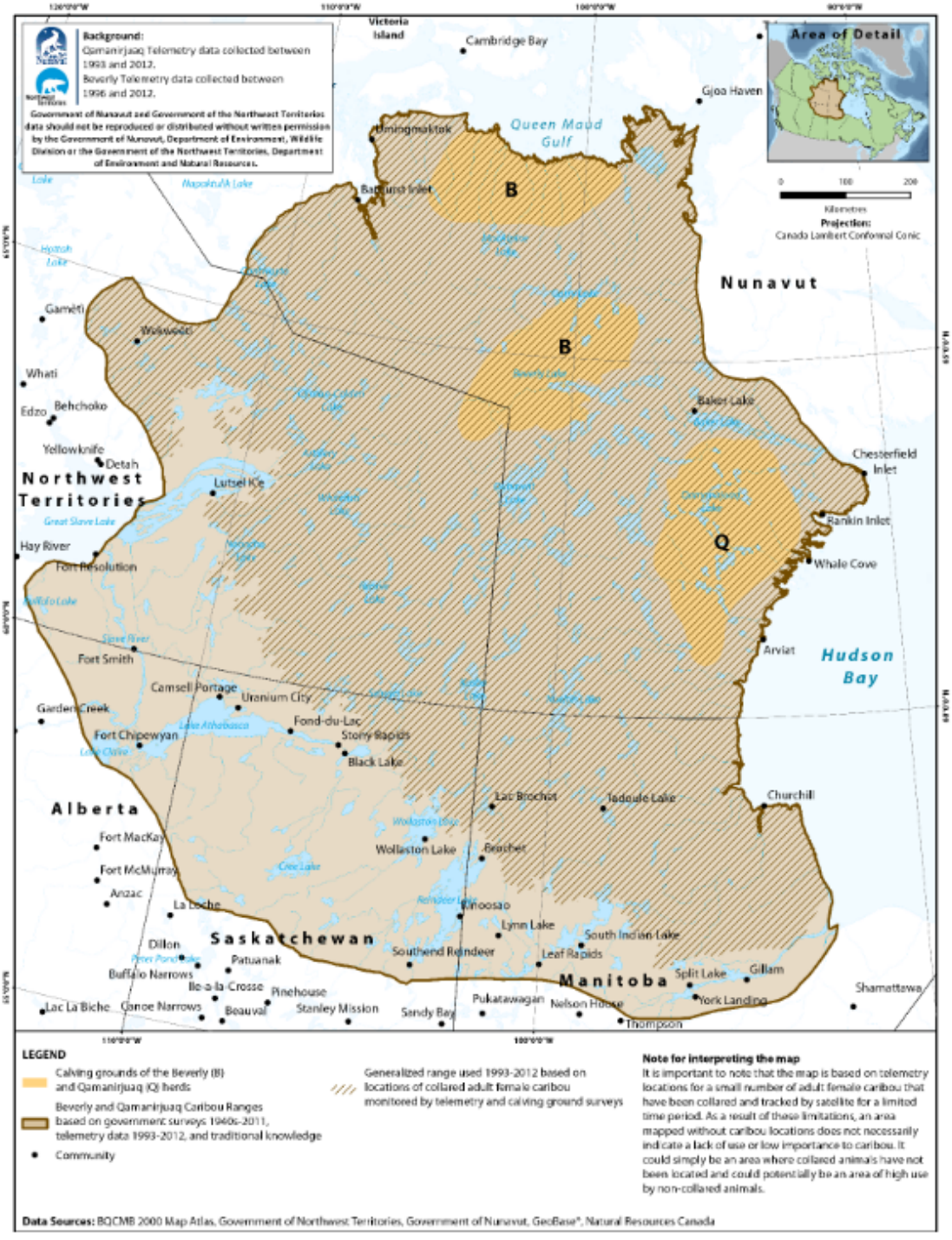
It is incorrect to state that the AD traditional use does not overlap the LSA. The Athabasca Denesųłiné traditional territory and specific land uses do indeed overlap the LSA (and RSA) almost entirely (See Figures 3 and 4 above). Further this statement seems at odds with the information presented in other sections of the EIS.

This subsection also notes interconnectedness of caribou and Athabasca Denesųłiné culture.

It's important to note that the Project is within the range of the caribou herds that define the Athabasca Denesųłiné. Where there are, or have been caribou, there have been Athabasca Denesųłiné. The following map (Figure 6) produced by the BQCMB shows that the Athabasca Denesųłiné Traditional Territory, the NexGen Project's Indigenous Land and Resource Use's LSA both fall almost entirely within the range of the barren-ground caribou.

Figure 6 (https://arctic-caribou.com/pdf/Fig2_BevQam%20caribou_ANNUAL%20RANGE-CALVING%20GROUNDS_2012.pdf

16.3.3.6 Summary of Contemporary Indigenous Land and Resource Use



Beverly and Qamanirjuaq caribou ranges based on government surveys, tracking collared cows by telemetry and traditional and local knowledge of caribou harvesters.

The EIS (p 16-58, 16-59) states here that the "CRDN, MN-S, BNDN, BRDN, and AD practice Indigenous land and resource use activities throughout the RSA, including hunting, trapping, fishing and plant gathering, and use of cultural sites, habitation sites, and travel routes. Then it states that "the Athabasca Denesųłiné did not identify any specific traditional activities overlapping with the LSA".

The Athabasca Denesųłiné's traditional territory and documented land use includes almost all of the LSA (see Figures 3 and 4 above).

16.4 Project Interactions and Mitigations
16.4.1 No Pathways
16.4.2 Secondary Pathways
16.4.3 Primary Pathways
These sections of the EIS (p16-59 to 16-69) discussed the pathways analysis for identified potential adverse effects of the Project on cultural and heritage resources and Indigenous land and resource use, mitigation options, and the effectiveness of such mitigation. In general, most issues were mitigatable, but some related to Indigenous land and resource use were carried forward for further analysis as discussed in section 16.5. Table 16.4-1 included a number of mitigation options including establishing programs such as caribou measures, Indigenous monitors, implementation committee, Environmental committee, Benefits agreements, and others.

Given their treatment as a non-primary Indigenous group thus far in the EA, the Athabasca Denesųłiné are questioning whether they would be included in the mitigation options identified. Is NexGen considering their inclusion in programs such as caribou measures, Indigenous monitors, implementation committee, Environmental committee, Benefits agreements, and others? The Athabasca Denesųłiné believe that they should be <u>full</u> participants in any such endeavours.

16.5 Residual Effects Analysis (p 16-70 – 16-107)
The EIS describes that, in general, any disturbances to Indigenous land and resource use would be limited in scope, scale, and duration and/or can be mitigated.

The Athabasca Denesųłiné provide comments on some aspects of the Indigenous land and resource use analysis below.

16.5.1.2.3 Hunting and trapping
The EIS (p 16-78, 16-79) notes that woodland caribou will be impacted by the Project due to a loss of habitat, disrupted movement patterns, and road use. But then indicates that the amount of undisturbed habitat necessary to support a self-sustaining population has already been exceeded and any Project impacts will be incremental. Further NexGen indicates that a Caribou Mitigation and Offsetting plan would be developed to increase functional habitat for caribou.

The Athabasca Denesųłiné believe that they should be <u>full</u> participants in any Caribou Mitigation and Offsetting Plan.

16.5.1.3.7 Cultural Landscapes

The EIS (p 16-93) states "These Indigenous Groups have been using these lands for traditional activities for generations" YNLR is included in the citation.

The Athabasca Denesųłiné find it ironic that while they are quoted here, their traditional territory and land use is downplayed in the EA.

16.7 Prediction Confidence and Uncertainty

The EIS (p 16–115) includes a statement on limitations of IKTLU studies that "do not reflect all values in those area, and an absence of data does not signify an absence of use or value". The YNLR is not included in the citation.

Further the EIS notes that uncertainty was managed by using a variety of information sources, defining assessment boundaries broadly, incorporating Indigenous and Local Knowledge at all steps and applying assessment experience and professional judgement.

The statement of limitation also applies to the Athabasca Denesųłiné as noted specifically in their IKTLU study… "This study does not represent all Denesųłiné values in the project study area, and an absence of data does not signify an absence of use or value."

The AD were excluded from most of the uncertainty management measures noted in the EIS.

The AD should be included in the citation as noted. Further, their exclusion from primary Indigenous group status should be addressed.

16.8 Monitoring, Follow-Up, and Adaptive Management

The EIS (p 16-116, 16-117) discusses the need to confirm the effectiveness of mitigation for impacts to the land and resources Indigenous Peoples rely upon including: Fish and fish habitat (Section 11), Vegetation (Section 13), Wildlife and wildlife habitat (Section 14), Air quality (Section 7.2), and Noise (Section 7.3).

The EIS notes that:

- such effectiveness of mitigations on the Indigenous land and resource use would be evaluated through the Independent Indigenous monitoring of the effects of the Project.
- Regular meetings would be held with potentially affected Indigenous land users, as applicable, independently and as part of the Indigenous and Public Engagement Program to review the previous season and understand any issues or concerns that could be addressed. Follow-up would be conducted as needed.
- A project feedback and grievance mechanism would be established to record and action issues identified by LPA residents. Indigenous land and resource use issues would be tracked and addressed as they arise and periodically analyzed through management reviews.
- Implementation success of the commitments made under Benefit Agreements would be tracked and Implementation Committees established
- Success of regional mitigation strategies would be monitored

- Perception surveys would be completed to better understand LPA residents' thoughts and understanding of uranium mining. The perception surveys would be designed for documenting current and ongoing community

The Athabasca Denesųłiné believe that their status as a non-primary Indigenous group is not justifiable given their traditional territory, Treaty 8 membership, the proximity of their communities to the Project, well documented land and resource use within the LSA and RSA, relationship with NexGen and the CNSC, and potential impacts on their aboriginal and Treaty Rights. Such a mis-categorization may prevent them from being fully involved in the monitoring activities noted in the EIS. The AD should be enabled to fully participate in these activities.

16.9 Key Findings

The EIS indicates:

- The project will restrict access and reduce areas available for, or displace other land and resource users, may change the availability of fish, plants and wildlife, may change the quality of the resource use experience for some Indigenous land and resource users.
- "Residual adverse effects on Indigenous land and resource use were assessed as not significant for both the Application Case and the RFD Case"
- "Indigenous land and resource use activities may change or be displaced but are expected to continue with the application of mitigations including the Indigenous and Public Engagement Program and Benefit Agreements"
- "NexGen commits to working with the local communities, including Indigenous Groups and other regional groups…Monitoring and adaptive management would involve both regular communications with Indigenous Groups and evaluation"
- "The establishment of the Environmental Committee and hiring of an independent Indigenous Monitor would be key for Indigenous Groups to stay actively involved in monitoring of the environmental performance of the Project and to verify environmental commitments are implemented under the Benefit Agreements. NexGen would continue to engage and have ongoing communication with potentially affected Indigenous land users (independently and as part of the Indigenous and Public Engagement Program), share Project information, address issues and concerns as they arise, and share environmental monitoring results with local Indigenous Groups and communities."
- "NexGen has committed in the Benefit agreements with each primary Indigenous group to establish and Implementation Committee. The Implementation Committee is tasked with the responsibility of facilitating and effective ongoing working relationship between NexGen and the Indigenous Groups to verify that all commitments made within the Benefit Agreements are realized"

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group and greater, more focused engagement activities. The Athabasca Denesųłiné question how an approach that doesn't fully characterize existing conditions can be appropriate given that they were excluded from fulsome consideration as a primary Indigenous group. The information from the primary Indigenous groups is very detailed and the result of a long-term, focused engagement

process. A process that placed less attention on the Athabasca Denesųłiné. The Athabasca Denesųłiné are not questioning the inclusion any of the other Indigenous groups within the EIS. They are merely pointing out inconsistent treatment and highlighting its ramifications. The Athabasca Denesųłiné believe that their status as a non-primary Indigenous group is not justifiable given their traditional territory, Treaty 8 membership, the proximity of their communities to the Project, well documented land and resource use within the LSA and RSA, relationship with NexGen and the CNSC, and potential impacts on their aboriginal and Treaty Rights. Such a mis-categorization may prevent them from being fully involved in the assessment, mitigation, and monitoring activities noted in the EIS. The AD should be enabled to fully participate in these activities.

Section 17. Other Land and Resource Use (Page 17-1, EIS)

Section 17 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Rook I Project (Project) on other land and resource use. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments (RFDs). The other land and resource use assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge. Other land and resource use represented a valued component (VC) for the Environmental Assessment (EA); the selection was based on other land and resource uses being key economic activities and central features of the social setting in northern Saskatchewan. The other land and resource use assessment focused on the commercial and recreational uses that are derived from the natural environment. Commercial resource use included activities in which people from both non-Indigenous and Indigenous communities may participate: commercial fishing and trapping; lodges, outfitting and ecotourism; forestry; and mining. Recreational uses included use of parks and protected areas by Indigenous or non-Indigenous peoples, as well as fishing and hunting activities that are conducted by non-Indigenous people under provincial licences (Page i, Section 17, EIS).

The other land and resource use (OLRU) local study area (LSA) includes the areas surrounding Patterson, Vermeersch, Wickenkamp, Forrest, Beet, and Naomi lakes, plus the Highway 955 corridor between the Project site and La Loche. The OLRU RSA is defined by the N-19 trapping block. Existing activities include three lodge and outfitting operations, non-indigenous hunting and fishing, commercial fur trapping, commercial fishing, off-road vehicle use, hiking, and other low impact activities.

An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially affect other land and resource use. The evaluation also considered similar combined effects from the Fission Patterson Lake South Property, the identified RFD for the other land and resource use assessment. Project activities that would have the potential to affect other land and resource use during the Project lifespan include (Page ii, Section 17, EIS):

- Land clearing, site preparation, construction of facilities and infrastructure
- Transportation of personnel and materials to and from the site

- Process plant and underground operations
- Handling and storage of waste rock, special waste rock, and ore
- Power generation
- Water intakes for potable and process water
- Effluent treatment plant and treated effluent discharge
- Sewage treatment plant and water storage and effluent monitoring ponds
- Additional infrastructure (e.g., camp, maintenance shop, offices)
- Other supporting mining construction, operation, and decommissioning and reclamation activities

Would not the active exclusion of unauthorized people from the Project area also affect other land and resource use?

As part of the pathways analysis, proposed environmental design features and mitigation measures were considered to determine whether effects on the environment could be avoided or reduced to negligible levels, thereby removing the pathway. After mitigation measures were considered, the pathways screening analysis determined that many of the potential pathways from the Project to the environment could be removed from the assessment. However, it was identified that the Project could still adversely affect other land and resource use from the following pathways (Page iii, Section 17, EIS):

- Access to and area available for land and resource use
- Quality of the resource use experience

These pathways were carried forward into the residual effects analysis to determine the potential effects on other land and resource use under two assessment cases: effects of the Project (i.e., Application Case), and combined effects of the Project and the Fission Patterson Lake South Property (i.e., RFD Case). The residual effects analysis considered three measurement indicators:

- Access to, and area available for, land and resource use
- Availability of fish and wildlife for harvesting
- Quality of the resources and the quality of resource use experience

YNLR considers the long-term addition of two work camps in the region to be a potential impact on local fish and wildlife resources, which would potentially reduce the availability of fish and wildlife for harvesting (note that the baseline studies showed that several lakes in the area are showing signs of overharvest).

Access to Land and Resource Use
With mitigations, there would be continued opportunities for other land and resource use with the predicted changes in access to, and area available for, land and resource use from the Project and the Fission Patterson Lake South Property.

Quality of the Resource Use Experience
With mitigations, there would be continued levels of opportunities for other land and resource use with the predicted changes to the quality of the resource use experience from the Project

and the Fission Patterson Lake South Property. This includes incorporating safety mitigation measures to protect users on the access road and Highway 955. Individuals may experience different levels of effects from sensory disturbances and perceptions of effects.

The weight of evidence from the analysis, including consideration of experiences at other uranium operations in northern Saskatchewan where multiple uses remain compatible, predicted that other land and resource use can continue in local areas not affected by the projects; resources equivalent in abundance and quality would continue to be available to resource users. Changes to the aesthetics of other land and resource use would be primarily dependent on proximity to the projects and individual sensitivities. The numbers of resource users potentially affected are limited. Incremental and cumulative effects resulting from the Project, previous and existing developments, and the Fission Patterson Lake South Property on the other land and resource use are predicted to be not significant (Page v, Section 17, EIS).

See above comment on the impact of camp-based workers on fish and wildlife availability. This is potentially significant.

Section 18. Economy (Page 18-1, EIS)

18.2 Component Methods
18.2.1 Incorporation of Indigenous and Local Knowledge
18.2.2.1 Valued Components
18.2.2.2 Measurement Indicators
These sections of the EIS discuss the participation of Indigenous groups, the incorporation of their traditional knowledge, with specific reference to VCs and their measurement.

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group (and were excluded from the LPA) and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., spatial boundaries and ADKLUO and traditional routes into the project study area, measurement indicators, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The greater involvement of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. For example, the EIS identified an average of 157 key engagement activities for each primary Indigenous group while the YNLR (and AD communities) had only 29. This is prejudicial and self-perpetuating

18.2.3 Spatial Boundaries

This EIS section notes that for the Economy-associated VCs and related, the Local Study Area (LSA) was determined based on their assessment of effects on economy of Local Priority Area (LPA) communities. Economic programs (e.g., contracting and employment, training, etc.) are focused on LSA/LPA communities. The Regional study area (RSA) consists of the Northern Saskatchewan Administrative District (which includes the whole north of Saskatchewan). Communities and Indigenous Groups in the broader RSA are also expected to experience some direct employment, income, and training benefits from the Project. Many of these types of benefits are also contemplated as part of the Benefit Agreement processes with LSA Indigenous Groups.

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019. Based on the early engagement (e.g., pre-2019), primary communities that were deemed most likely affected by the proposed Project were identified. Then, using these identified communities as a guide, a LPA (local priority area) was established. NexGen engagement activities were focused on primary communities in the LPA. This approach has at least three flaws. First, it ignores or disregards the information provided by the Athabasca Denesųłiné in 2020 that clearly demonstrates their interests in the vicinity of Rook 1. Clearly processes need to respond to the information available. Second, because the inclusion of communities in the LPA (and indeed the geographic extent of the LPA) is based on whether or not they were previously identified means that AD's exclusion is likely self-perpetuating. Since the Athabasca Denesųłiné were not involved in the early stages they could not possibly have been considered nor could the LPA area include them. Third. the proximity of our communities to the project site is downplayed in the EIS by using a road distance measure rather than the well documented cross-country routes our members generally use to access the portion of our territory near the Project. In fact, Fond du Lac is closer to the project site than a number of other groups considered primary!

The YNLR prepared (with financial support from NexGen under a limited Study Agreement) the 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – on behalf of the Athabasca Denesųłiné communities including Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, and the Hatchet Lake Denesųłiné First Nation. This study clearly shows that our traditional territory, Treaty, and land use overlap with the LSA and the RSA.

18.2.6 Existing conditions

18.2.6.2 Key Person Interview Program

The EIS discusses a KP interview program that was undertaken as part of the characterization of the existing economic environment. Research for the economic assessment was completed in conjunction with community well-being (Section 19), cultural and heritage resources and Indigenous land and resource use (Section 16), and other land and resource use (Section 17). Key person interviews were conducted between October 2019 and July 2021. A total of 73 interviews were conducted with community members.

To the best of our knowledge, no Athabasca Denesųłiné members participated in the key person interviews. The Athabasca Denesųłiné believe that their categorization as an "other" Indigenous group is incorrect and that with the attributes of a primary Indigenous group, they should be <u>full</u> participants in engagement activities.

18.2.6.3 Other sources of Information

The EIS notes that Indigenous and Local Knowledge was incorporated into the description of existing conditions through community information sessions, JWG meetings, other workshops, etc.

While the Athabasca Denesųłiné were able to provide some information through their IKTLU study and comments on the Project Description, they were not provided the opportunity to provide supporting and supplemental information through JWG meetings, community meetings, workshops, KP Interviews, baseline study, etc.

18.3.6.1 Traditional Economy Participation and Income

The EIS notes that the Athabasca Denesųłiné use a variety of wildlife, plants and resource and that barren ground caribou are central to harvesting and cultural identity with footnote that says:
"Traditional knowledge collected on the Beverly and Qamairjuaq caribou indicate that at one time the barren ground caribou ranges extended to areas south of the Project. Telemetry data from 1993 to 2012 indicate that the ranges have shifted and are now largely found north of the Athabasca Denesuline communities" (footnote by NexGen on 18-58)" NexGen attributes this information to YNLR ADKLUO Study report.

The YNLR prepared (with financial support from NexGen under a limited Study Agreement) the 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – on behalf of the Athabasca Denesųłiné communities including Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, and the Hatchet Lake Denesųłiné First Nation. This study clearly shows that our traditional territory, Treaty, and land/resource use overlap with the LSA and the RSA.

The YNLR report (page 5) references (and includes) a map prepared by the Beverly and Qamanirjuaq Caribou Management Board that shows the caribou range based on a variety of information sources. It is not intended to be a map of shifting range. In fact, the Board provides an interpretation note on their map that reads "It is important to note that the map is based on telemetry locations for a small number of adult female caribou that have been collared and tracked by satellite for a limited time period. As a result of these limitations, an area mapped without caribou locations does not necessarily indicate a lack of use or low importance to caribou. It could simply be an area where collared animals have not been located and could potentially be an area of high use by non-collared animals". The inaccuracies in the EIS footnote should be corrected.

18.3.7 Education and Training

18.3.8 Local Business

18.4 Project Interactions, Mitigations, and Benefit Enhancements

The EIS discusses education and training, local business, and project interactions, mitigations, and benefits.

The Athabasca Denesųłiné believe that their categorization as an "other" Indigenous group is incorrect (and hence AD are excluded from the LPA) and that as they have the attributes of a primary Indigenous group, they should be <u>full</u> participants in engagement activities and programs related to education and training, business and contracting opportunities, mitigation implementation and other benefits.

Section 18 of the Environmental Impact Statement (EIS) provides a comprehensive assessment of potential effects of the Rook I Project (Project) on the economy. This assessment included consideration of both potential effects from the Project and cumulative effects from the Project and other reasonably foreseeable developments
(RFDs). The economy assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge. Economy represented a valued component (VC) in the Environmental Assessment (EA); the selection was based on the economy being a major social determinant of health in the overall well-being of individuals and communities. The selection was also informed by Indigenous and Local Knowledge obtained from Indigenous Knowledge and Traditional Land Use Studies and Joint Working Groups, and feedback received during community engagement sessions. The economy assessment provided information that was used to support the valued component assessment of community well being (Page I, Section 18, EIS).

The local study area (LSA) focused on the communities that are anticipated to experience most of the direct effects on the economy related to the Project; these effects include employment, training, and income opportunities. The regional study area (RSA) represents the area where potential cumulative effects of the
Project and RFDs could occur and aligns spatially with the Northern Saskatchewan Administrative District. Communities and Indigenous Groups in the LSA include (Page i):

- Clearwater River Dene Nation
- Clearwater Clear Lake (Métis Nation – Saskatchewan name for Northern Region 2)
- La Loche
- Birch Narrows Dene Nation
- Turnor Lake
- Birch Narrows Dene Nation / Dillon
- Buffalo Narrows
- Bear Creek
- Descharme Lake
- Garson Lake
- Black Point
- Michel Village
- St. George's Hill

The LSA is characterized by a dispersed settlement pattern of primarily small and highly remote Indigenous communities with a total population of about 6,000 in 2016. Buffalo

Narrows, with an estimated population 1,110 people, and La Loche, with an estimated population 2,372, are the two urban centres in the LSA. Buffalo
Narrows is located on Highway 155, approximately 200 km north of Green Lake and 100 km south of La Loche. La Loche is located at the northern terminus of Highway 155 and the southern terminus of Highway 955, 300 km north of Green Lake. The LSA is economically stagnant, with a general lack of economic opportunity due to no suitably sized primary industry since the decline of the fur industry in the 1960s. Labour force participation and employment rates in communities are very low, with employment concentrated primarily in the public sector: government-funded service sectors (e.g., health, education) and Crown corporations. There are lower employment rates in common rural industries than in Saskatchewan as a whole, including agriculture, forestry, fishing and hunting, manufacturing, and retail trade. There is also limited tourism in the LSA. Fishing and commercial forestry activities contribute to the LSA economy, though to a limited scale. There are some individuals employed in mining; however, the positions are fly-in/fly-out or drive-in/drive-out to operations outside the LSA. Overall, there are insufficient employment opportunities to service the needs of the population, resulting in high unemployment. Average personal and household incomes for the LSA are lower than for Saskatchewan as a whole, with high rates of income derived from government transfers. Participation in the traditional economy provides important opportunities to support the livelihoods of individuals and communities in addition to cultural and spiritual benefits (Page ii, Section 18, EIS).

The NexGen and Fission mines have a huge opportunity to significantly improve the socio-economic conditions in this region. YNLR welcomes this and is available to assist in any way with these developments, provided the land and waters are protected from long-term damage.

In Saskatchewan, traditional food harvesting (hunting, fishing, and gathering of wild plants) is an important part of the traditional food systems and food security of First Nations communities (Chan et al. 2018). The First Nations Food Nutrition and Environment Study (Chan et al. 2018) found that almost all Indigenous adults in
Saskatchewan (i.e., 94%) reported eating traditional foods as part of their diet. Of the population included in the survey, Indigenous adults in Saskatchewan ate land mammals (i.e., 83%), berries (i.e., 78%), fish (i.e., 51%), wild birds (i.e., 46%), and wild plant foods and teas (i.e., 43%) (Chan et al. 2018). As described by tradition-oriented CRDN members, there are no practical and affordable nutritious (e.g., non-processed and nutrient-dense) food replacements available to them through outside sources such as the local Northern store (TSD V.2: CRDN). Furthermore, these food replacements are neither desired nor considered culturally appropriate (Page 18-55, EIS):

Mostly we live on that [wild meat], we don't use store meat actually. The only thing we use is dry goods from the store, and for the meat it's wild food only (TSD V.2: CRDN). We don't want to live off of store food. Because that's all manufactured stuff you know. Like we go out in the bush, we get a moose. Nobody gave it antibiotics or injections, like, to make it grow really fast, you know. It's all natural. But in the store, that's where all these diseases come. They do that to mass produce (TSD V.2: CRDN).

Birch Narrows Dene Nation community members have estimated 80% or more of the people in the community participate in some form of traditional economic activity (BNDN-JWG 2021a). Birch Narrows Dene Nation members have described the importance of harvesting wild foods in feeding family members and supporting households and the broader community by sharing food with Elders and other community members (TSD II). At times in the past, a BNDN member noted they relied on very little store-bought food (BNDN-JWG 2021a). Income from commercial trapping and fishing (TSD II) has been noted to be important for BNDN members. A BNDN member commented that (Page 18-57, EIS):

Because you're working in a mine doesn't mean you are going to discontinue [traditional activities]. In fact, because you have income, you're able to create that ability to be out there and to build cabins. (BNDN-JWG 2021a).

Similarly, Métis Nation–Saskatchewan citizens have noted that hunting, trapping, fishing, and plant gathering has helped preserve the survival of families and that the land is an integral part of their livelihoods. Métis Nation–Saskatchewan members provided estimates that, on average, 70% of their food comes from hunting, trapping, fishing, and gathering (TSD IV: MN-S). Fishing is noted as an activity that supports both personal and commercial economic activity (Page 18-58, EIS).

The key point here is the high value of the land as a natural food and medicine resource. While the new mine will provide an excellent opportunity for employment, its employment impact on the total population of the LSR is relatively small, which highlights the actual value of the land to provide sustenance. The natural long–term productivity of the land must therefore be protected.

An analysis was completed to evaluate Project components and activities and associated effects pathways that could potentially affect economy; this analysis included consideration of both adverse and beneficial effects. The evaluation also considered similar combined effects from the Fission Patterson Lake South Property, the identified RFD for the economy assessment. Project characteristics that have the potential to affect the economy during the Project lifespan include (Page iii, Section 18, EIS):

- Estimated capital expenditures of $1.3 billion over the four years of Construction
- A peak construction workforce of approximately 350 workers, with actual on-site labour requirements varying throughout Construction
- Typical annual operating spending of $167 million
- An operations workforce, including a forecasted 486 direct jobs during the operating peak and approximately 425 direct jobs during a typical year of Operations
- Spending during Closure
- Aspirational targets established by NexGen Energy Ltd. (NexGen) for hiring workers from LSA communities (i.e., 75%) and external spending awarded to LSA and RSA businesses (i.e., 30%)

Proposed mitigation and enhancement measures, such as the delivery of certified and accredited training and recruitment programs, development of culturally sensitive employment policies, and increasing involvement of local businesses within the LSA would reduce adverse

effects and enhance beneficial effects on the economy. In addition to these mitigation and enhancement measures, NexGen is in the process of negotiating Benefit Agreements with primary Indigenous Groups in the LSA and has signed agreements with three groups. Although details of these agreements are confidential and have not been finalized for all Indigenous Groups, they are premised on commitments including proactively engaging with local communities; supporting the economic participation of affected communities; seeking to provide opportunities resulting in sustainable, lasting benefits to local communities beyond the Project lifespan; and providing clear and timely information to those who have a direct interest in the Project. Implementation of items agreed to in Benefit Agreements is also expected to reduce adverse effects and enhance beneficial effects on the economy. After mitigation measures were considered, the pathways analysis determined that all potentially adverse pathways from the Project to the environment could be removed from the assessment. Therefore, no pathways were carried forward into the residual effects analysis (Page iii).

YNLR supports this initiative and is interested in entering cooperative agreements with both NexGen and Fission.

Project Benefits Summary (Page iv, Section 18, EIS)
Overall, the proposed Project is expected to result in substantial net positive economic outcomes for the LSA and RSA, which would have cascading effects on a range of socio-economic variables, including education and training, health, and well-being. Specific benefits from the proposed Project would include increased employment opportunities for LSA residents. During Construction, the Project could result in between 8,200 and 10,500 direct, indirect, and induced full-time equivalent (FTE) positions over the four-year period. During Operations, direct, indirect, and induced employment is estimated to range between 950 and 1,200 FTE positions during a typical operating year. Should the aspirational target of 75% local employment be achieved, during Operations, an estimated 365 positions would be filled by members of the LSA. The proposed Project would provide a substantial positive benefit through increased income opportunities, particularly for LSA residents. Construction labour costs are estimated to make up approximately $384 million, or 30% of the total capital cost of the Project. The total direct, indirect, and induced labour income for Construction could range between $730 million and $885 million. During Operations, direct labour spending is estimated to be approximately $55 million during a typical operating year. The total direct, indirect, and induced
labour income for a typical operating year could range between $94 million and $112 million. The Project would provide positive benefits for educational attainment in the LSA through increased education and training opportunities for local residents. NexGen would provide training opportunities for the workforce. In addition to obtaining necessary skills to acquire employment, this training could allow employees to advance to more senior and higher-income employment within the organization and improve their ability to obtain other employment in the future. Training opportunities could also result in a higher-skilled local workforce, which would have benefits for both the Project and the LSA as a whole. This benefit could extend beyond the Project lifespan. The proposed Project would provide a positive benefit through increased business and contracting opportunities throughout Construction and Operations. Benefits would continue during Closure, but at a decreased level. NexGen would evaluate opportunities to both procure goods and services from existing sources in the LSA and develop

and expand local business capacity. These opportunities are anticipated to result in new revenue sources for existing local businesses and the facilitation of new business start-ups. Local study area residents noted a strong interest in expanding local business opportunities, including ownership interests in businesses. Overall, the Project is estimated to have a direct, indirect, and induced impact on national GDP of up to $1.3 billion over the course of Construction, and up to $1.1 billion in a typical year of Operations. The Project would also generate benefits through the payment of taxes and royalties to the governments of Saskatchewan and Canada. These government revenue sources would include uranium royalties, resource surcharges, mineral surface lease payments, corporate income tax, and individual income tax. The total estimated direct payments to government for a typical operating year are estimated at $288.5 million for Saskatchewan and $103.9 million for Canada. Benefit Agreements with primary Indigenous Groups would include payments based on revenue generated throughout the life of the Project.

This project, combined with the benefits from Fission, could make a substantial difference to people's lives in the region.

The estimated labour income associated with the Construction workforce would be approximately $532 million (Appendix 18B, Table18B-1) 33. Surface contractor labour rates were estimated based on Saskatchewan construction trade agreements (NexGen 2021c). In addition to direct income opportunities (i.e., income for
Project employees), the Project is expected to have positive indirect and induced income effects (e.g., income for employees of businesses that provide supplies and services to the Project, increased income for local retail and hospitality workers as a result of Project employees having more disposable income and spending it locally). Input/output modeling estimated the total direct, indirect, and induced labour income across Canada for Construction could be between approximately $730 million and up to $885 million including up to $672 million for Saskatchewan (Appendix 18B, Table 18B-1). Increased disposable income can have benefits by increasing purchasing power and improving the ability to save and adapt to changing economic circumstances, which can influence community well-being (Section 19). Increased wage income can also improve the ability for individuals and communities to participate in the traditional economy by purchasing equipment to increase accessibility (e.g., boat) and tools (e.g., firearms; Section 18.3.6.1; BRDN-JWG 2021a; BNDN-JWG 2021a). It is acknowledged that access to increased income can also have a detrimental effect on community well-being due a range of factors including inappropriate spending and increased income disparity between households (Section 19.4.3).

Income opportunities will provide the ability for individuals and communities to purchase equipment with which to increase lake and forest accessibility, and thereby increase harvest pressure on the area's natural resources.

Monitoring and follow-up would be conducted to confirm effects predictions and address potential uncertainty. Monitoring would also be performed to track progress against long-term targets and identify opportunities to further enhance outcomes. Follow-up and monitoring programs would be used to (Page v):

- Monitor progress on achieving employment and contracting targets and identify opportunities to improve employment and contracting outcomes
- Maintain ongoing communication and dialogue with local communities to identify and resolve issues
- Contribute to the overall continual improvement of the Project

In Benefit Agreements with Indigenous Groups, NexGen has committed to establishing an Implementation Committee, which would facilitate an effective, ongoing working relationship between NexGen and the Indigenous Group, and verify that all commitments made within the Benefit Agreements are realized.

YNLR approves of these arrangements and looks forward to contributing towards the realization of sustainable development in the north.

The Project would generate payments to the governments of Saskatchewan and Canada through royalties, personal and corporate income taxes, and mineral surface leases. This would provide increased revenues to support government spending. Figure 18.4-7 sets out the estimated payments for a typical year during
Operations. Estimates of federal and provincial personal income taxes were calculated based on median effective tax rates reported by Statistics Canada (Appendix 18B, Table 18B-4 and Table 18B-5). Estimates of resource surcharge, basic royalties, profit royalties, and corporate income tax were prepared as part of the Project Feasibility Study. Estimated direct payments to governments do not include payments that may be made pursuant to an MSLA. NexGen does not currently hold surface rights for the proposed Project footprint. Surface rights would be negotiated as part of an MSLA with the Province of Saskatchewan following review and approval of the EA, if received. The estimated payments of $288.5 million would be approximately 2.2% of the $12.9 billion in total revenue reported by the Government of Saskatchewan for the fiscal year ending in 2020 (Government of Saskatchewan 2020b). In addition to payments to the provincial and federal governments, the Benefit Agreements include payments to
Indigenous Groups based on revenue generated throughout the Project lifespan. The Benefit Agreements are negotiated agreements between each primary Indigenous Group and NexGen, the contents of which are confidential (Page 18-86, EIS).

The estimated annual payments by the mine to the Provincial and Federal Governments are $288.5M and $103.9M respectively. The economic output also noted that individual Benefit Agreements would include payments to Indigenous Groups although the terms of the agreements will be confidential. <u>There is increased opportunity for the two levels of Government to increase community programs in the local area as part of receiving the increased income tax/royalty revenue</u>.

Section 19. Community Well-Being (Page 19-1, EIS)

19.2.1 Incorporation of Indigenous and Local Knowledge

The EIS notes that NexGen included Indigenous and Local Knowledge in community well-being through:

- Selection of VCs
- Characterization of existing conditions by perspectives from Indigenous Groups, and LPA communities through key person Interviews, other engagement activities (community information, JWG meetings, workshops)
- Perspectives shared by Indigenous Groups and LPA community members in the topics of
- Community context and cultural continuity, including the maintenance of traditional ways of life and the intergenerational transmission of knowledge
- Health, including mental health and addictions, and traditional diets
- Housing, recreation, emergency and protection services, and transportation infrastructure
- Educational facilities and education levels
- Employment and community economics and
- The well-being of the community
- Project Interactions and Mitigation: Indigenous and Local knowledge informed the scoping of Project Interactions, pathway analyses, and consideration of mitigation measures…observations and experiences of land users related to the effects from industry, including mining activities on …measurement indicators/effect pathways
- Monitoring, Follow-Up, and Management
  In particular, the Primary Indigenous groups involved in JWGs and community information sessions, site tours, other formal and informal meetings, workshops with specific groups, environmental and socio-economic baseline data collection

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group (and were excluded from the LPA) and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., spatial boundaries and ADKLUO and traditional routes into the project study area, measurement indicators, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The greater involvement of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. For example, the EIS identified an average of 157 key engagement activities for each primary Indigenous group while the YNLR (and AD communities) had only 29. This is prejudicial and self-perpetuating

19.2.2 Valued Components, Measurement Indicators, and Assessment Endpoints
19.2.2.1 Valued Components
19.2.2.2 Measurement Indicators

These sections of the EIS discuss the participation of Indigenous groups, the incorporation of their traditional knowledge, with specific reference to VCs and their measurement.

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group (and were excluded from the LPA) and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., spatial boundaries and ADKLUO and traditional routes into the project study area, measurement indicators, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The greater involvement of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. For example, the EIS identified an average of 157 key engagement activities for each primary Indigenous group while the YNLR (and AD communities) had only 29. This is prejudicial and self-perpetuating.

19.2.3 Spatial Boundaries

The EIS (See Figure 19.2-2, p19-16) places focus on the larger communities in the LSA (with its relationship to the LPA).
The Community Wellbeing RSA chosen is the Northern Saskatchewan Administrative District which includes all of Northern Saskatchewan.

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019. Based on the early engagement (e.g., pre-2019), primary communities that were deemed most likely affected by the proposed Project were identified. Then, using these identified communities as a guide, a LPA (local priority area) was established. NexGen engagement activities were focused on primary communities in the LPA. This approach has at least three flaws. First, it ignores or disregards the information provided by the Athabasca Denesųłiné in 2020 that clearly demonstrates their interests in the vicinity of Rook 1. Clearly processes need to respond to the information available. Second, because the inclusion of communities in the LPA (and indeed the geographic extent of the LPA) is based on whether or not they were previously identified means that AD's exclusion is likely self-perpetuating. Since the Athabasca Denesųłiné were not involved in the early stages they could not possibly have been considered nor could the LPA area include them. Third. the proximity of our communities to the project site is downplayed in the EIS by using a road distance measure rather than the well documented cross-country routes our members generally use to access the portion of our territory near the Project. In fact, Fond du Lac is closer to the project site than a number of other groups considered primary!

The YNLR prepared (with financial support from NexGen under a limited Study Agreement) the 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – on behalf of the Athabasca Denesųłiné communities including Black Lake Denesųłiné First Nation, Fond du Lac Denesųłiné First Nation, and the Hatchet Lake Denesųłiné First Nation. This study clearly shows that our traditional territory, Treaty, and land use overlap with the LSA and the RSA.

19.2.5 Assessment Cases

Figure 19.2-3 ***Map for Reasonably Foreseeable Development in the Regional Study Area shows but does not highlight the Athabasca Denesųłiné communities also in the Regional Study Area.***

19.2.6 Existing Conditions

The EIS notes that the existing conditions were drawn from primary sources (i.e., KP interviews, engagement activities, JWGs) and secondary data sources (i.e., secondary literature, previous EAs).

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019. Based on the early engagement (e.g., pre-2019), primary communities that were deemed most likely affected by the proposed Project were identified. Then, using these identified communities as a guide, a LPA (local priority area) was established. NexGen engagement activities were focused on primary communities in the LPA. This approach is flawed as discussed above.

To the best of our knowledge, no Athabasca Denesųłiné members participated in the key person interviews. The Athabasca Denesųłiné believe that their categorization as an "other" Indigenous group is incorrect and that with the attributes of primary Indigenous group, they should be <u>full</u> participants in engagement activities.

19.2.7 Project Interactions and Mitigations

The EIS discusses project interactions, mitigations, and benefits as relates to community wellbeing.

The Athabasca Denesųłiné believe that their categorization as an "other" Indigenous group is incorrect (and hence AD excluded from the LPA) and that with their attributes of a primary Indigenous group, they should be <u>full</u> participants in engagement activities and programs related engagement, mitigation implementation and other benefits.

Section 20. Summary of Residual Project and Cumulative Effects (Page 20-1, EIS)

20.1 Introduction
20.2 Environmental Assessment Approach and Methods
20.2.1 Scoping and Pathways Analysis

The EIS describes the development of VCs including assessment endpoints and measurement indicators.

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group (and were excluded from the LPA) and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., spatial boundaries and ADKLUO and traditional routes into the project study area, measurement indicators, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The greater involvement of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. For example, the EIS identified an average of 157 key engagement activities for each primary Indigenous group while the YNLR (and AD communities) had only 29. This is prejudicial and self-perpetuating.

Section 20 of the Environmental Impact Statement provides a tabular summary of the classification or characterization of predicted residual effects on valued components (VCs) of the biophysical, cultural, and socio-economic environments that cannot be avoided or mitigated through the relocation or re-design of the proposed Project, or through commitments made by NexGen. The summary includes a determination of significance of the residual Project effects (i.e., Application Case) and cumulative effects (i.e., Reasonably Foreseeable Development [RFD] Case) for VCs. Residual effects are classified using standard assessment criteria and provide the foundation for determining the significance of adverse effects (Table 20.3-1).

Following the residual effects analysis, the residual effects for each VC and intermediate component were classified or characterized using the following effects criteria (Page 20-2,EIS):

- Direction: adverse (i.e., negative), neutral (i.e., no change), or positive (i.e., improvement) effect
- Magnitude: the intensity of the effect, or the size, degree, or level of change
- Geographic extent: the area, distance covered, or zone of the effect
- Duration: the amount of time from the beginning of an effect to when the effect is reversed
- Reversibility: whether the effect will stop and be reversed, or is permanent
- Frequency: how often the effect occurs during the assessment period
- Probability of occurrence: defined as unlikely, possible, probable, or certain

The classification of residual effects was then used to determine the significance for VCs; this determination considered whether the significance threshold defined by the assessment endpoint for a VC would be exceeded. Significance determination was binary, such that adverse effects were either deemed significant or not significant for each VC, and was supported by a reasoned narrative.

The residual effects (~ effects remaining after mitigation) summary in Table 20.3-1 has been simplified below. Note that in accordance with the precautionary principle, the highest rankings within Table 20.3-1 have been included:

VC	Direction	Magnitude	Duration	Reversible?	Project Significant?	Cumulative Significant?
Climate Change	Negative	Low	Perm	No	No	No
Fishes (4)	Negative	Low	Perm	No	No	No
Uplands	Negative	Low	Perm/Long	Maybe	No	No
Wetlands	Negative	Low	Perm	No	No	No
Riparian	Negative	Low	Perm/Long	Maybe	No	No
Indigenous Use Plants	Negative	Low	Perm/Long	Maybe	No	No
Woodland Caribou	Negative	High	Perm/Long	Maybe	Yes	Yes
Moose	Negative	Low	Perm/Long	Maybe	No	No
Grey Wolf	Negative	Moderate	Perm/Long	Maybe	No	No
Black Bear	Negative	Moderate	Perm/Long	Maybe	No	No
Beaver	Negative	Low	Perm/Long	Maybe	No	No
Little Brown Bat	Negative	Low	Perm/Long	Maybe	No	No
Olive-sided Flycatcher	Negative	Low	Perm/Long	Maybe	No	No
Rusty Blackbird	Negative	Low	Perm/Long	Maybe	No	No
Goldeneye	Negative	Low	Perm/Long	Maybe	No	No
Mallard	Negative	Low	Perm/Long	Maybe	No	No
Canada Toad	Negative	Moderate	Perm/Long	Maybe	No	No
Human Health	Negative	Low	Perm	No	No	No
Indigenous Land Use	Negative	Moderate	Perm/Long	Maybe	No	No
Other Land Use	Negative	Low	Long	Yes	No	No
Community Well-Being	Negative	Low	Long	Yes	No	No

From this, it can be seen that all VCs are predicted to be adversely affected (i.e. a negative direction from assessment endpoints) by the Project. Moderate to high effects are predicted for 5 VCs, including indigenous land use and (notably) four wildlife species. The woodland caribou is predicted to experience a high magnitude of effect. The duration of residual effects is predicted to be permanent to long term for all VCs, with only two (Other Land Use and Community Well-Being) having a high certainty of reversibility. Despite this, other than woodland caribou, all residual effects to VCs are ranked as non-significant, either from the Project or cumulative effects perspectives.

To summarize, the majority of VCs will experience adverse residual effects, which are mostly low in magnitude but relatively long lasting with a relatively low certainty of reversal. This seems at odds with the non-significant rankings assigned to most VCs, and points to potential errors associated with multiple tests and the binary nature of their assigned significance. All other things being equal, one would predict some of the significance rankings to be incorrect simply based on chance alone. YNLR also notes that the human impacts associated with two work camps have been largely ignored by the EIS. These workers will place increased harvesting pressure on the fish and wildlife resources in the area, which would elevate residual effects, especially for the fish, which are at abnormally low population levels in all of the lakes surveyed (Section 11).

Furthermore, the residual effects summary table (Page 20-5, EIS) states that the effect on residence moose populations is "not significant" with the rationale "moose are highly adaptable, highly mobile, and can accommodate moderate to high levels of anthropogenic disturbance" Without further qualification, this is a naïve statement or just categorically wrong, which brings the ranking of Not Significant into question. In reality, following the development and increased human access to the area will require additional regulatory measures if the local moose population is to remain sustainable.

The summary table also lists the change in impact of indigenous use of the area as "not significant". While access to the land on a broad scale does not change dramatically, the availability of wildlife, fish and perhaps traditional use plants will not be sustainable and therefore will be degraded with respect to local resource use. The increase in access due to increased purchasing power for off road equipment will allow for increased access in the general area.

For these and other reasons, YNLR believes that the residual analyses are collectively over optimistic, and reinforce the need for open, transparent, and statistically robust monitoring programs and follow up, which includes meaningful dialogue with the indigenous people of the region.

Section 21. Accidents and Malfunctions (Page 21-1, EIS)

Section 21 of the Environmental Impact Statement (EIS) outlines the potential accident and malfunctions that could occur in association with the Rook I Project (Project) and describes the potential effects on the environment and public safety.
An accident is defined as any unintended event, including operating errors, equipment failures, and other mishaps, the consequences, or potential consequences of which are significant from the point of view of protection or safety. A malfunction is defined as a failure in the normal functioning of equipment, infrastructure, or systems that could result in potentially significant consequences. These two risks are assessed separately from "day-to-day" activities that are addressed throughout the EIS. The assessment considered two distinct evaluations, which were:

- On-site accidents and malfunctions, covering the extent of the Project footprint and associated access road to its junction with Highway 955
- Transportation-related risks, involving transport vehicles that may occur beyond the access road junction with Highway 955 along the transportation route (i.e., Highways 955 and 155)

The regional location and setting were key factors in the identification of receptors that could be affected by accidents or malfunctions. The selection of aquatic, terrestrial, and human receptors was based on an understanding of how people use the land in the area surrounding the Project and incorporated information from
Indigenous Knowledge and Traditional Land Use Studies, community information sessions, and Joint Working Group meetings. The assessment considered the transportation route of the Project. The setting of this route is remote, and transportation does not traverse any cities or otherwise densely populated areas. Several communities are located along the route including La Loche, Bear Creek, Buffalo Narrows, Beauval, and Green Lake (Page i, Section 21, EIS).

The general approach for the assessment of accidents and malfunctions and transportation-related risks associated with the Project included:

- Hazard identification
- Environmental design feature and mitigation evaluation
- Risk measurement, as a function of likelihood and consequence
- Risk evaluation

YNLR supports the level of consultation with indigenous people on this important issue, and expects the dialogue to be ongoing.

Six hazard scenarios were selected as bounding scenarios for more detailed risk analysis. These scenarios were:

- An aquatic (i.e., to water) release of uranium concentrate and radioactivity from a traffic accident at or near the access road bridge crossing of the Clearwater River
- An aquatic release of fuel or hazardous chemicals from a traffic accident at or near the access road bridge crossing of the Clearwater River

- An atmospheric (i.e., to air) release of uranium and radioactivity from a fire or explosion involving equipment or vessels containing uranium-bearing solutions in the solvent extraction building
- A terrestrial (i.e., to ground) release of uranium and radioactivity from a tailings transfer pipe or pump failure at surface
- A terrestrial release of uranium and radioactivity from untreated effluent transfer pipe failure at the surface
- An atmospheric release of sulphur dioxide from an acid plant tail gas scrubber failure

After the detailed risk analysis was complete, the resultant risk level rating for each of these scenarios was assessed to be Low for all scenarios except for the acid plant tail gas scrubber failure scenario, which was deemed to be Low to Moderate risk. The Low to Moderate risk scenario was deemed to represent a tolerable level of risk in consideration of proposed safeguards and design features that reduce the risk level to ALARP.

Hazard identification was also undertaken as part of a detailed technical assessment, and six transportation hazard scenarios were identified and evaluated in the hazard identification analysis. These scenarios were:

- An aquatic release of uranium concentrate or other hazardous materials
- A terrestrial release of uranium concentrate or other hazardous materials
- An atmospheric release of uranium concentrate or other hazardous materials
- A transportation accident scenario involving a vehicle-pedestrian collision
- A transportation accident scenario involving a vehicle-wildlife collision.

After the detailed risk analysis was complete, the resultant risk level rating was assessed to be Low for all scenarios except for the transportation accident scenario involving a vehicle-pedestrian collision, which was deemed to be a Moderate risk. The Moderate risk scenario was deemed to represent a tolerable level of risk in consideration of proposed safeguards that reduce the risk level to ALARP.

YNLR believes that a collision with wildlife is not unlikely. Did NexGen investigate any relevant data that SGI might have on this matter?

The potential accident and malfunctions hazards associated with the Project, and the effectiveness of designs and mitigations, would continue to be assessed according to the risk management processes described in the Integrated Management System Manual and the Environmental Protection Program, and in accordance with provincial, Canadian Nuclear Safety Commission, and other regulatory requirements.

Good.

Section 22. Assessment of Effects of the Environment on the Project (Page 22-1, EIS)

Section 22 of the Environmental Impact Statement (EIS) assesses effects on the Rook I Project (Project) that may occur in association with natural hazards (e.g., extreme weather events, wildfires, seismic events) and influences of nature, including climate change. The assessment included identification of mitigation measures that would be implemented to reduce or eliminate potential risks. The assessment of effects of the environment on the Project used a standard, structured risk assessment approach, and incorporated Indigenous and Local Knowledge.

The regional location and setting are key factors in the identification of natural hazards that may affect the Project. Seven natural hazard categories were deemed to have the potential to cause adverse effects on the Project; these were:

- Wildfire
- Drought
- Major precipitation events
- Severe snowstorms
- Tornadoes/severe thunderstorms
- Extreme temperatures
- Seismic events

With the exception of seismic events, climate change has the potential to alter the occurrence and severity of these natural hazards from changes in future precipitation and temperature regimes, which would modify how weather-related hazards could affect the Project. Therefore, understanding the current climate and predicting future climate trends in the regional setting was undertaken to support the evaluation of Project design parameters (Page i, Section 22, EIS).

The general approach for the assessment of effects of the environment on the Project included:

- Natural hazard scenario identification
- Environmental design feature evaluation
- Risk measurement, as a function of likelihood and consequence
- Risk evaluation

Natural hazards in the regional setting of the Project were identified using publicly available information, the knowledge base of the Project team, and information received through engagement. The identification process entailed a review of published natural hazard frequencies, experience and case studies at similar types of operations in similar environmental settings, and scientific judgement based on the regional environment. The likelihood and consequence of each hazard scenario were combined to assign an overall risk level to each scenario of either High, Moderate, or Low. For scenarios that were classified as with a risk level of High, additional mitigation measures were required to lower the severity of the potential effects of the environment on the Project. For scenarios with a Moderate or Low

risk level, the risk was considered tolerable if risk reduction activities would reduce the risk associated with these scenarios to As Low as Reasonably Practicable (ALARP).

The results of the assessment indicated that the overall risk level associated with most hazard scenarios was Low, except for three hazard scenarios where the overall risk levels were Moderate; these were associated with wildfires and extreme temperatures (Page ii, Section 22, EIS).

Wildfire
The specific wildfire hazard scenarios with a risk level of Moderate included:

- Fire reaching primary fuel and liquified natural gas storage and the surface explosives magazine
- Damage to, or loss of, Project infrastructure

The hazards of smoke from wildfires could also be considered.

Section 23. Summary of Mitigation, Monitoring and Follow-Up Programs (Page 23-1, EIS)

The purpose of Section 23, Summary of Mitigation, Monitoring, and Follow-Up Programs of the EIS is to summarize (for ease of reference) the Project design features, mitigation measures, management programs and plans, and monitoring and follow-up programs and to provide an associated list of Project commitments proposed by NexGen. This section also outlines how mitigation was incorporated within the pathway analysis, and how monitoring and follow-up programs would verify effects predictions and mitigation effectiveness (i.e., performance), address uncertainties associated with the effects predictions, identify any unanticipated effects, and provide feedback for the implementation of adaptive management, if necessary, to further limit effects (Page 23-4, EIS). Mitigation, monitoring, and follow-up programs would be implemented and maintained throughout all phases of the proposed Project. The temporal scope of the assessment focuses on the 43-year period from initial Construction to the end of Decommissioning and Reclamation (i.e., Closure) as defined by the following Project phases (Page 23-4, EIS):

- Construction ~ 4 years
- Operations ~ 24 years
- Decommissioning and Reclamation ~ 15 years

As described throughout the EIS, NexGen has been and remains committed to providing clear, ongoing, and timely information as it relates to Project activities throughout all phases of the Project. Moving forward, the Indigenous and Public Engagement Program would provide a platform for two-way dialogue and meaningful engagement with the goal of disclosing information and maintaining relationships with local Indigenous Groups and communities, as well as other people and groups interested in the Project. The Indigenous and Public Engagement Program would build on the programs carried out to date as described in Section 2.5, Engagement Approach. NexGen recognizes that Indigenous Groups and the public have an interest in understanding and participating in decisions that affect them, and would continue to

proactively seek, engage in, and support meaningful discussion on issues and opportunities related to the Project throughout all phases. The Indigenous and Public Engagement Program would contain a grievance mechanism to monitor and respond to complaints or concerns. Measures could then be developed and implemented as part of follow-up monitoring to mitigate concerns.

YNLR is ready to continue working on a long-term, collaborative, and mutually beneficial relationship with NexGen.

A summary of environmental design features and mitigation measures for the Project are provided in Appendix 23A. This summary also includes linkages to the high-level overarching management and monitoring programs and plans, where appropriate. Management programs and plans are required to effectively implement the mitigation measures identified through the biophysical, cultural, and socio-economic effects assessment process. These programs and plans also need to be consistent with provincial and federal regulatory requirements for uranium mines and mills. Section 23.4.1, Environmental Management, and Section 23.4.2, Socio-economic Management, present the management frameworks for implementation of the Project's environmental and social mitigation measures, respectively. These include (Page 23-13, EIS):

- Environmental Protection Program
- Effluent Monitoring Plan
- Industrial Air Source Environmental Protection Plan
- Groundwater Protection and Monitoring Plan
- Environmental Monitoring Plan
- Environmental Code of Practice
- Wildlife and Habitat Management
- Caribou Mitigation and Offset Plan
- Biodiversity Action Plan

NexGen is committed to protecting the health and safety of and benefitting the Indigenous Peoples and communities potentially affected by the Project. This subsection describes the socio-economic management framework that is being developed for the Project (Page 23-17, EIS).

See above comment regarding ongoing collaboration.

Monitoring, follow-up, and adaptive management will include the following elements (Page 23-21, EIS):

- Environmental Assessment Follow-Up Monitoring
- Indigenous Monitoring
- Adaptive Management Plan
- Information Management and Reporting

YNLR supports the implementation of rigorous follow-up and monitoring. However, as stated previously, YNLR believes that these programs should be open, transparent, collaborative, and statistically robust.

Section 24. Conclusions

24.1 Introduction

EIS Section 24 Conclusions (24-1) provides a summary of the conclusions of the EIS, with a focus on findings related to valued components (VCs).

24.2 Engagement and Indigenous and Local Knowledge

Some key points from the EIS include:

- "NexGen has worked closely with the communities local to the Project since 2013 to help develop impactful community programs that focus on youth, with an emphasis on education, health and wellness, and building economic capacity. NexGen's engagement activities have continually evolved to understand and incorporate Indigenous and Local Knowledge"
- Identification of potentially affected or interested Indigenous Groups and local communities was informed through direct correspondence and discussion with Indigenous leaders, community members, and other organizations in the region; review of publicly available information; and guidance provided by provincial and federal agencies. Four Indigenous Groups designated as primary for full engagement. The Athabasca Denesųłiné were identified as "other Indigenous Group" for information sharing and a lesser (informed) level of engagement.
- An LPA consisting of the local communities closest to the Project that would experience most of the Project effects and for which NexGen would prioritize local training, employment, and business opportunities for the Project. The communities are located along or accessed by Highways.
- Primary Indigenous Groups and members of communities within the LPA have had the opportunity to share their Indigenous and Local knowledge and feedback with NexGen through a variety of engagement activities starting in 2013. This included signing fulsome Study Agreements that resulted in Joint Working Groups, IKTLU studies, harvesting and food studies, participation in EA baseline efforts and Key Person Interviews, commitments to a Benefits Agreement and variety of formal/informal individual, community, and other engagements. The Athabasca Denesųłiné Study Agreement was limited to resources for a IKTLU study.

NexGen began engaging with communities as early as 2013. Unfortunately, discussions with the Athabasca Denesųłiné did not begin until 2019. Based on the early engagement (i.e., pre-2019) primary Indigenous groups and communities deemed most likely affected by the proposed Project were identified. Then using these identified communities as a guide, a LPA (local priority area) was established. NexGen engagement activities were focused on primary Indigenous Groups and communities in the LPA. This approach has at least three flaws. First, it ignores or disregards the information provided by the Athabasca Denesųłiné in 2020 that clearly demonstrates their interests in the vicinity of Rook 1. Second, because the inclusion of communities in the LPA (and indeed the geographic extent of the LPA) is based on whether or not communities were previously identified means that AD's exclusion is likely self-perpetuating. The Athabasca Denesųłiné were not involved in

the early stages so they could not possibly have been considered nor could the LPA area include them. Third, the proximity of our communities to the project site is downplayed in the EIS by using a road distance measure rather than the well documented cross-country routes our members generally use to access the portion of our territory near the Project. In fact, Fond du Lac is closer to the project site than several other groups considered primary!

The 2020 Report - Provision of Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information for the NexGen Rook 1 Project Environmental Assessment – was prepared (with financial support from NexGen) by YNLR on behalf the Athabasca Denesųłiné. This report provided an overview of the Athabasca Denesųłiné (AD) including culture, Treaties, way of life and dependence wildlife, and Nuhenéné (AD traditional territory). Further, it provided a thematic analysis and mapping of cultural and land use activities including big game harvesting, small game and fur bearers harvesting, fish and bird harvesting, overnight sites and travel routes, traditional plants, special areas and Dene names. The Athabasca Denesųłiné have clearly demonstrated that their traditional territory and land/resources use significantly overlaps the Project's LSA and RSA their occupancy and use Later sections identify primary concerns of the Athabasca Denesųłiné, and potential impacts on their Aboriginal and Treaty right related to the NexGen Rook 1 Project and industrial development in general. Clearly the Athabasca Denesųłiné should have been classified as a primary Indigenous Group. Unfortunately, the EA processes did not respond to the information provided the Athabasca Denesųłiné.

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement. The greater involvement of Athabasca Denesųłiné within these activities would have allowed for a much more complete exploration of Athabasca Denesųłiné knowledge, land uses, rights and interests and how they might be impacted by the Rook 1 Project and ensured that NexGen was able to better understand and appreciate the uniqueness of the Athabasca Denesųłiné. The exclusion of the Athabasca Denesųłiné from the primary Indigenous group category ensured that they were afforded less attention than other Indigenous peoples. For example, the EIS identified an average of 157 key engagement activities for each primary Indigenous group while the YNLR (and AD communities) had only 29. This is prejudicial and self-perpetuating.

24.4.1 Summary of Technical Discipline Assessments
24.4.1.3.3 Wildlife and Wildlife Habitat

The EIS (p 24-16) notes "all VC populations would be expected to remain self-sustaining and ecologically effective except woodland caribou, which is not self-sustaining under existing conditions. For all wildlife VCs except woodland caribou, the residual effects from habitat disturbance, habitat alteration, and sensory disturbance from the physical footprint and associated Project activities in both the Application Case and RFD Case are considered not

significant" and further that "A Caribou Mitigation and Offsetting Plan would be developed and implemented for the Project…"

The Athabasca Denesųłiné believe that they should be <u>full</u> participants in any Caribou Mitigation and Offsetting Plan.

24.4.1.4.3 Indigenous Land and Resource Use

The EIS (p 24-28) describes the Indigenous Land and Resource Use VC and project impacts are manageable through mitigation measures which would involve include Indigenous and Public Engagement program and Benefit Agreements with primary Indigenous Groups.

The Athabasca Denesųłiné were not deemed by NexGen to be a primary Indigenous Group and were thus not afforded the opportunity to sign a fulsome Study Agreement that allowed for participation in a joint working group aimed at supporting the inclusion of Indigenous knowledge into the EA through ongoing dialogue, for the identification of valued components, for the discussion of other important issues (e.g., caribou, and traditional routes into the project study area, etc.), for the creation of a community liaison position and for the ultimate development of Benefits Agreement.

The Athabasca Denesųłiné believe that, as a primary Indigenous group, they should be <u>full</u> participants in the mitigation, management, engagement, and other programs and have a Benefit Agreement.

24.4.2 Summary of Significant Residual Effects and Benefits

24.4.2.2 Project benefits

The EIS (p24-23, 24-24) discusses the broad level benefits from the project as well as more specific benefits afforded to primary Indigenous groups under the terms of their Benefit Agreements.

24.4.4 Overview of Management Programs and Plans

24.4.5 Overview of Monitoring, Follow-Up, and Adaptive Management

The EIS (p 24-25, 24-26) discusses plans for management programs and plans to effectively implement the mitigation measures identified and to monitoring and follow-up programs to verify predicted results. Theses activities would be undertaken with continued engagement with local Indigenous Groups.

The Athabasca Denesųłiné believe that, as a primary Indigenous group, they should be <u>full</u> participants in any such programs, plans, and endeavours.

24.5 Next Steps

24.5.2 Establishment of Environmental Committees and Independent Indigenous Monitoring

The EIS (p 24-27) notes that Environmental Committees and Independent Monitoring is planned with some guiding points as follows:

- would provide further opportunities for inclusion of Indigenous and Local Knowledge

- aimed at primary Indigenous Groups
- full-time, independent Indigenous Monitors chosen by each primary Indigenous Group
- annual community meetings to report on the environmental performance of the Project

The Athabasca Denesųłiné believe that, as a primary Indigenous group, they should be <u>full</u> participants in any such environmental committees and independent monitoring endeavours.

24.5.3 Ongoing Engagement

The EIS (p 24-27) states

"…engagement activities would evolve as necessary to include Indigenous Groups and local communities in a manner that provides the opportunity for effective information exchange and dialogue specific to each stage of the Project. NexGen would take an adaptive approach to engagement to allow for adequate opportunity to respond to the needs of local communities…"

The Athabasca Denesųłiné believe that, as a primary Indigenous group, they should be <u>full</u> participants in any ongoing engagement activities.

24.6 Closing Statement

The EIS (p 24-27, 24-28) summarises NexGen's vision to become a world leader in delivering clean energy solutions for current and future generations in a manner that provides lasting benefits to local communities. Some key points (from an Indigenous Rights Perspective) are:

- sustainable long-term economic benefits for local Indigenous Groups and stakeholders
- worked closely with the communities local to the Project since 2013
- engagement activities have evolved to promote the inclusion of Indigenous and Local Knowledge
- No significant adverse effects of biophysical, cultural, and socio-economic VCs were predicted, with the exception of woodland caribou (which is already significant under existing conditions and that a Caribou Mitigation and Offsetting Plan is expected to provide a net increase in suitable habitat)
- would generate socio-economic benefits and opportunities for local Indigenous Groups and communities…
- NexGen would continue to prioritize training, employment, and business opportunities for the local communities closest to the Project

Repeatedly throughout the EIS, NexGen has described their visions, values, and approach. This includes the values of Honesty, Respect, Resilience (including being nimble and able to pivot), and Accountability as part of larger Ethical code. This Ethical code includes treating communities and the environment with respect and a considering all perspectives to challenge the status quo.

The Athabasca Denesųłiné ask that NexGen challenge the status quo and honor their values by including the Athabasca Denesųłiné in the EIS as a primary Indigenous group. This would ensure that that there is full engagement, consideration of Athabasca Denesųłiné Knowledge and interests, fulsome benefits and an ongoing relationship that is respectful of Athabasca Denesųłiné Aboriginal and Treaty Rights.

Section 24, Conclusions, provides a summary of the conclusions of the EIS, with a focus on findings related to valued components (VCs). The section is organized to provide brief summaries of the following information (Page 24-1, EIS):

- NexGen (Section 24.1.1, Summary of NexGen) and the Project (Section 24.1.2, Project Summary)
- NexGen's approach to engagement and Indigenous and Local Knowledge (Section 24.2)
- The scope and approach of the Environmental Assessment (EA; Section 24.3)
- The main conclusions of the EA under the categories of atmosphere, water, land, and people (Section 24.4)
- Next steps for the proposed Project following the submission of this EIS (Section 24.5, Next Steps), including CNSC licensing and provincial permitting processes (Section 24.5.1), establishment of Environmental Committees and independent Indigenous monitoring (Section 24.5.2), and ongoing engagement (Section 24.5.3)
- A closing statement (Section 24.6)

Transparent discussion and meaningful collaboration are at the core of NexGen's approach to Indigenous, regulatory, and public engagement. Encouraging progressive, broader thinking, balanced with technical competence and a deep and abiding respect for local Indigenous Peoples' and communities' understanding of the local area, site specifics, and industry best practice, is key to this approach (Page 24-3, EIS). Indigenous Groups and members of communities within the LPA have shared Indigenous and Local Knowledge and feedback with NexGen through a variety of engagement activities and sources of information. In general, sources of Indigenous Knowledge were identified through methods associated with the signed individual Study Agreements (e.g., Joint Working Groups, Indigenous Knowledge and Traditional Land Use Studies) with each primary Indigenous Group and through the Study Funding Agreement with Ya'thi Néné Lands and Resources. The majority of Local Knowledge was shared through EA baseline activities or other formal or informal individual and community events, including the community information sessions held in 2019. Indigenous and Local Knowledge was also shared by the Indigenous Groups in forms such as individual presentations describing important historical information, cultural practices, and knowledge (Page 24-4, EIS).

YNLR is ready to engage with NexGen throughout the life cycle of the Project and beyond.

The EIS has been summarized in Section 24 according to the following elements of the assessment (Page 24-6, EIS):

- Summary of Technical Discipline Assessments (Section 24.4.1)
- Summary of Significant Residual Effects and Benefits (Section 24.4.2)
- Assessment Confidence (Section 24.4.3)
- Overview of Management Programs and Plans (Section 24.4.4)
- Overview of Monitoring, Follow-Up, and Adaptive Management (Section 24.4.5)

Summary of Technical Discipline Assessments (Page 24-6, EIS)

This subsection summarizes the key findings from each of the individual disciplines included in the EIS. The assessment of intermediate components (not assigned significance) and VCs (assigned significance) is summarized within the following four categories (also see Table 20.3-1, page 20-4, EIS):

- Atmosphere: air quality, noise, climate
- Water: hydrogeology, hydrology, surface water quality and sediment quality, fish and fish habitat
- Land: terrain and soils, vegetation, wildlife and wildlife habitat
- People: human health, cultural and heritage resources, Indigenous land and resource use, other land and resource use, economy, community well-being

Summary of Significant Residual Effects and Benefits (Page 24-22, EIS)
As indicated in Section 24.4.1, Summary of Technical Discipline Assessments, no significant adverse effects on biophysical, cultural, and socio-economic VCs were predicted for the Project or for the Project in combination with RFDs, with the exception of the woodland caribou VC (Table 20.3-1, page 20-4, EIS). The wildlife and wildlife habitat assessment concluded that effects on woodland caribou in the Base Case are already significant, as the amount of disturbance in the SK2 West is greater than the 35% threshold value as described in the federal woodland caribou recovery strategy (ECCC 2020). Therefore, any amount of incremental habitat loss from any development, including residual losses of habitat associated with the proposed Project, is considered significant for woodland caribou. However, the Project is predicted to contribute little to the existing cumulative effects on woodland caribou

See previous comments on the VC selections and assessments, and the somewhat overly optimistic conclusions made.

Assessment Confidence (Page 24-24, EIS)
While uncertainty is an inherent aspect of any predictive exercise, there were no knowledge gaps that would affect the overall conclusions of the EIS. Considering the precautionary approach and using conservative assumptions where necessary, there is a moderate to high level of confidence that the effects on intermediate components and VCs have not been underestimated. Monitoring has been proposed in the EIS in part to address uncertainties associated with the effects predictions, as described in Section 24.4.5, Overview of Monitoring, Follow-Up, and Adaptive Management.

Follow up and monitoring is critical. However, while residual effects on most VCs were deemed not significant individually, their significance <u>in total</u> may be, especially given the multiple tests and binary ranking of significance.

Overview of Management Programs and Plans (Page 24-25, EIS)
This has already been presented and reviewed above.

Overview of Monitoring, Follow-Up, and Adaptive Management (Page 24-25, EIS)
This has already been presented and reviewed above.

Saskatchewan Environmental Society

Comments to the Canadian Nuclear Safety Commission regarding:

NexGen Energy Ltd.'s Rook 1 Environmental Impact Statement

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Submitted to the CNSC: 12 October 2022

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INTRODUCTION

The Saskatchewan Environmental Society appreciates the opportunity to review the draft environmental impact statement for NexGen Energy's proposed Rook 1 uranium mine and mill development. While recognizing the depth and thoroughness of the study, we have identified several issues that need to be addressed in a final version. Our questions and recommendations are included within each section of the comments which follow and are also listed in summary form at the end of this document.

1. CONCERNS ABOUT THE SCOPE OF THE ENVIRONMENTAL ASSESSMENT

Several of our concerns relate to *fragmentation* as one of the inherent shortcomings of project-based impact assessments. Disconnecting parts of larger developments or land and resource use activities does not provide a sound basis for a comprehensive evaluation of that development or activity's overall impacts. Requiring a cumulative effects component to be included certainly helps, but only if properly done.

A primary example of *fragmentation* is the role it plays in characterizing the reason for, and benefits from, the Project. In its description of the Project's purpose and benefits, and especially in its discussion of alternatives to the Project, NexGen makes the argument that the extracted uranium will support Canada's transition to a low-GHG economy (EIS page 470/4067). However, just as renewable alternatives do not actually provide energy unless wind or moving water spin the turbines, or the Sun shines on the photovoltaic panels, uranium concentrate does not actually provide energy without the fabrication of nuclear fuel, the construction, operation and decommissioning of reactors, and the long-term storage and management of highly radioactive wastes. *All* those additional steps that enable use of non-renewable nuclear energy involve GHG emissions, among many other significant environmental impacts. Therefore, the case for seeking approval for the Rook 1 Project should not be *disconnected* from everything else that is required if the predicted benefits are to be realized. It should instead be accurately embedded within the broader context and consequences of including non-renewable nuclear energy in our energy system.

R.1. *SES recommends that evaluation of the justification for, benefits of, and alternatives to the Project be based on a fully comprehensive description of how it might fit within the transition to a sustainable energy future.*

NexGen describes the Project as consisting of the construction, operation, and closure phases of its proposed Rook 1 mine and processing facility. However, these phases of the overall uranium exploitation activity have required nearly a decade of both regional and locally intensive exploration, hundreds of diamond drill holes, and installation of supporting infrastructure such as the 13 km main access road and a substantial exploration camp facility. Those *preceding* (and continuing) phases, all prerequisite components of the overall uranium exploitation activity, were all permitted without an environmental assessment, and their considerable impacts are not fully incorporated into this EIS. For example, although described as part of "current activities", the exploration camp facilities do not even appear on the Project's facilities and infrastructure map (EIS page 38/4067, Fig. 1.2-5).

R.2. *SES recommends that NexGen be required to incorporate into the final EIS the implications of its exploration and related pre-mining developments as essential components of the Project.*

The cumulative effects component in this EA has essentially been limited to including the nearby proposed Fission Uranium Corp. mine and processing facility, also on the shore of Patterson Lake, as the basis for characterizing a Reasonably Foreseeable Development" (RFD) scenario. This does not seem at all adequate given the scale and extent of NexGen's ongoing exploration and test-drilling program. The company describes its continuing efforts to develop more uranium mining projects in the region and states that, in addition to the Arrow deposit, "multiple new high-grade uranium discoveries have been made on NexGen's properties", including the Harpoon, Bow, and South Arrow deposits (www.nexgenenergy.ca/exploration/overview/). It is therefore *unreasonable* to exclude the proponent's own goals and future plans from the realistic consideration of likely cumulative effects impacts.

R.3. *SES recommends that NexGen be required to incorporate, into the cumulative effects component of the final EIS, the implications of its ongoing and planned additional efforts to expand and extend uranium exploitation activity beyond the Arrow Deposit.*

Q.1. *How much of the environmental impact 'capacity' in the region should the first or any one developer be allowed to occupy, given that other future projects will also be seeking a share of that finite regional 'capacity'?*

2. TAILINGS MANAGEMENT

2.A) EXPERIENCE WITH DEEP UNDERGROUND STORAGE

As far as we have been able to determine, previous Canadian approaches to disposal of uranium mine tailings are limited to simply depositing them on the surface (e.g., at Gunnar, SK and Elliot Lake, ON), depositing them in lakes (e.g., at Beaverlodge, SK) or in flooded low areas (e.g., at Cluff Lake, SK), and, in more modern mining operations, placing them in prepared surface pits. We are not aware of any examples, either in Canada or elsewhere, where other approaches have been applied.

It appears, therefore, that NexGen is proposing an innovative approach in uranium mine tailings management, an approach that combines an underground, purpose-built tailings management facility and placement of cement-bound tailings as backfill in mined-out stopes. While there is some experience of this approach being used for disposal of coal, gold and potash mine tailings, we have seen no reference to its application in the uranium industry. This is significant because, as concluded by Tariq and Yanful (2013)[1]: "The variability and complexity of mine waste materials and behavior of cement in the individual composite matrices preclude a universally accepted generalized methodology."

There appear to be some significant advantages to storing mine tailings underground as backfill rather than in surface pits (www.tailings.info/storage/backfill). These would include reducing the risk of subsidence, reducing surface disturbance, and allowing the possibility of removing pillars from the mine tunnels and extracting more ore from them. Contaminants stored deep underground are much

[1] Tariq, A. &, Yanful, E. K. (2013). *A review of binders used in cemented paste tailings for underground and surface disposal practices*. Journal of Environmental Management, Vol. 131, pages 138-149.

further removed from surface water contact than are those stored on or near the surface. So there seems to be much to be said in favour of exploring this approach.

The disadvantages identified in the *tailings.info* article include the high cost, the risk of liquefaction of the backfill if saturation levels are high (note that the plan is to flood the mine at closure), and the risk of plugging of the pipeline carrying the cemented tailings or bursting of the pipeline. Portland Cement appears to be the most expensive component of Cemented Paste Tailings (CPT) operations and hence becomes the primary setback in its use as a binder. Concomitantly, the cement industry is one of the leading industrial emitters of greenhouse gases, particularly CO2. Its high manufacturing cost along with its recognition as a major source of CO2 emission has made cement production a target of criticism.

We therefore request that the following questions and issues be addressed in a final version of the EIS:

Q.2. *Are there documented examples of deep underground storage of uranium mine tailings? If so, please provide details of their history, including the nature, duration, and results of monitoring.*

Q.3. *What is the expectation for the structural longevity of the concrete/tailings backfill material? (A quick search indicates that concrete generally remains stable for 50 to 100 years, depending on the chemical environment in which it is located.)*

Q.4. *Have studies been done to determine the effect on mobility of the tailings components when the concrete breaks down?*

2.B) PREPARATION OF THE UGTMF CELLS

It appears (EIS page 671/4067) that the UGTMF storage cells are vertically oriented and that the plan is to place cemented paste backfill (CPB) plugs at the bottom and top of each cell. Presumably this is intended to limit release of contaminants. Two questions emerge:

Q.5. *Why is it not considered advisable to also line the sides of the* UGTMF storage *cells with CPB?*

Q.6. *What potentially leachable contaminants are in the CPB itself, given that it contains the leach residue from the mill process?*

2.C) ADAPTIVE MANAGEMENT AND LONG-TERM GROUNDWATER CONTAMINATION

NexGen states (EIS pages 3993 and 1240/4067) that "Groundwater seepage from the UGTMF and backfilled production stopes may adversely affect groundwater, surface water and sediment quality after closure" and that "The focus of the Groundwater Management and Protection Plan would be the establishment of monitoring systems to evaluate the effectiveness of the groundwater protection controls."

Given the uncertainties about the long-term movement of contaminants from the UGTMF and from backfill, NexGen is proposing to employ an Adaptive Management approach to potential problems that may become apparent sometime after closure.

Q.7. *If it were to be discovered, say 50 or 100 years after closure, that contaminants were found to be moving into groundwater faster than had been anticipated, what adaptive management options would be available at that point?*

Q.8. *Have the feasibility, effectiveness, and costs of potential groundwater contamination adaptive management options been determined?*

3. GREENHOUSE GAS EMISSIONS

3.A) OFF-SITE EMISSIONS

Section 7.4 of the EIS considers the potential effects of Rook 1 on climate change by estimating the Project's total GHG emissions, specifically of carbon dioxide, methane, and nitrous oxide. Included in this estimation are emissions from the Project's electrical generation, heating, on-site mobile equipment, land use change, waste incineration, explosive emissions and stationary combustion, but not mobile combustion (off-site transportation), nor from production and delivery of necessary material supplies for the Project.

This points to a major flaw in the way Environmental Assessments are "Scoped."
According to the EIS, corporations typically report their GHG emissions by classing them into Scope 1, Scope 2 and Scope 3:

Scope 1 - emissions from everything on the site, including from the LNG electric power plant, and from the diesel fuel used on site;

Scope 2 - emissions from energy – for electricity or heating - generated off-site and purchased by NexGen. The EIS states there are none since the Project will provide its own power.

Scope 3 - emissions that are "indirect," occurring because of the Project, but by parties not owned or controlled by the Project. The CNSC permits Scope 3 emissions to be omitted from the Project's GHG calculation.

3.A.1) TRANSPORTATION

Unless GHG emissions due to off-site transportation are included, the Project's total GHG emissions estimate is woefully inaccurate.

We contend that the carbon emissions from burning fuel for transporting people and cargo are integral to the Project, not "indirect" consequences such as a new gas station in La Loche, without which the Project could operate very well. Shipping 14 million kilograms of yellowcake every year for 24 years to Ontario is what the Project is all about. The mine operation will depend on aircraft and trucks delivering people and supplies. Transport is essential to every phase of the Rook 1 Project, from exploration to the reclamation and final decommissioning.

Thus, these are "direct" emissions, and we would suggest that simply dismissing them as outside its scope undermines the integrity of the EA itself.

R.4. *SES recommends that all GHG emissions associated with transport of people and materials to and from the site be included in the Project emissions estimate.*

3.A.2) CEMENT BINDER PRODUCTION

It is unclear where the cement binder required for tailings management will be produced and what the greenhouse gas implications are.

R.5. *SES recommends that all greenhouse gas emissions associated with production of cement used in the project be included in calculation of project emissions.*

3.A.3) POWER GENERATION

To provide the energy required, the EIS proposes an on-site power plant fueled by Liquid Natural Gas (LNG) rather than by diesel generators, an improvement in terms of GHG emissions. But again, the analysis is incomplete because the nearest LNG source appears to be 1,000 km away, and, just for the 24-year mine operation phase, the Project will need 12-15 truckloads of LNG per day.

There also is no account taken of the "upstream" emissions of the LNG fuel, which include GHG emissions from its extraction, liquification, storage and transportation.

R.6. *SES recommends that emissions associated with the production of LNG used in the project as well as its transportation to the site be included in calculation of project GHG emissions.*

3.A.4) CUMULATIVE EFFECTS

According to the Environmental Assessment Act (CEAA 2012), the cumulative effects of Reasonably Foreseeable Developments are to be addressed in the EIS. This was done, albeit inadequately, for many aspects of the Project but was not done regarding the Project's GHG emissions because, it is claimed, "the Application Case provides all required information for the federal government to consider the Project relative to the cumulative effects of historical, existing and future projects." This claim requires substantiation.

Q.7. *Which body of the federal government will be reviewing the cumulative GHG emission effects of historical, existing, and future projects?*

Q.8. *How will that review be included the current EA process for the Rook 1 Project?*

3.B) CARBON OFFSETS

Some mining companies, recognizing that their operations inevitably emit carbon into the atmosphere, compensate for that by contributing to carbon offsets, projects that store carbon or prevent its emission. For example, Mayfair Gold, which recently started a mine in north-eastern Ontario, plans to be able to claim carbon-neutrality thanks to carbon credits from funding solar-powered heating systems. (mayfairgold.ca/)

Carbon credits could be considered a form of mitigation, but more research is required to ensure that the designated activities do in fact mitigate emissions and/or store carbon and are endorsed by the people affected.

Q.9. *Will the final EIS include a plan for use of carbon offset measures as a component of mitigating the Project's GHG emissions?*

3.C) ACHIEVING NATIONAL AND PROVINCIAL TARGETS

NexGen suggests that the GHG emissions from the Project would represent only a small percentage increase in Saskatchewan's and Canada's current emissions and are therefore negligible. They state that (EIS page 978/4067) *"Emission of greenhouse gases from the Project would have an adverse effect on climate change…However, total Project emissions would be less than 0.3% of the provincial annual total emissions and less than 0.02% of the federal total annual emissions…At less than 0.3% of provincial baseline emissions the Project would not contribute significantly to the totals."* This logic would suggest that none of the individual emission sources, which collectively make up a large proportion of Saskatchewan's total emission problem, should be considered significant. This attitude would doom to failure our attempts to effectively mitigate climate change.

It is also important to address the claim that a new uranium mine will result in future lower GHG emissions and will help Canada meet the commitment made at Paris in 2015, to reduce emissions 40% by 2030.

NexGen argues that carbon emissions from this Project will be balanced by future emission reductions that result from replacement of fossil-fuel-powered electrical generation plants by new nuclear plants using Rook 1 uranium to create "carbon-free" electricity. However, the GHG emissions attributable to this Project began with the exploration phase and will continue over its 43-year lifespan. New nuclear plants are more than a decade away, as is the potential for any nuclear fuel that may derived from the prospective Rook 1 Project to be used in them, too late to contribute to Canada meeting its commitment to cut emissions by 40% by 2030. By 2030, before any new nuclear power comes on grid, Canada's coal-burning plants will have already been closed or converted to natural gas, presumably with carbon capture. Very competitively priced, expanded renewable energy projects will also be in place.

So even a fleet of nuclear reactors coming onstream in 2035-45 would not help Canada or Saskatchewan meet their 2030 emission-reduction commitments. *Now* is when we need to drastically reduce emissions. Waiting until 2045 will be too late; and in the meantime, new mines and mills will be adding their emissions to the total, requiring more serious reductions in other areas of the economy, and more risk of accelerating climate instability.

R.7. *SES recommends that Canada now focus on achieving its 2030 GHG emission reduction target, recognising that new, more ambitious reductions will be required after that date.*

3.D) CLIMATE CHANGE PREDICTIONS AND RISK EVALUATION

The EIS includes a detailed effort to predict future climate change impact on the Rook 1 Project, based on incomplete data from three weather stations and NASA's MERRA 2 dataset. It also acknowledges the inherent uncertainty around the predictions and risk assessment more generally.

We find the section lacking in detail, particularly in describing various scenarios and their consequences. The methodology, balancing the likelihood of an event with its consequences to determine a 'risk level', seems outdated, given current climate change experience. For example, the

risk level of severe drought resulting in inadequate water supply is labeled Moderate, but the consequences are not specified. How dry would it have to be for Patterson Lake's level to be dangerously low? How much would the risk of a wildfire increase during a multi-year long drought, which is more likely now than in the past due to climate change?

R.8. *SES recommends that the final version of the EIS take into account the recent, unexpectedly severe, global impacts of climate change as well as estimating the consequences for the project of extended drought and increased wildfire frequency and intensity.*

4. WATER QUALITY: THRESHOLDS FOR RADIONUCLIDES

We note (EIS page 1622/4067) that thresholds for COPC radionuclides were developed using U.S. Department of Energy values as "neither CCME nor Provincial guidelines are available". Table 10.2-7 (EIS page 1624/4067) shows that guidelines set by Health Canada for Pb210 and Ra226 are higher than those set by the World Health Organization.

Q.10. *On what basis was the decision made to use the Health Canada guideline for Pb210 and Ra226 water quality thresholds rather than the more conservative WHO figure?*

5. PROJECT INFRASTRUCTURE DESIGN AND OPERATION

5.A) SITE WATER USE AND MANAGEMENT

There are several encouraging aspects to the proposed approaches to water management at the Project. In particular, references to reducing consumption to minimize freshwater use, diverting non-contact water, and reusing contact water where possible are certainly positive elements of what is proposed (EIS page 677/4067). However, the current proposal is still an open design with significant withdrawals from, and effluent discharges to, the Clearwater River drainage system. This is, again, not an example of providing "the industry-leading environmental performance" (NexGen corporate website). If it were, the engineering design goal would be based on what is called *Zero Liquid Discharge* (ZLD), something already in use in numerous industrial operations.

If an open water system is to be allowed, then effluent treatment measures should ensure that discharge water quality is at least as high as source water quality, and the intake pipe should be required to be located downstream of the outlet pipe.

Effective impact mitigation strategies start with not creating a problem in the first place, and that can often be facilitated by converting a problem into an opportunity. In the case of sewage effluent, the problem stems from use of conventional flush toilets instead of, for example, urine-separating composting toilets. Greywater is far easier to treat than blackwater, and the solid wastes can be co-composted with food scraps as part of creating an on-site source of material for use in re-establishing vegetation cover during reclamation. Despite the relatively cold regional climate, the opportunity for such co-composting could be facilitated using the heat from the Project's LNG-fired power plant if it is designed and operated as a Combined Heat and Power (CHP) facility.

R.9. *SES recommends that the final EIS include an alternative site water management design based on no degradation of water quality in Patterson Lake.*

5.B) CONVENTIONAL WASTE MANAGEMENT

References to optimizing reuse and recycling, as part of managing the Project's conventional domestic and industrial waste streams, are encouraging. However, the provided details (EIS page 687/4067) describe a management system that is still largely a *burn-the-garbage* approach and uses yet-more LNG to incinerate materials that should be considered resources, not 'waste'. This would certainly not provide "the industry-leading environmental performance" that NexGen refers to on its corporate website. Demonstrating an understanding of sustainability requires making *Zero Waste* the goal. With its headquarters in Vancouver, NexGen will be familiar with the zero waste concept.

Materials like glass and metals are not readily incinerated, while the things that do burn more easily, those of organic origin such as food scraps, paper, and cardboard, are readily recyclable. There is a product stewardship program for used oil that includes both return and processing incentives and eliminates the need to burn it. Of course, scrap wood burns well, but it has value as a heating fuel and could, for example, be donated to residents in communities on the route to the mine, such as La Loche and Buffalo Narrows, who rely on wood as a fuel. Composting all the organic residues on-site would provide the benefit of incorporating their management as an asset in the reclamation program.

The vast majority of all the materials that have already been brought to the Project site, or would be during the construction and operation phases, arrive by road. Except for those used to ship the uranium concentrate, trucks normally arrive loaded and return empty. This provides NexGen with a very significant opportunity to include backhaul of reusable and recyclable materials in their contracts with transport service providers.

R.10. *SES recommends that, in the final EIS, NexGen provides a Conventional Waste Management alternative plan that is based on a Zero Waste goal.*

5.C) POWER SUPPLY AND CAMP FACILITIES

The selected alternative for supplying electricity is an LNG-fired power plant. The Project description also indicates that additional gas will be used for the heating of buildings. Despite the relatively central location of the power plant on the mill terrace, in proximity to buildings such as the main camp, maintenance shop/warehouse, and wash bay, there is no mention of producing both power and space heating from the LNG fuel using cogeneration, also known as Combined Heat and Power (CHP). The use of a CHP design could provide greater efficiency and thereby some reduction of GHG emissions.

R.11. *SES recommends that the final EIS include the alternative of having the power plant built and operated as a CHP facility.*

6. ECOSYSTEM IMPACTS: VEGETATION, FISH AND WILDLIFE

It is evident from the vast amount of information provided in sections 11, 13 and 14 of the EIS that a substantial effort has been made to inventory and evaluate the state of the existing ecosystem and potential for impact. However, several discrepancies and gaps are apparent.

Q.11. *Why was the identification of Valued Components done at the ecosystem level for vegetation, but at the species level for fauna, and limited to such a relatively small selection of terrestrial and aquatic VC species?*

Q.12. *Given their ecological roles, and importance as indicators of ecosystem condition, why were no aquatic or terrestrial invertebrate species identified as VCs?*

Q.13. *Given the importance of their ecological niches, and indicators of ecosystem condition, why were no raptors, fish-eating birds, mustelids, or small rodents selected as VCs?*

7. OTHER LAND AND RESOURCE USE: PARKS AND PROTECTED AREAS

The proposed Project would be the first of what seems likely to be a series of uranium mines in the upper Clearwater River watershed. If approved, it would initiate a substantial intensification, following more than a decade of mineral exploration, of industrial development in the river's headwater reaches.

The Clearwater River and adjacent corridor is of major provincial and national importance in terms of its role in protection of significant natural, recreational, and cultural heritage resources. Clearwater River Provincial Park (CRPP) is one of only two Wilderness Class parks in the Saskatchewan Provincial Park System. The portion of the river from Lloyd Lake to the Alberta border was among the first to be designated under the Canadian Heritage River System (CHRS). With the subsequent additional designation of the portion from the Saskatchewan border to Ft. McMurray, Alberta, the Clearwater is now one of only two interprovincial rivers in the CHRS.

The presence of the CRPP, including both its CHRS designation as well as the presence of the Methye Portage National Historic Site within it, are acknowledged with a very brief overview description (EIS page 3309/4607). However, despite its ecological and cultural heritage importance, the CRPP is neither identified as a Valued Component nor given consideration in terms of potential impacts associated with the Project!

This is difficult to understand since the Project proposes adding industrial emissions and waste effluents into the Clearwater watershed over a prolonged period. Furthermore, the only road by which all the materials can be trucked to/from the mine bisects this Wilderness Park / Heritage River to cross at the Warner Rapids bridge. For example, even just the delivery of LNG for the power plant will require more than 8,700 heavy truck transits through the middle of the Park, *annually*, during the Project's 24-year operational phase. Another potential impact pathway could be through displacement of other resource and land use activities, shifting them away from the mining-related disturbances in the upper portion of the watershed and into the Wilderness Park.

R.12. *SES recommends that the final EIS be required to recognize the Clearwater River Provincial Park and Canadian Heritage River as a Valued Component and include it in monitoring and impact mitigation planning.*

8. ENVIRONMENTAL COMMITTEES AND INDIGENOUS MONITORING

NexGen has committed to establishing and maintaining environmental committees for each Indigenous group. Each committee would consist of two Indigenous representatives and two

NexGen employees. NexGen would also provide funding for a full-time Indigenous Monitor to be chosen by each Indigenous body. This is all good in principle.

A committee with membership split evenly between local residents and company representatives may find decision-making difficult, particularly as the company representatives may be more technically experienced than the other members.

R.13. *SES suggests a fairer structure for the Environmental Committees would be two local residents, one company representative, and one independent, outside advisor to be selected by the other three. We recommend that such an alternative structure be considered.*

The following questions also arise:

Q.14. *Who will determine how long these Environmental Committees and Monitors will be maintained and funded?*

Q.15. *Will the Committees have funding to conduct independent studies if they feel these are necessary?*

Q.16. *The Indigenous monitor is to be chosen by each Indigenous organization. Will the Indigenous organizations have the option of naming a non-Indigenous person as their monitor if they prefer?*

SUMMARY OF QUESTIONS

Q.1. *How much of the environmental impact 'capacity' in the region should the first or any one developer be allowed to occupy, given that other future projects will also be seeking a share of that finite regional 'capacity'?*

Q.2. *Are there documented examples of deep underground storage of uranium mine tailings? If so, please provide details of their history, including the nature, duration, and results of monitoring.*

Q.3*. What is the expectation for the structural longevity of the concrete/tailings backfill material? (A quick search indicates that concrete generally remains stable for 50 to 100 years, depending on the chemical environment in which it is located.)*

Q. 4. *Have studies been done to determine the effect on mobility of the tailings components when the concrete breaks down?*

Q.5. *Why is it not considered advisable to also line the sides of the* UGTMF storage *cells with CPB?*

Q.6. *What potentially leachable contaminants are in the CPB itself, given that it contains the leach residue from the mill process?*

Q.7. *Which body of the federal government will be reviewing the cumulative GHG emission effects of historical, existing, and future projects?*

Q.8. *How will that review be included the current EA process for the Rook 1 Project?*

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Q.13. Given the importance of their ecological niches, and indicators of ecosystem condition, why were no raptors, fish-eating birds, mustelids, or small rodents selected as VCs?

SUMMARY OF RECOMMENDATIONS

R.1. *SES recommends that evaluation of the justification for, benefits of, and alternatives to the Project be based on a fully comprehensive description of how it might fit within the transition to a sustainable energy future.*

R.2. *SES recommends that NexGen be required to incorporate into the final EIS the implications of its exploration and related pre-mining developments as essential components of the Project.*

R.3. *SES recommends that NexGen be required to incorporate, into the cumulative effects component of the final EIS, the implications of its ongoing and planned additional efforts to expand and extend uranium exploitation activity beyond the Arrow Deposit.*

R.4. *SES recommends that all GHG emissions associated with transport of people and materials to and from the site be included in the Project emissions estimate.*

R.5. *SES recommends that all greenhouse gas emissions associated with production of cement used in the project be included in calculation of project emissions.*

R.6. *SES recommends that emissions associated with the production of LNG used in the project as well as its transportation to the site be included in calculation of project GHG emissions.*

R.7. *SES recommends that Canada now focus on achieving its 2030 GHG emission reduction target, recognising that new, more ambitious reductions will be required after that date.*

R.8. *SES recommends that the final version of the EIS take into account the recent, unexpectedly severe, global impacts of climate change as well as estimating the consequences for the project of extended drought and increased wildfire frequency and intensity.*

R.10. *SES recommends that, in the final EIS, NexGen provides a Conventional Waste Management alternative plan that is based on a Zero Waste goal.*

R.11. *SES recommends that the final EIS include the alternative of having the power plant built and operated as a CHP facility.*

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October 19, 2022

Canadian Nuclear Safety Commission
280 Slater Street, P.O. Box 1046, Station B
Ottawa, ON K1P 5S9
Attention: Nicole Frigault, Environmental Assessment Specialist

By email: rook1@cnsc-ccsn.gc.ca

To the Canadian Nuclear Safety Commission,

Re: NexGen Rook 1 Project Draft Environmental Impact Statement: Written Intervention from the Métis Nation of Saskatchewan

The Métis Nation – Saskatchewan ("MN-S"), including in respect of Métis Nation – Saskatchewan Northern Region II, is providing the enclosed feedback with respect to the draft Environmental Impact Statement ("EIS") for the Rook 1 Project (the "Project") submitted by NexGen Energy Ltd. ("NexGen").

History of the Métis

To begin, we would like to acknowledge that the land on which our people live is the traditional and current territory and Homeland of the Métis (the "Homeland").

The Métis emerged as a distinct Indigenous people and nation in the historic Canadian Northwest during the 18th and 19th centuries. Saskatchewan is a part of the "historic Métis homeland", which includes the three prairie provinces, Ontario, British Columbia, the Northwest Territories, and the northern United States. The Canadian government attempted to extinguish the historic Métis Nation through the issuance of "scrip" and land grants in the late 19th and 20th centuries. The Métis in Saskatchewan began organizing to address issues of Métis land rights and scrip in the 1930s and continued to grow and advocate for recognition as one of Canada's Aboriginal peoples. Now, nearly 150 years after the first issuance of scrip, the Métis in Saskatchewan have a recognized government (the Métis Nation – Saskatchewan) that represents the political, socioeconomic, cultural, and educational interests of the provinces 80,000+ Métis people through a representative system based on 12 Regions and approximately

130 Locals. The MN-S established a Constitution in 1993 and since then has worked towards implementing Métis self-government efforts. In 2018 Canada agreed, through the Framework Agreement for Advancing Reconciliation, to work with MN-S to address Métis land claims within Saskatchewan, including specifically the Northwest Métis Land Claim (the "Northwest Land Claim").[1] In 2019, Canada and MN-S signed the Métis Government Recognition and Self-Government Agreement between Métis Nation – Saskatchewan and Canada recognizing that MN-S represents the Métis of Saskatchewan and that the Métis of Saskatchewan have an inherent right of self-government that is protected by Section 25 and Section 35 of the *Constitution Act, 1982*. [2]

The development of the uranium mining industry within the Métis Homeland, beginning in the 1940s, has occurred with little input, consideration, or participation of the Métis communities that have been impacted and which will continue to live with the effects of uranium mining and its long-term legacy.

As already introduced, MN-S is advancing the Northwest Land Claim and has an interest in preserving and protecting these lands and their resources for the use and benefit of future generations. Métis are known in history for their role in trade, barter and the economic development of their communities. Métis are not against development where it is done in a manner consistent with their asserted rights, including under the Northwest Land Claim, and where such development respects Métis rights-based community, cultural, and economic activities and is undertaken in a collaborative manner that recognizes the role of Métis as partners in the development of the Homeland and in understanding the associated impacts.

Commenting on the Rook 1 Project

The Project is of deep concern to the MN-S which includes the seven MN-S Locals within the EIS's study area and is the recognized governing body and representative of the Métis of Saskatchewan.[3] The Project sits at the heart of the Northwest Land Claim, which Canada has agreed to address through a negotiation process,[4] along the shores of Patterson Lake which is an area of historic and present-day cultural significance to the Métis. Since long before the formation of Canada, the Métis have used and traversed Patterson Lake and the surrounding areas for the purposes of harvesting, trading, sustenance, and cultural practices.

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[1] https://metisnationsk.com/wp-content/uploads/2019/03/Framework-Agreement-for-Advancing-Reconciliation-2018.07.pdf

[2] https://metisnationsk.com/wp-content/uploads/2019/06/M%C3%A9tis-Government-Recognition-and-Self-Government-Agreement-.pdf

[3] Métis Government Recognition and Self-Government Agreement between Métis Nation – Saskatchewan and Canada, signed June 27, 2019.

[4] Framework Agreement for Advancing Reconciliation between Métis Nation – Saskatchewan and Canada, signed July 20, 2018.

We enclose the results of the review prepared by Two Worlds, and endorse all included recommendations and concerns. Without intending to prioritize any particular comments, we note the following:

1. We are concerned that NexGen has not adopted a collaborative approach to the Project. While we have been provided some opportunities for information sharing, NexGen has not engaged in "collaborative" activities in respect of their Project plans, withheld important information regarding the EIS, and has not demonstrated a willingness to engage in deeper dialogue that would potentially lead to modifying their approaches to address and accommodate Métis concerns.

2. As Two Worlds notes, the EIS lacks substantial amounts of detail that are relevant to MN-S and Métis Citizens understanding the potential impacts of the Project on our communities, rights, and people. Based on NexGen's existing approaches and conduct, MN-S does not have confidence in NexGen's forward-looking commitments to address these gaps through collaboration.

3. MN-S also shares Two World's concerns that there is a lack of specificity regarding how Métis people and rights will be impacted by the Project. Métis rights and interests are different from "local" interests and First Nation interests. The Northwest Land Claim is unique to the Métis. Métis rightsholders make up at least half of the study area population. The towns of La Loche, Buffalo Narrows, and Turnor Lake, among others, are Métis towns and will face disproportionate impacts from the Project. Unlike First Nations, which have substantial powers to regulate who can enter and use reserve lands, Métis do not have authority over the arrival of outsiders to their communities, the use of lands in their communities, and how social resources (such as homes) are allocated. We are concerned that socio-economic harms and pressures from the Project will disproportionately impact Métis. As presented, the EIS does not explain how Métis rights, people and communities will be impacted, either positively or negatively. Too often the EIS simply refers to effects at a "local" level, without considering the impacts to Indigenous peoples and Métis specifically.

4. As recommended by Two Worlds, we request that NexGen address the concerns identified through processes consistent with the standard of "collaboration".

Notes on the Review and Additional Steps

In addition to the comments provided by Two Worlds and above, we submit the following for consideration by the CNSC:

1. Due to a number of factors, including the limited budget and the compressed timeframe to review (noting that NexGen did not share a copy of the EIS with MN-S prior to or during the form compliance review by CNSC), the following sections of the EIS set out in the table below have not been reviewed by Two Worlds. We would invite a discussion with CNSC and NexGen to address this gap.

7.0 Air Quality, Noise, and Climate Change	446
12.0 Terrain and Soils	114
TSD VII: Mine Waste Alternatives Assessment	94
TSD VIII: Accidents and Malfunctions Report	129
TSD IX: Transportation Risk Assessment Report	128
TSD X: Vibration Effects Analysis Report	33
TSD XI: Light Effects Analysis Report	48
TSD XII: Net Zero Framework	23
TSD XIII: Upstream Greenhouse Gas Emissions and Carbon Intensity Discussion	16
TSD XIV: Groundwater Flow and Solute Transport Modelling Report	63
TSD XV: Tailings Source Term Derivation Report	48
TSD XVI: Tailings Geochemical Characterization Report	246
TSD XVII: Waste Rock and Underground Wall Rock Source Term Predictions Report	71
TSD XXI: Environmental Risk Assessment*	445*
TSD XXII: Climate Adaptation Framework	26
Annex I Atmospheric Baseline Report	78
Annex II Noise and Light Baseline Report	68
Annex III Hydrogeology Baseline Report	828
Annex IV Hydrology Baseline Road Map	15
Annex IV.1 Regional Meteorological and Hydrological Characterization Report	56
Annex IV.2 Hydrometric Monitoring Characterization Report	181
Annex IV.3 Geomorphology Characterization Report	80
Annex IV.4 Patterson Lake Currents Assessment Report	67
Annex IV.5 Forrest Lake Mixing Study Report	75
* review partially completed due to time constraints Total page count not read: 3,378 pages/total 10,348 pages of EIS and associated TSDs and annexes	

2. At comment 2-030, Two Worlds notes that NexGen did not accurately reflect discussions during May 2021 regarding important next steps that were sought by MN-S. We enclose a draft from May, the context of which was shared with NexGen, identifying priority engagement steps identified at the time. There has been limited progress on these issues to date.

3. We note that NexGen did not include notes taken during joint working group meetings on the record. These notes are important and identify Métis interests and concerns which have not been reflected in NexGen's commentary. We would invite a discussion on how these materials can be disclosed and appropriately incorporated.

4. On January 15, 2021, the CNSC provided MN-S with a response to, and summary of, the proposed assessment work that MN-S had requested funding to conduct in 2020. MN-S proposes that CNSC and MN-S revisit this work list, potentially along with NexGen, to identify continuing gaps and how they can be addressed.

We thank the CNSC for their consideration of the matters outlined above and in the attached materials, and look forward to continued opportunities for inclusion and engagement in the context of the Project.

Yours truly,

/s/ Shannon Landrie-Crossland

Shannon Landrie-Crossland
Senior Engagement Advisor
Métis Nation - Saskatchewan

Attach.

Report of Two Worlds Consulting Ltd.

Overview of Joint Working Group Process – Draft Dated May 5, 2021

October 18, 2022

To: Shannon Landrie-Crossland, MN-S Duty to Consult and Citizen Engagement

Re: NexGen Rook I Project Environmental Impact Statement Review: Written Intervention from the Métis Nation - Saskatchewan

The enclosed report is part of the Métis Nation-Saskatchewan's (MN-S) written review of the draft Environmental Impact Statement for NexGen Energy Ltd.'s proposed Rook I Project. Technical reviews contain important recommendations.

If there are questions about this content, please feel free to contact the Project Manager, Hillary Ashley, at (778) 400-3679 or via e-mail at hashley@twoworldsconsulting.com.

Sincerely,

Two Worlds Consulting Ltd.

Hillary Ashley,

Project Manager

cc.

Keith Shewchuk, President Local 39, La Loche

Marlene Hansen, President Local 62, Buffalo Narrows

Leonard Montgrand, Regional Representative, MN-S Northern Region 2

Brent Laroque, MN-S Director of Environment

Arend Hoekstra, Cassels Brock & Blackwell LLP

EXECUTIVE SUMMARY

This document summarizes a third-party review of the draft Environmental Impact Statement (EIS) prepared for NexGen Energy Ltd.'s (NexGen) proposed Rook I Project (the Project) located in Saskatchewan's Athabasca region. Technical reviews of the draft EIS conducted by various consultants to Métis Nation-Saskatchewan (MN-S) considered:

- Internal consistency and logic;
- Good practice in impact assessment and in engagement with Indigenous Nations related to impact assessment;
- Alignment with regulatory requirements set out for the Project;
- Alignment with Section 35(2) of the *Constitution Act* (1982);
- Alignment with Métis interests under the 1994 Métis Land Claim, which covers the Project's geographical area and which the Government of Canada and MN-S agreed to address through the 2018 Framework Agreement;
- The draft EIS' acknowledgement and appropriate consideration of the fact that Métis people make up half of the population of the communities most affected by the Project, and as such will disproportionately experience the Project's positive and negative effects;
- Majority-Métis communities, unlike First Nations reserves, do not have the ability to restrict new land uses and/or influx from potential new activities or migrants to the area, and as such communities such as Buffalo Narrows and La Loche will experience disproportionate Project effects;
- The national conversation on Indigenous rights, including the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the Truth and Reconciliation Commission's (TRC) Calls to Action; and
- MN-S' expectations for engagement as documented through various documents shared with NexGen and through the minutes of Joint Working Group meetings.

Technical consultants identified concerns such as:

- **Reliance on commitments to write detailed mitigation measures and management plans in later stages of the regulatory process:** The draft EIS does not currently contain detailed mitigation measures or copies of management plans, nor has NexGen begun engaging with MN-S on detailed contents of mitigation measures or management plans. Instead, NexGen documents in the draft EIS its commitment to develop mitigation measures and management plans during licencing phase. While licencing may be an

appropriate phase of the regulatory process to develop detailed operational plans, NexGen's reliance on providing mitigation measures and management plans later does not provide MN-S confidence that effects will occur as predicted.

- **Insufficient engagement on draft EIS contents before submission to regulators:** NexGen describes itself as collaborative, and yet did not meet MN-S' repeated requests to engage on draft EIS contents. NexGen also declined to meet MN-S' requests to review EIS drafts during the Canadian Nuclear Safety Commission's (CNSC) conformance check. NexGen's selective approaches to engagement on EIS contents do not establish confidence that NexGen will collaborate in the future on substantive items such as mitigation measures.

- **Potential under-scoping of cumulative effects:** NexGen's proposed list of Reasonably Foreseeable Developments (RFDs) includes one neighbouring proposed uranium project but does not include NexGen's own exploration activities. As noted on NexGen's website, NexGen's exploration assets include the Bow, Arrow, Harpoon, and South Arrow locations, all of which are within a few kilometres of the Rook I Project site. Actual and proposed exploration activities related to some of NexGen's assets in recent years (2021-2023) have included road and bridge upgrades, dozens of drill holes, trail cutting, and other disturbances that require environmental permits from the province of Saskatchewan. The list of RFDs also does not take into account noted concerns from communities, documented in Section 2 Indigenous, Regulatory, and Public Engagement of the draft EIS, regarding other industrial projects.

- **Indigenous communities referenced collectively:** Referencing potential impacts to, or engagement with, Indigenous communities collectively, does not provide a Nation-by-Nation understanding of the nature and extent of potential effects and the adequacy of proposed mitigation. Métis rights and traditions may differ substantially from those of First Nations.

- **Impact-Benefit Agreements referenced as mitigation measures:** The Indigenous Nations who reached Impact-Benefit Agreements with NexGen before the draft EIS was available to Nations, so the connection to identified Project impacts is unclear. Also, given that these agreements are confidential, readers of this EIS must take it on faith that the contents of agreements address Project-related impacts. Not all Nations are parties to impact-benefit agreements, so it is unclear how agreements could mitigate effects on a Nation-by-Nation basis.

- **Trapping categorized as commercial—rather than traditional—use of land and resources:** This does not align with Section 35 rights under the *Constitution Act* (1982) or with Métis history as a people deeply involved with the fur trade in Canada.

- **Indigenous Knowledge inaccurately and inconsistently defined:** NexGen's definition of Indigenous Knowledge in Section 3 of the draft EIS does not align with the *Canadian Environmental Assessment Act, 2012* (CEAA) definition of Aboriginal Traditional

Knowledge or with good practice. Elsewhere in the draft EIS, NexGen defines Indigenous Knowledge in ways that conflict with Section 3.

- **Combined references to local and Indigenous Knowledge:** NexGen consistently refers to "local and Indigenous Knowledge" together, which fails to identify the extent to which MN-S' Section 35(2) rights under the *Constitution Act* (1982) have been respected and could be affected by the Project.

- **Ownership, Control, Access, and Possession (OCAP®):** NexGen does not appear to have engaged with MN-S on how Indigenous Knowledge has been, and should be, used in the draft EIS.

Technical consultants also provided detailed questions, requests for clarification, and recommendations on items throughout the draft EIS. Repeated recommendations from technical consultants include:

- Substantive engagement with MN-S on the draft EIS contents, until MN-S concerns are addressed and before the EIS is finalized;

- Substantive collaboration mechanisms on mitigation and enhancement measures and management plans are defined, and that these collaboration mechanisms become conditions of NexGen's ability to advance the Project;

- Substantive engagement on Indigenous Knowledge, including appropriate definitions, OCAP® processes, and Project effects to traditional uses of land and resources, and that the EIS remain in draft form until such concerns are addressed in the final EIS;

- Expanded consideration of cumulative effects to account for known, ongoing activities and disturbances such as (but not necessarily limited to) NexGen's annual exploration program; and

- Improved ability to understand Nation-by-Nation effects and mitigation measures.

To date, NexGen has used terms such as "collaborative"[1] in its engagement materials to describe its approaches. "Collaborate," according to IAP2, is defined as a commitment "to partner…in each aspect of the decision, including the development of alternatives and the identification of the preferred solution." The promise implicit in collaboration is "we will look to you for advice and innovations in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible."[2]

However, NexGen has not responded to MN-S' repeated requests for more and better information about the Project (such as the draft EIS contents), as well as shared decision-making around key portions of how the Project will be developed and operate (such as detailed

[1] IAP2, also referred to in Section 2 Indigenous, Regulatory, and Public Engagement of the draft EIS.
[2] IAP2, ibid.

mitigation measures and management plans). As a consequence, there does not appear to be alignment between NexGen's use of the word "collaborate" and IAP2. NexGen's engagement techniques align better with the techniques of "inform" and "consult."

TABLE OF CONTENTS

1 INTRODUCTION

Two Worlds Consulting (TWC) has reviewed the draft Environmental Impact Statement (EIS) submitted to the Canadian Nuclear Safety Commission (CNSC) for NexGen Energy Ltd.'s (NexGen) proposed Rook I Project (the Project).

It is understood that NexGen is proposing development of a new uranium mining and milling operation in northwestern Saskatchewan. The draft EIS—intended to provide support for a full Environmental Assessment (EA)—provides information on NexGen, an overview of the Project, and the applicable regulatory framework, which is Saskatchewan's provincial Environmental Assessment Act and the Canadian Environmental Assessment Act 2012 (CEAA 2012). The draft EIS also describes baseline conditions, Project-specific interactions and effects, mitigation measures, and Project-specific residual effects.

The purpose of this review is to document the extent to which potential Project-specific and cumulative impacts of the Project have been accurately identified and assessed in the draft EIS, as well as the extent to which MN-S' interests are reflected.

The documents reviewed are listed in Section 1.2 below. TWC based its review and recommendations on the following MN-S principles:

- Internal consistency and logic;
- Good practice in impact assessment and in engagement with Indigenous Nations related to impact assessment;
- Alignment with regulatory requirements set out for the Project;
- Alignment with Section 35(2) of the *Constitution Act* (1982);
- Alignment with Métis interests under the 1994 Métis Land Claim, which covers the Project's geographical area and which the 2018 Framework Agreement between the MN-S and the Government of Canada names as a priority for negotiation to advance reconciliation;
- The draft EIS' acknowledgement and appropriate consideration of the fact that Métis people make up half of the population of the communities most affected by the Project, and as such will disproportionately experience the Project's positive and negative effects when compared to other Indigenous Nations or community members;
- The national conversation on Indigenous rights, including the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the Truth and Reconciliation Commission's (TRC) Calls to Action; and
- MN-S' expectations for engagement as documented through various documents shared with NexGen and through the minutes of Joint Working Group meetings.

1.1 CONSULTING FIRMS

1.1.1 TWO WORLDS CONSULTING (TWC)

Erin Prelypchan, BA, MBA reviewed the draft EIS sections relevant to engagement and Indigenous Knowledge. Ms. Prelypchan has 15 years of experience on engagement and socioeconomics related to major resource developments, both in Canada and abroad. Ms. Prelypchan's focus at TWC is on writing, editing, and interviewing in Environmental Assessments, particularly for mining and oil/gas projects.

Heidi Klein, MSc, reviewed the draft EIS sections relevant to project alternatives, project description, and environmental assessment approach and methods. Ms. Klein has 25+ years of experience in the practice of environmental assessment, including legislation advisor, project assessment, socio-economic impact assessment, Indigenous knowledge collection and documentation, cumulative effects assessment, and Indigenous and stakeholder relations.

Amber Chong, BSc, reviewed the draft EIS sections relevant to Cultural heritage and Indigenous land and resource use, other land and resource use, economy, community well-being, and accidents and malfunctions. Amber is a Senior Lands & Culture Specialist with over a decade of permitting and environmental assessment experience. Her experience working as a proponent and a technical reviewer provide Amber with a unique perspective that supports her work to advance the meaningful and holistic application of Indigenous Knowledge in regulatory applications.

Marina Spahlinger, MPP, MA, reviewed the draft EIS sections relevant to assessment of effects of the environment on the Project. Marina is a Technical Lead of Impact Assessment & Information Management with over 10 years of experience working in regulatory roles in the energy, environment, and electricity sectors. Having worked in regulatory management roles within industry for the past six years, Marina has an in-depth understanding of the full regulatory spectrum – from project proposals to ensuring regulatory compliance of operating facilities. She has worked collaboratively with Indigenous Nations to develop engagement protocols, understand interests, and identify acceptable Indigenous interest assessment methodologies.

1.1.2 ENVIRONMENTAL DYNAMICS INC. (EDI)

Jennifer Muir, MSc, PBiol, reviewed pertinent background technical documents provided by NexGen related to vegetation. Jennifer is a vegetation ecologist with over 15 years of experience in vegetation ecology throughout western Canada, and 10 years of experience related to environmental assessments in the mining, oil and gas, and renewable energy sectors at both provincial and federal levels.

Daryl Johannesen, MSc, PBiol, reviewed pertinent background technical documents provided by NexGen related to wildlife. Mr. Johannesen is a wildlife biologist with 35 years of experience related to environmental assessments in the mining, forestry, oil and gas, urban development, transportation, and renewable energy sectors.

The assessments have been at both the provincial/territorial and federal levels.

The review provides technical comments regarding potential ecological concerns, risks and uncertainties associated with the Project, and represents the professional opinions of Ms. Muir and Mr. Johannesen.

1.1.3 OUTSIDE ENVIRONMENTAL CONSULTING LTD. (OEC)

Anne Basso, BSc, MNRM, PBiol, and Darcy Lightle, BSc, reviewed pertinent background technical documents provided by NexGen related to fisheries, and aquatic environments. Mr. Lightle and Ms. Basso are fish habitat biologists, each with over 20 years of experience.

The review is designed to allow technical comment regarding potential ecological concerns, risks and uncertainties associated with the proposed Project.

1.1.4 NEWFIELDS

Erin Moss Tressel, MEng, PEng, PGeo, with NewFields Canada Mining & Environment (NewFields) reviewed pertinent EIS documents related to general engineering, accidents & malfunctions, and geotechnical concerns, risks and uncertainties associated with the proposed Project. Ms. Moss Tressel is a Senior Geological Engineer based out of Saskatoon, and has diverse experience completing geotechnical, geo-environmental and geological studies for all stages of mine projects. She has 20 years of experience in soil and rock field investigation, design and inspection of earthen containment dams, rock and soil mechanics, rock and soil classification, pit slope design, hydrogeology and groundwater geochemistry, closure, decommissioning and reclamation planning, and environmental impact studies. Ms. Moss Tressel has extensive experience within the Saskatchewan uranium industry and has worked on both the eastern and western portions of the Athabasca Basin completing geological study, geotechnical and hydrogeological investigations, and design.

1.2 DOCUMENTS REVIEWED

The current EIS and appendices were included. The documents considered in the review are listed below:

Technical Documents Reviewed

- Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)
- TSD I: Indigenous Engagement Report
- TSD XVIII: Site-Wide Water Balance and Water Quality Modelling Report
- TSD XX: Downstream Use and Impact Study for Proposed Treated Sewage Discharge Report
- Annex V Aquatic Baseline Road Map
- Annex V.1 Aquatic Environment Baseline Report

- Annex V.2 Overwintering Fish Habitat Report
- Annex VII Vegetation Baseline Road Map
- Annex VII.1 Vegetation Baseline Report 1 (Mapping)
- Annex VII.2 Vegetation Baseline Report 2 (Inventory, Rare Plants, and Wetlands)
- Annex VIII Wildlife Baseline Road Map
- Annex VIII.1 Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors)
- Annex VIII.2 Wildlife Baseline Report 2 (Amphibians, Birds, and Bats)
- Annex VIII.3 Wildlife Baseline Report 3 (Bird Migration and Bats)
- Annex X Socio-economic Baseline Report

Comments on the *TSD XXI: Environmental Risk Assessment* for NexGen Energy Ltd were not completed as of mid-October 2022 due to time constraints. Comments on this report will form part of a second submission.

2 ROOK I PROJECT – SASKATCHEWAN, CANADA ENVIRONMENTAL IMPACT STATEMENT

NexGen Energy Ltd. submitted the *Rook I Project, Saskatchewan Canada: Environmental Impact Statement* to the Canadian Nuclear Safety Commission and Saskatchewan Ministry of Environment in April 2022.

2.1 INTRODUCTION (SECTION 1)

2.1.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
1-001	Company History "NexGen has a strategic portfolio of highly prospective (i.e., expected) projects, currently comprising a total mineral claim position of 199,580 ha in the southwest Athabasca Basin, Saskatchewan (Figure 1.1-1). This portfolio includes NexGen's 100% owned Rook I property, which hosts the large, high-grade Arrow deposit as well as the Bow …, Cannon …, Harpoon …., and South Arrow areas .... NexGen holds a 51% interest in IsoEnergy Ltd. … which holds a portfolio of prospective assets in the eastern Athabasca Basin." NexGen describes itself as holding a portfolio and shows in Figure 1.1-1 that the locations of the assets are very close to one another. Effects from exploring or developing all of these assets would accumulate. The list of Reasonably Foreseeable Developments (RFDs) included in the draft EIS does not include these other exploration activities. MN-S is also aware of these exploration activities through NexGen's applications to the Saskatchewan Ministry of Environment in 2022 and 2023 for permits such as those to upgrade Project-related roads.	1.1.1, p. 1-1 to 1-2
1-002	Company History Figure 1.1-1, notably the NexGen Mineral Depositions Outline polygons Relationship between the Rook I Property Outline (in blue) and the NexGen Mineral Depositions Outline (in yellow with black outline) makes it clear that NexGen has a district-wide approach to mineral development in mind. Of note is the fact that the Project (in blue) is contiguous with areas also owned by NexGen (outlined in yellow with	1.1.1, p. 1-3

Issue #	Concerns	Section, page
	a black outline). This further reinforces the notion that the list of Reasonably Foreseeable Developments (RFDs) to be included in the cumulative effects assessment should include NexGen's exploration activities, at a minimum.	
1-003	Key Indigenous Group and Community Feedback "Key themes NexGen has heard and addressed include: … • continued, effective, and respectful engagement with the local communities through all phases of the Project, including consideration of valuable feedback; …" In May 2021, MN-S indicated to NexGen their preferred approach to engaging, which included early (pre-submission) sharing of EIS contents. Sharing of courtesy copies of the draft EIS during the conformity period was another request that MN-S made of NexGen. NexGen chose to work primarily within the formal regulatory process for MN-S' comments on the draft EIS contents, rather than sharing early drafts or courtesy copies. This suggests that NexGen's definition of "continued, effective, and respectful engagement" has not always fully considered MN-S' perspectives.	1.1.6, p. 1-12
1-004	Environmental Stewardship "… working with local Indigenous Groups to implement independent environmental monitoring." Status of independent environmental monitoring as of the draft EIS review period was unclear to MN-S. As a rights holder, MN-S should have the opportunity to contribute to the scoping, development, and implementation of all monitoring programs, not just the independent Indigenous Monitoring programs. While it is acknowledged that an independent Indigenous Monitoring program would be scoped and developed to meet the needs of the Indigenous Nation, NexGen should also be prepared to listen, learn, and apply the learnings of the independent Indigenous Monitoring program into operational practices and adaptive management approach.	1.1.7, p. 1-13
1-005	Disciplined Planning "Identification, presentation, and due consideration of local Indigenous Groups' input through early and ongoing engagement processes has validated, informed, and influenced aspects of	1.1.7, p. 1-14

Issue #	Concerns	Section, page
	Project design." This statement seems to be an accurate reflection of NexGen's approach, and potentially meets the standard of CEAA 2012. However, CEAA 2012 is 10 years out of date and well behind the national conversation on Indigenous rights, which has since expanded to include UNDRIP and the TRC Calls to Action, among other things. Terms such as "consideration of input" and "Indigenous Groups" (rather than "Indigenous Nations") does not align with an understanding of MN-S as a rights holder, nor with current good practice related to Projects that drives toward not just collaboration but consent.	
1-006	Project Benefits "NexGen will continue to prioritize training, employment, and business opportunities for the communities closest to the Project." This statement is aspirational and does not address the specifics of how such economic benefit would be prioritized. CEAA 2012 does not require a detailed and quantified assessment of positive effects, so this text meets regulatory requirements, but does not provide confidence that 1) NexGen has indeed been successful on prioritization of training, employment, and business opportunities according to communities' definitions and expectations; and 2) NexGen has specific mechanisms in place for prioritizing local economic content.	1.2.1, p. 1-16
1-007	Project Economics "In addition to payments to the provincial and federal governments, Benefit Agreements signed with Indigenous Groups include payments based on revenue generated throughout the Project lifespan." As of review of this EIS during August 2022, MN-S had not completed agreements with NexGen. As the Project maps show, the Project is in the heart of the Métis Homeland, and the closest communities to the Project have a majority Métis population.	1.2.1, p. 1-17
1-008	Project Location and Setting "There are currently no land use plans that encompass the Project	1.2.2, p. 1-19

Issue #	Concerns	Section, page
	location." The section notes that Clearwater River Dene Nation, Saskatchewan Ministry of Environment, and the Ministry of Government Relations formed a committee to prepare a land use plan for the region. This section also states that the land use planning process was never completed, and a land used plan was not prepared. 1) Given the importance of the area as part of the Métis Homeland, it is an important gap that MN-S was not part of the land use planning processes. 2) The absence of a land use plan for the area is a potential gap in the understanding of the area and its possible uses, particularly given NexGen's approach to considering the district-wide potential of uranium development. While a land use plan is not a precondition for development of a draft or final EIS, land use planning would better form the basis for understanding the potential for cumulative effects in the area long term.	
1-009	Project Location and Setting Figure 1.2-2 Regional Area of the Rook I Project Given the figure's title as "regional area," it seems unusual to leave out the boundary of the Clearwater River Provincial Park, whose boundaries appear to overlap with the spatial area shown.	1.2.2, 1-21
1-010	Project Location and Setting Figure 1.2-4 Active Mineral Dispositions in the Area of the Rook I Project This map reinforces the concern that NexGen has not included its own exploration activities in the list of Reasonably Foreseeable Developments (RFDs) to be considered as part of the cumulative effects assessment. NexGen has an active ongoing exploration program related to other deposits in the area, as MN-S is aware of through provincial permit applications that included items such as camp enhancements and an airstrip.	1.2.2, p. 1-23
1-011	Local Indigenous Groups "The NexGen process to determine primary or other engagement requirements for Local Indigenous Groups included consideration of CNSC (2019) ..."	1.2.3, p. 1-24

Issue #	Concerns	Section, page
	NexGen centering its own perspective on "determining" engagement requirements with Indigenous Nations does not align with the spirit of the *United Nations Declaration on the Rights of Indigenous People* (UNDRIP), which is a part of the ongoing national conversation on Indigenous rights. NexGen deciding who it believes is interested in the Project does not align with current good practice on the recognition of Indigenous rights.	
1-012	Assessment of Impacts on Indigenous Rights "NexGen has also initiated the negotiation of individual Benefit Agreements …" The connection between these negotiated agreements and impacts to Indigenous rights is not clear. As a recent federal regulatory decision on a CEAA 2012 project made clear (i.e., Grassy Mountain/Benga), Nations may sign agreements with proponents regarding economic benefit and regulators may find significant adverse effects to Nations' rights. It is also hard to see how a negotiated agreement that references "environmental protection and assurance" signed by a Nation could constitute informed consent, given that the Project's impacts had not been assessed at the time the agreements were signed.	1.3.2, 1-43

2.1.2 RECOMMENDATIONS

TWC recommends that MN-S request the following:

1. Inclusion of NexGen's exploration activities into the cumulative effects assessment.
2. That the EIS remain in draft form until engagement on the EIS contents with MN-S and with Northern Region 2 communities be completed and MN-S' potential questions and concerns have been addressed.
3. That updates on the role of western science-based advice in any potential independent environmental monitoring roles or programs, be specified and documented within the final EIS.
4. The opportunity for MN-S as a rights holder to contribute to the scoping, development, and implementation of all monitoring programs, not just the independent Indigenous Monitoring programs. While it is acknowledged that an independent Indigenous Monitoring program would be scoped and developed to meet the needs of the Indigenous Nation, NexGen should also be prepared to listen, learn, and apply the learnings of the independent Indigenous Monitoring program into operational practices and adaptive management approach.

5. "Indigenous Groups" be changed to "Indigenous Nations" throughout, in line with current good practice.

6. Detailed descriptions of how NexGen will prioritize Indigenous economic content, including joint goal setting and transparency mechanisms such as public reporting.

7. Removal of NexGen references to negotiated agreements as mitigation measures. Negotiated agreements are confidential in nature and in many cases were signed with Indigenous Nations before the EIS was available for review, and as such may not be considered mitigation measures for impacts.

8. Restart of the land use planning process—with MN-S at the table—to take into account NexGen and Fission. This is to address the multiple industrial changes to the area that are currently proposed.

9. Inclusion by NexGen of the boundary of Clearwater Provincial Park in Figure 1.2-2, Regional Area of the Rook I Project.

10. Inclusion of NexGen's exploration activities in the cumulative effects assessment.

11. Amendment of text on p. 1-24, by NexGen, to provide specifics on how Indigenous Nations expressed their interest in participating in the Impact Assessment process, rather than focusing on NexGen's process to determine Nations that it considered within scope.

2.2 INDIGENOUS, REGULATORY, AND PUBLIC ENGAGEMENT (SECTION 2)

2.2.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
2-001	Engagement Framework "Indigenous Groups and other relevant stakeholders" MN-S and the other Indigenous Nations mentioned in the draft EIS are rights holders. This language shows a lack of understanding of MN-S' Section 35 rights under the *Constitution Act* (1982) and should be avoided.	2.3, p. 2-9
2-002	NexGen Standards "Target specific engagement to Indigenous Groups where NexGen has been informed of their particular interest in aspects of the Project and level of engagement desired." In mid-2021, MN-S shared a document with NexGen that indicated the	2.3.1, p. 2-10

Issue #	Concerns	Section, page
	sequence of engagement activities and expectations for level of engagement on various topics. Several the expectations outlined at that time were not met, such as early sharing of drafts of EIS chapters for discussion and consideration before submission through the formal regulatory process. NexGen's interest in targeting engagement upon request from Indigenous Nations has been somewhat selective.	
2-003	Members of the Public "… lesbian, gay, bisexual, transgender, queer or questioning, and two-spirit plus." The word "people" appears to be missing from the end of this sentence. In Joint Working Group meetings between MN-S and NexGen, MN-S representative repeatedly indicated concern for various ways in which the company and the camp would be respectful and inclusive to a variety of people and groups. Small things such as word choice have the potential to affect the impression this draft EIS creates for NexGen's inclusivity and genuine value for diversity. Also note that this text appears misplaced within the document structure. Members of the queer community (as well as Elders, youth, etc. and all the groups indicated in the same bulleted list) are not just members of the public, but members of rights-holding Indigenous Nations. Understanding of intersectional, layered identities should be considered in the understanding of Indigenous Nations.	2.4.2.2.1, p. 2-23
2-004	Engagement Approach Figure 2.5-1 The use of the International Association of Public Participation (IAP2) spectrum together with the explanatory text is vague and potentially misleading; particularly in indicating that the proponent used a variety of techniques from inform to empower. According to IAP2, a proponent reaches the level of "collaborate" and "empower" when affected groups can influence project outcomes. Collaborating on the agenda for a meeting is not the same as collaborating on detailed mitigation measures for Project impacts. This text also contradicts the text in 1.0 Introduction, which states that NexGen wishes to "consider input" from Indigenous Nations. "Considering input" is firmly at the level of "consult/involve."	2.5, p. 2-25
2-005	Study Agreements	2.5.2.1, p. 2-30

Issue #	Concerns	Section, page
	"Assist in the identification of valued components (VCs) …" The Joint Working Group for MN-S did not have western science advice or individuals with impact assessment experience involved when NexGen approached the group to discuss VCs. MN-S, on several occasions, repeated a request for this conversation to be re-opened with the support of western science advice, beginning with a Joint Working Group meeting in late 2020. The MN-S input into VCs cannot be considered thorough and meaningful under these circumstances.	
2-006	Study Agreements "NexGen has honoured the MN-S request to conduct engagement through MN-S …" Following the procedures of a rights-bearing Nation's government should not be described as an "honour," nor should MN-S' notification about correct process be viewed as a request. It is simply following MN-S procedure.	2.5.2.1, p. 2-31
2-007	Indigenous Group Engagement Method Summary Table 2.5-1 Summary of Primary Indigenous Group Engagement Methods Indicating that Joint Working Group meetings, Joint Working Group breakout sessions, and information presentations were used to capture "Indigenous Knowledge" Indigenous Knowledge is subject to the First Nations Principles of ownership, control, access, and possession (OCAP®) and Nations' consent. It is unclear from Joint Working Group meeting minutes when NexGen believes there was a discussion of which information sources should be considered Indigenous Knowledge, and how they should be used. Also, "capture" is a verb that leaves open the possibility as to whether "Indigenous Knowledge" was respectfully and accurately documented with Nations' knowledge and consent. It is unclear from Joint Working Group meeting minutes and other documents when NexGen believes that it validated specific information that it understood to be "Indigenous Knowledge" to be documented in the draft EIS.	2.5.2.2, p. 2-32
2-008	Incorporation of Indigenous and Local Knowledge "Incorporation of Indigenous and Local Knowledge"	2.5.5, p. 2-37

Issue #	Concerns	Section, page
	"Incorporation" is a term typically not preferred, because it implies a secondary position afforded to Indigenous Knowledge within the draft EIS document. Indigenous Knowledge is a unique, but equal, way of knowing. As a rights holder, MN-S qualitative communication of impacts regarding the quality of resources and/or contamination levels should be acknowledged. Text should, at a minimum, should reflect "real or perceived" impacts. The exclusive use of "perceived" implies that this Knowledge is not supported or equal in importance to scientific data collection.	
2-009	Incorporation of Indigenous and Local Knowledge "For the purposes of the Project EA, Indigenous Knowledge is specifically defined as information sanctioned (i.e., authoritative permission or approval given) by an Indigenous Group as an official statement, document, or position." This definition does not align with CEAA 2012 guidance on Aboriginal Traditional Knowledge (ATK). Detailed comments on this definition are made in comments on Section 3 Indigenous and Local Knowledge.	2.5.5, p. 2-37
2-010	Incorporation of Indigenous and Local Knowledge "… as the Project has developed and provided additional opportunities to incorporate Indigenous and Local Knowledge throughout all phases of the EA." The TLUS is a key element of the Indigenous Knowledge related to the Project. It is unclear from the draft EIS how specific contents of the TLUS were used in the EA process. It is unclear from Joint Working Group meeting minutes when NexGen believes it may have engaged with MN-S on the contents of the completed TLUS and how they would be used in the EIS.	2.5.5, p. 2-38
2-011	Summary of Joint Working Group Activities "The MN-S paused their participation in Joint Working Groups in December 2020 and reengaged in May 2021 with a restructured Joint Working Group membership that included a combination of new members and existing members from the original Joint Working Group. As part of this restructuring process, the MN-S communicated in early May 2021 that a two-month meeting cadence would be their preference, and provided a list of topics of interest for discussion."	2.6.1.1.1, p. 2-41

Issue #	Concerns	Section, page
	The reasons for the hiatus have not been documented. In December 2020, MN-S indicated that it was keen to see more technical participation in the Joint Working Group process. The Joint Working Group was restructured to provide additional technical support to engage with NexGen on the topics of interest. Some of the topics that MN-S noted in May of 2021 were of interest were discussed through the Joint Working Group (e.g., caribou and a revised presentation on the Project Description), as evidenced by the Joint Working Group meeting minutes. Many of MN-S' preferred topics were not discussed through the Joint Working Group. Among the topics not discussed were • early contents of baseline studies, • identified effects, and • mitigation measures. As such, the EIS is the first time that MN-S is understanding in detail the work that NexGen has done to understand and manage its impacts.	
2-012	Summary of Joint Working Group Activities Table 2.6-3 Joint Working Group Meeting Topics "Information sent" (regarding 2021 Joint Working Group Meeting Topics) Sending information does not constitute collaborative, two-way engagement, which NexGen elsewhere in the draft EIS says it wishes to conduct. Sending documents that cover a variety of communities, such as a PDF entitled "Joint Working Group summaries", does not indicate that each Nations followed its own sequence of, and approach to, topics covered under the Joint Working Group process.	2.6.1.1.1, p. 2-42
2-013	Summary of Joint Working Group Activities Table 2.6-3 Joint Working Group Meeting Topics • "Baseline studies, • Terrestrial, • Aquatic, • Environmental interactions (i.e., pathways)	2.6.1.1.1, p. 2-43

Issue #	Concerns	Section, page
	• Cumulative effects …" Identified as not applicable ("n/a") for MN-S. It is not apparent from Joint Working Group meeting minutes, when fulsome, science-backed conversations on these topics took place through the Joint Working Group with MN-S.	
2-014	Summary of Joint Working Group Activities Overall organization of the section This section is organized from the proponent perspective and describes a summary of all activities. It is not organized to allow one Nation to see whether the narrative of how they were engaged is complete and accurate.	2.6.1.1.1, p. 2-45
2-015	Communication "Communities stated that working together with NexGen towards a harmonious and prosperous future is the desired outcome, and communities appreciate the opportunity to discuss the Project and work with NexGen." It is unclear from existing documentation when NexGen believes MN-S joined with any other Nation to present a joint or collective opinion that it thought reflected "communities". In fact, during early Joint Working Group processes, MN-S specifically indicated an interest in joining with other Nations to share information regarding the Project. This request was not explored in detail. The collective implication of this statement does not appear to be accurate.	2.6.1.2.1, p. 2-46
2-016	Cumulative Effects "Communities noted that the consideration of effects and effects studies completed at other project sites in the area is important in the assessment of the Project. Information about other project activities in the surrounding area was noted as important for better understanding potential cumulative effects that might occur. It was noted that cumulative effects from other industrial activities such as mining, forestry, and hydro-electric power generation and transmission projects should be taken into consideration. Indigenous Groups also noted concerns regarding increased access restrictions to traditional lands due to increasing project developments in the area."	2.6.1.2, p. 2-47

Issue #	Concerns	Section, page
	The list of Reasonably Foreseeable Developments (RFDs) included in NexGen's draft EIS includes only Fission's proposed Patterson Lake project, and does not include other industrial activities, such as NexGen's own exploration activities. It is also not clear from Joint Working Group meeting minutes when NexGen believes it may have engaged with	
2-017	Summary of Community Information Sessions "A series of community information sessions were held in 2019. Subsequent community information sessions planned for late 2021 and early 2022 have not been conducted due to Covid-19 and the ability to maintain the health and safety of participants." These community information sessions were conducted well before the studies to inform the draft EIS were complete. Community information sessions documented in the draft EIS did not address Project impacts or mitigation measures.	2.6.3.1.1, p. 2-55
2-018	Summary of Community Information Sessions "A series of community information sessions were held in 2019. Subsequent community information sessions planned for late 2021 and early 2022 have not been conducted due to Covid-19 and the ability to maintain the health and safety of participants." Given the large number of Métis citizens in the communities engaged in the 2019 sessions, there is an opportunity through such public engagements to share information on the Project with citizens. While this would not constitute engagement with MN-S as a rights-holding government, it would be a method of sharing information that could help citizens understand the Project. NexGen would not yet have had information to share regarding the Project's impacts and mitigation measures as the EIS was under completion during 2019, the only time NexGen has undertaken community-facing engagement. Not engaging with potentially affected communities about impacts and mitigation measures, but only engaging on the project description, is not in line with good practice.	2.6.3.1.1, p. 2-55
2-019	Summary of Comments Received "The VC Survey requested input on identifying the VCs to be evaluated for the Project and ideas about how to avoid or lesson potential Project effects on VCs. Results from these surveys helped to inform future engagement, as well as the selection of VCs for the	2.6.3.1.1, p. 2-56

Issue #	Concerns	Section, page
	EIS." At the time this engagement took place, MN-S did not have western science advice to inform the VC selection process. VC scoping should consider the reviews of this draft EIS by western science advisors.	
2-020	Summary of Youth Workshop Table 2.6-12 Summary of Youth Workshop Survey Responses "What Would You Still Like to Know About the Project? • How it will affect the land • That communities will be kept updated on progress • What happens once the mine closes • Potential effects on water • If there will be potential pollution" This table describing youth engagement in March 2020 lists several concerns and questions regarding the Project and does not describe how NexGen planned to respond to youth with relevant information that addresses these fears.	2.6.3.1.3, p. 2-59
2-021	Summary of Trappers Workshop "The N-19 Trappers Association expressed an interest in reviewing the baseline studies and EA results when available." NexGen does not describe what actions it did or did not take to facilitate this review. The EIS' efforts to characterize trappers' activities as commercial are at odds with trapping as a harvesting practice as protected under s. 35 of the *Constitution Act* (1982).	2.6.3.1.5, p. 2-60
2-022	Community Newsletters "Key newsletter content included a Project overview and key Project components, commitment to protection of people and the environment, community programs, education and training requirements, jobs and opportunities, and next steps in the EA process." This list of topics does not appear to include anticipated Project effects and mitigation measures, as well as other topics that are part of the EIS.	2.6.3.1.7, p. 2-61

Issue #	Concerns	Section, page
2-023	NexGen La Loche Offices "As the La Loche office has regular business hours, it also allows community members to engage at a time of their convenience." Regular business hours are typically Monday to Friday, 9–5. These hours can be inconvenient for many people, including individuals with regular work commitments and those with ongoing caregiving responsibilities that do not allow them to easily drop into an office during working hours, when other family members who could fill in as caregivers may be working. If NexGen has tried to make itself available on an ongoing basis to working people and those with caregiving responsibilities, this would support NexGen's claims elsewhere in this chapter that it supports engagement with a diversity of people.	2.6.3.1.8, p. 2-61
2-024	Indigenous Engagement General comment on text under this heading The content in this section does not indicate topics for engagement, timing, frequency, or approach.	2.7.1.1, p. 2-64
2-025	Joint Working Groups "Items for discussion will be based on activities in progress, as well as any specific items of discussion requested by Indigenous Groups." This description of the Joint Working Group process does not align with the fact that NexGen has already declined MN-S' request to discuss baseline findings, project effects, and mitigation measures before the EIS was submitted. MN-S has already made requests to discuss certain topics through the Joint Working Group process that have not been met. Additional detail would be needed to add confidence as to how NexGen would engage according to MN-S' requests.	2.7.1.1, p. 2-64
2-026	Benefit Agreements "The Benefit Agreements include commitments to establish processes for regular communication and information exchange between NexGen and each Indigenous Group." Repeat comment that this aligns with the "inform" level on the IAP2 spectrum. Other places on the IAP2 spectrum involve some degree of shared level of control over Project decisions. This use of language is	2.7.1.1, p. 2-64

Issue #	Concerns	Section, page
	at odds with use of language elsewhere in the Application that indicates NexGen seeks to collaborate. Also repeat comment that MN-S does not have a benefit agreement in place with NexGen, and as such this engagement approach is not applicable to all Nations.	
2-027	Workshops "Along with the prospect of future youth workshops, NexGen will explore opportunities for future women's and men's workshop to enable more opportunities for community members to engage on the Project." This commitment is vague, aspirational, and does not include specific information about when and how engagement would take place. There is also no indication that community feedback was incorporated into NexGen's comments that it aspired to hold these workshops.	2.7.1.3, p. 2-65
2-028	Public Engagement Global comment on text under this heading The list of engagement techniques leans heavily on "inform" level activities according to the IAP2 spectrum, which is not good practice and does not align with NexGen's stated aims to collaborate.	2.7.1.3, p. 2-65
2-029	Summary of Indigenous Group Engagement Activities Table 2A-2 Métis Nation – Saskatchewan "Introductory meeting for the Joint Working Group including … Indigenous Knowledge in the EA" In the October 2019 Joint Working Group meeting, MN-S leaders from NR2 shared their perspectives on what Indigenous Knowledge is. Although NexGen's minutes of this meeting indicate that NexGen was cognizant of these perspectives, NexGen chose to define Indigenous Knowledge as "information sanctioned (i.e., authoritative permission or approval given) by an Indigenous Group as an official statement, document, or position". The study agreement indicates that the purpose of the Joint Working Group was to "support the inclusion of Métis Knowledge" but does not define the Joint Working Group as the place where any knowledge shared or exchanged may be considered Indigenous Knowledge. The study agreement between NexGen and MN-S does not define Indigenous (or traditional or Métis) Knowledge the way NexGen has done in the EIS. The study agreement says of	2A, p. 14

Issue #	Concerns	Section, page
	traditional knowledge: "NexGen acknowledges that some of the information shared by the MN-S may be considered as Métis or Traditional Knowledge and may be sensitive or proprietary to the MN-S and NexGen is committed to protecting this information." According to the study agreement, the Joint Working Group was the intended vehicle through which conversations on OCAP® could be held. By unilaterally defining Indigenous Knowledge in the EIS, NexGen has sidestepped OCAP® principles and is not operating in the spirit of the study agreement.	
2-030	Summary of Indigenous Group Engagement Activities Table 2A-2 Métis Nation – Saskatchewan 5 May 2021 meeting and subsequent email exchanges dated 5 May 2021 and 7 May 2021 regarding MN-S' expectations for engagement. The characterization of the exchange of MN-S' documented expectations for engagement with a formal response from NexGen as answering "many of" MN-S requests regarding engagement is not a faithful summary of the exchange of views. Among the key aspects of engagement that MN-S documented was a discussion of effects and mitigation measures before submission of the EIS. MN-S' expectations documented on May 5, 2021, included community meetings where effects and mitigation measures would be discussed with community members. This expectation is foundational to having a clear understanding of the Project and its potential to affect Métis rights and interests, but its omission gets erased through NexGen's characterization "many of" MN-S' expectations having been met. Not all expectations are equal, nor could NexGen cherry pick the expectations that suit it and call this "collaboration". Understanding that NexGen's timelines for EIS submission were rapidly approaching, MN-S and its consultants instead asked for courtesy copies of the EIS to be sent to MN-S in parallel with submission to regulators. NexGen refused this as well. These are not examples of a collaborative form of engagement but meet a minimum regulatory threshold.	2A, p. 17
2-031	Summary of Indigenous Group Engagement Activities Table 2A-2 Métis Nation – Saskatchewan All This summary omits the Joint Working Group subcommittee meetings	2A, p. 17 to 19

Issue #	Concerns	Section, page
	in which MN-S and its consultants gave extensive guidance to NexGen on the nature, pace, and sequence of Joint Working Group meetings. NexGen was able to "suggest" to MN-S certain topics because subcommittee meetings were the vehicle for doing so.	
2-032	Summary of Indigenous Group Engagement Activities Table 2A-2 Métis Nation – Saskatchewan 19 August 2021, Video conference communication The summary of this meeting omits the fact that the key barrier to collaboration through the Joint Working Group process was building trust, and that this was a primary topic of conversation on this date. The current summary describes the meeting as discussing the procedural aspects of the Joint Working Group process, which is only a partial description of the conversation. This meeting also included new formats for conversation that MN-S requested, such as round-table or circle shares in which all participants had an opportunity to speak and provide views. In a description of this feedback from MN-S in the entry on 16 August 2021, this input was described as "minor housekeeping,"[3] which is both disrespectful to MN-S and significantly downplays the effect that circle shares and cultural values sharing had on all participants, not just on MN-S. Multiple members of the NexGen team (head of EIS delivery for social sciences, head of environment and permitting, others) noted in the minutes from that meeting that discussion of trust was the most important item for them, and that changing the format of the meeting at MN-S' request had been effective.	2A, p. 21
2-033	2A Summary of Indigenous Group Engagement Activities Table 2A-2 Métis Nation – Saskatchewan 10 November 2021, multiple methods "NexGen … would be reviewing the Joint Working Group meeting outline document provided by the MN-S in May 2021 in advance of the next meeting to share an update on available presentation materials." This commitment to reviewing MN-S expectations for engagement six months after they were shared, and four months before NexGen was	2A, p. 23

[3] EIS, Appendix 2A, Table 2A-2, p. 20

Issue #	Concerns	Section, page
	originally planning to submit the EIS, suggests that NexGen was not sufficiently serious about taking on MN-S' feedback about when, how, and on what it expected to be engaged, including on understanding effects and mitigation measures before the EIS was submitted.	
2-034	Summary of Indigenous Group Engagement Activities Table 2A-2 Métis Nation – Saskatchewan 13 December 2021 "NexGen advised … there was a large amount of funding remaining …." The remaining funding under the technical agreement was specifically earmarked for the TLUS and the traditional food study, both of which were important to MN-S. It was not appropriate to redirect those amounts for general technical support on engagement. MN-S noted as much in subsequent conversations with NexGen, a fact which is not noted in the engagement record and may be considered a gap.	2A, p. 23
2-035	Summary of Indigenous Group Engagement Activities Table 2A-2 Métis Nation – Saskatchewan Engagements 17 December 2021 through 15 February 2022 Through these various emails, letters, and video conferences, NexGen documents its desire to engage on Project effects (17 December 2021) despite having been told on 1 December 2021 that there was an absence of capacity funding to support engagement. This expression of interest to engage took place after MN-S informed NexGen that a key staff member, who was 50% of the Duty to Consult team and the team's only senior member, was on personal leave until January. This exchange over December through February further supports the conclusion that NexGen was happy to choose moments for dialogue if such moments suited NexGen's intended EIS submission schedule.	2A, p. 23 to 24
2-036	Summary of Issues Identified by Indigenous Groups Table 2B-2: Summary of Issues Identified by Métis Nation – Saskatchewan Global comment on structure and content of table	2B, all

Issue #	Concerns	Section, page
	The columns marked "How Addressed in EIS" and "Summary of Response" effectively say repeatedly, "NexGen studied this topic in the EIS". They are not responses to the issue statements such as concern about effects of dust on vegetation and wildlife. Responses to issues regarding effects should discuss the presence or absence of effects, rather than responding "we studied whether there were effects".	
2-037	Summary of Community Information Sessions Global comment on community information sessions Community information sessions well in advance of EIS submissions on the Project and its general philosophy are a good practice, but they are not the only good practice when used as a precursor for engagement on Project effects and mitigation measures, which have not yet taken place.	2E, all
2-038	Public Engagement Materials Global comment on Appendix 2F This appendix and its contents use globalizing language such as "Joint Working Group summary" to imply that any or all of the Joint Working Groups may have advanced through a collaborative conversation on the content described in the summary documents compiled in Appendix 2F. As Appendix 2A notes, each Joint Working Group progressed at different paces on different topics. Appendix 2F provides a misleading picture of the content shared through Joint Working Groups and the dates on which it was shared and with whom. The content of Appendix 2F should be renamed and repackaged to indicate which Nations engaged on which topics at which times. The globalizing nature of these summaries erases Nation-by-Nation specificity, which is important in establishing an understanding of engagement.	2F, all

2.2.2 RECOMMENDATIONS

Consultants recommend that MN-S inform the Canadian Nuclear Safety Commission (CNSC) that they expect consultation about how they will be engaged, and that evidence of this consultation should be provided.

Consultants recommend that MN-S request the following:

1. Rewording of the EIS to reflect membership of the Joint Working Group was altered for a specific reason, to facilitate technical understanding of the Project's potential effects and mitigations.

2. Detailed account of the time and forum through which a two-way conversation on the topics listed in Table 2.6-3 Joint Working Group Meeting Topics took place.

3. Organization of Section 2.6.1.1.1 Summary of Joint Working Group by Nation and description of activities on a Nation-by-Nation basis.

4. Rewording of the text in Section 2.6.1.2.1 to reflect perspectives from individual Nations rather than broad wording that gives the impression it reflects all Nations.

5. Creation of a documented plan for NexGen to engage on the Project's impacts and mitigation measures while the EIS remains in draft form and before it is finalized. During the time this plan is being developed and implemented, MN-S seeks a parallel process for engagement and forums for MN-S to engage its own citizens and understand their concerns.

6. A detailed plan for how NexGen will respond to comments and concerns such as those identified throughout Section 2 (Indigenous, Regulatory, and Public Engagement) and its associated appendices. Note that comments such as "incorporated into the EIS, where applicable"[4] are not sufficient. Directing individuals such as high school students to a technical document that is many thousands of pages long as an answer to their question is not a quality response. A quality response would be a plain-language response, backed by the science that is documented in the EIS, and delivered to the person/community who asked the original question.

7. A detailed response from NexGen of the actions they took to facilitate trappers' access to baseline studies and EA results, particularly on the understanding that MN-S citizens are among the association's members, and harvest is a constitutionally protected right under s.35 of *the Constitution Act*.

8. A detailed, forward-looking plan from NexGen on how it plans to improve information-sharing with communities and supplement it with two-way dialogue, in line with the proponents' commitments to align with IAP2 approaches across the spectrum.

9. That NexGen revise its submission to describe its engagement approaches as occurring on the left-hand side of the IAP2 spectrum (inform/consult).

10. An engagement plan from NexGen that includes more collaborative approaches to engagement, toward the empowerment end of the IAP2 spectrum.

11. A detailed plan, and implementation of a plan, to engage MN-S and its citizens in two-way dialogue regarding the Project's effects and mitigation measures.

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[4] *Rook I Project, Saskatchewan, Canada. Environmental Impact Statement* (EIS) Section 2.3.1, p. 2-10

12. Details about the specific ways in which the La Loche office has made efforts to be available to diverse groups of people, notably caregivers and people with regular work responsibilities, through arrangements such as flexible scheduling, evening access, meeting people in other locations that may suit them better than the office, etc.

13. A documented Nation-specific engagement plan that meets the expectations MN-S outlined for, and shared with, NexGen on 5 May 2021.

14. Replacement of the generalized Benefit Agreement content in Section 2.7.1.1 with detailed, Nation-by-Nation information on engagement approaches.

15. That NexGen provide more collaborative engagement techniques or remove the commitment to collaborate, thus removing the potential for confusion.

16. Rewording of the 19 August 2021 meeting summary to include trust-building, and introduction of more culturally appropriate ways of sharing such as cultural values and Métis history shares, including the fact that these were introduced at MN-S' request.

17. That NexGen describe the "remaining 2021 and 2022 funding" accurately in the Table 2A-2 record of engagement.

18. Revision of the Table 2B-2 issues table to provide substantive answers to the issues, rather than pointing readers to other locations in the EIS where the issue response is.

    That NexGen include internal document hyperlinks to the locations in the EIS where responses are contained, as a courtesy to readers who are investing time in understanding the Project.

19. That the Project pause in the EIS process until more fulsome community-facing engagement on effects and mitigation measures have taken place.

20. Keeping the EIS in draft form until

    a. fulsome conversations around Indigenous Knowledge inclusion have taken place between NexGen and MN-S.

    b. two-way, fulsome, science-backed conversations on Project effects have taken place.

    c. a documented plan for NexGen to engage on the Project's impacts and mitigation measures is developed.

    d. western science advisors have an opportunity to comment in full on the VC selection process and results and advise MN-S accordingly.

    e. mutually agreeable definitions of Indigenous Knowledge, and approaches to including Indigenous Knowledge, are agreed and documented.

f. NexGen agrees to protections of MN-S' Indigenous Knowledge based on the principles of OCAP®.

g. MN-S' documented expectations on engagement, as shared on 5 May 2021, are met.

h. engagement on the topics shared on 5 May 2021 takes place.

21. Commitment that while the EIS remains in draft form, NexGen will provide plain-language answers to the issues raised during engagement.

2.3 INDIGENOUS AND LOCAL KNOWLEDGE (SECTION 3)

2.3.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
3-001	Inclusion of Indigenous and Local Knowledge in the Environmental Assessment – General Context "Specific to incorporation of Indigenous Knowledge in the EA, NexGen has chosen to pursue an approach based on regulatory guidance, available literature, international best practices, and Project team experience." NexGen's description of its chosen approach omits the key element of engaging with Nations on how they would like to see their Indigenous Knowledge placed together with western science in an understanding of Project effects. This is suggested as part of the CEAA 2012 guidance on Aboriginal traditional knowledge and is also in line with Indigenous self-determination.	3.1.1, p. 3-4
3-002	Inclusion of Indigenous and Local Knowledge in the Environmental Assessment – General Context "In recognition of this, NexGen, local Indigenous Groups, and local communities have worked together to identify opportunities to best incorporate Indigenous and Local Knowledge into the Proposed Project and the EA." Short of funding a Métis Knowledge Study and a traditional food study through a Study Agreement, conversations between NexGen and MN-S about ways to incorporate Indigenous Knowledge into the EA, particularly MN-S' preferred ways to document Indigenous Knowledge in the EA, have not taken place, based on a review of the Joint Working	3.1.1, p. 3-4

Issue #	Concerns	Section, page
	Group meeting minutes.	
3-003	Inclusion of Indigenous and Local Knowledge in the Environmental Assessment – General Context References to IAAC 2020a and BC EAO 2020. The *Impact Assessment Act* (2019) and revitalized *BC Environmental Assessment Act* (2018) provide guidance on the use of Indigenous Knowledge that is fulsome, iterative, and pervasive throughout the EA process and an EIS document. These pieces of legislation are much more robust and up to date than CEAA 2012 and Saskatchewan provincial processes for environmental assessment. NexGen has omitted key concepts of IAA 2019 and EAA 2018 such as consent, consensus-seeking, and Indigenous self-determination, which are the cornerstones of IAA 2019 and EAA 2018. EAA 2018 also indicates that proponents are not able to define Indigenous Knowledge in ways of its choosing, so this is a particularly problematic inclusion.	3.1.1, p. 3-4
3-004	Defining Indigenous and Local Knowledge Defining Indigenous Knowledge (all text) Proponent again refers to IAA 2019 and implies that it will be guided by it, without considering the key aspects of IAA 2019 such as incorporating Indigenous Knowledge throughout the EA process and EIS document. This should be removed, as it implies that NexGen is meeting all, rather than part, of IAA 2019 expectations. Alternatively, NexGen should apply IAA 2019 consistently throughout its EIS and agree to comply with it.	3.4.1, p. 3-16
3-005	Defining Indigenous Knowledge "For the purposes of the EA, Indigenous Knowledge is specifically defined as information sanctioned (i.e., authoritative permission or approval given) by an Indigenous Group as an official statement, document, or position." This definition does not align with the CEAA 2012 guidance on Aboriginal Traditional Knowledge. Applying a definition this broad gives NexGen an opportunity to include any information from Nation-approved meeting minutes and label it "Indigenous Knowledge". This would allow NexGen to credibly state that it has included Indigenous Knowledge "throughout the assessment". However, many of the comments made by members of MN-S in Joint Working Group	3.4.1, p. 3-16

Issue #	Concerns	Section, page
	meetings relate to topics such as jobs, the legacy of Cluff Lake, and safety on Project roads. Topics such as these are not Indigenous Knowledge.	
3-006	Defining Indigenous Knowledge "In summary, Indigenous Knowledge can generally be understood as the unique and collective knowledge of a group of Indigenous People that is built up through generations of living in close contact with the land and natural environment.…" etc. to end of paragraph. This definition is inconsistent with the definition of Indigenous Knowledge elsewhere in the EIS.	3.4.1, p. 3-18
3-007	Joint Working Groups "The Joint Working Groups facilitate the exchange of information and sharing of Indigenous and Local Knowledge, including understanding each Indigenous Group's protocols on consent, ownership, access, control, and possession of their knowledge." This wording aligns with the contents of MN-S' study agreement with NexGen. It does not align with Joint Working Group activities related to OCAP®. It is unclear from Joint Working Group meeting minutes where NexGen believes conversations around OCAP® took place.	3.5.1, p. 3-20
3-008	Joint Working Groups "The Joint Working Groups are also planned to facilitate the review of and opportunity to provide feedback on the EIS." MN-S' Joint Working Group has not been used to review the EIS contents or provide feedback on it as of September 2022. The globalized discussion of all Joint Working Groups and their overall intent blurs the specificity regarding the pace of progress of Joint Working Groups through material related to the EIS.	3.5.1, p. 3-20
3-009	Joint Working Groups "… the MN-S communicated in early May 2021 that a two-month meeting cadence would be their preference, and provided a list of topics of interest for discussion." MN-S' Joint Working Group with NexGen has not progressed through the list of topics it indicated it expected to work through with NexGen before EIS submission.	3.5.1, p. 3-20

Issue #	Concerns	Section, page
3-010	Guiding Principles "Community-based protocols and procedures should be understood, respected, and followed." This is a good practice. It would also be a good practice to engage in dialogue with communities on what these protocols and procedures are. An example of that would be engaging with MN-S through the Joint Working Group on their preferred approaches to how Indigenous Knowledge is reflected in the EIS.	3.6.1, p. 3-22
3-011	Guiding Principles "Confirm informed consent" This is a good practice. It would also be a good practice to engage in dialogue with communities and confirm informed consent on the ways in which the Traditional Land Use Study (TLUS) was to be used in the assessment, and to confirm that this was understood and acceptable, following OCAP principles.	3.6.1, p. 3-23
3-012	Approach and Methods Reference to community information sessions Community information sessions were not Nation-specific. They took place in communities that have a high percentage of Indigenous citizens. By referring to these information sessions together with Joint Working Groups, the first paragraph under Section 3.6.2.1 gives the impression that any feedback given in these information sessions may have constituted Indigenous Knowledge. These may be considered local knowledge only and should be indicated as such.	3.6.2, p. 3-24
3-013	*Gathering Indigenous and Local Knowledge* "NexGen presented a preliminary list of VCs …" during joint working group meetings in 2019 and 2020. Based on minutes of these meetings, this is an accurate statement. Based on minutes of a Joint Working Group meeting dated January 2021, presenting VCs without western science advice was not well received by MN-S.	3.6.2.1, p. 3-24
3-014	*Gathering Indigenous and Local Knowledge* "Between April and June 2021, NexGen presented information and requested feedback and input from Indigenous Groups on the	3.6.2.1, p. 3-25

Issue #	Concerns	Section, page
	topics of traffic accidents and malfunctions, EA methods (i.e., pathway analysis, residual effects classification, determination of significance, prediction confidence and uncertainty, and monitoring and follow-up programs), ..." Mail-out documentation on these topics was presented in documents entitled "Joint Working Group Summary" that are included as appendices for Section 2 of the draft EIS but meetings on these topics over this timeframe did not take place with MN-S, based on review of Joint Working Group meeting minutes. Again, the global nature of wording such as "Indigenous Groups" allows NexGen to give the impression that the same approach was followed for all Nations, which as NexGen notes in 2.0 Indigenous, Regulatory, and Public Engagement, is not the case. It is also misleading to indicate that summary documents mailed out, to which MN-S did not provide a detailed response, constitutes "incorporation of Indigenous Knowledge".	
3-015	*Gathering Indigenous and Local Knowledge* "The IKTLU Studies were generally completed and shared with NexGen between December 2019 and December 2020 …. These IKTLU Studies were reviewed for applicable Indigenous Knowledge and to identify and confirm effects pathways for biophysical and socioeconomic intermediate components and VCs." The word "applicable," is vague, subjective, and/or potentially aligned with NexGen's definition of Indigenous Knowledge, which is problematic and unilateral.	3.6.2.1, p. 3-25
3-016	*Gathering Indigenous and Local Knowledge* "… topics were also identified as key interests and concerns expressed by attendees at the community information sessions held in 2019" This wording again conflates Indigenous Knowledge and local knowledge collection processes. Community information sessions were only a source of local knowledge.	3.6.2.1, p. 3-25
3-017	*Gathering Indigenous and Local Knowledge* "A total of 78 KP interviews were conducted with community members, primarily through telephone unless another method was requested. Interviews were completed with business owners,	3.6.2.1, p. 3-25

Issue #	Concerns	Section, page
	principals and staff of schools, housing clerks, health care directors, band councillors, and the RCMP." Again, mixing the conversation regarding Indigenous Knowledge and local knowledge gives the impression that a data collection opportunity with an RCMP officer may have been Indigenous Knowledge. Indigenous and local knowledge should be described separately. Also, the draft EIS should describe OCAP® processes related to KP interviews so that readers are aware of the ways in which NexGen sought and obtained informed consent for Indigenous Knowledge collection and use, where applicable. Otherwise, it appears that NexGen is attempting to seek extra Indigenous Knowledge credit for doing primary data collection for its socioeconomic work.	
3-018	Summary of Influence on Project Design Table 3.7-1 Indigenous and Local Knowledge Key Influence on Project Design "Inclusion of a dedicated space for Elders on site to be available to support Indigenous employees" This is a good practice and reflects an affirmative response to MN-S interest in and request for such an arrangement. Available space is one part of facilitating workers' access to Elders for their wellbeing. Other aspects of facilitating access to Elders have not been documented here.	3.7.3, p. 3-34
3-019	Influence on the Environmental Assessment Table 3.8-1 Incorporation of Indigenous and Local Knowledge in the Environmental Assessment Comment on structure and content of table This table combines local and Indigenous Knowledge. This does not allow an understanding for rights-bearing Indigenous Nations as to how their Indigenous Knowledge was specifically placed within the context of the assessment.	3.8, p. 3-36
3-020	Use of Indigenous and Local Knowledge through the Project Lifespan "Initial conversations regarding the Decommissioning and Reclamation Plan were held during Joint Working Group meetings in February 2020 and March 2021"	3.9, p. 3-40

Issue #	Concerns	Section, page
	MN-S is missing from the references here.	

2.3.2 RECOMMENDATIONS

Consultants recommend that MN-S request the following:

1. Rewording of Section 3.1.1 of the EIS to include a commitment to dialogue around how Indigenous Knowledge is used in the assessment.

2. Keeping the EIS in draft form until

    a. proper engagement on the use of Indigenous Knowledge in the assessment takes place.

    b. fulsome, two-way conversations regarding informed consent for use of the TLUS in the EIS have taken place.

    c. western science advisors have had an opportunity to comment on the VC selection process and results.

    d. OCAP® approaches related to MN-S' Indigenous Knowledge have been agreed.

    e. documentation is provided outlining of the ways in which decommissioning, and reclamation were shared in a detailed, two-way dialogue between MN-S and NexGen that provided an opportunity for substantive input.

3. Detailed documentation (presentation materials, meeting minutes, or meeting transcripts) of conversations in which NexGen, and MN-S agreed on Indigenous Knowledge approaches within the EA.

4. Elimination of references to the IAAC 2020a and BC EAO 2020 unless NexGen plans to follow all of them.

5. Removal of references to IAA 2019, as it implies that NexGen is aiming to meet aspects of IAA 2019 that suit it without aligning with the spirit of the legislation. Alternatively, agree to be compliant with IAA 2019.

6. That NexGen apply a regulatory definition of Indigenous Knowledge such as that included in CEAA 2012, whose accompanying guidance describes Indigenous Knowledge as "in this broad context, ATK can be viewed as knowledge that is held by, and unique to, Aboriginal peoples. Although there are many different definitions of ATK in the literature, there is no one universally accepted definition. For this reason, no official definition of ATK has been provided in this document. Generally, ATK is considered as a body of knowledge built up by a group of people through generations of living in close

contact with nature. ATK is cumulative and dynamic. It builds upon the historic experiences of a people and adapts to social, economic, environmental, spiritual and political change."[5]

7. Provision of a consistent definition of Indigenous Knowledge, aligned with good practice and based on engagement with MN-S and other Indigenous Nations.

8. Rewording of Section 3.5.1 to clarify the extent to which any of the engagement vehicles achieved their intended purpose at the time the EIS was submitted.

9. Amendment of the EIS to document the topics that have and have not been covered in MN-S' list of expectations delivered to NexGen on 5 May 2021. The coverage should describe the same period up to and including 15 February 2022 (i.e., which of MN-S' preferred topics were and were not covered).

10. Description from NexGen to indicate where it sought feedback on how community-based understanding of Indigenous Knowledge was incorporated in the EIS in the case of MN-S.

11. Clarification in the text of Section 3.6.2, to indicate that community information sessions were a potential source of local knowledge only.

12. Descriptions of Nation-by-Nation Indigenous Knowledge approaches, and that Indigenous Knowledge and local knowledge be separated by subheading throughout the chapter.

13. Amendments to the EIS to include a definition of "applicable," as this word is vague, subjective, and/or potentially aligned with NexGen's definition of Indigenous Knowledge, which is problematic and unilateral.

14. Changing the text of Section 3.6.2.1 to indicate what is local knowledge versus Indigenous Knowledge.

15. Indigenous and local knowledge should be described separately. Also, the draft EIS should describe OCAP® processes related to KP interviews.

16. Inclusion of the following information in the EIS to confirm that Elders' presence is a reality:

    a. honoraria and travel arrangements for Elders,

    b. a schedule for Elder presence on an ongoing basis,

[5] Considering Aboriginal traditional knowledge in environmental assessments conducted under the Canadian Environmental Assessment Act, 2012 - Canada.ca

c. health and other care support such as may be needed for older community members living in a camp environment.

17. Dividing Table 3.8-1 into multiple tables:

    a. one on local knowledge and

    b. one for each of the participating Indigenous Nations.

18. Demonstrate to each Nation the specific ways in which their knowledge and feedback were used in the assessment. Once this information has been provided on a Nation-specific basis, it would be reviewed in detail.

2.4 PROJECT ALTERNATIVES (SECTION 4)

2.4.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
4-001	Introduction "The assessment of alternatives has been informed by … (including Indigenous Knowledge) …" This statement is problematic given the misalignment between NexGen's definition of Indigenous Knowledge provided in Section 3 Indigenous and Local Knowledge (3.4.1, p. 3-16), good practice related to Indigenous Knowledge, and MN-S' definitions of Indigenous Knowledge provided through Joint Working Group meetings. The assessment of alternatives can be adequately informed by Indigenous Knowledge when conversations around Indigenous Knowledge include MN-S' views.	4.1, p. 4-1
4-002	Assessment Criteria "The comparison between alternative options was presented in relative terms and is not intended as a definitive statement of Treaty or Aboriginal rights as they pertain to the proposed Project. Such an evaluation is the responsibility of the Crown in consultation with the potentially affected Indigenous Groups."	4.4.2, p. 4-10
4-003	*Input from Indigenous Groups and the Public* All content of this section	4.4.2.1, p. 4-11 to 4-13

Issue #	Concerns	Section, page
	As mentioned elsewhere in this review, wording that describes engagement with all Indigenous Nations as though it were consistent prevents a Nation-by-Nation understanding of issues and engagement.	
4-004	*Input from Indigenous Groups and the Public* All content of this section TWC notes that engagement on the criteria documented on p. 4-11 to 4-13, and fulsome, science-based conversation on how the alternatives compare, does not appear to have taken place as a dialogue through the Joint Working Group process, according to the Joint Working Group minutes. The alternatives analysis was an activity that NexGen undertook without involving MN-S, although NexGen on various occasions did discuss the outcomes of key choices such as tailings storage.	4.4.2.1, p. 4-11 to 4-13

2.4.2 RECOMMENDATIONS

Consultants recommend that MN-S request the following:

1. Clarity on the timing and substance of MN-S' consultation with the Crown on effects to rights as they pertain to the proposed Project.
2. That NexGen describe engagement on a Nation-by-Nation basis regarding alternatives in Section 4.4.2.1.
3. That NexGen provide documentation of the specific times and places in which the alternatives analysis was discussed with MN-S in detail, and in which MN-S participants had the benefit of science-based advice.
4. That the EIS remain in draft form until
    a. fulsome, two-way, OCAP®-aligned conversations around the use of Indigenous Knowledge have taken place and been documented.
    b. the alternatives analysis can be discussed, with MN-S having the benefit of science-based advice during these conversations.

2.5 PROJECT DESCRIPTION (SECTION 5)

2.5.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
5-001	Project Environs "Approximately 92 active mineral dispositions, issued to twelve companies, exist within the general area of the proposed Project." (Figure 5.2-2) In Section 20, cumulative effects assessment, the only project referenced was Fission's Patterson Lake Project.	5.2.1, p. 5-11
5-002	Local Indigenous Groups and Communities Métis Nation-Saskatchewan is missing from consideration in this section.	5.2.4, p. 5-18
5-003	Decommissioning, Reclamation, and End Land Use "… Preliminary Decommissioning and Reclamation Plan …" No indication when this will be done — before or after the EIS is finalized.	5.3.2, p. 5-30
5-004	Camp Facilities and Utilities "The camp would provide semi-private spaces, such as individual rooms for workers that would be shared on a rotating basis, …." This needs to be clarified. Does this mean one room shared between two (2) people, without time overlaps?	5.4.7.1, 5-77
5-005	Airstrip and Airstrip Infrastructure Any special arrangements for animal deterrence from wondering onto runway? What is purpose of airstrip? Given limited passenger capacity (40-50), will it be used to transport workers given the stated intention to use the Buffalo Narrows Airport (5-109). Is the airstrip needed?	5.4.7.4, 5-78
5-006	Employment "NexGen is currently considering using the Buffalo Narrows Airport as a pick-up point." Drive-in/drive-out staff, assumes airstrip is operational" (Table 5.5-5). Add detail on transport of employees. Busing to site after pickup in Buffalo Narrows. Inconsistent with Table 5.5-5.	5.6.1, p. 5-108, 5-109

Issue #	Concerns	Section, page
5-007	Employment "working with local communities to develop culturally sensitive employment policies …" Does this include cultural sensitivity training during on-boarding, including MN-S participation in developing training materials? "using best efforts to provide qualified local residents …" Will best efforts include support measures to facilitate the ability to work 2 weeks in and 2 weeks out such as family support measures for those at home? Daycare? Special employment considerations for harvesting? Ability to drive back and forth from La Loche daily rather than reside in camp? If so, is this in traffic estimate?	5.6.1, p. 5-110
5-008	Training Table 5.7-1 Will employment monitoring, tracking, and reporting local employment levels against the 75% objective be added to the table?	5.6.2, 5-111

2.5.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. List of reasonably foreseeably projects for inclusion in the cumulative effects assessment be updated to include, at a minimum, NexGen's current exploration program. Community concerns regarding other industrial projects, as noted in Section 2 Indigenous, Regulatory, and Public Engagement of the draft EIS, should also form the basis of reconsideration of the list of projects included in the cumulative effects assessment.

2. MN-S be added to the text in 5.2.4, p. 5-18.

3. Additional clarity is provided around NexGen's intention to complete management plans before the draft EIS becomes final. Note elsewhere in this review that without detailed mitigation measures, MN-S would be taking a leap of faith in understanding how the Project would affect them and practice of their rights.

4. Detail in the EIS that provides additional clarity around camp/room arrangements,

5. Additional clarity be provided in Section 5.4.7.4, p 5-78 of the draft EIS related to the airstrip, in response to the concerns noted under Section 2.5.1 of this report.

6. Additional clarity be provided in Section 5.6.1, p. 5-108, 5-109 of the draft EIS related to employee transport, in response to the concerns noted under Section 2.5.1 of this report.

7. Additional clarity be provided in Section 5.6.1, p. 5-110 of the draft EIS related to workforce, daycare, and traffic considerations, in response to the concerns noted under Section 2.5.1 of this report.

8. Additional clarity and detail be provided in Section 5.6.2, 5-111 of the draft EIS related to employment monitoring and tracking, in response to the concerns noted under Section 2.5.1 of this report.

2.6 ENVIRONMENTAL ASSESSMENT APPROACH AND METHODS (SECTION 6)

2.6.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
6-001	Regional Area of the Rook I Project Commenting on missing items in regional map Map Omissions: Athabasca Basin is labelled but the basin to the south is only labelled as wooded area. Regional maps generally feature other activities, developments, etc. in the area for cumulative effects purposes. Map should be updated to align with a complete list of reasonably foreseeably projects, including requested changes to the list of projects included in the cumulative effects assessment.	6.1, p. 6-1
6-002	Incorporation of Indigenous Knowledge "Indigenous and Local Knowledge was integrated into the development of the Project, including EA process. Indigenous and Local Knowledge was incorporated into the EIS by integrating the results from Indigenous Knowledge and Traditional Land Use (IKTLU) Studies and from engagement with local priority area (LPA) community members." An explanation is needed for how knowledge gained during "engagement" was verified as being suitable for use and "integrating" Indigenous and Local Knowledge (Indigenous Knowledge)	6.2, p. 6-8

Issue #	Concerns	Section, page
	An explanation is needed to explain how Indigenous Knowledge was used in the development of the Project. What was the methodology? Did Métis confirm accuracy? Is there a summary of how Indigenous Knowledge influenced Project design or mitigation in the document. Has it been recorded as part in discrete sections?	
6-003	Incorporation of Indigenous Knowledge "In addition, a guidance document …" This document is not attached as part of the methodology. It should be included as an Appendix so MN-S can confirm if Métis people had an opportunity to verify the accurate use of their Indigenous Knowledge. It is not good practice for only the discipline leads or the EA coordinator to interpret how Indigenous Knowledge is used. Specifically, integration implies Indigenous Knowledge was "added" to western science. Good practice would be to confirm if opportunities were taken to shape document content from Métis perspective and science was added.	6.2, p. 6-8
6-004	Incorporation of Indigenous Knowledge "General concerns (e.g., Project effects on water) …" This paragraph might be better placed in 6.3 Assessment Scoping.	6.2, p. 6-8
6-005	Valued Components "The BNDN and BRDN …." As this is a methodology section, there is no indication if it was general practice to ask Indigenous groups for their concepts of VCs. A description of engagement related to VCs with Métis would be appropriate here, in addition to a description of Métis concepts of VCs having been confirmed. This will be relevant to the pathways analysis. Good practice would include a step of verifying VCs together with Indigenous Nations. Minutes of Joint Working Group meetings indicate that NexGen presented a draft list of VCs to the Joint Working Group members for comment, but there is no record of an occasion on which NexGen asked open-ended VC questions or validated the VC identification together with MN-S based on engagement and Indigenous Knowledge.	6.3.1, p. 6-9
6-006	Assessment Endpoints and Measurement Indicators	6.3.2, p. 6-10

Issue #	Concerns	Section, page
	Defining "Endpoints and Measurement Indicators" is good practice. However, it needs to be confirmed the extent to which Indigenous Knowledge was considered in defining these measures and how (or if) Indigenous Nations were part of the definition development. Table 6.3-1 implies that Indigenous Knowledge was not a consideration for indicators and endpoints or separated out as in "changes in availability and quality of fish, plants, ...". This then calls into question the nature of the Indigenous Knowledge integration.	to 6-13
6-007	Spatial Boundaries The implication in the text is that the spatial boundaries were defined by western science. Was Indigenous Knowledge included as part of the Spatial Boundary definition other than jurisdictional boundaries of affected Indigenous communities?	6.4.1, p. 6-18
6-008	Existing Conditions Characterizations "Information used to support the description of existing conditions also included available Indigenous and Local Knowledge from engagement and IKTLU Studies, …" This statement implies the bias where Indigenous Knowledge was integrated into western science. This may have introduced an unintentional bias in the characterization as critical information may have been missed since Indigenous Knowledge followed on the characterization by western science. Was a cross-check of the contents of the existing conditions description completed starting with Indigenous Knowledge?	6.6, p. 6-22
6-009	Identification of Mitigation The environmental scientists worked closely with the Project design engineers to incorporate appropriate mitigation into the Project design and implementation plans so that residual effects would be acceptable. Did environmental design features and mitigation also include Indigenous Knowledge and involve Métis? This suggests that design was left to Project scientists. Minutes of Joint Working Group meetings do not indicate where mitigation measures and design features were discussed in detail with Métis as rights-bearing Indigenous people.	6.7.2, p. 6-25
6-010	Project Effects (Application Case) Other measurement indicators, such as community cohesion …	6.8.1, p. 6-27

Issue #	Concerns	Section, page
	qualitative data … relied upon to complete the analysis. With respect to qualitative data, Joint Working Group Meeting minute notes do not show that engagement was a multi-step process where the qualitative data was collected, interpretation confirmed, and analysis checked with the Métis. This is a gap against good practice.	
6-011	Cumulative Effects from Reasonably Foreseeable Developments Case The section would benefit with the addition of a list of the RFDs and the potential adverse effects being assumed. Please see comments elsewhere in the document	6.8.2, p. 6-28
6-012	Residual Effects Classifications and Significance Determination The residual effects classification likely will not be easily adaptable for human environment conditions. Are there variations for the human environment? The Significance Determination (6.9.2) section refers to socio-economic context assessment of resilience which would be based on the residual effects classification.	6.9.1 and 6.9.2, p. 6-29 and 6-32
6-013	Monitoring, Follow-up, and Adaptive Management The process for determining when, how, and where to use … Integrated Management System Manual. Integrated Management System Manual has not been provided for review.	6.11, p. 6-35

2.6.2 RECOMMENDATIONS

Consultants recommend that MN-S request the following:

1. Updates to the map under section 6.1, p. 6-1 be made to address the comments under Section 2.5.1 of this report.

2. Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, be addressed through engagement and subsequent revisions to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

3. The guidance document referred to under section 6.2, p. 6-8 be shared with MN-S as part of fulsome conversations between NexGen and MN-S regarding the use of Indigenous Knowledge. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

4. The content beginning "General concerns (e.g., Project effects on water) …" under section 6.2, p. 6-8 be moved under section 6.3 Assessment Scoping.

5. Text under section 6.3.1, p. 6-9 be revised to reflect the outcomes of more fulsome engagement between NexGen and MN-S on Valued Components (VCs) and Indigenous Knowledge. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Valued Components (VCs) and Indigenous Knowledge have been addressed.

6. Text under section 6.3.2, p. 6-10 to 6-13 be revised to reflect the outcomes of more fulsome engagement between NexGen and MN-S on endpoints and indicators. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding endpoints and indicators have been addressed.

7. The text under section 6.4.1, p. 6-18 be modified to reflect engagement with MN-S and other Indigenous Nations, as appropriate, regarding the use of Indigenous Knowledge in definition of spatial boundaries for the assessment.

8. A cross-check of the contents of the existing conditions descriptions in all valued components (VCs) be completed starting with Indigenous Knowledge rather than starting with western science and validating with Indigenous Knowledge. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

9. Text under section 6.7.2, p. 6-25 be revised to reflect the outcomes of more fulsome engagement between NexGen and MN-S on Project design and mitigation measures. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until this more fulsome engagement has taken place.

10. Text under section 6.8.1, p. 6-27 be revised to reflect the outcomes of more fulsome engagement between NexGen and MN-S on Project effects. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until this more fulsome engagement has taken place.

11. Text under section 6.8.2, p. 6-28 be revised to include a full list of RFDs, including a revised list of RFDs that would address concerns noted elsewhere in this review that Fission is the only RFD considered in the cumulative effects assessment.

12. Confirm that the residual effects classification as described under sections 6.9.1 and 6.9.2, p. 6-29 and 6-32, be modified and shown to be appropriate to quantify and qualify residual effects on humans such as economy, traditional economy, etc. Provide examples that describe that show how the classification would work in this case. For indirect effects such as those on traditional economy, also provide an example of how the residual effects would be described.

13. That key detailed mitigation measures and management plans that are designed to build confidence in NexGen's operating approaches be developed together with MN-S before the draft EIS becomes final.

2.7 HYDROGEOLOGY (SECTION 8)

2.7.1 AREAS OF CONCERN

This review was undertaken to identify red flags within the limit of the budget and only considered Section 8 Hydrogeology. Referenced annexes or technical support documents (TSDs) associated with Section 8 were not reviewed.

There were no red flag issues encountered within Section 8 Hydrogeology.

Several inconsistencies are discussed below, but there are no overall big issue concerns with the analysis presented. It appears to be robust for the data available and completed using industry standard practices.

While there were no red flag issues identified within Section 8 Hydrogeology, the following questions were noted. These may be addressed in other parts of the EIS that were not reviewed in conjunction with Section 8, be already targeted by ongoing data collection and monitoring activities, or just not be clearly presented in the documentation. These questions are presented for thoroughness and information only:

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
8-001	Assessment Cases A combined case considering cumulative groundwater impacts from nearby future developments (i.e., Fission's neighboring property) was not considered since changes to groundwater indicators were not predicted to overlap. The predicted groundwater drawdown area impacted from mining at the Project extends 2 to 4 kilometers (km) from Project site. However, it is not clear how far drawdown from neighboring future development will extend and if the drawdown areas will overlap or cause impacts. It is unknown if this is considered in other EIS sections, or if data is available to evaluate this	8.2.5, p. 8-14
8-002	*Groundwater Elevations (8.2.6.3) and Bedrock (8.3.3.1)* It is unclear which unit bedrock groundwater elevations were measured in, and if the different hydrostratigraphic units were considered together or separately.	8.2.6.3, p. 8-17 8.3.3.1, p. 8-26

Issue #	Concerns	Section, page
	The terminology used is unclear, as it appears that bedrock and basement can both be used interchangeably to refer to the meta-gneiss/granitoid "basement" units. Bedrock also appears to be used to refer to all strata below glacial drift, including the basement, Athabasca sandstone units and the Devonian/Cretaceous rock units. The groundwater elevation differences between bedrock units (i.e., basement, sandstone and Devonian/Cretaceous rocks) are not well laid out, and it is unclear what the groundwater flow patterns in and between these units are.	
8-003	*Bedrock* Athabasca sandstone is identified as the main bedrock aquifer, but this is based on relatively few in situ tests compared to the basement rocks. It is also not specified if there are fault or shear zones within the sandstone that may affect groundwater flow. This author is in general agreement that the sandstone is the main bedrock aquifer unit, but the small number of test data may limit the understanding of groundwater flow within this unit. It is also not clear if structure-controlled flow is relevant within the sandstone since there is no mention if the fault and shear zones identified in the basement rocks extend into the sandstone unit.	8.3.4.1, p. 8-41
8-004	Project Interactions and Mitigations (8.4) Groundwater Flow Patterns and Rates (8.5.1.1.2) It is unclear if the pathway of seepage from the UGTMF was considered during the construction and operation phase. It appears that only seepage from WRSA was considered during the operation phase. It appears that the UGTMF was excluded because mine dewatering and seepage will be collected and managed during operations which would effectively remove the pathway, but it is unclear if this pathway was even considered in a formal sense.	8.4, p. 8-51 8.5.1.1.2, p. 8-58
8-005	Groundwater Flow Patterns and Rates The analysis assumes that water collected, treated and discharged from underground mine workings to Patterson Lake balances the change in baseflow in the lake. This assumes a direct hydraulic connection between Patterson Lake and the underground mine workings, which is not clearly supported by data. Water quality from the basement rocks indicated "old" groundwater and is not representative of Patterson Lake water quality. In addition,	8.5.1.1.2, p. 8-58

Issue #	Concerns	Section, page
	cross sections presented in Figures 8.3-2[6] and 8.3-3[7], interpret glacial drift sediments to be underlying Patterson Lake. This assumption may be further explained in sections presenting the water balance for the Project, but these sections are not referenced; therefore, it is unclear what this assumption is founded on.	
8-006	Solute Mass Loading Rates to Patterson Lake Table 8.5-1 Simulated Peak Solute Mass Loading Rates The predicted solute mass loadings to Patterson Lake are presented, but it is unclear over what timeframe these values represent or after what duration negative impacts are predicted to occur. The timeframe for predictions would help understand the effects to Patterson Lake water quality, as it is expected that different constituents of concern will have different timelines based on source concentration and flow path. It is unknown if this is discussed further in other EIS sections.	8.5.1.2, p. 8-63
8-007	Climate and Natural Disturbance Factors The climate change analysis is qualitative and high level. Qualitative analysis may be acceptable based on level of data available but the assumption that increased precipitation will be balanced by increased evapotranspiration may be too simplistic, especially when considering the effectiveness of an engineered cover system to reduce solute transport from the WRSA over the long term. Monitoring programs do not appear to consider climate change impacts.	8.5.1.2.3, p. 8-65
8-008	*Groundwater Quantity* Residual effects were predicted for groundwater flow pathways that were certain and permanent, but the specific effects are unclear. This may be explained further in the hydrology assessment EIS section, but they are not clearly stated in this section. It is hard to evaluate the proposed monitoring programs since the effects are not explicitly stated. Additionally, the residual effects analysis predicted a negative change for groundwater elevation but a neutral change for groundwater flows	8.5.2.1, p. 8-66

[6] EIS, Section 8, p. 8-29.
[7] EIS, Section 8, p. 8-30.

Issue #	Concerns	Section, page
	and directions. Groundwater elevation drives groundwater flow and direction. Again, since effects were not explicitly stated, it is unclear if these statements can be verified.	
8-009	Key Findings Key findings state that water from the UGTMF and stope backfill sources flow upward through faults and shear zones in the basement and then horizontally through the Athabasca sandstone before discharging into Patterson Lake. It is unclear, however, if Patterson Lake is connected to the sandstone. Cross sections presented in Figures 8.3-2 and 8.3-3 show Patterson Lake underlain by glacial drift sediments.	8.8, p. 8-72

2.7.2 RECOMMENDATIONS

Consultants recommend that MN-S request the following:

1. Confirmation that the groundwater flow gradients between the individual bedrock units (basement, sandstone, Devonian/Cretaceous rocks) to better understand residual effects and flow pathways over the very long term.

2. Confirmation that monitoring programs consider residual effects on the groundwater flow pathway and potential impacts from climate change.

3. Confirmation that there are no overlapping groundwater drawdown areas with neighbouring potential developments (when and if information is available to do so).

2.8 HYDROLOGY (SECTION 9)

2.8.1 AREAS OF CONCERN

This review was undertaken to identify red flags within the limit of the budget and only considered Section 9 Hydrology. Not all referenced annexes or technical support documents (TSDs) within Section 9 could be reviewed.

There were no red flag issues encountered within Section 9 Hydrology.

Several discussion points are presented below, but there are no overall big issue concerns with the analysis presented. The analyses appear to be robust for the data available and completed using industry standard practices.

While there were no red flag issues identified within Section 9 Hydrology, the following items were noted. These may be addressed in other parts of the EIS that were not reviewed in conjunction with Section 9, be already targeted by ongoing data collection and monitoring activities, or not be clearly presented in the documentation. These items/questions are presented for thoroughness and information only:

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
9-001	Several facets of analyses presented in the EIS rely on modelling completed to estimate long term baseline stream discharge at various nodes throughout the Project site. The modelling is calibrated based on a brief period of record from stations that appear to extrapolate beyond the measured ranges of the stage-discharge rating curves. A key question to the proponent is to address the confidence of modelling completed based on extrapolated estimates from measured data. As an example, hydrometric gauging station CR-WC-MS-01 is reported in the baseline monitoring annex as having a maximum measured flow rate of 0.631 m^3/s and a maximum estimated flow rate of 0.800 m^3/s. Stage-discharge rating curves are typically exponential which can lead to large errors when used for extrapolation and any subsequent model calibration using those data would influence the modelled data used for further analyses.	
9-002	The proponent indicates that some hydrometric gauging stations were backwatered, presumably by downstream influence (ex. Station CR-WC-TI-02). How were the hydrographs adjusted during known periods of backwater (i.e., what decision criteria were incorporated to shift the water levels)? Backwater can also be generated during periods of ice cover. The water level data provided by the proponent appear to not be influenced by ice. Do most hydrometric stations at the site remain ice free throughout the year? If not, were the water levels corrected to remove ice cover influence?	
9-003	At station CR-WC-TI-01 the stage-discharge curve follows an irregular form. Use of this rating curve may result in substantial errors for future flow rate predictions. Is monitoring on-going to add additional data measurement points?	
9-004	Were any analyses completed to confirm that Douglas River near Cluff Lake (Station number 07MA003 operated by Water Survey Canada) was a reasonable proxy to represent long term hydrological conditions for the Project?	

2.8.2 RECOMMENDATIONS

Consultants recommend that MN-S request the following:

1. Confirmation of confidence in any modelling completed based on data extrapolated beyond the measured ranges of stage-discharge rating curves at hydrometric gauging stations.
2. Confirmation that monitoring programs consider pertinent timing windows to address data gaps in rating curves (i.e., high and low points).
3. Confirmation of rationale and confidence in methods used to estimate backwatered hydrographs and winter flow rates.

2.9 SURFACE WATER QUALITY AND SEDIMENT QUALITY (SECTION 10)

2.9.1 AREAS OF CONCERN

This review was undertaken to identify red flags within the limit of the budget and only considered Section 10 Surface Water Quality and Sediment Quality. Not all referenced annexes or technical support documents (TSDs) within Section 10 could be reviewed.

There was one red flag issues encountered within Section 10.

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
10-001	Key Findings "Water quality COPC concentrations in the far-future projection indicate that cobalt and copper may exceed the threshold for water quality in the receiving environment downstream of the Project …" This section indicates that the copper and cobalt levels could be resolved through mitigation, but it is not clear what that mitigation might be.	10.8, 10-127

2.9.2 RECOMMENDATIONS

Consultants recommend that MN-S request the following:

1. Confirmation of mitigations if the far future projection for copper and cobalt exceeds water quality thresholds.

2. Clarification of the implications of elevated levels of cobalt and copper in the downstream receiving environment.

3. Clarification if the exceedance is anticipated to have negative impacts, to what level of severity, and how it will be managed.

2.10 FISH AND FISH HABITAT (SECTION 11)

2.10.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
11-001	*Valued Components* Table 11-2.1: Species Considered for Selection as Valued Components Burbot was not one of the four (4) fish species selected as Valued Components (VCs) for assessing the effects of the Project on fish and fish habitat. The EIS states burbot were excluded because they were mentioned infrequently by communities during engagement, and because they occupy niches that overlapped with other VC species chosen; namely, lake trout (pelagic predator) and lake whitefish (bottom dwelling species, and prey species). It is because of this overlap, and other aspects of the burbot—a winter spawner that spends adult life more resident in its preferred habitat than either lake trout or lake whitefish—they occupy a unique niche in the aquatic environment. Larger burbot are a predator species that eat fish while younger burbot tend to eat insects. Smaller burbot can be a prey species for some larger fish species. Adults are a night predator and often move into the littoral zone to feed.[8] Burbot also have a proportionately larger liver than other fish, a physiological difference. Burbot 's unique physiology, use of habitat, and feeding habits have the potential to contribute more fully to baseline information and knowledge gaps for this EIS.	11.2.2.1, p. 11-13 to 11-15, 11-17
11-002	Fish Communities Table 11.3-2 Summary of Fish Species Captured in the Local and	11.3.4, p. 11-60

[8] Tallman, R. F., Tonn, W. M., Howland, K. J., Antoniuk, K., Lapine, D., MacDonald, F., Tourangeau, S., Unka, D., Unka, T. (1996) *Life History Variation of Inconnu (Stenodus leucichthys) and Burbot (lota lota), Lower Slave River, June to December 1994*. (Report number 118). Northern River Basins Study Project. 0-662-24656-X.pdf (barbau.ca), p. 33.

Issue #	Concerns	Section, page
	Regional Study Areas Burbot were documented to be a common and well distributed fish species in the sampling program, being captured in all but two (2) waterbodies and watercourses (Clearwater River above Beet Lake, and Clearwater River below Beet Lake), so burbot are present in most (if not all) of the aquatic study area.	
11-003	*Summary of Ecological Risk Assessment* The Ecological Risk Assessment (EcoRA) predicted elevated copper concentrations to exceed surface water quality in Patterson Lake, North Arm - West Basin. It states that the most sensitive endpoints for chronic copper exposure would include the growth of benthic invertebrates, the reproduction of zooplankton, and growth and reproduction of forage fish—represented by lake whitefish.	11.5.2.2, p. 11-125
11-004	Effects on Habitat Availability If there were changes in the lower trophic levels, there could potentially be changes up the food chain to higher trophic levels.	11.5.2.4.1, p. 11-128
11-005	Effects on Survival and Reproduction The EIS states because large-bodied fish (such as lake whitefish) are mobile, it may be unlikely most individual fish would be exposed to maximum copper concentration in sediments for extended periods. It is predicted that limited effects may occur but are not likely for survival and reproduction of fish VCs. Burbot, on the other hand, are more sedentary, moving smaller distances and may spend more time in an area with copper in the sediments. Lake whitefish (*Coregonus clupeaformis*) is an inadequate and inappropriate representation of burbot *(Lota lota*) as a Valued Component (VC) through which to assess the effects of the Project on fish and fish habitat.	11.5.2.4.3, p. 11-130 to 11-131
11-006	Significance Determination Lake whitefish were the forage fish considered in the VC of the EcoRA and effects due to direct exposure to copper in the water column are not expected for predator fish[9] and are considered unlikely for forage fish. [10]	11.5.4.2, p. 11-138

[9] Lake trout, northern pike, and walleye were chosen to represent predator fish.
[10] Lake whitefish.

Issue #	Concerns	Section, page
	Burbot feeding and habitat use show them to be bottom dwelling and both a prey species (when smaller), and predator species. So, it cannot be assumed that burbot occupy the same niche as lake trout or lake whitefish and will potentially retain COPCs (Copper if that is the long-term concern, or other COPCs) in the same manner, concentration, or proportion.	
11-007	Significance Determination The EIS states predicted effects are irreversible before the end of the modelling timeframe and are therefore considered permanent. Maximum copper concentrations are anticipated to occur during limited periods (dry climate years). It is acknowledged that this is a reasonable approach, however a species such as burbot, with different aquatic habitat uses and feeding patterns, could bioaccumulate COPC's differently than the species chosen and even potentially more than other species for some COPCs because of their larger liver. The Albert Northern River Basin Study (NRBS) collected baseline COPC's in burbot tissue and liver. Part of the justification for the inclusion of burbot in the contaminant study was because burbot move less than other fish species.[11] Staying within a given habitat for longer periods increases the likelihood of issues with contaminant build up. Burbot undertake one brief seasonal movement mid-winter for spawning compared to the longer, more complex movement patterns and habitat use of other fish species studied.[12] Including burbot would add value by doing two things: i. It would allow for another layer of contaminant baseline to be documented throughout the study area and may be valuable to the company to show that future changes are regional and not mine site specific. ii. Burbot may also show changes sooner than other fish species simply because they move less and stay in an area longer which potentially exposes them to contaminant in a different way than lake trout or lake whitefish.	11.5.4.2, p. 11-138, 11-140

[11] Lockhart, W. L., Metner, D. (1996). *Analysis for Liver Mixed Function Oxygenase in Fish – Peace, Athabasca and Slave River Basins, September to December, 1994* (Report No. 132). Northern River Basins Study Project. 0-662-24709-4.pdf (barbau.ca), p. 47.

[12] Tallman, R. F., Tonn, W. M., Howland, K. J., Antoniuk, K., Lapine, D., MacDonald, F., Tourangeau, S., Unka, D., Unka, T. (1996) *Migration of Inconnu (Stenodus leucichthys) and Burbot (lota lota), Slave River and Great Slave Lake, June, 1994 to July, 1995*. (Report No. 117). Northern River Basins Study Project. 0-662-24656-X.pdf (barbau.ca), p. 1, 26, 34.

Issue #	Concerns	Section, page
	Burbot should be considered for testing to get baseline information regarding their existing COPC levels. Also test burbot several years following (project scientist can suggest frequency of revisiting the sampling effort).	
11-008	No Pathways The temperature of the effluent, when released, is not expected to increase water temperature; less than 1°C increase at edge of regulated mixing zones. However, because a temperature increase is expected: Q1. Will mixing zone/diffuser heat create a thermal refuge and attract fish (thus spending more time in the effluent zone)? Will some fish spend more time in this mixing zone if it has a buffered temperature regime (likely winter use)? Q2. Is the volume of water being released through effluent into the lake enough that it could affect temperature refuge type habitat for lake trout over the lifespan of the mine? Rational for question: lake trout use cold water zones in lakes as thermal refuge, particularly during warmer summer periods. Could warmer water released, over the lifetime of the operation, potentially decrease the volume of the lake's thermal refuge for lake trout? Is there potential for climate change (likely causing lakes to warm in northern regions such as this), in combination with the warmer effluent, to affect lake trout habitat sooner than if climate change was not the only influence on lake temperatures? If effluent temperature has an area of influence that increase lake temperature locally in Patterson Lake, it may i. attract fish into spending more time closer to the effluent mixing area; and ii. decrease the area (volume) of colder, refuge habitat available for Lake Trout to spend summer months.	11.4.1, p. 11-75, p. 11-80
11-009	Secondary Pathways The EIS makes no mention of aquatic invasive species (AIS). Mine site activity (construction and operation) will bring construction equipment from down south, and potentially from out of province. There is risk of AIS movement with all equipment, particularly if there is no policy or requirement to clean equipment before moving used equipment to site. With increased access to area (recreational users	11.4.2, p. 11-114 to 11-115

Issue #	Concerns	Section, page
	are a potential source of AIS), how will waters be monitored for AIS during the life of the mine, until the area is decommissioned? NexGen's consideration to implement a policy to prohibit or restrict employees and contractors from fishing on project site and along the existing access road while on rotation or residing in camp is one possible step toward preventing the introduction of AIS to the area. Another step NexGen mentions is bringing workers to site by bus or by air to limit personal vehicles travelling to and being on the site. It would be relatively simple to have a veliger sampling program (assuming zebra mussels would be the species to target) on lakes to which mine development has improved access. Some acknowledgment of the mine development and operation being a vector of increased risk for AIS exposure is reasonable. The potential to introduce presence of aquatic invasive species (AIS) exists, given that equipment and personnel may be sourced from places where AIS exist. (This will become even more of a concern if the Fission project also goes ahead). Improved access to recreational users will also increase the risk of AIS exposure.	

2.10.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Site (LSA) information for existing baseline data regarding burbot health and toxicology to improve site-specific knowledge and increase local information with which local users can make dietary decisions.

2. Inclusion of an AIS policy for mine equipment and personnel education on AIS. Include monitoring for AIS within the monitoring program. Educate personnel onsite regarding equipment cleaning and use appropriate to prevent AIS introduction. Prevent use of equipment that may introduce AIS into local study area.

3. The monitoring of effluent release and mixing zones and use adaptive management to alter release or mixing to prevent or minimize thermal effects to Patterson Lake.

2.11 VEGETATION (SECTION 13)

2.11.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
13-001	Purpose and Approach to the Assessment "the purpose of Section 13 is to provide a detailed and comprehensive assessment of all potential Project-specific effects and cumulative effects ..." How does this approach consider the "minor" effects that are screened out before the assessment is even begun?	13.1.2, p. 13-6
13-002	*Valued Components* "Habitat requirements for species that are not well known or understood (i.e., tracked bryophytes, such as mosses, and lichens) were excluded as VCs because of the high degree of uncertainty associated with the distribution of these taxa (e.g., species) within the area of the anticipated Project (and generally in Saskatchewan)(DeVries and Wright 2015) and because such organisms often require detailed chemical or taxonomic procedures for their identification (Eldridge et al. 2003)." A high degree of uncertainty and lack of information does not preclude the potential for adverse Project-related effects on tracked and/or listed non-vascular plant and lichen species. Please comment on why this lack of information was not addressed within baseline studies for the Project.	13.2.2, p. 13-13
13-003	*Assessment Endpoints* Table 13.2-1 Valued Components, Rationale, Measurement Indicators, and Assessment Endpoints Please explain why "ecosystem condition" was not used as a measurement indicator for the traditional use plant species VC. As defined in Section 13.2.2.2[13], ecosystem condition is "primarily affected by changes in the amount of moisture and sunlight, competition with invasive species, and dust deposition". Please explain how traditional use plant species and their associated ecosystems are not expected to be affected by these changes.	13.2.2.3, p. 13-15
13-004	*Baseline Survey Boundaries* This section states that the spatial boundaries for the baseline field surveys differed from those used in the EA, but that the baseline survey data remain appropriate for the EIS boundaries.	13.2.3.1, p. 13-16

[13] EIS, Section 13, p. 13-14.

Issue #	Concerns	Section, page
	What effect or source of error does having different spatial study areas for vegetation VCs—and some surveys that did not include the entire footprint of the Project—have on the appropriateness of the EIS, considering the size of the Assessment RSA shown in Figure 13.2-1, on page 13-18, and the amount of area that was never surveyed?	
13-005	Existing Conditions "Supplemental vegetation inventory and rare plant surveys [were] completed in 2021 to further characterize baseline conditions for vegetation (Dolmage 2021)." Will this information be provided as an Annex to the EIS for review? MN-S has not had an opportunity to evaluate this material to date.	13.2.6, p. 13-24
13-006	*Ecological Land Classification* It is noted that a new ELC map was created for the EIS, which is different from the ELC map used in the baseline Annex reports. How closely does the EIS ELC mapping correspond with the mapping products created by CanNorth and Omnia in 2021? Does the revised ELC mapping have any implications for stratified listed/tracked plant surveys completed during baseline work (i.e., have all revised ELC units been appropriately sampled in accordance with SK CDC protocols)?	13.2.6.1, p. 13-26
13-007	*Ecological Land Classification* What is the scale of the ELC mapping? What was the minimum, maximum, and average polygon size? What proportion of polygons were field verified?	13.2.6.1, p. 13-26
13-008	Wetland Ecosystem Mapping Table 13.2-4 Wetland Ecological Land Classification Units within the Local and Regional Study Areas The table does not show any shallow open water wetlands mapped within the LSA or RSA. Please comment on why no shallow open water wetlands were identified to be associated with persistent water <2m deep (as defined by the Canadian Wetland Classification System).	13.2.6.1.2, p. 13-28
13-009	Riparian Ecosystem Mapping "Riparian ecosystems are zones of interaction between aquatic and terrestrial environments within watersheds that function in linking terrestrial ecosystems to watercourses, stabilizing streambanks and	13.2.6.1.3, p. 13-29

Issue #	Concerns	Section, page
	floodplains, regulating stream temperatures, and providing a source of large woody debris and organic matter for aquatic ecosystems …". Based on this definition, it is unclear why ecosystems with "riparian potential" were defined as land cover types with moist or wet soil moisture regimes. It seems that ecosystems with other soil moisture regimes (e.g., mesic) within riparian areas could provide similar functions. Please comment on how the definition of "riparian potential" used within the assessment is not underestimating riparian ecosystems within the RSA.	
13-010	Riparian Ecosystem Mapping "The method used to identify riparian ecosystems likely overestimates the outer edge of active floodplains for many of the smallest watercourses and waterbodies in the RSA and appropriately captures the active floodplains for the largest watercourses in the RSA." Were mapped wetland ELC units also buffered (i.e., waterbodies not captured at the 1:50k CanVec scale)?	13.2.6.1.3, p. 13-29 to 13-30
13-011	*Traditional Plant Use Plant Species* How have total availability calculations for traditional use plant species considered ELC units with low field sampling effort? Were vegetation field plots comparable between studies (i.e., CanNorth vs. Omnia)? How has accessibility and practicality for harvest (i.e., available at high density) been considered?	13.2.6.2, p. 13-36
13-012	Project Interactions and Mitigations "Secondary pathway: The pathway could result in a measurable but minor environmental change relative to existing conditions or guideline values, but this change would be sufficiently small that it would have a negligible residual effect on vegetation." This approach uses language that implies dismissing "minor" changes that the assessment knows, without doing the assessment, would definitively (i.e., "would have") have a negligible effect – and none of these terms have been defined. As such, the assessment does not appear to assess "all" potential effects on vegetation, but only those residual effects that are judged to be greater than "minor", before the assessment is done? How are the negligible effects considered in the	13.2.7, p. 13-37

Issue #	Concerns	Section, page
	cumulative effects assessment?	
13-013	Residual Effects Classification and Determination of Significance It is noted that magnitude criteria have not been assigned based on VC-specific thresholds. While it is understood that context is required to properly characterize effects, well-supported VC-specific a priori magnitude thresholds provide clear rationale for magnitude determinations.	13.2.9, p. 13-39
13-014	*Ecosystem Condition* Please comment on the baseline data collection for Boreal Shield ecosites in Annex VII.1 and its applicability to areas of the Boreal Shield within the RSA. What is the confidence in the age estimates provided, given the low extent of overlap between the Omnia RSA and the EIS RSA?	13.3.1.3, p. 13-51
13-015	*Ecosystem Distribution* Figure 13.3.3: Wetland Ecosystems and Rare Plant Species in the Regional Study Area, Base Case On Figure 13.3.3, wetland ecosystems appear to be more prevalent outside (to the south) of the Omnia RSA at the southwestern extent of the EIS RSA. Please provide comment on the implications of this discrepancy and the relative accuracy of wetland mapping within each of the EIS study areas considering that if wetlands have been disproportionately mapped at the margins of the RSA, the potential effects of the Project may be diluted within the assessment.	13.3.2.2, p. 13-56
13-016	*Ecosystem Availability* "Overall, riparian habitats are uncommon the landscape relative to upland and wetland ecosystems …" Please comment on how different mapping scales/products within the LSA and RSA may have influenced this result.	13.3.3.1, p. 13-60
13-017	Secondary Pathways Secondary pathways identified as: V-03 Public access affecting vegetation	13.4.2, p. 13-86 to 13-97

Issue #	Concerns	Section, page
	V-04 Fugitive dust and constituent emissions V-05 Vegetation changes from particulates and acid emissions V-06 Loss from fibre optic line V-07 Invasive species V-08 Surface water flow changes V-09 surface water quality from runoff V-10 Treated effluent discharge V-11 Surface water quality from WRSAs and UGTMF after Closure, are all addressed by outlining the general mitigation and then concluding with a statement such as "any minor changes are predicted to have a negligible residual effect on vegetation VCs, and the pathway was not carried forward in the assessment". Please address how it is appropriate to not consider all adverse effects on vegetation VCs in the assessment of residual effects, regardless of the magnitude, particularly in the cumulative effects assessment, where several "negligible adverse effects" could result in a measurable change in vegetation? It is noted that no potential indirect effects on vegetation VCs have been carried forward to the residual and cumulative effects assessments. In addition, negligible is not a defined term in Table 13.2-9[14] Definitions applied to the effects criteria classifications for the assessment of residual effects, for vegetation – yet it is used throughout the chapter to dismiss residual effects?	
13-018	Primary Pathways This section addresses two primary pathways: V-01 Direct loss W-02 Terrain alteration, that are taken forward in the assessment. Please comment on the rationale for focusing on only two identified	13.4.3, p. 13-98

[14] EIS, p. 13-39

Issue #	Concerns	Section, page
	residual effects while dismissing the secondary pathways identified earlier and not considering their influence on vegetation in addition to the primary pathways, particularly as it relates to cumulative effects?	
13-019	Ecosystem Availability "Wetland ecosystems are less common within the LSA … relative to the RSA …". Please comment on how different mapping scales/products within the LSA and RSA may have influenced this result.	13.5.2.1.1, p. 13-118
13-020	Effects on Biodiversity indicates that "effects on biodiversity have been evaluated based on the assessment completed for ecosystems and traditional use plant species". "Effects on biodiversity have been assessed on the effects on ecosystems … and the effects on traditional use plant species …" Please explain how all the minor/negligible effects on vegetation that were not assessed (i.e., only primary pathways taken forward into the assessment and the cumulative effects assessment) increase the uncertainty of the assessment results?	13.5.5, p. 13-164
13-021	Monitoring, Follow-up and Adaptive Management The section discusses monitoring, the Environmental Monitoring Plan, the Preliminary Decommissioning and Reclamation Plan, and the plan to establish Environmental Committees. No details, or even a draft Table of Contents, on an Environmental Monitoring Plan for vegetation are provided, only a commitment that one would be implemented. Please provide Environmental Monitoring details for the vegetation component. There is also no discussion on any follow-up programs that would test the predictions made in the EIS under this heading, as it suggests; please address as appropriate?	13.7, p. 13-167

2.11.2 RECOMMENDATIONS

Based on the information provided in the technical review of the Rook I EIS, the following recommendations are made below.

1. A detailed review of the baseline data collected for the various field program study areas, in relation to the spatial boundaries delineated for the environmental assessment, that also addresses any deficiencies, as appropriate, into the consideration of the ecological context and confidence ratings in the effects assessment for wildlife and wildlife habitat.

2. A review of the secondary pathways, not previously assessed, to determine if any should be considered as primary pathways, or at least to discuss how these secondary pathways were considered in the environmental assessment or cumulative effects assessment.

3. A review of the cumulative effects assessment to determine if all reasonably foreseeable future projects and activities were considered appropriately.

2.12 WILDLIFE AND WILDLIFE HABITAT (SECTION 14)

2.12.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
14-001	Purpose and Approach to the Assessment "The purpose of Section 14 is to provide a detailed and comprehensive assessment of all potential Project-specific effects and cumulative effects …" How does this approach consider the "minor" effects that are screened out before the assessment is even begun?	14.1.2, p. 14-6
14-002	Measurement Indicators Section states that one of the measurement indicators is "survival and reproduction" which relates to "change in abundance". Measurement indicators suggest that baseline information is such that any changes resulting from the Project can be measured. Does the baseline information support such a comparison to adequately inform the assessment (i.e., environments that can be measured)?	14.2.2.2, 14-23
14-003	Spatial Boundaries Section states that the spatial boundaries for the baseline field surveys differed from those used in the EA, but that the baseline survey data remain appropriate for the EA boundaries. What effect or source of error does having different spatial study areas for some of the wildlife groups, and that some of the surveys did not include the entire footprint of the Project, have on the appropriateness of the EA, considering the size of the Assessment RSA shown in Figure 14.2-1, on page 14-25, and the amount of area that was never	14.2.3, p. 14-23

Issue #	Concerns	Section, page
	surveyed?	
14-004	Project Interactions and Mitigations "Secondary pathway: the pathway could result in measurable but minor environmental change relative to existing conditions or guideline values, but this change would be sufficiently small that it would have a negligible residual effect on wildlife and wildlife habitat." This approach uses language that implies dismissing "minor" changes that the assessment knows, without doing the assessment, would definitively (i.e., "would have") have a negligible effect – and none of these terms have been defined. As such, the assessment does not appear to assess "all" potential effects on wildlife and wildlife habitat, but only those residual effects that are judged to be greater than "minor" before the assessment is done. How are the negligible effects considered in the cumulative effects assessment?	14.2.7, p. 14-43
14-005	Residual Effects Analysis "Changes in habitat availability and animal use" This appears to link two concepts into a single effect and the linkage is not clear. Please explain.	14.2.8, p. 14-44
14-006	Residual Effect Analysis "Changes in survival and reproduction" Again, appears to link two concepts into a single effect. Without detailed baseline information on the survival rates and reproduction of the wildlife VCs, it is unclear as to how there can be an assessment to determine changes in the measurement indicators. Please expand on this.	14.2.8, p. 14-44
14-007	Residual Effects Classification and Determination of Significance Table 14.2-7 Definitions Applied to Effects Criteria Classifications for the Assessment of Valued Components The table shows that for "Magnitude," the change in the measurable indicator is described by effect size with no characterization criteria (e.g., Low, Moderate, High) to put the effect into context with appropriate threshold values or other ecological indicators. Please discuss how this approach is appropriate in informing the determination of the significance of any of the residual effects for	14.2.9, p. 14-45

Issue #	Concerns	Section, page
	wildlife and wildlife habitat.	
14-009	Residual Effects Classification and Determination of Significance Section states that the significance of the residual effects on the VC were determined at the RSA level, except for caribou, where significance was determined at the scale of the SK2 West Caribou Administration Unit. Please discuss the rationale for this, and dilution of the effect that this approach would introduce to differing spatial boundaries for the assessment and the purpose for different study areas for caribou (i.e., caribou regional study area, caribou home range assessment area, Regional Study Area) to inform the assessment and/or the differing conclusions based on the different spatial areas.	14.2.9, p. 14-46
14-010	it appears that little of the baseline data collected was used to inform the description of the baseline conditions for the VCs (i.e., no mention of populations or densities estimated), and that the baseline description relied heavily on a literature review – please explain how the baseline data collected to support and inform the EA was incorporated and used?	14.3.1 to 14.3, p. 14-49 to
14-011	Project Interactions and Mitigations Table 14.4-1 Potential Effects Pathways for Wildlife and Wildlife Habitat Table indicates that one of the primary mitigation measures is to "Limit the Project Footprint to the extent practical." Does this recognize the area currently disturbed by all the exploration activities that have taken place in the past that has led up to the Project being advanced? No mention a pre-exploration conditions is discussed.	14.4, p. 14-148
14-012	Secondary Pathways W-04 Fibre optic line direct loss states that the entire line will be ploughed-in. What about watercourse, wetland and bog crossings and related disturbances to wildlife and wildlife habitat? W-05 Injury and mortality from clearing W-06 Invasive plants affecting wildlife habitat W-07 Increased edge habitat	14.4.2, p. 14-157 to 14-174

Issue #	Concerns	Section, page
	W-08 Increased predator access W-09 Increased public access W-10 Air emission effects via inhalation or ingestion W-11 Soil contamination from emissions W-12 Treated effluent discharge W-13 Surface water quality from runoff W-14 Water quality from WRSAs and UGTMF W-15 Surface flow changes W-16 Linear barriers W-17 Power line injury and mortality W-18 Vehicle injury and mortality W-19 Wildlife attractants W-20 Direct harm from contact water All secondary pathways are addressed by outlining the general mitigation and then concluding with a statement such as "any adverse interactions between the Project and wildlife are expected to be infrequent and have a minor influence on regional population relative to existing conditions and are predicted to result in negligible residual effects on VCs – and the pathway was assessed as secondary and not carried forth in the assessment". How it is appropriate to not consider all negative effects on wildlife and wildlife habitat in the assessment of residual effects, regardless of the magnitude, particularly in the cumulative effects assessment, where several "negligible adverse effects" could result in a measurable change in wildlife or wildlife habitat? Explain why "negligible" is not a defined term in Table 14.2-7: Definitions Applied to Effects criteria Classification for the Assessment of Valued Components, for wildlife and wildlife habitat – yet it is used throughout the chapter to dismiss residual effects.	
14-013	Primary Pathways Three primary pathways: W-01 Habitat loss W-02 Habitat alteration W-03 Sensory disturbance	14.4.3, p. 14-174

Issue #	Concerns	Section, page
	are taken forward in the assessment – please comment on the rationale for focusing on only three identified residual effects while dismissing the secondary pathways identified earlier and not considering their influence on wildlife and wildlife habitat in addition to the primary pathways, particularly as it relates to cumulative effects.	
14-014	Residual Effects Analysis It appears that the significance of each of the residual effects was not determined, but that the residual effects (i.e., only those with a primary pathway) were rolled up to predict the significance on each of the wildlife VCs – is this correct?	14.5, 14-175
14-015	Summary of Significance Determination "… even the incremental effects due to the small amount of habitat loss from the Project in SK2 West are predicted to result in a significant adverse effect on caribou in the Application Case. … Cumulative effects from the Project, Fission Patterson Lake Property, and forest harvest activities are similarly predicted to result in a significant adverse effect on caribou in the RFD Case, …". Please explain how significant effects, including cumulative effects, on a listed species can be mitigated with the development of a Caribou Mitigation and Offsetting Plan (i.e., no details provided or evidence that such a plan will be effective) for the Project. MN-S has not had the opportunity to evaluate the Caribou Mitigation and Offsetting Plan to date.	14.5.1.3.2, p. 14-198
14-016	Effects of Biodiversity "Effects on biodiversity have been evaluated based on the assessment completed for the wildlife VCs, …". Please explain how all the minor/negligible effects on wildlife and wildlife habitat that were not assessed (i.e., only primary pathways taken forward into the assessment and the cumulative effects assessment) increase the uncertainty of the assessment results, particularly as they relate to listed species.	14.5.13, p. 14-353
14-017	Monitoring, Follow-Up, and Adaptive Management The section discusses monitoring, the Caribou Mitigation and Offsetting Plan, the Preliminary Decommissioning and Reclamation Plan, and the plan to establish Environmental Committees. No details, or even a draft Table of Contents, on an Environmental	14.7, p. 14-356

Issue #	Concerns	Section, page
	Monitoring Plan for Wildlife and Wildlife Habitat are provided, only a commitment that one would be implemented. Please provide Environmental Monitoring details for the Wildlife and Wildlife Component. There is also no discussion on any follow-up programs that would test the predictions made in the EIS under this heading, as it suggests – please address as appropriate.	
14-018	Monitoring, Follow-Up, and Adaptive Management "A Caribou Mitigation and Offsetting Plan would be developed … following submission of the EIS." If this document is considered appropriate as the mitigation for what the EA has determined to be Significant negative effects on caribou – why has this not been included the EA for consideration by MN-S?	14.7, p. 14-356
14-019	Key Findings "Section 14 met the main objectives of the Terms of Reference for the Project issued by the ENV and CNSC by providing a detailed and comprehensive assessment of potential Project-specific effects, and cumulative effects from the Project and other developments on wildlife and wildlife habitat." How can the assessment be considered comprehensive, when "minor or negligible effects" are screened out; therefore, not all residual effects were assessed, particularly in the cumulative effects?	14.8, p. 14-357
14-020	Barn Swallow Indicates that no secondary pathways were assessed for any of the listed species addressed in this section. Was this approach considered appropriate to determine cumulative effects on these listed species?	14A2, p. 2
14-021	Barn Swallow To determine significance of the Project residual effects and the cumulative effects for three listed species, the prime consideration in the assessment appears to be that the incremental changes to habitat availability, habitat distribution, and survival and reproduction are expected to remain within the species' resilience and adaptability limits, and therefore, to remain self-sustaining and ecologically effective – followed by the prediction of not significant for the residual effects. How can this statement be made in this screening-level assessment	14A2, p. 3,4

Issue #	Concerns	Section, page
	when there is no mention of measurement indicators relative to resilience and adaptability?	
14-022	Model Validation This section reports on model verification for rusty blackbirds and concludes with the statement "The model provides an ecologically relevant and confident assessment of the effects of the Project and previous, existing and other future developments on olive-sided flycatcher habitat." Please explain the correlation between rusty blackbird habitat as it relates olive-sided flycatcher habitat, and its relevance in the EA?	14B3.7.2, p. 30

2.12.2 RECOMMENDATIONS

Consultants recommend that MN-S request

1. That the Rook I EIS remain in draft form until MN-S has reviewed the details of the Environmental Monitoring Plan (including follow-up programs), as it relates to Wildlife and Wildlife Habitat, and the Caribou Mitigation and Offsetting Plan.

2.13 HUMAN HEALTH (SECTION 15)

2.13.1 AREAS OF CONCERN

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Issue #	Concerns	Section, page
15-001	Presentation Figure 15.1-3 Linkage Diagram of Project Effects on Human Health and Influenced Value Components The linkage diagram is useful; however, it does not include all relevant information. Potentially operative exposure pathways removed through controls, mitigation, or treatment should also be discussed. Any exposure pathways which are assumed to be incomplete will require confirmation with monitoring and should not restrict Traditional Land Uses of MN-S, and the reasoning for excluding exposure pathways should be obvious and transparent.	15.1, p. 15-4
15-002	Existing Conditions Some traditional peoples eat burbot—including the liver. There may be the potential for bioaccumulation of COPCs in burbot livers, especially if burbot are ingesting other predator species of fish, as well	15.2.6, p. 15-20, 15-21

Issue #	Concerns	Section, page
	as benthic organisms. Burbot would be a good species to gather baseline COPC information from because they are distributed throughout the study area; being captured in all but two (2) waterbodies and watercourses (Clearwater River above Beet Lake, and Clearwater River below Beet Lake). One of the reasons that burbot would be a good species to gather baseline COPC information from is because burbot are distributed throughout the study area, being captured in all but 2 waterbodies and watercourses (all except Clearwater River above Beet Lake, and Clearwater River below Beet Lake).	
15-003	Removal of Exposure Pathways Removal of exposure pathways through mitigation is only acceptable if mitigative measures are applied at the design stage or if their continued operation are conditions of project approval. If active management, exposure control, or other risk mitigations measures need to be maintained or actively applied/enforced, than the pathway should be considered operative. Any exposure pathway mitigated through this approach will require additional monitoring and validation to ensure that the mitigation is effective. Any mitigation which requires restrictions on Traditional Land Use by MN-S will require additional consultation.	15.2.7, p. 15-23
15-004	Risk Assessment Figure 15.2-2: Human Health Risk Assessment Process The methodology described can be applied to individual COPCs. However, when multiple COPCs are present, risks can occur when exposure to individual COPCs is still below safe levels if multiple COPCs have similar modes of toxicity. Exclusion of COPCs before evaluation of toxicity interactions may underestimate potential risks to human receptors.	15.2.8, p. 15-24
15-005	*Receptor Selection and Characterization* Table 15.2-3: Rationale for Selection of Human Health Receptor Groups It is unclear if COPC screening used observed or predicted concentrations.	15.2.8.1, p. 15-26
15-006	Subsistence Harvester "… about 50% of the Traditional Foods for subsistence harvesters	15.2.8.1, p. 15-27

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	were assumed to be sourced from either Patterson Lake South Arm, Beet Lake in the LAS, or Lloyd Lake, and the other 50% from a reference location." The identity of this reference location and potential for additional exposure through country foods (whether naturally occurring or not) is not clear. The EIS should clarify whether/how COPC exposure from the reference location was incorporated.	
15-007	*Aquatic Sources* Figure 15.2-3: Selection of Surface Water Screening Values for Constituents of Potential Concern for the Environmental Risk Assessment Application of Federal or Provincial Guidelines is not necessarily protective of human health. COPCs concentrations which are increased by project activities, but remaining below guidelines, still contribute to overall exposure. Applied guidelines my also not be protective of Traditional Land Uses, address the potential for bioaccumulation in Traditional Foods, or reflect the most current understanding of COPC toxicity.	15.2.8.2, p. 15-29
15-008	*Aquatic Sources* Figure 15.2-4: Screening Process for Selection of Constituents of Potential Concern for the Environmental Risk Assessment It is not clear if COPCs that exceeded water quality objectives at end-of-pipe treatment but met WQOs at the boundary of the mixing zone, were excluded from further assessment. This approach is not conservative and makes several assumptions regarding dilution factors for COPCs. If this approach is taken, these assumptions and model results must be validated with a comprehensive monitoring plan, with a plan in place to address any unexpected WQO exceedances. Factoring in dilution in a surface water body is not good practice for ecological risk assessment.	15.2.8.2, p. 15-30
15-009	*Atmospheric Sources* Screening against Ambient Air Quality Objectives (AAQO) needs to confirm that all applied objectives are entirely health based, and do not represent achievability, objectives being phased in over time, or which include social, technical, or economic factors. Additionally, any COPC, even if there are AAQO, that acts with a non-threshold level of toxicity should be included for further assessment regardless of whether they	15.2.8.2, p. 15-32

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	exceed AAQOs, to indicate potential health effects.	
15-010	*Atmospheric Sources* Screening for deposition based on soil quality guidelines may not be protective in some cases. For example, if soil quality guidelines do not consider exposure pathways relevant to all applicable traditional land use (e.g., consumption of Traditional Foods). For example, arsenic and lead are both predicted to be deposited to soil increasing concentrations and exposure, and are present in other media, but not assessed further in soil (Table 4.3.3.4, Page 4.40 and Table 4-10, Page 4.41 of TSDXXI). These are both non-threshold COPCs, so any increase in environmental concentration needs to be incorporated into the overall project exposure calculation.	15.2.8.2, p. 15-32
15-011	Exposure Pathways and Conceptual Model Figure 15.2-5 Human Health Conceptual Site Model[15] Indicates that the only exposure of human receptors to water is through ingestion, this is not consistent with wording throughout Section 15.2.	15.2.8.3, p. 15-35
15-012	Risk Characterization and Determination of Significance This Section lacks clarity on the usage of age-dependent adjustment factors (ADAFs) for different life stages. ADAFs of 1 are not conservative, and in some cases, Health Canada recommends larger AFAFs: 10 for infants, 5 for toddlers, 3 for children, and 2 for teenagers.[16]	15.2.9, p. 15-37
15-013	Risk Characterization and Determination of Significance "Arsenic was evaluated …. as a non-threshold carcinogen … For this assessment, the lifetime average daily dose was estimated for various age groups … to permit estimation of the lifetime risk to a composite receptor for each of the subsistence harvester, seasonal resident, and permanent resident." Confirm if there was any averaging of doses for less-than-lifetime exposure to non-threshold carcinogens as described. If so, confirm that this averaging followed Health Canada guidance.[17]	15.2.9, p. 15-37

[15] See also Section 6 TSD XXI: Environmental Risk Assessment, Issue # ERA-002, of this document.
[16] *Federal Contaminated Sites Risk Assessment in Canada: Interim Guidance on Human Health Risk Assessment for Sort-Term Exposure to Carcinogens at Contaminated Sites,* Health Canada, 2013. https://publications.gc.ca/collections/collection_2013/sc-hc/H144-11-2013-eng.pdf
[17] Ibid.

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15-014	Risk Characterization and Determination of Significance "post-modelling adjustments were made on the outputs to account for bioavailability of arsenic in certain foodstuffs … and the percent inorganic arsenic present in fish tissue, given that 90% is present in a relatively non-toxic, organic form" Several adjustments were made to arsenic exposure based on assumed bioavailability and ratio of inorganic to organic forms. Arsenic is above risk thresholds and pretty large adjustments were made. Metals have highly variable bioavailability so in this case a good practice would be to confirm that moose meat is safe.	15.2.9, p. 15-37 to 15-38
15-015	Baseline Considerations of Constituents in Environmental Media Based on Indigenous Knowledge evidence, water and air quality is extremely high in the Study Area, except for areas already impacted by other developments. It is not clear if baseline data used in the Environmental Risk Assessment reflect natural high-quality conditions and not those already impacted by existing activity.	15.3.1, p. 15-40
15-016	*Carcinogens* This Section compares the subsistence harvester exposed to Project-related arsenic to a reference subsistence harvester for context. However, the reference harvester is only exposed through foodstuffs and not through other exposure pathways, such as baseline concentrations in soil, air, or water.	15.5.1.2, p. 15-58
15-017	*Carcinogens* Figure 15.5-1: Interpretation of Incremental Cancer Risk for Human Health Receptors – Application Case The Figure is not clear. It appears to indicate that ILCR will decrease because of Project activities, and that ILCR values greater than 1 in 1,000 represent low risk. This is not consistent with Health Canada policy and misrepresents the results of the HHRA.	15.5.1.2, p. 15-60
15-018	*Carcinogens* Table 15.5-6: Estimated Incremental Lifetime Cancer Risk from Arsenic to Human Receptors – Reasonably Foreseeable Development Case The discussion and table do not acknowledge predicted ILCRs exceed acceptable levels for three receptor groups, and are over 10x the	15.5.2.2, p. 15-69

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	acceptable level of risk for subsistence harvesters at Patterson Lake South Arm.	
15-019	Risk Characterization and Significance Determination Table 15.6-1 Classification of Residual Effects on Human Health Measurement Indicators for the Application Case and Reasonably Foreseeable Development Case For non-carcinogenic COPCs, the magnitude in Table 15.6-1 is indicated as small compared to existing conditions. However, a base case dose estimate or hazard quotient was not provided for comparison. The geographic extent is also not clear, as HQs were not estimated to be below 0.2 at all locations. The assigned probability of occurrence, unlikely, does not reflect rest of the information provided.	15.6, p. 15-72 to 15-73
15-020	Risk Characterization and Significance Determination Table 15.6-1 Classification of Residual Effects on Human Health Risks were predicted for arsenic, and these were classified as not significant. As risks were predicted, it would be the expectation of MN-S that these potential impacts were examined in more detail. While several conservative assumptions have been made in the HHRA, this conservativeness is intended to reflect the uncertain nature of risk assessment and be protective of al MN-S members. There are no specifics provided or scientific justification behind the assertion that residual effects will not be significant, and there is opportunity to include additional detail in the assessment that would ensure there are no potential risks to members of MN-S.	15.6, p.15-73
15-021	Prediction Confidence and Uncertainty Table 15.7-1 How Uncertainties in the Human Health Exposure are Addressed This table indicates that there are no permanent residents currently in the RSA. It is not clear if there are any restrictions on residency in this area, or if there are control measures in place to prevent establishment of residences within the RSA during the Project lifespan. Excluding permanent residents from an understanding of the RSA has the potential to limit the understanding of potential future residents of the RSA, such as workers at possible future developments in the area.	15.7, p. 15-75
15-022	Monitoring, Follow-Up, and Adaptive Management Environmental monitoring as proposed in Section 15.8 should also	15.8, p. 15-76

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	include verification of assumptions made in the Human Health Risk Assessment (HHRA). Additionally, there should be means to validate that the proposed mitigation measures used to exclude any exposure pathways are in place and working as intended.	
15-023	Monitoring, Follow-Up, and Adaptive Management "short-term exceedances … may occur within the Project footprint …" It is not clear why short-term exposures to air quality pollutants were not included in the HHRA, when this section states that short-term exceedances may occur at the Project boundary (Section 15.8, Page 15-76 of EIS15).	15.8, p. 15-76

2.13.2 RECOMMENDATIONS

Consultants recommend MN-S request:

1. A conceptual site model or linkage diagram that shows all operational as well as incomplete exposure pathways, as well as justification for exposure pathways being rendered incomplete and not considered further in the assessment.

2. Site (LSA) information for existing data regarding toxins (metals, and other toxins) by testing burbot (tissue, bile, livers) as a baseline from which to look at cumulative effects.

3. Assessment of pathways excluded within the HHRA to determine if there is any risk of the mitigation measures failing.

4. Clarification if synergistic toxic effects were evaluated or considered before screening out COPCs including an evaluation of synergistic toxic effects to the Toxicity Assessment.

5. Clarification as to whether COPC screening used observed (Figure 15.2-3 of EIS15) or predicted concentrations.

6. Additional detail on the nature of the "reference location" of the Traditional Food Study and the level of COPC exposure expected through Traditional Resources from there.

7. Detailed review of guidelines adopted from other jurisdictions to ensure the same assumptions regarding toxicity, exposure, and receptor characteristics are applied. Only guidelines which are solely health-based should be considered for COPC screening.

8. Inclusion of all non-threshold air COPCs in the HHRA regardless of applicable AAQOs,

and rescreening of air COPCs to exclude any AAQO which is not entirely health based. All COPCs with no applicable AAQO should be assessed. The Toxicity Assessment (included in TSDXXI) should include evaluation of threshold or non-threshold action of all potential COPCs, as well as potential for synergistic interactions.

9. Revision of Figure 15.2-5 to include "contact" as a potential means of exposure to COPCs in water.

10. Clarification about the use of ADAFs in assessment of carcinogenic COPCs, and that these factors are used in a manner consistent with Health Canada guidelines.

11. An explanation about how any dose averaging for ILCR was incorporated and how estimated time within and outside of the Study Area influenced risk assessment calculations.

12. Confirm if there was any averaging of doses for less-than-lifetime exposure to non-threshold carcinogens as described. If so, confirm that this averaging followed Health Canada guidance.[18]

13.

14. Inclusion of tissue sampling in monitoring programs to confirm assumptions and adjustments made to the HHRA if necessary.

15. That the EIS not screen soil COPCs using guidelines to soil standards unless they are shown to be protective of Traditional Land Use. Do not remove any COPCs which have operative exposure pathways in multiple environmental media.

16. When comparing cumulative effects to baseline condition, natural baseline representing high-quality air and water still present in the study area should be considered, not baseline as impacted by other developments.

17. To ensure a valid comparison between a subsistence harvester exposed to Project-related arsenic and a reference subsistence harvester, please include total exposure for the reference harvester case.

18. Figure 15.5-1 be substantially reworked to address comments under heading 2.13.1 of this report, or that it be removed.

19. Revise text related to ILCR on p. 16-69 to reflect the reported results of the HHRA.

20. Provide additional justification for classifications in Table 15.6-1. Clarify the magnitude in comparison to base case HQ, describe geographic locations where HQ greater than

[18] Ibid.

0.2 is predicted, and explain why the probability of occurrence is unlikely.

21. Complete a more detailed assessment related to arsenic exposure to refine the HHRA to reduce uncertainty and evaluate these predicted risks. Document these results in a revised version of Table 15.6-1.

22. Related to Table 15.7-1, and based on assessment of predicted risks for a receptor at the Maximum Point of Impingement, assess if there are risks to human receptors living in any location within the Study Area. A similar situation happened in BC, where a project was approved only based on current receptor locations, and that led to unintended restrictions on land use throughout a large area when future developments were proposed.

23. As part of the monitoring plan, there should be pre-defined triggers for action as well as responses from NexGen if conditions that could possibly impact human health are found to be occurring.

24. Complete a risk assessment for short-term exposure to air pollutants, including NO_2, PM, and uranium in TSP and PM_{10}

2.14 CULTURAL AND HERITAGE RESOURCES AND INDIGENOUS LAND AND RESOURCE USE (SECTION 16)

2.14.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
16-001	Executive Summary *Section Purpose* "The cultural and heritage resources and Indigenous land and resource use assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge from a variety of sources, including Joint Working Group meetings and Indigenous Knowledge and Traditional Land Use (IKTLU) Studies completed by First Nations and Métis Groups (collectively referred to Indigenous Groups) for the Project." Terminology such as Métis Group (rather than Indigenous Nation) does not align with, or reflect an understanding of, MN-S as a rights holder. The use of "incorporated" does not reflect current best practices that acknowledge Indigenous Knowledge as an equal but different way of knowing (than western science). This terminology implies that	16, p. i

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	Indigenous Knowledge can be absorbed into a scientific approach. Terminology such as "First Nations" and "Indigenous groups" does not reflect current best practices or acknowledge the Rights, Title and Jurisdiction of MN-S. Each Indigenous Nation should be discussed and acknowledged independently.	
16-002	*Existing Conditions (Section 16.3)* "In total, 180 ha were assessed and no heritage resources were identified in the survey area." No information is provided regarding methodology for the Heritage Resource Impact Assessment (HRIA); additional detail regarding survey approach, including length of field program and a definition of heritage resources is required within the introduction. MN-S questions the robustness and methodology of a 180ha field program with no findings in an area acknowledged as actively used for Indigenous land and resource use.	16, p. ii
16-003	*Existing Conditions (Section 16.3)* "Indigenous land and resource use in the LSA is actively pursued by the CRDN, MN-S, and BNDN, and, to a lesser extent, the BRDN." While active Indigenous land and resource use in the LSA by MN-S is acknowledged, best practices that align with an understanding of MN-S as a rights holder would include the opportunity to participate in field programs to support identification of cultural and heritage resources as well as the opportunity to provide review and contribution to the assessment prior to finalization and submission to regulators.	16, p. ii
16-004	*Potential Effects and Proposed Mitigation (Section 16.4)* "Project activities that would have the potential to affect Indigenous land and resource use during the Project lifespan include:" [bullet list] The Project would also impact and change the ability of MN-S to access the homeland due to active mining activities and access restrictions the land.	16, p. iii
16-005	*Potential Effects and Proposed Mitigation (Section 16.4)* "Project environmental design features such as the underground tailings management facility and a limited Project footprint were designed to minimize the Project's effects on cultural and heritage	16, p. iii

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	resources and Indigenous land and resource use." While underground tailings management would minimize the Project footprint, this benefit must be considered in the context of other environmental concerns such as groundwater quality. This text does not accurately reflect holistic consideration of design changes.	
16-006	*Potential Effects and Proposed Mitigation (Section 16.4)* "With respect to cultural and heritage resources, as spatial overlap between the Project and the Fission Patterson Lake South Property would not exist, pathways between the projects would also not overlap; therefore, only the potential effects of the Project were considered in the subsequent steps of the assessment process." The cumulative impact of the loss of access to these lands and resources and the resulting impact to MN-S cultural practices and Indigenous Land and Resource Use should be considered. Text should reference how this is considered within the assessment.	16, p. iii
16-007	*Potential Effects and Proposed Mitigation (Section 16.4)* "A chance find procedure would mitigate potential effects of the Project on any unknown cultural and heritage resources, should any sites be identified during land clearing and site preparation activities." Best practices and acknowledgement of MN-S as a rights holder would include the opportunity to MN-S to collaborate and contribute to the development of a chance find procedure.	16, p. iv
16-008	*Potential Effects and Proposed Mitigation (Section 16.4)* "With respect to Indigenous land and resource use, proposed mitigation measures that would reduce effects include: • implementation of Benefit Agreements with primary Indigenous Groups, which would include funding and human resources to support community-related initiatives and establishing an Implementation Committee …." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list establishment of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S Cultural and Heritage Resources and Indigenous Land and Resource Use. The terms of the agreement will be subject to a negotiation process	16, p. iv

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	with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	
16-009	*Residual Effects Analysis (Section 16.5)* "Perception that mine activities may adversely affect the quality of water, fish, plants, and wildlife." "Perceptions of contamination at decommissioned facilities and the suitability of the land and resources for practising traditional activities." Indigenous Knowledge is a unique, but equal way of knowing. As a rights holder, MN-S qualitative communication of impacts regarding the quality of resources and/or contamination levels should be acknowledged. Text should, at a minimum, reflect "real or perceived" impacts. The exclusive use of "perceived" implies that this Knowledge is not supported or equal in importance to scientific data collection.	16, p. vi
16-010	*Residual Effects Analysis (Section 16.5)* "Nonetheless, the majority of the LSA and RSA would remain intact with similar resources (i.e., water, fish, plants, and wildlife) as the Patterson Lake area …" Indigenous Land and Resource Use is intrinsically tied to the land and the specific locale; similar resources do not necessarily reflect the ability to maintain MN-S cultural practices.	16, p. vi
16-011	*Residual Effects Analysis (Section 16.5)* "Mitigations to improve perceptions on the quality of resources and cultural landscape would include the independent Indigenous monitoring program, Indigenous and Public Engagement Program to communicate results from the Project and independent environmental monitoring, and commitments contained within the Benefit Agreements such as monetary and human resources to support community-related initiatives in areas such as cultural and traditional values." Mitigations should be in place to minimize impacts, not "improve perceptions." Monitoring should be in place to understand the efficacy of the proposed mitigations.	16, p. vi

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	As rights holders, MN-S should have the opportunity to contribute to the development and implementation of all discussions about mitigations and monitoring related to Indigenous Land and Resource Use. Until such time that an agreement is in place with MN-S for the Project, potential benefits of a benefit agreement are not appropriate mitigations as the terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented.	
16-012	*Significant Determination (Section 16.6)* "Indigenous land and resource use is expected to change around Patterson Lake, but overall Indigenous land and resource use in other areas of the LSA and RSA is anticipated to continue. The residual effects on the Indigenous Land and Resource Use VC in the Application Case and the RFD Case are predicted to be not significant." Indigenous Land and Resource use is intrinsically tied to the land and the specific locale; despite access to other areas, a change in access and cultural practices around Patterson Lake has the potential to affect the ability of MN-S to continue cultural practices associated with the Patterson Lake area.	16, p. vii
16-013	*Monitoring, Follow-up and Adaptive Management (Section 16.8)* "The effectiveness of mitigations on the Indigenous land and resource use would be evaluated through the following: …" [bullet list] This summary only discusses mitigation measures, however lacks detail and information related to follow-up and adaptive management. Monitoring on its own would identify deficiencies or opportunities to improve the programs but does not imply any action is required to remedy or resolve issues, improve program efficacy, re-evaluate objectives and goals or otherwise adapt the management approach. As rights holders, MN-S should have the opportunity to contribute to the development and implementation of all discussions related to monitoring, follow-up and adaptive management associated with Indigenous Land and Resource Use.	16, p. vii
16-014	Introduction	16.1, p. 16-2

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	"Changes in access to land and traffic patterns could alter Indigenous land user safety." Changes to access have wider ranging impacts to Indigenous land users than just safety concerns. Changes in access may also impact the ability to access Culturally significant locales and/or resources for cultural practices and/or sustenance. This text does not acknowledge MN-S connection to the homeland and the importance and impact of land access to the MN-S culture and practices.	
16-015	Assessment Endpoints Table 16.2-1 VC, Rational, Measurement Indicators, and Assessment Endpoints Indigenous land and resource use assessment endpoint: "Continued ability to participate in Indigenous land and resource use activities." The ability to participate in an activity is not equivalent to the ability to continue to practice an activity with the same frequency or success as was present prior to Project disturbance. As rights holders, at a minimum, the ability for MN-S to continue Indigenous land and resource use practices, as they currently occur, should be the assessment endpoint.	16.2.2.3, p. 16-15
16-016	Spatial Boundaries "The spatial boundary selected for the cultural and heritage resources assessment was defined as the heritage study are and included three main areas of the maximum disturbance area (Annex IX, Figure 3):" The study area figure should be included within the EIS; readers should not be required to consult an alternate document to understand the spatial scope of the assessment. Additional justification is required to understand the selection of these locales for inclusion within the study areas, and more importantly why other areas within the maximum disturbance area were excluded.	16.2.3, p. 16-16
16-017	Spatial Boundaries Table 16.2-2 Spatial Boundaries for the Assessment of Indigenous	16.2.3, p. 16-18

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	Land and Resource Use LSA Description: "The terrestrial, aquatic, and human health RSAs where ecosystems and resources can potentially be directly or indirectly affected by the Project and experience some cumulative effects, if applicable." Section 16.2.2.2 states that "the measurement indicators for Indigenous land and resource use are connected to intermediate components in the EA such as air quality, noise, hydrology, and surface water quality."[19] At a minimum, these intermediate components (air quality, noise, hydrology, and surface water quality) should be considered (and discussed within the EIS) when selecting the appropriate spatial boundaries for Indigenous land and resource use.	
16-018	Assessment Cases Figure 16.2-2 Reasonably Foreseeable Development in the Regional Study Area "The Fission Patterson Lake South Property, which is planned by Fission Uranium Corp. … was included in the RFD Case (Figure 16.2-2). …The CRDN and MN-S specifically mentioned the potential for cumulative effects from the Project and the nearby proposed Fission Patterson Lake South Property …" The figure does not appear to show the location of the Fission Patterson Lake South Property, which is identified as included within the RFD case and has also been specifically identified for consideration of cumulative effects by MN-S.	16.2.5, p. 16-21, 16-23
16-019	Existing Conditions Table 16.2-3 Linkage between Existing Conditions and Measurement Indicators The cultural and heritage resources VC has only one measurement indicator; a high-level summary of existing conditions for this indicator should be provided. The level of detail and robustness should be comparable to the content provided for the Indigenous land and resource use measurement indicators. Readers should not be required to consult an alternate document to	16.2.6, p. 16-24

[19] EIS, p. 16-14.

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	understand the existing conditions.	
16-020	Existing Conditions "Data were validated and supplemented through several means, including discussion during Joint Working Group meetings and review of Joint Working Group records." It is unclear who completed the validation process for existing conditions for Indigenous Land and Resource Use VC. Third party review of meeting records and notes is not equivalent to data validation by potentially affected parties. Data verification should involve collaboration with MN-S, as rights holders, and Indigenous land and resource users. This includes the opportunity to review, revise and contribute to the characterization of existing land and resource conditions with the MN-S Homeland. TWC recommends that MN-S request that the language regarding data verification is updated to reflect that MN-S requested and was not provided the opportunity to review (and verify) the EIS prior to regulatory submissions.	16.2.6, p. 16-25
16-021	Project Interactions and Mitigations "A screening-level assessment was applied using Indigenous and Local Knowledge, scientific knowledge, logic, experience with similar developments, and an understanding of the effectiveness of mitigation (i.e., level of certainty that mitigation would work) to assign each pathway to one of the following categories …" While the description of screening includes consideration of Indigenous Knowledge, the definitions for both a secondary and primary pathway only references environmental changes (which is assumed to reference the physical and biophysical environment) as the thresholds for the assessment. The determination of pathways should also consider changes to the human environment, including impacts to the ability to continue Indigenous land and resource use.	16.2.7, p. 16-26
16-022	Project Interactions and Mitigations "No Pathway: Analysis reveals that the pathway could be removed (i.e., effect is avoided) by mitigation so that the Project would result in no measurable environmental change relative to existing conditions or guideline values and, therefore, would have no	16.2.7, p. 16-26

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	residual effect on cultural and heritage resources and Indigenous land and resource use." No mitigation is guaranteed to avoid an effect; mitigations are intended to minimize potential effects. TWC recommends that MN-S request the definition for No Pathway is updated throughout the EIS.	
16-023	Residual Effects Classification and Determination of Significance "This assessment endpoint is qualitatively defined by the continued ability of Indigenous Groups to participate in land-based activities based on similar availability of resources for harvesting, maintenance of access to traditional land use areas, and maintenance of quality of Indigenous land use experience, while acknowledging that traditional activities are dependent on individual preferences and experience. The classification of residual effects criteria provides the foundation for determining if the threshold for significance is exceeded." Indigenous Land and Resource use is intrinsically tied to the land and the specific locale; similar availability of resources does not necessarily reflect the ability to maintain MN-S cultural practices. The ability to participate in an activity is not equivalent to the ability to continue to practice an activity with the same frequency or success as was present prior to Project disturbance. As rights holders, at a minimum, the ability for MN-S to continue Indigenous land and resource use practices, as they currently occur, should be the assessment endpoint.	16.2.9, p. 16-29
16-024	Monitoring, Follow-Up and Adaptive Management "The implementation of robust, long-term environmental testing and monitoring has also been requested by Indigenous Groups to verify protection of the environment, including community-led monitoring during Construction and Operations of the proposed Project." In addition to supporting implementation of community-led monitoring, as a rights holder MN-S should be involved in the scoping and development of environmental testing and monitoring programs.	16.2.11, p. 16-31
16-025	Cultural and Heritage Resources "An HRIA was completed by Canada North Environmental Services	16.3.1, p. 16-31

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	Limited Partnership for the Project from 19 June to 22 June 2018 … A total of 180 ha was assessed using a combination of pedestrian reconnaissance, post-effect inspections of disturbed areas, and the excavation of 239 subsurface shovel probes. No heritage resources were identified throughout the entire survey area." Best practices and acknowledgement of MN-S as a rights holder would include MN-S representation during the HRIA and pedestrian surveys. Participation of Indigenous Nations can increase the robustness of cultural and heritage resource programs and may identify resources that may otherwise not be understood or identified. Based on the numbers provided over a course of three field days approximately 1.3 shovel probes were completed per hectare surveyed. Given that the Project area has been identified by MN-S (and other Indigenous nations) as an area of Indigenous land and resource use, there is a lack of confidence in the findings of the HRIA.	
16-026	Métis Nation-Saskatchewan Northern Region "However, both communities' Métis populations have declined in recent years. In La Loche, the Métis populations decreased by 600 since 2011 (the largest population decrease among LPA communities), and by 225 in Buffalo Narrows. Buffalo Narrows has the oldest population among LPA communities with a median age of 30.8 years, which is consistent with provincial Indigenous population characteristics where the Métis population is oldest amount Indigenous Groups." The overall MN-S population numbers should be included to understand the impact of a population decrease of 600 since 2011.	16.3.2.2, p. 16-38
16-027	Contemporary Indigenous Land and Resources "Fishing: Fishing has traditionally been an important activity for Indigenous Groups providing food. Topics discussed include the cultural importance of fishing, the species fished, fishing locations, and the seasonality, where available." Given fishing is acknowledged as an important activity for Indigenous Groups, fishing as is relates to sustenance (and ultimately Human Health) should be a topic of discussion to fishing.	16.3.3, p. 16-39
16-028	Gathering "A general use area was mapped around the east shore of Forrest	16.3.3.2.3, p. 16-47

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	Lake and Beet Lake, and Forrest Lake, which overlap the maximum disturbance area ..." MN-S Indigenous land and resource use (gathering) overlaps with the maximum disturbance area; this must be considered and discussed within the assessment.	
16-029	Hunting "Métis Nation – Saskatchewan citizens hunt throughout the LSA and RSA…. Some MN-S citizens reported that moose have moved farther away because of too much activity in the area of the proposed Project." MN-S Indigenous land and resource use (hunting) overlaps with both the LSA and RSA; this must be considered and discussed within the assessment. The wildlife assessment should include consideration on MN-S qualitative observations on Moose movements. "Specific hunting areas located in the LSA identified by the MN-S include in the areas of Gedak Lake; Dennis Lake; Derkson, Koops and Gall lakes; and Patterson Lake including within the maximum disturbance area …." MN-S Indigenous land and resource use (hunting) overlaps with the maximum disturbance area; this must be considered and discussed within the assessment.	16.3.3.2.4, p. 16-47
16-030	Hunting "Specific hunting areas located in the LSA identified by the MN-S include in the areas of Gedak Lake; Dennis Lake; Derkson, Koops and Gall lakes; and Patterson Lake including within the maximum disturbance area …." MN-S Indigenous land and resource use (hunting) overlaps with the maximum disturbance area; this must be considered and discussed within the assessment.	16.3.3.2.4, p. 16-48
16-031	Trapping "Métis Nation – Saskatchewan citizens trap in the LSA and RSA. In the RSA, MN-S has identified one trapline … In the LSA, the MN-S has identified one trapline that extends from north of Patterson Lake, including within the maximum disturbance area …"	16.3.3.2.5, p. 16-48

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	MN-S Indigenous land and resource use (trapping) overlaps with the maximum disturbance area; this must be considered and discussed within the assessment.	
16-032	Culturally Important Sites and Ares "Métis Nation – Saskatchewan citizens value the LSA and consider it culturally important to their continued use of the land. They consider the area important not only for harvesting but also for its role in the larger landscape." MN-S Indigenous land and resource use (harvesting and holistically) must be considered and discussed within the assessment.	16.3.3.2.6, p. 16-49
16-033	Culturally Important Sites and Ares "There were no cultural sites and areas identified by the MN-S in the LSA, but several were reported in the RSA, including at lakes directly north of the LSA ..." MN-S identification of cultural sites does not align with the outcomes of the HRIA which identified no heritage resources. Given the pathways analysis determined that "all potential adverse pathways from the Project could be removed from the assessment (page iv)", it is assumed that potential impacts to the heritage resources identified by MN-S have not been assessed or mitigated. The Indigenous Knowledge (including the identification of heritage resources) shared with the proponent by MN-S for the purposes of this study should be considered and applied to the assessment. Given the identification of an MN-S cultural site directly north of the LSA, the rationale for the cultural and heritage resources VC should be evaluated to consider its appropriateness to capture resources potentially impacted by the Project.	16.3.3.2.6, p. 16-50
16-034	Summary of Contemporary Indigenous Land Use "The MN-S has stated that the Patterson Lake area has historical and current value and is paramount to its members, and their lifeblood ..." This statement is a clear indication of the value of the Patterson Lake area to MN-S Indigenous land and resource use. Similar resources in the relative area should be not considered equivalent from a Cultural perspective.	16.3.3.6, p. 16-59

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	This text supports MN-S direction that the Indigenous land and resource use assessment endpoint should at a minimum reflect MN-S' ability (as a rights holder) to continue Indigenous land and resource use practices, as they currently occur, should be the assessment endpoint.	
16-035	Project Interactions and Mitigations Table 16.4-1 Potential Adverse Effects Pathways for Indigenous Land and Resource Use Environmental Design Features and Mitigations column As a rights holder, MN-S should have the opportunity to contribute to the scoping, development and implementation of all mitigation measures related to cultural and heritage resources and Indigenous land and resource use.	16.4, p. 16-60 to 16-62
16-036	Project Interactions and Mitigations Table 16.4-1 Potential Adverse Effects Pathways for Indigenous Land and Resource Use ILU-01/ILU-02/ILU-03/ILU-05: Environmental Design Features and Mitigation "Implement Benefit Agreements including …" Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S Cultural and Heritage Resources and Indigenous Land and Resource Use. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	16.4, p. 16-60 to 16-62
16-037	Project Interactions and Mitigations Table 16.4-1 Potential Adverse Effects Pathways for Indigenous Land and Resource Use ILU-03 Effects Pathway "… Similarly, perceptions of the quality of water, fish, plant, and wildlife resources may adversely affect the quality of the experience and/or result in certain areas being avoided."	16.4, p. 16-61

Issue #	Concerns	Section, page
	Indigenous Knowledge is a unique, but equal way of knowing. As a rights holder, MN-S qualitative communication of impacts regarding the quality of resources and/or contamination levels should be acknowledged. Text should, at a minimum, reflect "real or perceived" impacts. The exclusive use of "perceived" implies that this Knowledge is not supported or equal in importance to scientific data collection.	
16-038	Project Interactions and Mitigations Table 16.4-1 Potential Adverse Effects Pathways for Indigenous Land and Resource Use ILU-04 Environmental Design Features and Mitigation "Install a gate at the site entrance (i.e., gatehouse) to control public access." It is unclear how installation of a gatehouse would mitigate changes to the availability of fish, plants, and wildlife for harvesting from increased access and competition for resources. It is expected that the installation of a gatehouse, would be in place to ensure that the Indigenous land and resource users do not accidently enter active mining areas as a safety measure. In practice, restricted access is likely to exacerbate changes to the availability of fish, plants, and wildlife for harvesting as it would further decrease access to support MN-S Indigenous land and resource use.	16.4, p. 16-61
16-039	Project Interactions and Mitigations Table 16.4-1 Potential Adverse Effects Pathways for Indigenous Land and Resource Use ILU-05 (Effects Pathway Changes to air or water quality) Environmental Design Features and Mitigation As a rights holder, MN-S should have the opportunity to contribute to the scoping, development, and implementation of all mitigation measures related to cultural and heritage resources and Indigenous land and resource use. Environmental Protection, Management and Monitoring Plans must consider Indigenous Knowledge including consideration of real or perceived impacts communicated by MN-S.	16.4, p. 16-62

Issue #	Concerns	Section, page
16-040	Project Interactions and Mitigations Table 16.4-1 Potential Adverse Effects Pathways for Indigenous Land and Resource Use "ILU-05: Changes to air or water quality The following Project interactions were predicted to result in no pathway to Indigenous land and resource use and were not carried forward in this assessment." The discussion about the assessment of intermediate components and the environmental risk assessment lacks acknowledgement of any real or perceived impacts on fish, plants or wildlife due to air or water quality contamination that have been shared by Indigenous nations. Indigenous Knowledge is a unique, but equal way of knowing. As a rights holder, MN-S qualitative communication of impacts regarding the quality of resources or contamination levels should be acknowledged, discussed, and considered.	16.4, p. 16-62
16-041	No Pathways Table 16.4-2 Ecological Receptors Included in the Assessment "Furthermore, NexGen is committed to providing funding for full-time independent Indigenous Monitors to enable unrestricted environmental monitoring, subject to the Indigenous Monitor complying with appropriate health and safety and other reasonable site-specific policies of NexGen. The Indigenous Monitors would report directly to their respective Indigenous Group/community." As a rights holder, MN-S should have the opportunity to contribute to the scoping, development, and implementation of all monitoring programs, not just the independent Indigenous Monitoring programs. While it is acknowledged that an independent Indigenous Monitoring program would be scoped and developed to meet the needs of the Indigenous Nation, NexGen should also be prepared to listen, learn, and apply the learnings of the independent Indigenous Monitoring program into operational practices and adaptive management approach.	16.4.1, p. 16-65
16-042	Secondary Pathways HR-01: Disturbance of heritage resources	16.4.2, p. 16-67

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	"Therefore, a chance find procedure would be implemented during clearing activities. Management options for any unanticipated archaeological materials or features discovered by chance during any land clearly activities for all Project phases would be developed in consultation with the Heritage Conservation Branch." As a rights holder, MN-S should be involved in the scoping, development, and implementation of a Chance Find Procedure and management options for any unanticipated archaeological materials or features, or cultural or heritage resources discovered throughout the Project life cycle.	
16-043	*Access to and Area available for Indigenous Land and Resource Use* "Access to parts of Patterson Lake may be temporarily restricted during construction of in-lake infrastructure, but unrestricted access to the lake is expected during Operations and Closure." This text does not acknowledge that in-lake infrastructure may affect the ability of MN-S to continue cultural practices and Indigenous land and resource use.	16.5.1.1, 16-70
16-044	*Access to and Area available for Indigenous Land and Resource Use* "There were no culturally important sites and areas identified by Indigenous Groups that overlap with the maximum disturbance area." This text does not acknowledge that culturally important sites were identified by Indigenous Groups (including MN-S) within the Regional Study Area and therefore does not accurately represent the presence of culturally important sites within the assessment areas.	16.5.1.2.2, p. 16-71
16-045	*Access to and Area available for Indigenous Land and Resource Use* "NexGen also commits to supporting intergenerational transfer of knowledge." It is unclear what actions NexGen is committing to; additional information and context is required to support this statement.	16.5.1.2.2, p. 16-73
16-046	Gathering "The loss of most traditional use plants would be continuous until reclamation has re-established vegetation; however, the loss of traditional use plants in wetland habitat (e.g., pitcher plant) is considered permanent and irreversible. While the availability of	16.5.1.2.2, p. 16-77

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	traditional use plants would be reduced in the maximum disturbance area of the Project, traditional use plant habitat is predicted to remain abundant across the vegetation RSA, and incremental effects of the Project are expected to remain within the resilience and adaptability limits of traditional use plant species. This would result in a low magnitude change in availability of traditional plants int he Indigenous land and resource use LSA." The permanent and irreversible loss of wetland habitat and traditional use plants must be mitigated and compensated. Indigenous Land and Resource use is intrinsically tied to the land and the specific locale; similar availability of resources in adjacent areas does not necessarily reflect the ability to maintain MN-S cultural practices. As such it is not appropriate to assume that abundance in the RSA is equivalent to the losses incurred due to the Project.	
16-047	Gathering "However, while the loss of traditional use plants in the Project footprint would range from long-term to permanent depending on the habitat, traditional use plants would remain widespread in the Indigenous land and resource use LSA, and opportunities for traditional gathering could continue." Indigenous Land and Resource use is intrinsically tied to the land and the specific locale; similar availability of resources in adjacent areas does not necessarily reflect the ability to maintain MN-S cultural practices. As such it is not appropriate to assume that abundance in the LSA is equivalent to the losses incurred due to the Project.	16.5.1.2.2, p. 16-78
16-048	Hunting and Trapping "This may result in woodland caribou [Moose, Black Bear] avoiding an existing movement route at the narrows of Patterson Lake identified through Indigenous and Local Knowledge." It is unclear if mitigations or monitoring programs are being proposed to address this change in movement and potential connectivity between habitats.	16.5.1.2.3, p. 16-78 to 16-79
16-049	Summary "However, wildlife habitat is expected to remain well connected for movement throughout the rest of the wildlife RSA. Effects on wildlife availability from changes in habitat availability, habitat connectivity,	16.5.1.2.3, p. 16-82

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	and sensory disturbances would occur throughout all Project phases and extend beyond the Active Closure Stage (i.e., two generations of Indigenous land users, or 43 years, for harvesting of most species, and approaching three to four generations, or 100 years, for common goldeneye and American marten) until functional habitat is restored and sensory disturbance from traffic in Project activities is no longer expected to influence wildlife movements. ... Overall, the Project is expected to have a small, local effect on Indigenous land and resource use through its effects on the availability of wildlife for harvest." Indigenous Land and Resource use is intrinsically tied to the land and the specific locale; similar availability of resources in adjacent areas does not necessarily reflect the ability to maintain MN-S cultural practices. An impact to wildlife availability that lasts two to four generations (43 to 100 years) is not a small and local effect on Indigenous land and resource use.	
16-050	Noise "However, it is recognized that noise can have an effect on the aesthetics of individual resources users using the LSA, and that individuals may perceive and experience noise differently. Sensitivity to noise may be higher for some individuals, especially when they expect a quiet experience on the land. Tolerance levels may be very different among individual Indigenous land users and are difficult to measure quantitatively. However, it is reasonable to expect that some of the Indigenous land users may be affected negatively and choose not to conduct harvesting activities in the LSA at some locations potentially affect by noise increases." MN-S requests the opportunity to be engaged in and collaborate on the scoping, development, implementation and analysis of mitigation and monitoring programs associated with Project noise impacts; particularly as it relates to Indigenous land and resource use.	16.5.1.3.1, p. 16-82
16-051	Light "The only times when light trespass would be visible is when an Indigenous land user has a direct line of sight on a light source … During Construction and Operations, Project-related illumination would result in skies brighter than the E1 threshold in localized areas for either of the 16 receptors considered in the light analysis	16.5.1.3.2, p. 16-84

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	... Sky glow is expected to obscure faint stars for Indigenous land users on clear nights. The change in sky glow may affect the nighttime aesthetics and experience for Indigenous land users spending the night on the land or at a cabin ... Overall, the change of nighttime aesthetics resulting from skyglow would be relatively minor, and changes to the star visibility are expected to be localized." While aesthetics is discussed (16.5.1.3.4) it does not appear that an assessment of visual effects, or predictive modelling of visual effects, has been undertaken to understand the likelihood or frequency that visual effects, including light trespass and sky glow, would impact Indigenous land and resource use. An assessment of visual effects including predictive modelling should be undertaken, and informed by Indigenous land and resource users, including MN-S, to identify appropriate viewing points and determine potential visual impacts (including light trespass and sky glow) associated with the Project.	
16-052	Air Quality "Dust could affect the quality of Indigenous land use experience in the LSA during Construction, Operations, and the Active Closure Stage, and potentially discourage harvesting next to the Project. Dust deposition rates are not expected to exceed guidance values outside of the maximum disturbance area." MN-S requests the opportunity to be engaged in and collaborate on the development of mitigation and monitoring programs associated with Project dust impacts; particularly as it relates to Indigenous land and resource use. MN-S notes that the text in this section highlights MN-S concerns raised regarding dust, including on vegetation and berries, however no mitigation or monitoring to address these concerns is discussed or proposed.	16.5.1.3.3, p. 16-86
16-053	Aesthetics "While permanent features of the Project (e.g., WRSAs) would be reclaimed, vegetation communities anticipated to establish on these features would likely not be representative of the terrestrial ecosites not influenced by the Project; therefore, effects are	16.5.1.3.4, p. 18-87, 18-88

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	conservatively considered permanent and irreversible ... This may result in a loss of aesthetic value after Closure for some Indigenous land and resource users." It is unclear why reclamation would be undertaken such that vegetation ecosystems or forest types would differ from those present before disturbance. Reclamation should, at a minimum, be consistent with existing ecosystems and should be informed by Indigenous land users and their past, current, and future uses of the land. MN-S requests the opportunity to be engaged and collaborate on all aspects of end land use, closure, and reclamation planning. An assessment of visual effects including predictive modelling should be undertaken, and informed by Indigenous land and resource users, including MN-S, to identify appropriate viewing points and determine potential visual impacts (including aesthetics) associated with the Project.	
16-054	Aesthetics "Reclamation is predicted to reverse effects on disturbed areas and restore natural ecosystems and visual aesthetics of the Project footprint; however, vegetation ecosystems or forest types would most likely differ from those present before disturbance ..." How will the reversal of effects be accomplished and confirmed if the end goal is not consistent with the current conditions? Predictive visual modelling and renderings should be provided to confirm the anticipated outcome and support statements these objectives. What is the time scale to accomplish reclamation goals and 'reverse effects on disturbed areas and restore natural ecosystems and visual aesthetics of the Project footprint?' MN-S requests the opportunity to be engaged and collaborate on all aspects of end land use, closure, and reclamation planning.	16.5.1.3.4, p. 18-88
16-055	*Access Road* "Indigenous land users have documented the use of Patterson Lake, Forrest Lake, Beet Land, Dennis Lake, Derkson Lake, Koop Lake, Gall Lake and Dyck Lake in the LSA … If the access road is used to access these lakes or cabins in these areas, there is potential for safety conflicts. …	16.5.1.3.5.1, p. 16-87 to 16-88

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	The Ground Transportation Emergency Response Plan would contain measures to address Indigenous land user traffic safety on the access road and the Security Program would contain measures within the maximum disturbance area …" The proposed mitigation measures include no specific mention of Indigenous land and resource users. MN-S requests the opportunity to be engaged and collaborate on the development of mitigation and monitoring programs related to the access road, including the Ground Transportation and Emergency Response Plan and Security Program as they relate to Indigenous land and resource use goals, objectives, mitigations, and monitoring.	
16-056	*Highway 955* "Highway 955 was documented by Indigenous Groups as a travel route to access traditional use areas or other communities … The Ground Transportation Emergency Response Plan would contain limited measures to address Indigenous land user traffic safety on Highway 955 due to the roadway being under provincial purview ..." MN-S requests additional details related to the ongoing management and maintenance of Highway 955. Including clear delineation of provincial and proponent roles and responsibilities. MN-S requests additional details regarding "limited measures to address Indigenous land user traffic safety". Safety for all road users, including Indigenous land and resource users and rights holders such as MN-S, should be a priority for NexGen and the Province. MN-S requests the opportunity to be engaged and collaborate on the development of mitigation and monitoring programs related to the access road, including the Ground Transportation and Emergency Response Plan and Security Program as they relate to Indigenous land and resource use goals, objectives, mitigations, and monitoring.	16.5.1.3.5.2, p. 16-88
16-057	Perceptions of Water, Fish, Plant and Wildlife Resource Quality Indigenous Knowledge is a unique, but equal way of knowing. As a rights holder, MN-S qualitative communication of impacts regarding the quality of resources or contamination levels should be acknowledged. Text should, at a minimum, reflect "real or perceived" impacts.	16.5.1.3.6, p. 16-88

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	The exclusive use of "perceived" implies that this Knowledge is not supported or equal in importance to scientific data collection.	
16-058	Perceptions of Water, Fish, Plant and Wildlife Resource Quality "However, existing perceptions of reduced resource quality are expected to remain for some individuals in the Application Case. To help mitigate these perceptions to the Project's potential for adverse effects on Indigenous land and resource use, NexGen would: ..." The proposed mitigations do not include any collaborative activities to develop a shared understanding, with MN-S, of the perceived impacts to the quality of resources; nor was MN-S provided the opportunity to contributed to the identification of appropriate mitigations. Mitigations to address perceived impacts must be informed by collaboration and contribution of MN-S. The effectiveness of the independent Indigenous monitoring program to mitigate potential effects is limited without a commitment from NexGen to collaborate with Indigenous Nations to apply adaptive management approaches to the operations, which are informed by the outcomes of Indigenous monitoring and associated Indigenous Knowledge.	16.5.1.3.6, p. 16-90
16-059	Perceptions of Water, Fish, Plant and Wildlife Resource Quality "Benefit Agreements have been or are being negotiated with each potentially affected primary Indigenous Group. Within each Benefit Agreement, NexGen commits to provide resources, both monetary and human, to support community-related initiatives in areas such as health and wellness, education, and cultural and traditional values." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list establishment of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S Cultural and Heritage Resources and Indigenous Land and Resource Use. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	16.5.1.3.6, p. 16-91
16-060	Perceptions of Water, Fish, Plant and Wildlife Resource Quality	16.5.1.3.6, p. 16-92

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	"A spatial analysis was completed to provide an indication of the extent of perceived effects on land resources. The spatial extent of indirect or perceived effects from the Project and potential avoidance or reduced traditional land and resource use surrounding the Project was assumed to be 5km from the maximum disturbance area, which represents an area where individuals may perceive contamination to exist. ... Five kilometres was also selected because it represents a distance that can easily by travelled by foot, out and back, through the bush to carry out traditional activities (e.g., hunting) in a day ... A 5km distance from the Project encompasses Patterson Lake where Indigenous Groups indicated the most concern during Joint Working Group." Please provide additional details regarding the verification with Indigenous Nations that 5 km from the maximum disturbance area represents the area where individuals may perceive contamination to exist. MN-S was not provided the opportunity to review, discuss or collaborate on an appropriate spatial boundary to represent the area where individuals may perceive contamination to exist. MN-S notes that neither a review of primary sources of Indigenous Knowledge nor Joint Working Group references to an area of importance constitute verification of Indigenous land users' area of perceived impact. Without verification, it is also not appropriate to assume that perceived impacts of quality are directly comparable to the distance an individual can travel on foot. As rights holders and Indigenous land and resource users, data verification should involve collaboration with MN-S, including the opportunity to review, revise and contribute to the characterization of existing land and resource conditions with the MN-S Homeland. TWC recommends that MN-S request that the language regarding data verification is updated to reflect that MN-S requested and was not provided the opportunity to review (and verify) the EIS prior to regulatory submissions.	
16-061	Cultural Landscape "To further mitigate changes to the cultural landscape, NexGen has signed three Benefit Agreements (i.e., with the CRDN, BNDN, and	16.5.1.3.7, p. 16-95

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	BRDN). Within each Benefit Agreement, NexGen commits to provide resources to support community-related initiatives in areas such as cultural and traditional values (e.g., youth trapping training)." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list establishment of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S Cultural and Heritage Resources and Indigenous Land and Resource Use. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	
16-062	Summary "Changes in the abundance and distribution of caribou are expected to be moderate because of habitat loss due to landscape disturbance in the SK2 West, a region where caribou are not considered self-sustaining in the Base Case. Implementation of a Caribou Mitigation and Offsetting Plan would be considered for both projects and would have the goal of a net increase in functional caribou habitat to meet the provincial management goals for woodland caribou." The development of a Caribou Mitigation and Offsetting Plan should be informed by Indigenous Knowledge, which is a unique, but equal way of knowing. MN-S requests the opportunity to be engaged and collaborate on the development and implementation of a Caribou Mitigation and Offsetting Plan.	16.5.2, p. 16-101
16-063	Residual Effects Classification and Determination of Significance Table 16.1: Classification of Residual Effects on Indigenous Land and Resource Use Measurement Indicators <u>Direction</u> Row of the Table for ALL measurement indicators The direction of all measurement indicators has been identified as negative. No positive effects have been identified for any indicators related to Indigenous Land and Resource Use under any of the Measurement Indicators.	16.6, p. 16-108 to 16-109

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	This data does not support an outcome of a "not significant"[20] residual adverse effect on Indigenous land and resource use.	
16-064	Residual Effects Classification and Determination of Significance Table 16.1: Classification of Residual Effects on Indigenous Land and Resource Use Measurement Indicators Duration Row of the Table for ALL measurement indicators The durations listed for the Project range from medium-term (43 years) to long-term (100 years) however all measurement indicators for the RFD duration include short-term (25 year) impacts and links this to the experiential nature of Indigenous Knowledge transfer between generations. It is unclear how the cumulative impacts of the RFD Case would be shorter than the impacts of the Application case. Cumulative impacts will persist beyond the operational periods of both projects. It is also unclear how this timeframe is connected to intergenerational Knowledge Transfer by Indigenous land and resource users. This data does not support an outcome of a "not significant"[21] residual adverse effect on Indigenous land and resource use.	16.6, p. 16-108 to 16-109
16-065	Residual Effects Classification and Determination of Significance Table 16.1: Classification of Residual Effects on Indigenous Land and Resource Use Measurement Indicators Frequency Row of the Table for ALL measurement indicators The frequency of all measurement indicators is listed as continuous. This data does not support an outcome of a "not significant"[22] residual adverse effect on Indigenous land and resource use.	16.6, p. 16-108 to 16-109
16-066	Prediction Confidence and Uncertainty "The primary factors affecting confidence in the predictions made in the assessment for Indigenous land and resource use include: … - level of understanding of Indigenous perceptions is based on IKTLU Studies, comments during Joint Working Group meetings,	16.7, p. 114

[20] EIS, Section 16.6.2, p. 16-114.
[21] Ibid.
[22] Ibid.

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	and other perception studies, all of which may not capture the full breadth of individuals' perceptions ..." Determining the significance of impacts to Indigenous land and resource use should be verified by Indigenous land and resource users, and not just be informed by Indigenous Knowledge. MN-S was not provided the opportunity to contribute to the significance determination. MN-S further notes that a neither a review of primary sources of Indigenous Knowledge nor incidental sharing during a Joint Working Group meeting constitute verification of Indigenous land users' perceptions.	
16-067	Monitoring, Follow-up and Adaptive Management "The effectiveness of mitigations on Indigenous land and resource use would be evaluated through the following… - Perception surveys would be completed to better understand LPA residents' thoughts and understanding of uranium mining. The perception surveys would be designed for documenting current and ongoing community perceptions of mining in the RSA to inform future engagement and mitigation based on community issues, concerns, and opportunities." It is unclear if there was a perception study to document existing perceptions and concerns related to mining to inform current practices. One should have been undertaken to support the assessment of potential effects on Indigenous land and resource use and to support future monitoring, mitigation, and adaptive management. Without a "baseline" of the current understanding, a future survey will provide little value in terms of assessing a change in understanding. MN-S requests the opportunity to be engaged and collaborate on the development of all mitigation and monitoring programs related to the cultural and heritage resources and the Indigenous land and resource use assessment. In particular, MN-S requests the opportunity to support the scoping, development, implementations, analysis, and development of mitigation and monitoring programs related to a perception survey related to LPA residents' thoughts and understanding of uranium mining. In addition, the scope of this survey should not be limited to "thoughts and understanding of uranium mining" and instead should focus on the	16.8, p. 16-116, 16-117

Issue #	Concerns	Section, page
	Projects, its potential real or perceived impacts, the implementation of mitigation and monitoring programs and the overall ability of NexGen to meet its commitments.	
16-068	Monitoring, Follow-up, and Adaptive Management "NexGen has committed in the Benefit Agreement with each primary Indigenous Group to establish an Implementation Committee. The Implementation Committee is tasked with the responsibility of facilitating an effective ongoing working relationship between NexGen and the Indigenous Groups to verify that all commitments made with the Benefit Agreements are realized." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list establishment of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S Cultural and Heritage Resources and Indigenous Land and Resource Use. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	16.8, p. 16-117
16-069	Key Findings "In summary, residual adverse effects on Indigenous land and resource use were assessed as not significant for both the Application Case and the RFD Case. Small magnitude changes in the availability of resources, access to and area available for Indigenous land and resource use, and moderate magnitude changes in the quality of the Indigenous land use experience, are expected to be centred on the Patterson Lake area. Indigenous land and resource use activities may change or be displaced but are expected to continue with the application of mitigations including the Indigenous and Public Engagement Program and Benefit Agreements." Please see previous comments for additional detail on each of the points summarized below: • As a rights holder, MN-S should be the afforded the opportunity to collaborate and contribute to the identification of mitigation and monitoring programs and the determination of significance for potential impacts to Indigenous land and resource use.	16.9, p. 16-118

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	• While the magnitude of impacts against measurement indicators may be listed as small and moderate, for all indicators the direction of change is negative, the frequency is continuous, and the time scale ranges from 25 years through 100 years. This data does not support a not-significant outcomes for impacts to Indigenous land and resource use. Further, reclamation and closure are not anticipated to result in a return of the land to the current ecotypes or vegetations. • Indigenous Land and Resource use is intrinsically tied to the land and the specific locale; similar availability of resources in adjacent areas does not necessarily reflect the ability to maintain MN-S cultural practices. As such it is not appropriate to assume that abundance in the LSA or RSA is equivalent to the losses incurred due to the Project. • Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list establishment of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S Cultural and Heritage Resources and Indigenous Land and Resource Use. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	

2.14.2 RECOMMENDATIONS

Consultants recommend that MN-S request detailed responses within the draft EIS to issues numbered 16-001 through 16-0069.

2.15 OTHER LAND AND RESOURCE USE (SECTION 17)

2.15.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
17-001	*Section Purpose* "The Other Land and Resource Use assessment used widely accepted scientific practices and incorporated Indigenous and Local Knowledge." Indigenous Knowledge is a unique, but equal way of knowing. The term 'incorporated' implies that this Knowledge is not equal in importance to	17.0, p. i

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	scientific data collection and instead can be absorbed within it.	
17-002	*Section Purpose* "Commercial resource use included activities in which people from both non-Indigenous and Indigenous communities may participate commercial fishing and trapping; lodges, outfitting and ecotourism; forestry; and mining. Recreational uses included use of parks and protected areas by Indigenous or non-Indigenous peoples, as well as fishing and hunting activities that are conducted by non-Indigenous people under provincial licenses." It is unclear why Indigenous land uses associated with commercial or recreational activities has not been considered within the assessment of the Indigenous Land and Resource Use VC. In general, all uses of the land by Indigenous Peoples should be considered Indigenous land and resource use.	17.0, p. i
17-003	*Residual Effects Analysis (Section 17.5)* Access to, and Area Available for, Land and Resource Use "The Project and the Fission Patterson Lake South Property would not restrict small watercraft from navigation of Patterson Lake." Consistent with text in Chapter 16, it is understood that "access to parts of Patterson Lake may be temporarily restricted during construction of in-lake infrastructure."	17.0, p. iv
17-004	*Residual Effects Analysis (Section 17.5)* Quality of the Resource Use Experience "Perceptions that mine activities adversely affect the quality of fish and wildlife for harvest. Perceptions of contamination at decommissioned facilities." Text should, at a minimum, reflect "real or perceived" impacts. The exclusive use of "perceived" implies that the knowledge of the land and resource users (including MN-S land and resource users and their Indigenous Knowledge) is not supported or equal in importance to scientific data collection.	17.0, p. iv
17-005	*Monitoring, Follow-up and Adaptive Management (Section 17.8)* "Meetings would be held with community members, commercial	17.0, p. v

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	trappers, outfitters, and other potentially affected land users, as applicable, both independently and as part of the Indigenous and Public Engagement Program." It is unclear if engagement that has been undertaken with these parties to develop a relationship and increase NexGen's understanding of land and resource user perspectives and ultimately inform the assessment.	
17-006	Introduction "Indigenous land and resource use is described in Section 16, Cultural and Heritage Resources and Indigenous Land and Resource Use, and focuses on activities that are an expression of Aboriginal and treaty rights, including hunting and trapping, fishing, gathering for food and ceremonial purposes; places of occupancy such as cabins and camp sites; access and travel routes; and culturally important sites such as those with a spiritual or historical importance for traditional or cultural purposes for Indigenous Peoples." Please see comment 17-002. This statement identifies the consideration of Indigenous hunting, trapping and fishing within the Indigenous Land and Resource Use VC (Section 16), however text defining the contents of the Other Land and Resource Use VC (Section 17) includes commercial fishing and trapping by Indigenous Peoples. Section 35(2) of the *Constitution Act* (1982) outlines Aboriginal rights and Treaty rights and does not distinguish between commercial, recreational, and other uses of the land. As such, assessment of Indigenous land and resource use should be considered holistically. It is not appropriate to separate Indigenous land and resource uses for assessment under two different VCs.	17.1, p. 17-1
17-007	Incorporation of Indigenous and Local Knowledge "Another key source of Indigenous and Local Knowledge was information shared by Indigenous Group representatives during Joint Working Group meetings. The Joint Working Groups represent an agreed-upon primary engagement mechanism as outlined in the Study Agreements signed by each of the primary Indigenous Groups and NexGen." While the Joint Working Group may be agreed upon as an engagement mechanism, it should not be assumed that information shared through the Joint Working Group constitutes Indigenous Knowledge nor that	17.2.1, p. 17-10

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	consent for the use of this Indigenous Knowledge has been provided.	
17-008	Incorporation of Indigenous and Local Knowledge "Comments submitted by Indigenous Groups on the Project Description … were also reviewed for applicable Indigenous and Local Knowledge. Indigenous and Local Knowledge related to Other Land and Resource Use was incorporated into the assessment by viewing the information as complimentary and influential alongside scientific information." It is unclear what process NexGen undertook to verify and/or confirm permissions to use information identified by NexGen as Indigenous Knowledge through document and comment review processes.	17.2.1, p. 17-11
17-009	Valued Components "Although in some instances there is overlap between activities as described in cultural and heritage resources and Indigenous land and resource use (Section 16), this section focuses more narrowly on uses for commercial or recreational purposes and extends to both Indigenous and non-Indigenous users. Section 16 focuses on Indigenous land and resource use as an expression of Aboriginal and treat rights. Commercial trapping and fishing, as assessed in this section, is primarily undertaken by Indigenous Peoples from the LPA communities or by other residents of northern Saskatchewan." It is unclear from this statement how the VCs overlap and how this may impact the accuracy of the assessment results. Section 35(2) of the *Constitution Act* (1982) outlines Aboriginal rights and Treaty rights and does not distinguish between commercial, recreational, and other uses of the land. As such, assessment of Indigenous land and resource use should be considered holistically. It is not appropriate to separate Indigenous land and resource uses for assessment under two different VCs.	17.2.2.1, p. 17-12
17-010	Assessment Endpoints "The endpoint used in this assessment is continued level of opportunities for Other Land and Resource Use. The level of opportunity is dynamic as it is subject to factors such as markets, business fluctuations, and government policies; however, the level refers to the amount of access, the availability of resources and the	17.2.2.3, p. 17-13

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	quality of resources and resource use experience." Given the caveats provided on the assessment endpoints, it is unclear how the assessment endpoint will be determined and used to guide the determination of significant effects on Other Land and Resource Use.	
17-011	Spatial Boundaries "The Other Land and Resource Use LSA (Figure 17.2-1) incorporates: …" Given the inclusion of Indigenous land and resource users within this VC the list of areas considered within the LSA should also consider the LSA for the cultural and heritage and Indigenous land and resource use LSA.	17.2.3, p. 17-15
17-012	Existing Conditions "Quantitative recreational hunting harvests and participation levels, commercial trapping production and value, and commercial fishing production by lake and by species were available from ENV databases. The data sources were retrieved by request from government officials and, in the case of fur production, from annual reports ..." It is unclear from this statement if Indigenous commercial and recreational use is represented within this data.	17.2.6, p. 17-21
17-013	Existing Conditions "To validate the data, cabins documented in at least two of the four sources were considered for the assessment. Completing this verification process improved the reliability of the data given that the presence of resource user cabins may now be known to the Wildlife Management Branch depending on whether cabin owners applied for Crown Land leases or not." It is unclear from this text what process was undertaken to validate the data; further the use of 'at least two of the four sources' does not provide any detail or clarity about which of the source were verified.	17.2.6, p. 17-22
17-014	Existing Conditions "Initial KP interviews were conducted … with land user groups such as outfitters and cabin owners. Key persons were selected based on their possession of knowledge and experience that could be	17.2.6, p. 17-22

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	relevant to characterizing Other Land and Resource Use." It is unclear from this statement if Indigenous commercial and recreational use was considered through the KP interview process. It is also unclear who determined that key persons were in possession of adequate knowledge and experience.	
17-015	Existing Conditions "Data were validated and supplemented through several means, including discussion during Joint Working Group meetings and review of Joint Working Group meeting records." It is unclear who completed the validation process for existing conditions for Other Land and Resource Use VC. Third party review of meeting records and notes is not equivalent to data validation by potentially affected parties. As rights holders and Indigenous land and resource users, data verification should involve collaboration with MN-S, including the opportunity to review, revise and contribute to the characterization of existing land and resource conditions with the MN-S Homeland.	17.2.6, p. 17-22
17-016	Existing Conditions "The IKTLU Studies supported the integration of Indigenous and Local Knowledge into the assessment." The use of "integration of Indigenous and Local Knowledge" does not reflect current best practices that acknowledge Indigenous Knowledge as an equal but different way of knowing (than western science). This terminology implies that Indigenous Knowledge can be absorbed into a scientific approach.	17.2.6, p. 17-22
17-017	Project Interactions and Mitigations **No Pathway**: Analysis revealed that the pathway could be removed (i.e., effect is avoided) by mitigation so that the Project would result in no measurable environmental change relative to existing conditions or guideline values and, therefore, would have no residual effect on Other Land and Resource Use. No mitigation is guaranteed to avoid an effect; mitigations are intended to minimize potential effects.	17.2.7, p. 17-23
17-018	Residual Effects Analysis	17.2.8, p. 17-24

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	A qualitative assessment was conducted on potential changes…changing perceptions concerning the potential quality of country foods for consumption… It is unclear how the Other Land and Resource Use VC measurement indicator for changes in quality of resources and the quality of resource use experience related to perceptions concerning the potential quality of country foods for consumption under the Other Land and Resource Use VC is distinguished and unique from the assessment of Indigenous land and resource use measurement indicator for changes in the quality of resources and the quality of resource use experience.	
17-019	Residual Effects Classification and Determination of Significance NexGen is working with local Indigenous Groups to implement independent environmental monitoring. In combination with standard Project monitoring process, independent Indigenous monitoring would be used to verify Project performance and to determine if mitigations and controls are effective in protecting the receiving environment. As a rights holder, MN-S should have the opportunity to contribute to the scoping, development and implementation of all monitoring programs, not just the independent Indigenous Monitoring programs.	17.2.9, p. 17-24
17-020	Residual Effects Classification and Determination of Significance The activities described include recreational (non-Indigenous) hunting, fishing, commercial trapping, commercial fishing, lodge and outfitting services and ecotourism, cabins, parks and protected area, forestry and wildlife, and mining and exploration. It is unclear from this text how Indigenous land and resource users are considered within this VC and/or the existing conditions content. Section 17.2.1 (See comment 17-009) states "this section focuses more narrowly on uses for commercial or recreational purposes and extends to both Indigenous and non-Indigenous users." This contradicts the text included in Section 17.3.	17.2.9, p. 17-24
17-021	Commercial Trapping This subsection focuses on trapping for commercial purposes, whereas trapping for traditional purposes by Indigenous Peoples is described in Section 16.3, though it is noted that trapping for commercial purposes and for sustenance (i.e., traditional purposes)	17.3.2, p. 17-32

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	are performed concurrently. It remains unclear how Section 16 and Section 17 have considered Indigenous land and resource use. Section 35(2) of the *Constitution Act* (1982) outlines Aboriginal rights and Treaty rights and does not distinguish between commercial, recreational, and other uses of the land. As such, assessment of Indigenous land and resource use should be considered holistically. It is not appropriate to separate Indigenous land and resource uses for assessment under two different VCs.	
17-022	History of Commercial Trapping Indigenous Peoples in northern Saskatchewan have been involved in trapping fur-bearing animals for commercial purposes since the 1700s. This statement directly contradicts the text in 17.3.2 which indicates that Indigenous commercial trapping is not considered within this discussion.	17.3.2.1, p. 17-32
17-023	Commercial Trapping in the Regional Study Area Trapping still provides benefits to trappers and their families, including money from fur sales, meat from certain species and some use of furs for domestic purposes, such as moccasins and gloves. Trapping continues to be a source of supplemental income for many, bringing in between $1.5 million and $6.0 million per annum for 4,500 trappers. The values and benefits discussed here also apply to Indigenous land and resource users.	17.3.2.2, p. 17-33
17-024	Cabins The status of these cabins, whether historical, current, or planned for the future, was not available, and these locations could not be validated when cross-referenced with three other sources of information. It is unclear what other information sources were used to attempt to verify the location of cabins identified through the trappers' workshop; in particular it is unclear if data validation included field programs or ground-truthing. Indigenous Knowledge is a unique, but equal way of knowing, which cannot necessarily be verified through a data or source review against	17.3.5, p. 17-45

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	scientifically collected data.	
17-025	Project Interactions and Mitigations Note that mitigation measures are intended to address Indigenous and non-Indigenous land users and recognize there is considerable overlap between the two. The intent is to accommodate all, and not exclude any individuals, involved in Other Land and Resource Use. It is acknowledged that many mitigation measures outlined below (e.g., grievance mechanisms) would also overlap with mitigation measures presented in Section 16. This approach is intended to collectively address all land users, both Indigenous and non-Indigenous, across these two sections. It is confusing and unclear to the reader what has been assessed and mitigated with respect to Indigenous land and resource users in Chapter 16 and Chapter 17. Further the separation of the assessment of Indigenous land and resource uses between two chapters dilutes the assessment of potential impacts to Indigenous land and resource users and does not respect Indigenous nations, including MN-S, as rights holders who have distinct rights under Section 35(2) of the *Constitution Act* (1982).	17.4, p. 17-52
17-026	Project Interactions and Mitigations Table 17.4-1 Potential adverse effects pathways for Other Land and Resource Use Environmental Design Features and Mitigation for OLU-01/OLU-02/OLU-03/OLU-04: …Implement Project Benefit Agreements… Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S.	17.4, p. 17-53 to 17-54
17-027	No Pathway Participants of the 2021 trapper's workshop and LPA community members comments on the potential Project effects on water quality, fish and wildlife in the area of the Project…. No significant adverse effect on any human receptors as a result of releases from the Project is likely during Operations for the Application Case and RFD Case. Therefore, this pathway was determined to have no measurable effects on the health of resource	17.4.1, p. 17-55 to 17-56

Issue #	Concerns	Section, page
	users and was not carried forward in the assessment. While quotes that demonstrate Indigenous Knowledge are included throughout this chapter, with the exception of noting concerns were raised through the 2021 trappers' workshop, based on the text provided, Indigenous Knowledge does not appear to have been applied and considered in the determination of Project interactions.	
17-028	Access to and Area Available for Land and Resource Use The Project is not predicted to restrict access to or between the lakes in the Other Land and Resource Use LSA. Consistent with text in Chapter 16, it is understood that "access to parts of Patterson Lake may be temporarily restricted during construction of in-lake infrastructure."	17.5.1.1, p. 17-61
17-029	Significance Determination Due to the Project remote location, resource use for commercial and recreational purposes is nominal (meaning virtually absent but not confirmed to be zero), and only two resource user groups were identified as potentially affected: Trappers and lodge and outfitting clientele. The findings of Section 17 identify trappers as potentially effected land and resource users, however Section 16[23] which focuses on Indigenous land and resource use found that 'residual adverse effects on Indigenous land and resource use are anticipated to be not significant.	17.6.2, p. 17-71
17-030	Access to, and Area Available for, Land and Resource Use Should a loss of income occur, there are remedies such as trapping compensation agreements that have been implemented successfully with trappers around five mining operations in northern Saskatchewan. It is unclear if this text is indicating that the Province of Saskatchewan would be responsible for implementing mitigations such as trapping compensation or if the proponent would be responsible for such compensation. It is also unclear if NexGen is proposing trapping compensation as a potential Project mitigation measure for a loss of trapper income.	17.6.2, p. 17-72

[23] Section 16.6.2, Significance Summary, page 16-114.

Issue #	Concerns	Section, page
17-031	Access to, and Area Available for, Land and Resource Use Regional initiatives to mitigate access could include promotion of continued use close to the Project to, such initiatives would help maintain the areas as an active landscape for resource users, particularly for trappers from local Indigenous communities. It is unclear what mitigations are being proposed to help maintain the area as an active landscape. Proponent promotion for continued use cannot be assumed to be an effective mitigation measure as it is highly dependent on the level of trust that has been established with local users.	17.6.2, p. 17-72
17-032	Predication Confidence and Uncertainty Uncertainty was managed by: … Validation with Indigenous and Local Knowledge where possible;… Additional information regarding the process of validation with Indigenous Knowledge should be provided. Other sections of the EIS note that this validation was undertaken through review of meeting notes and discussions at Joint Working Group. Third party review of meeting records and notes is not equivalent to data validation by potentially affected parties. Data verification should involve collaboration with MN-S as rights holders and Indigenous land and resource users. This data verification with MN-S should include the opportunity to review, revise, and contribute to EIS content.	17.7, p. 17-75
17-033	Monitoring, Follow-up and Adaptive Management NexGen is working with local Indigenous Groups to implement independent environmental monitoring. In combination with standard Project monitoring processes, independent Indigenous monitoring would be used to verify Project performance and to determine if mi Monitoring on its own would identify deficiencies or opportunities to improve the programs but does not imply any action is required to remedy or resolve issues, improve program efficacy, re-evaluate objectives and goals or otherwise adapt the management approach. As a rights holder, MN-S should have the opportunity to contribute to the scoping, development, and implementation of all monitoring	17.8, p. 17-77

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	programs, not just the independent Indigenous Monitoring programs.	

2.15.2 RECOMMENDATIONS

Consultants recommend that MN-S requests:

1. That NexGen remove the use of "incorporated" as it refers to Indigenous Knowledge, throughout the EIS, in favour of a term such as "applied". Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, should be addressed through engagement and subsequent revisions to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

2. Confirmation that watercraft navigation will not be limited during the construction of in-lake infrastructure.

3. Text throughout the Other Land and Resource Use VC chapter should, at a minimum, reflect "real or perceived" impacts. The exclusive use of "perceived" implies that the knowledge of the land and resource users—including MN-S land and resource users and their Indigenous Knowledge—is not supported or equal in importance to western scientific data. Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, should be addressed through engagement and subsequent revisions to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

4. It is unclear if engagement that has been undertaken with Indigenous land and resource users, including MN-S land and resource users, to develop a relationship and increase NexGen's understanding of land and resource user perspectives and ultimately inform the assessment. Concerns regarding ongoing traditional uses should be addressed through engagement and subsequent revisions to the draft EIS. The EIS should remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

5. That assessments are updated to reflect all Indigenous land and resource use within the Indigenous Land and Resource Use VC, and:

    a. the LSA for Other Land and Resource Use incorporates the Indigenous Land and Resource Use VC LSA.

    b. additional details are provided regarding sources of quantitative data used to support assessment of Indigenous commercial and recreational use under the other land uses VC.

    c. additional details are providing regarding the verification process undertaken to

select which cabins were considered within the assessment, including methodology, rationale, and the verification outcomes (i.e., which cabins were considered within the assessment).

d. additional information—and representation within the EIS—is provided regarding the inclusion and consideration of Indigenous commercial and recreational use within the KP interview process to inform the Other Land and Resource Use VC.

e. additional, clear and concise information is provided, and represented within the EIS, regarding the rationale and justification for inclusion of Indigenous land and resource use within two VCs. This should include text to understand how the assessments overlap and how they are unique, including where measurement indicators overlap.

f. updates to the other land use VC chapter to clearly define what is being assessed for Indigenous land and resource users under the Other Land and Resource Use VC.

g. updates to create clarity regarding the consideration of Indigenous commercial land and resource use and better reflect how this has been considered.

h. updates to include commercial Indigenous land and resource use.

i. that the evaluation of Project interactions and mitigations is updated to reflect consideration of Indigenous Knowledge, which is a unique, but equal way of knowing to scientific data.

6. While the Joint Working Group may be agreed upon as an engagement mechanism, unless explicitly stated within the "Study Agreements" it should not be assumed that information shared constitutes Indigenous Knowledge nor that consent for the use of this Indigenous Knowledge has been provided. Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, should be addressed through engagement and subsequent revisions to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

7. Confirmation as to what process NexGen undertook to verify and confirm permissions to use information identified by NexGen as Indigenous Knowledge through document and comment review. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

8. Revisions so the Section 17.2.2.3 assessment endpoint is more clearly defined to include thresholds or limits that can more accurately support the determination of significant

effects on the Other Land and Resource Use VC.

9. Updates to language regarding data verification to reflect that MN-S was not provided the opportunity to review—and verify—the EIS prior to regulatory submissions.

10. All instances of "Integration of Indigenous Knowledge" in the EIS be updated to reflect the application of Indigenous Knowledge. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

11. Updated definition for "No Pathway" throughout the EIS.

12. A commitment from NexGen to contribute to scoping, development, and implementation of all mitigation measures, not just the independent Indigenous Monitoring program.

13. Additional details are provided, and included in the EIS, related to the data validation process, including identification of sources used to "cross-reference" the data.

14. Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.

15. Updates to text—and assessments—regarding lake access, throughout the EIS, to consistently reflect the impacts of construction of in-lake infrastructure on access to lakes.

16. Additional details be provided—and included in the EIS—on how Indigenous trapping has been considered within Sections 16 and 17. Details should include discussion about the variation in significance determination related to trapping activities between the two sections, as they relate to Indigenous land and resource users.

17. Additional information be provided—and included in the EIS—regarding trapper compensation, when it would be applicable, and the required process to pursue compensation if a loss of income was incurred by MN-S trappers.

18. Updates to the text of Section 17.6.2, p. 17-72—as it appears to be missing some text. If proponent promotion for continued use is the only proposed initiative to mitigate access, TWC recommends MN-S requests removal of this text as it is not an appropriate mitigation as currently described.

19. Updates to the language regarding data verification to confirm the process of validation with Indigenous Knowledge. Further text should reflect that MN-S requested and was not provided the opportunity to review (and verify) the EIS prior to regulatory submissions.

20. A commitment from NexGen to contribute to scoping, development, and

implementation of all mitigation measures, not just the independent Indigenous Monitoring program.

21. A commitment from NexGen—within the EIS—to collaboratively review the outcomes of independent Indigenous monitoring programs and apply adaptive management approaches to address any issues or concerns that arise.

2.16 ECONOMY (SECTION 18)

2.16.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
18-001	Section Purpose "The selection was also informed by Indigenous and Local Knowledge obtained from Indigenous Knowledge and Traditional Land Use Studies and Joint Working Groups, and feedback received during community engagement sessions." The use of "obtained" when referring to Indigenous Knowledge implies that the information shared was "taken" by the proponent. This does not align with best practices and acknowledgement of Indigenous Knowledge as a unique but equal way of knowing. It is also unclear what process NexGen took to verify and confirm that Indigenous Knowledge was applied in a manner that involved, and was acceptable to, the Indigenous nations.	18.0, p.i
18-002	*Project Interactions, Mitigations, and Benefit Enhancement (Section 18.4)* "… NexGen is in the process of negotiating Benefit Agreements with primary Indigenous Groups in the LSA … they are premised on commitments including proactively engaging with local communities; supporting the economic participation of affected communities … Implementation of items agreed to in Benefit Agreements is also expected to reduce adverse effects and enhance beneficial effects on the economy." Currently, there is no agreement in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S economic impacts. Further, proposed mitigations should be clearly outlined. Text such as "supporting the economic participation of affected communities" is	18.0, p. iii

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	ambiguous and open to interpretation. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	
18-003	*Employment* "Should the aspirational target of 75% local employment be achieved, an estimated 365 positions during Operations would be filled by members of the LSA. Employment would continue during Closure, but at a decreased level compared to Operations." Has NexGen established aspirational targets for hiring of Indigenous Peoples in addition to members of the LSA? Employment targets—as well as Education and Training, and Business and Contracting—should be established to support the Indigenous Economy and considered within the assessment.	18.0, p. iv
18-004	*Monitoring, Follow-up, and Adaptive Management (Section 18.7)* "In Benefit Agreements with Indigenous Groups, NexGen has committed to establishing an Implementation Committee which would facilitate an effective, ongoing working relationship between NexGen and the Indigenous Group, and verify that all commitments made within the Benefit Agreements are realized." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S economic impacts. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied. Further, it is unclear what mechanisms will be available to Indigenous Groups—without a Benefit Agreement in place—to realize the benefits and mitigations identified within the EIS.	18.0, p. v
18-005	Introduction "First Nations and Métis groups, collectively referred to as Indigenous Groups, also emphasized the importance of traditional or subsistence economies." Terminology such as Métis Group (rather than Indigenous Nation) does	18.1, p. 18-1

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	not align with nor reflect an understanding of MN-S as a rights holder. Terminology such as "First Nations" and "Indigenous Groups" does not reflect current best practices or acknowledge the Rights, Title and Jurisdiction of MN-S. Each Indigenous Nation should be discussed and acknowledged independently. It is unclear from text in the introduction if, and how, traditional or subsistence economies were considered within the EIS.	
18-006	Incorporation of Indigenous Knowledge "In addition to the IKTLU Studies and Joint Working Groups, Indigenous and Local Knowledge shared during specific engagement activities undertaken through EA development process was incorporated into the assessment, where appropriate." Indigenous Knowledge is a unique, but equal way of knowing. The term "incorporated" implies that this Knowledge is not equal in importance to scientific data collection and instead can be absorbed within it.	18.2.1, p. 18-8
18-007	Incorporation of Indigenous Knowledge "Monitoring, Follow-up, and Management: Feedback provided by Indigenous Groups during engagement, including recommendations, were considered in the development of monitoring and follow-up activities (Section 18.7). In addition, it is planned that ongoing feedback from Indigenous Groups on the effectiveness of mitigations would be considered when updating monitoring programs and management plans." As a rights holder, MN-S should have the opportunity to contribute to the scoping, development, and implementation of all monitoring programs, including effectiveness reviews and the application of an adaptive management approach.	18-.2.1, p. 18-9
18-008	*Measurement Indicators* "Nine measurement indicators were identified for the economy VC (Table 18.2-1): … • Indigenous community participation and employment in the traditional economy; • income: • personal income and household income, and wage	18.2.2.2, p. 18-11

Issue #	Concerns	Section, page
	income and traditional economy income; …" While text on page 18-10 provides some context on the traditional economy, it is unclear what NexGen is referring to with when referencing "employment in the traditional economy". Participation in traditional practices, and the traditional economy, does not necessarily equate to employment or an affiliation with a business or commercial operation. Further, distinguishing between wage income and traditional income supports the perspective that Indigenous Peoples may participate in the traditional economy, and earn income from these practices, independent of employment, which provides a wage.	
18-009	*Assessment Endpoints* Table 18.2-1 Valued Component Rationale, Measurement Indicators, and Assessment Endpoints Assessment Endpoints • Enhancing the participation of local Indigenous and non-Indigenous individuals in employment, income, education and training opportunities. • Enhancing Indigenous and locally owned business and opportunities. … Maintaining opportunities to participate in the traditional economy." While it is recognized that "assessment endpoints are qualitative expressions that represent the key properties of VCs that should be protected", the terminology used to define the assessment endpoints, in particular the term "enhancing" is subjective, not qualitative. It is unclear how NexGen will confirm that the assessment endpoints have been met. In addition, as rights holders, opportunities for Indigenous Nations and Indigenous individuals should be considered independently of non-Indigenous communities. Similarly, it is unclear why only the traditional economy has been identified to be maintained, when all other assessment endpoints are intended to be enhanced. Opportunities to enhance the traditional economy can and should be explored through collaboration with MN-S.	18.2.2.3, p. 18-12
18-010	Existing Conditions	18.2.6, p. 18-18

Issue #	Concerns	Section, page
	"The approach also considered input from communities and Indigenous Groups in the LSA provided through Joint Working Groups … and other engagement mechanisms ..." Through the references, it appears that only 2020 engagement with MN-S, however Joint Working Group meetings to inform the Project with other Indigenous Nations are referenced in 2021.	
18-011	Existing Conditions "Both primary (e.g., IKTLU Studies, interviews, questionnaires, observation, workshops, Joint Working Groups) and secondary (e.g., literature/reports, government statistics, organizational data) data sources were used throughout the assessment. Data collection began with a review of existing literature and databases from a variety of public sources and experiences with similar projects in Saskatchewan and throughout Canada. Primary data collection was undertaken in the form of key person (KP) interviews. ... A Joint Working Group session in August 2021 was specifically facilitated to explore the traditional and wage economies and government transfers in detail to contextualize their composition and interconnectivity, how they changed over time, and how they influenced the communities and their residents." It is unclear from this text who was engaged and participated in questionnaires and workshops, or the representation that was considered in the KP interview program. Regardless, as a rights holder MN-S should be provided the opportunity to participate in all engagement activities that were undertaken to inform this assessment. MN-S was not invited to participate in a 2021 Joint Working Group to explore traditional and wage economies.	18.2.6, p.18-18
18-012	Existing Conditions "Joint Working Group discussions, IKTLU Studies, and workshops … assisted in identifying existing economic conditions and related community interests and concerns, as well as supported data triangulation (e.g., cross-referencing) to verify the data was accurate and representative of the communities." This text seems to be missing some content, in particular following "as well as". Verification that Indigenous Knowledge has been used accurately and appropriately, should be completed by the potentially affected	18.2.6, p. 18-18

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	Indigenous Nation. NexGen reviewing primary sources of Indigenous Knowledge (i.e., IKTLU Studies) or performing data-triangulation (e.g., cross-referencing) *cannot* be considered verification that data is an accurate representation of the Indigenous community experience. As rights holders, MN-S should have the opportunity to collaborate in data verification, including the opportunity to review, revise, and contribute to the characterization of existing conditions with the MN-S Homeland.	
18-013	Existing Conditions *Key Person Interview Program* "A total of 73 interviews were conducted with community members ... Interviews were conducted with the consent of individual interview participants and community leadership. Community coordinators were hired and trained to assist in identifying participants in the KP interview program. Interviews were conducted in La Loche (20 interviews), BNDN / Turnor Lake (9 interviews), BRDN (16 interviews), Buffalo Narrows (24 interviews), other hamlets and villages (3 interviews), and the Meadow Lake Tribal Council (1 interview)." It is unclear from this text how many Key Person (KP) interviews were undertaken with Indigenous Peoples and non-Indigenous Peoples. It is also unclear which Indigenous communities were invited to participate in this process. As a rights holder, MN-S should have the opportunity to participate and be represented in the KP interview program.	18.2.6.2, p. 18-20
18-014	Project Interactions, Mitigations, and Benefit "Project interactions determined as no pathway, secondary pathways, or beneficial pathways were not carried forward for further assessment (Section 6.7.3)." This text appears to be missing some content and should be reviewed and updated.	18.2.7, p. 18-23
18-015	Mining-Specific Training "The MPTP was a collaborative effort developed by government, industry, and local public and Indigenous communities to maximize training and advancement opportunities in the uranium sector." TWC recommends that MN-S request that abbreviations (i.e., MPTP) are	18.3.7.1.3, p. 18-61 to 18-62

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	spelled out at first use within a section. It is unclear what this abbreviation stands for.	
18-016	*Educational Attainment* "The majority of the population in the LSA (i.e., 56.3%) and RSA (i.e., 50.8%) have less than a high school certificate, compared to approximately 20% of the Province of Saskatchewan." Given that students generally graduate high school at the age of 17 or 18, the inclusion of individuals under the age of 17 in this dataset dilutes the accuracy of the results.	18.3.7.2, p. 18-62
18-017	Project Interactions, Mitigations and Benefit Enhancement Table 18.4-1: Effects Pathways for Economy E-01, Mitigation and Benefit Enhancement Policies and Actions Column includes: • "Provide dedicated space for Elders to be available to support employees to assist with employee retention. … • Implement provisions of Benefit Agreements related to employment and training." It is unclear how exactly a dedicated space for Elders would function to assist with employee retention. How would Elder's be compensated for their time and Knowledge, what are the expectations associated with this role, and who would be afforded the opportunity to participate? Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of a Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	18.4, p. 18-70
18-018	Project Interactions, Mitigations and Benefit Enhancement Table 18.4-1 Effects Pathways for Economy Mitigation and Benefit Enhancement Policies and Actions column includes:	18.4, p. 18-70

Issue #	Concerns	Section, page
	"E-02 … • Develop and maintain a business opportunities workplan that describes the steps NexGen and each primary Indigenous Group would take to achieve the desired outcomes of the respective Benefit Agreement." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of a Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	
18-019	Project Interactions, Mitigations and Benefit Enhancement Table 18.4-1 Effects Pathways for Economy E-02 Mitigation and Benefit Enhancement Policies and Actions Column - all content The text within the assessment clearly outlines the interest and importance of local business to Indigenous Groups in the LSA. None of the mitigations identified however, include opportunities to support the start-up of local businesses and support Indigenous entrepreneurs.	18.04, p. 18-70
18-020	Project Interactions, Mitigations and Benefit Enhancement Table 18.4-1 Effects Pathways for Economy Effects Pathway column… "E-04 … • Benefit Agreements include payments to Indigenous Groups based on revenue generated throughout the life of the Project." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as beneficial pathway for MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.	1.4, p. 18-70
18-021	Beneficial Pathways	18.4.1, p. 18-72

Issue #	Concerns	Section, page
	"The analysis of beneficial effects on the economy considers that NexGen is in the process of negotiating Benefit Agreements with Indigenous Groups in the LSA and has signed agreements with three groups. Although details of these agreements are confidential and have not been finalized for all Indigenous Groups, they are premised on commitments described in NexGen's Integrated Management System Policy including proactively engaging with local community; supporting the economic participation of affected communities; seeking to provide opportunities resulting in sustainable, lasting benefits to local communities beyond the Project lifespan; and providing clear and timely information to those who have a direct interest in the Project." This comment applies to all text in subsections of 18.4.1 which reference and discuss NexGen's establishment of Benefit Agreements, including text that outlines anticipated commitments within the Agreements. Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as beneficial pathway for MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied. In addition, it is not appropriate for NexGen to assess and consider the benefits of a theoretical agreement for Indigenous Groups with no agreement, or certainty about the identified benefits, in place.	
18-022	Secondary Pathways "E-05: Population migration … most, if not all in-migration would be anticipated to be former residents, which would be viewed by most as a positive outcome (i.e., relatives returning home)." Earlier text in this assessment (and further in this passage) indicates that the Project will include several specialized jobs that will require specific skills sets that may not be available within the LSA workforce. While NexGen has identified a willingness to implement mitigation to minimize in-migration, this does not provide data to support the assumption that in-migration will be limited (almost entirely) to former residents.	18.4.3, p. 18-88
18-023	Key Findings	18.8, p. 18-91

Issue #	Concerns	Section, page
	"Sustainable economic opportunities associated with the Project also form part of the signed Benefit Agreements with Indigenous Groups." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as a source of sustainable economic opportunity for MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied. In addition, it is not appropriate for NexGen to assess and consider the benefits of a theoretical agreement for Indigenous Groups with no agreement, or certainty about the identified benefits, in place.	
18-024	Key Findings "Mitigation, enhancement, and monitoring are proposed to sustainably maximize economic opportunities these include … • Providing a dedicated space for Elders to be available to support Indigenous employees." It is unclear how a dedicated space for Elders would function to assist with Employee Retention. How would Elder's be compensated for their time and Knowledge, what are the expectations associated with this role and who would be afforded the opportunity to participate?	18.8, p. 18-93

2.16.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Removal of the term "obtained" from the EIS when discussing shared Indigenous Knowledge. Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, should be addressed through engagement and subsequent revisions to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.
2. That NexGen provide an opportunity for MN-S to verify the use of Indigenous Knowledge in the updated EIS and clearly describe the verification process within the EIS. Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, should be addressed through engagement and subsequent revisions to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

3. Removal—throughout the EIS—of statements related to the implementation of Benefit Agreements as a mitigation measure for impacts to MN-S. Update text to reflect mechanisms available to Indigenous Groups without agreements in place, to realize the benefits and mitigations identified throughout the EIS.
4. That NexGen set and include targets—within the EIS— for Indigenous employment, Indigenous Education and Training, and Indigenous Business and Contracting.
5. Commitment from NexGen to refer to Indigenous Nations specifically—within the EIS and throughout the Project life cycle—rather than using "Indigenous Groups."
6. Additional text, in the introduction, related to how traditional or subsistence economies have been considered in this assessment.
7. That NexGen remove the use of "incorporated" as it refers to Indigenous Knowledge, throughout the EIS. Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, should be addressed through engagement and subsequent revisions to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.
8. Commitment from NexGen to involve MN-S in all stages of monitoring and follow-up programs.
9. That NexGen remove "employment in the traditional economy" as measurement indicator for income, and instead reference Indigenous community participation in the traditional economy.
10. Clarification from NexGen in the description of the Assessment Endpoints.
11. That Assessment Endpoints associated with Indigenous employment, income, education, training and business opportunities are considered independently of the non-Indigenous economy.
12. That the Assessment Endpoint for the traditional economy is given equal weight and consideration as the other assessment endpoints. While it is recommended that text is updated for additional clarity, the endpoint should align with the principle of enhancing the traditional economy.
13. Updates to the EIS that provide additional details about the level of engagement undertaken with MN-S to inform the "Existing Conditions" assessment of Section 18.2.6 and identification of the specific parties invited to participate in the August 2021 session.
14. The opportunity for MN-S to participate in a workshop on traditional and wage economies, to support updates in the final EIS.
15. Updates to the language regarding data verification to reflect that MN-S requested, and was not provided, the opportunity to review—and verify—the EIS prior to regulatory submissions.
16. Additional information in the EIS regarding the representation of Indigenous

participants in the KP Program, including identification of the Indigenous Nations that were invited to participate including rationale.

17. Limiting the EIS high school certificate attainment statistics to those who have reached the appropriate age to achieve graduation.
18. Additional details about the dedicated space for Elders as a mitigation to support employee retention.
19. Inclusion of mitigations to support local Indigenous entrepreneurs and the start-up of local businesses that can benefit the local economy and the Project.
20. Updates to Table 18.4-1 to indicate how Indigenous Groups without a Benefit Agreement will realize the beneficial pathway.
21. Additional data and information— in the EIS—to support the assumption that "most, if not all in-migration would be anticipated to be former residents, which would be viewed by most as a positive outcome (i.e., relatives returning home)."

2.17 COMMUNITY WELL-BEING (SECTION 19)

2.17.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
19-001	*Section Purpose* "The assessment of effects on community well-being was informed by the assessments completed for Indigenous land and resource use, Other Land and Resource Use, and economy. Results from the assessment of community well-being did not provide inputs to other EIS Sections." Human Health and Community well-being are closely linked, as such a robust assessment of community well-being should be informed by the Human Health Effects Assessment. TWC recommends that MN-S request the assessment of community well-being is updated to include consideration of the Human Health Effects Assessment.	19.0, p. i
19-002	*Project Interactions, Mitigations and Benefit Enhancement (Section 19.4)* "Proposed mitigation and enhancement measures would reduce adverse effects and enhance beneficial effects on the local communities. Measures would include the development of culturally-sensitive employment policies, provision of dedicated	19.0, p. vi

Issue #	Concerns	Section, page
	space for Elders ..." It is unclear how a dedicated space for Elders would function to assist with Employee Retention. How would Elder's be compensated for their time and Knowledge, what are the expectations associated with this role and who would be afforded the opportunity to participate? TWC suggests that MN-S request additional detail is provided, and included within the EIS, related to dedicated space for Elders as a mitigation to support employee retention.	
19-003	*Project Interactions, Mitigations and Benefit Enhancement (Section 19.4)* "… NexGen is in the process of negotiating Benefit Agreements with Indigenous Groups in the LSA … [a]lthough details of these agreements are confidential and have not been finalized for all Indigenous Groups, they are premised on commitments including proactively engaging with local communities; supporting the economic participation of affected communities; seeking to provide opportunities resulting in sustainable, lasing benefits to local communities beyond the Project lifespan; and providing clear information to those who have a direct interest in the Project. Implementation of items agreed to in Benefit Agreements is also expected to reduce adverse effects and enhance beneficial effects on community well-being." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied. TWC recommends that MN-S request the removal of implementation of Benefit Agreements as a mitigation measure, and beneficial pathway, throughout the EIS.	19.0, p. vi
19-004	Demand for Community Infrastructure and Services "… it is expected that support in the Benefit Agreements and the Community Vitality Monitoring Partnership Program (CVMPP) would work towards minimizing residual cumulative effects. The CVMPP is a multi-stakeholder group that includes mine operators, health authorities, and the provincial government that completes or	19.0, p. viii

Issue #	Concerns	Section, page
	commissions research on topics related to quality of life in northern Saskatchewan at a regional scale ..." Currently, no agreement is in place with MN-S for the Project; it is therefore not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S. Similarly based on the description provided the CVMPP does not include representation of Indigenous Groups. As such these mitigations to address the demand for community infrastructure are not applicable to MN-S. TWC recommends that MN-S request this text is updated to reflect how Indigenous Groups without a Benefit Agreement in place will realize the mitigations for community infrastructure and services.	
19-005	Introduction Figure 19.1-3 Community Well-Being elements *AND* "The assessment of effects on community well-being relies on inputs from Indigenous land and resource use … Other Land and Resource Use … and the economy. Results from the assessment of community well-being do not provide inputs to other EIS sections." Figure 19.1-3 Community Well-being Elements includes: Societal and Cultural, Health, Neighbourhood and Physical Environment, Educational and Economic, however the text does not identify a linkage between the Human Health Assessment and the Community well-being assessment. It is further noted that text in the introduction references mental health but makes no other reference to the influence on health on community well-being. Human Health and Community well-being are closely linked, as such a robust assessment of community well-being should be informed by the Human Health Effects Assessment. TWC recommends that MN-S request the assessment of community well-being is updated to include consideration of the Human Health Effects Assessment.	19.1, p. 19-4
19-006	Incorporation of Indigenous Knowledge "Comments submitted by Indigenous Groups on the Project Description … were also reviewed for applicable Indigenous and	19.2.1, p. 19-10

Issue #	Concerns	Section, page
	Local Knowledge." The use of Indigenous Knowledge should be subject to the protocols and permissions of the Indigenous Nations who share that Knowledge. In addition, the use of Indigenous Knowledge should be verified by Indigenous land and resource users to ensure that it has been applied appropriately and as intended. MN-S requested the opportunity to review and contribute to the EIS prior to submission, but NexGen did not meet this request. Further, unless explicitly directed otherwise, the provision of comments on a document review is not synonymous with sharing Indigenous Knowledge for the purposes of an impact assessment. TWC recommends that MN-S request that NexGen update text to reflect any verification process undertaken to confirm the application of Indigenous Knowledge. TWC also recommends that MN-S request NexGen update text within the EIS to reflect that a verification process was not undertaken to ensure that the application of MN-S Knowledge was appropriately applied within the assessment. This comment is applicable to all content within the EIS and should be updated globally.	
19-007	Measurement Indicators Table 19.2-1 Measurement Indicators, Supporting Indicators, and Factors Considered Health well-being row Holistic consideration of health well-being requires consideration of potential health impacts associated with the Project. As such the outcomes of the human health risk assessment should inform the supporting indicator of overall health. TWC recommends that MN-S request the inclusion and consideration of the Human Health Risk Assessment within the Community well-being assessment, particularly as it relates to the health well-being measurement indicator.	19.2.2.2, p. 19-13
19-008	Existing Conditions "A Joint Working Group session in 2020 was specifically developed to discuss community definitions of well-being, the factors that both contribute to and detract from well-being, and how participants felt the proposed Project might interact with these factors."	19.2.6, p. 12-20

Issue #	Concerns	Section, page
	It is unclear who participated in this working group and what definitions were provided for well-being and the factors that contribute to and detract from well-being. TWC recommends that MN-S requests additional detail is included within the EIS to reflect the participants and Knowledge that was shared and applied to this assessment.	
19-009	Existing Conditions *COVID-19 Impacts* "An LGBTQ2S+ (Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, and Two-Spirit plus) workshop was postponed … and later cancelled based on the change in participants' willingness to participate, which was respected." The use of LGBTQ2S+ without reference to people or community diminishes the identify of those that are members of the LGBTG2S+ community to a label. It is also unclear if the scope of the workshop was intended to include LGBTQ2S+ allies and family members. TWC recommends that MN-S request that this terminology is updated to acknowledge members of the LGBTQ2S+ community as people. For example, the text could be revised to state "a workshop to engage with members of the LGBTQ2S+ community was postponed ...".	19.2.6.5, p. 19-25
19-010	Monitoring. Follow-up and Adaptive Management "NexGen has demonstrated a commitment to working with LSA Indigenous Groups and communities to realize the potential socio-economic benefits the Project would provide." This statement is ambiguous, and it is unclear what demonstration of commitment is being referenced. TWC recommends that MN-S request NexGen revise this text within the EIS to support the statement that NexGen has demonstrated a commitment, and further note that implementation of a yet to be negotiated Benefit Agreement is not a demonstration of NexGen's commitment to working with MN-S.	19.2.11, p. 19-31
19-011	*Buffalo Narrows* "The Buffalo Narrows population is predominantly Métis (i.e., 80.2%) with some First Nations (i.e., 19.8%)." This text is contradictory to the content included on the preceding	19.3.1.1.3.2, p. 19-38

Issue #	Concerns	Section, page
	page (19-37) which states: "La Loche and Buffalo Narrows are described in this subsection because Métis are the majority population of the various groups (i.e., 50.0% in La Loche and 65.8% in Buffalo Narrows)." TWC recommends that MN-S request NexGen review and revise this content for accuracy and consistency.	
19-012	Community Context Métis Nation–Saskatchewan Northern Region 2 It is noted that the content to describe the MN-S community context is informed entirely by engagement in 2020 and does not include any context from NexGen's KP Interview program. While it is acknowledged that the COVID-19 pandemic limited in person engagement, this assessment has identified that remote and digital engagement has been ongoing. TWC recommends that MN-S request NexGen review this content and update it to reflect inputs from the KP Interview Program and engagement activities in 2021. If no additional information is available, TWC recommends MN-S request that NexGen provide rationale for the 2021 data gap.	19.3.1.2.2, p. 19-41
19-013	Project Interactions and Mitigations Table 19.4-1 Effects Pathways for Community well-being[24] Environmental Design Features, Mitigation, and Enhancements column: "CWB-01 ... • Provide **dedicated space for Elders** to be available to support employees to assist with employee retention. … • Implement items as agreed to in the **Benefit Agreements** related to culture and traditional values. … • Establish an **Implementation Committee** to provide a forum for regular communication and information exchange between NexGen and communities for effective management of the Benefit Agreement Commitments and for early resolution of issues and/or disputes that may arise.	19.4, p. 19-97 to 19-100

[24] Emphasis in original

Issue #	Concerns	Section, page
	… CWB-03 … • Implement provisions of **Benefit Agreements** related to culture, traditional values, employment, training and economic development, and including: • funding and human resources …" It is unclear how a dedicated space for Elders would function to assist with Employee Retention. How would Elder's be compensated for their time and Knowledge, what are the expectations associated with this role and who would be afforded the opportunity to participate? TWC suggests that MN-S request additional detail is provided, and included within the EIS, related to dedicated space for Elders as a mitigation to support employee retention. Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied. TWC recommends that MN-S request the removal of implementation of Benefit Agreements as a mitigation measure, and beneficial pathway, throughout the EIS.	
19-014	Project Interactions and Mitigations Table 19.4-1 Effects Pathways for Community well-being[25] Environmental Design Features, Mitigation, and Enhancements column: "CBW-03 …. • Work with local Indigenous Groups and communities to **develop fishing policies** that consider both fisheries protection and traditional use activities." It is unclear in what jurisdiction NexGen must develop, implement, and	19.4, p. 19-97

[25] Emphasis in original

Issue #	Concerns	Section, page
	enforce fishing policies. TWC recommends that MN-S requests additional detail is provided, and included in the EIS, regarding this proposed mitigation including what is within the authority of NexGen to implement and enforce with respect to fishing policies.	
19-015	Beneficial Pathways CWB-09: Increased Income "Currently, NexGen is negotiating a Benefit Agreement with the MN-S … [t]he Benefit Agreements stipulate that NexGen and each primary Indigenous Group would, among other things …" Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied. TWC recommends that MN-S request the removal of implementation of Benefit Agreements as a mitigation measure, and beneficial pathway, throughout the EIS.	19.4.1, p. 19-102
19-016	Beneficial Pathways CWB-09: Increased Income "In addition to the commitments under the Benefit Agreements, NexGen is committed to: • providing dedicated space for Elders to be available to support employees and assist with employee retention; …" It is unclear how a dedicated space for Elders would function to assist with Employee Retention. How would Elder's be compensated for their time and Knowledge, what are the expectations associated with this role and who would be afforded the opportunity to participate? TWC suggests that MN-S request additional detail is provided, and included within the EIS, related to dedicated space for Elders as a mitigation to support employee retention.	19.4.1, p. 19-102
19-017	Beneficial Pathways	19.4.1, p. 19-104

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	CWB-11: Payments to Indigenous Groups "Benefit Agreements include payments to primary Indigenous Groups based on revenue generated throughout the life of the Project." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied. TWC recommends that MN-S request the removal of implementation of Benefit Agreements as a mitigation measure, and beneficial pathway, throughout the EIS.	
19-018	Access Restrictions and Avoidance "Related to **cultural continuity**, after mitigation, it is anticipated that access restrictions and avoidance of areas near the Project would have an adverse effect on the well-being of some land users. Access would be restricted only within the maximum disturbance footprint past the gatehouse, thought perceptions of the Project effects could extend across a broader area. ... The effect on cultural continuity would be limited to site-specific knowledge that may not be shared among generations and the loss of which may not be replaced." It is unclear how the effect of access restrictions and avoidance of areas near the Project on cultural continuity can be limited to the maximum disturbance of the footprint. While this reflects the access restriction, it is not necessarily reflective of avoidance areas due to the perception of Project effects. TWC recommends that MN-S request this content is updated, and additional detail is provided in the EIS to better reflect how avoidance of areas near the Project has been considered.	19.5.1.1, p. 19-116
19-019	Access Restrictions and Avoidance "If uses in proximity to the Project footprint continue and are encouraged through Construction and Operation, the duration of avoidance may be reduced." It is unclear who will be encouraging continued use of the land in	19.5.1.1, p. 19-116

Issue #	Concerns	Section, page
	proximity to the Project footprint, or what methods would be employed to build confidence and trust in the safety and ability to continue traditional practices on the land. Encouragement in and of itself is not an effective mitigation measure. TWC recommends that MN-S request that this text in the EIS is updated to provide additional detail is provided regarding encouragement as a mitigation measure for avoiding lands in the proximity of the Project. If sufficient detail is not available to support this as a robust mitigation measure, TWC recommends that MN-S request this content is removed from the EIS.	
19-020	Access Restrictions and Avoidance "After Closure, effects on cultural continuity would likely be reversible as users start frequenting the area again." Over a period of 43 years (the duration of the Project) it is both possible and reasonable to expect that in some cases the opportunity for intergenerational place-based knowledge transfers may be lost. The following quote from section 19.5.2.1 (page 19-123) supports the concept that changes to cultural continuity would last at least one generation; this should be considered applicable to both the Application and the RFD case: "Changes to cultural continuity would likely extend past the lifespan of the Project and last for at least one generation during the overlap of the Projects (i.e., approximately 25 years) as knowledge transmission is intergenerational and restricted access or avoidance would disrupt the change of knowledge transfer until the area is used again." Further to comment 19-018, when considering avoidance of areas for Traditional practices, additional information (and verification by Indigenous Groups) is required to support the statement that the maximum disturbance footprint (i.e., physical Project exclusion) is the only area where the ability to practice cultural continuity would be impacted and further the described outcome that the impact to cultural continuity is reversible.	19.5.1.1, p. 19-116 to 19-117
19-021	Access Restrictions and Avoidance "The Benefit Agreement would provide cultural supports that contribute to cultural continuity." This is a broad and vague statement that provides no details regarding	19.5.2.1, p. 19-122 to 19-123

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	the proposed mitigation and should be removed. Further, currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied. TWC recommends that MN-S request that this text is removed and that implementation of Benefit Agreements as a mitigation measure, and beneficial pathway, throughout the EIS.	
19-023	Application Case "In the Application Case, residual effects due to access restrictions and avoidance of areas near the Project and the worker rotation system are expected to be negative and negligible to small in magnitude." Table 19.6-1 Direction, duration, frequency and probability rows for all measurement indicator groupings are listed as negative, long-term, continuous and probable or certain. While magnitude is an important consideration, it is unclear what (if any) steps NexGen has taken to confirm or verify the determination that these residual effects are low. TWC recommends that MN-S request NexGen undertake engagement to verify these outcomes with Indigenous Groups and potentially affected Peoples and update this content to provide further rationale for the classification of residual effects.	19.6.2, p. 19-127
19-022	Application Case "… while effects on social adaptability from the worker rotation system, and changes in demand for community infrastructure and services are expected to range from periodic to continuous …" This text contradicts the information provided in Table 19.6-1 which identifies the frequency of Social Adaptability and demand for community infrastructure to be continuous for both the Application Case and the RFD case. TWC recommends that MN-S request the EIS content is reviewed and updated for consistency and accuracy.	19.6.2, p. 19-128
19-024	Monitoring, Follow-up and Adaptive Management	19.8, p. 19-131

Issue #	Concerns	Section, page
	"… NexGen has committed in the Benefit Agreements with each primary Indigenous Group to establish an Implementation Committee … [that] would be task with the responsibility of facilitating an effective ongoing working relationship and confirming that all commitments made within the Benefit Agreements are realized." Currently, no agreement is in place with MN-S for the Project. As such, it is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied. TWC recommends that MN-S request that this text is removed and that implementation of Benefit Agreements as a mitigation measure, and beneficial pathway, throughout the EIS. In addition, NexGen should provide additional detail regarding how Indigenous Groups without a Benefit Agreement in place would realize these benefits and/or mitigations.	
19-025	Key Findings "For both the Application and the RFD Case, the residual effects are predicted to be **not significant** to the community well-being VC. … The Project is anticipated to cause incremental and cumulative effects on community well-being." When all the well-being elements are considered together, the Project is anticipated to result in a beneficial outcome for the LSA, particularly if mitigation and enhancement are implemented effectively. The closing text for this chapter references a beneficial outcome, however all supporting information and facts speak to potential impacts. It is unclear how the following factors (listed in the text) contribute to an overall beneficial outcome: "… incremental and cumulative effects on community well-being … changes to cultural continuity from access restriction, social adaptability from the inclusion of the worker rotation system, and subsequent changes in demand for community infrastructure …" TWC recommends that MN-S request this content is updated to	19.9, p. 19-133

Issue #	Concerns	Section, page
	provide additional detail regarding a beneficial effect on community well-being and that outcomes, particularly as they relate to Indigenous Rights and Interest (e.g., cultural continuity) are verified with Indigenous Groups. Discussion of the verification process should be included in the EIS.	

2.17.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Updates to the assessment of community well-being to include consideration of the Human Health Effects Assessment.

2. Removal— throughout the EIS—of implementation of Benefit Agreements as a mitigation measure and beneficial pathway.

3. Updates to Section 19 Community Well-Being that reflect how Indigenous Nations without an Impact-Benefit Agreement in place will realize the mitigations for community infrastructure and services.

4. That NexGen update text to reflect any verification process undertaken to confirm the application of Indigenous Knowledge. Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, should be addressed through engagement and subsequent revisions to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

5. Additional detail is included within the EIS to reflect the participants and Knowledge that was shared and applied to this assessment. Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, should be addressed through engagement and subsequent revisions to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

6. Update terminology to acknowledge members of the LGBTQ2S+ community as people. For example, the text could be revised to state "a workshop to engage with members of the LGBTQ2S+ community was postponed ...".

7. That NexGen revise the text in Section 19.2.11, p. 19-31 to support the statement that NexGen has demonstrated a commitment, and further note that implementation of a yet to be negotiated Benefit Agreement does not demonstrate NexGen's commitment to working with MN-S.

8. That NexGen review and revise the content of Section 19.3.1.1.3.2 for accuracy and consistency.

1.

9. That NexGen review the content of Section 19.3.1.2.2, Community Context, and update it to reflect inputs from the KP Interview Program and engagement activities in 2021. If no additional information is available, NexGen should provide rationale for the 2021 data gap.

10. Removal of implementation of Impact-Benefit Agreements as a mitigation measure, and beneficial pathway, throughout the EIS. It is not appropriate to list implementation of an Impact-Benefit Agreement as mitigation to reduce effects to MN-S. The terms of the agreement will be subject to a negotiation process with MN-S and the outcomes may vary from those presented and therefore are not an accurate reflection of mitigation that will be applied.

11. Update EIS to provide additional details

    a) regarding how Indigenous Groups without an Impact-Benefit Agreement in place would realize the benefits and/or mitigations referenced throughout the EIS.

    b) regarding the proposed development of fishing policies as mitigation including what is within the authority of NexGen to implement and enforce with respect to such policies.

    c) related to dedicated space for Elders as a mitigation to support employee retention. Currently, no agreement is in place with MN-S for the Project.

    d) that better reflect how avoidance of areas near the Project have been considered.

    e) regarding encouragement as a mitigation measure for avoiding lands in the proximity of the Project. If sufficient detail is not available to support this as a robust mitigation measure, the content should be removed from the EIS.

    f) regarding a beneficial effect on community well-being and how outcomes, particularly as they relate to Indigenous Rights and Interest (e.g., cultural continuity), are verified with Indigenous Groups.

12. Further to comment 19-018, when considering avoidance of areas for traditional practices, additional information (and verification by Indigenous Groups) is required to support the statement that the maximum disturbance footprint (i.e., physical Project exclusion) is the only area where the ability to practice cultural continuity

would be impacted and further the described outcome that the impact to cultural continuity is reversible.

13. That NexGen undertake engagement to verify outcomes with Indigenous Nations and potentially affected Peoples and update the content of Section 19.6.2 to provide further rationale for the classification of residual effects.

14. TWC recommends that MN-S request the EIS content is reviewed and updated for consistency and accuracy.

2.18 ACCIDENTS AND MALFUNCTIONS (SECTION 21)

2.18.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
21-001	*Risk Assessment Approach (Section 21.5)* "The process taken to identify transportation hazard scenarios considered the potential for the release of chemical or radiological constituents to the aquatic, terrestrial, and atmospheric environments." It is also feasible and likely that there may be vehicle malfunctions or accidents that could result in a vehicle fire, which has the potential to impede use of the roadway and/or spread including potential to become a wildfire situation. TWC recommends that MN-S request that a hazard scenario related to vehicle fires is considered and included within the EIS.	21, p. ii
21-002	*Assessment Effects of Accidents and Malfunctions (Section 21.6)* "Six hazard scenarios were selected as bounding scenarios for more detailed risk analysis." Given the high importance of Patterson Lake to Indigenous and local Communities, the use of the lake for fishing and sustenance, and the presence of in-lake infrastructure, an accidental release into Patterson Lake has the potential to impacts several VCs and linked VCs. TWC recommends that MN-S request the consideration of an aquatic release to Patterson Lake as a bounding scenario for the assessment of effects of accidents and malfunctions.	21, p. ii
21-003	*Assessment Effects of Transportation-related Risks (Section 21.7)*	21, p. iii

Issue #	Concerns	Section, page
	"After the detailed risk analysis was complete, the resultant risk level rating was assessed to be Low for all scenarios except for the transportation accident scenario involving a vehicle-pedestrian collision, which was deemed to be a Moderate risk. The Moderate risk scenario was deemed to represent a tolerable level of risk in consideration of proposed safeguards that reduce the risk level to ALARP." It is unclear if NexGen has verified the outcomes of this assessment with potentially affected Peoples (i.e., land users who may be pedestrians along the transportation routes), who may not support this outcome. TWC recommends that MN-S request additional detail about verification undertaken regarding the MN-S outcomes. If no verification was undertaken TWC recommends that MN-S request additional text to acknowledge verification was not undertaken and to further acknowledge the limitations of the assessment in this regard.	
21-004	Transportation Route "For the purpose of this assessment, the transportation route for the Project encompasses defined sections of Saskatchewan provincial Highway 955 and Highway 155 …" The destination of the Rook I Project products is unclear. It is also unclear how materials will be transported from the intersection of Highway 955 and Highway 155 at Green Lake to the destination. Finally, no rationale is provided for limiting the potential for accidents or malfunction to this specific area. TWC recommends that MN-S request additional detail and rationale be provided in the EIS about the selection of the defined sections of the transportation route considered within this assessment.	21.2.2, p. 21-8
21-005	Incorporation of Indigenous and Local Knowledge Section title "Incorporation of Indigenous and Local Knowledge" The use of "incorporation" does not reflect current best practices that acknowledge Indigenous Knowledge as an equal but different way of knowing (than western science). This terminology implies that Indigenous Knowledge can be absorbed into a scientific approach. TWC recommends that MN-S request the removal of "Incorporation of Indigenous Knowledge" throughout the EIS.	21.4, p. 21-10

Issue #	Concerns	Section, page
21-006	Hazard Identification / Accidents and Malfunctions "Based on a review of Project-related information, the following key Project components and activities were identified that form the basis of consideration for the identification of potential hazard scenarios: [bullet list] …" While the list of Project components includes "process plant buildings" there does not appear to be any consideration of in-lake infrastructure and associated discharges, such as the treated effluent and pipe diffuser and the treated sewage pipe and outfall. Given the importance of Patterson Lake and the importance of water and influence of water on Indigenous culture (as discussed in Section 21.4, p. 21-12) these factors should be a consideration in the hazard identification process. TWC recommends that MN-S request that NexGen consider potential accidents or malfunctions related to in-lake infrastructure through the Hazard Identification process. Further, TWC recommends that MN-S request that these options are specifically discussed in the EIS; if they are not identified as bounding scenarios, rationale should be provided given the level of importance that Patterson Lake and the associated wildlife and habitat provide to MN-S Culture and practices.	21.5.1, p. 21-17
21-007	Assessment of Bounding Scenarios for Accidents and Malfunctions "Based on the results of the initial screening process undertaken to identify hazard scenarios …. a subset of the identified scenarios was selected as the focus of the detailed risk analysis. These hazard scenarios represented the bounding scenarios considered in the accidents and malfunctions assessment." Additional detail is required to understand the selection of the bounding scenarios. As written, it is unclear if all hazard scenarios identified as high-risk were selected as bounding scenarios, if a subset of the high-risk scenarios was selected, or if another approach was applied. If any option aside from advancing all high-risk hazard scenarios was applied, rationale for the selection process should be provided.	2.1.5.5, p. 12-20
21-008	Selection of Bounding Scenarios Table 21.6-1 Summary of Hazard Scenario Identification Results While the "System, process plant buildings" includes consideration of the process and piping system failure, there does not appear to be any consideration of in-lake infrastructure and associated discharges, such	21.6.2, p. 21-22

Issue #	Concerns	Section, page
	as the treated effluent and pipe diffuser and the treated sewage pipe and outfall. Given the importance of Patterson Lake and the importance of water and influence of water on Indigenous culture (as discussed in Section 21.4, p. 21-12) these factors should be a consideration in the hazard identification process.	
21-009	Selection of Bounding Scenarios Table 21.6-2 Bounding Scenarios Considered in the Accidents and Malfunctions Assessment and Associated Mitigations Bounding Scenarios 1, 2, and 3 It is unclear why only aquatic impacts associated with a traffic accident are discussed. The release of uranium concentrate and radioactivity or the release of fuel and hazardous chemicals pose an environmental risk as well as a potential risk of fires or explosion which has both environmental and health risks (as noted for bounding scenario 3).	21.6.2, p. 21-25
21-010	Risk Measurement and Evaluation "With implementation of environmental design features and mitigation, and in consideration of the assessed probability for this accident scenario, the likelihood was assessed as **highly unlikely**." This text directly contradicts the text in Section 21.6.3.2 (p. 21-28) which states that "[r]isks associated with release of uranium concentrate to the surface water environment due to a traffic accident at the Clearwater River bridge crossing location would be managed through design criteria and management controls related to the access road ..."; i.e., no environmental mitigation is proposed. This text provides the reader with the impression that environmental design features are a component of the mitigation for this scenario.	21.6.3.4, p. 21-30
21-011	Risk Measurement and Evaluation "With implementation of environmental design features and mitigation, and in consideration of the assessed probability for this accident scenario, the likelihood was assessed as **highly unlikely**." This text directly contradicts the text in Section 21.6.4.2 which states that "[r]isks associated with a potential release of fuel or other hazardous chemical to the surface water environment would be managed through design criteria and management controls related to the access road ..."; i.e., no environmental mitigation is proposed. This text provides the reader with the impression that environmental	21.6.4.4, p. 21-31

Issue #	Concerns	Section, page
	design features are a component of the mitigation for this scenario.	
21-012	Assessment of Potential Effects "These weather conditions included a worst-case condition, which assumed peak wind speeds and worst-case conditions for dispersion of released materials, and a typical weather condition, which assumed average wind speeds and average conditions for dispersion of released materials." The weather scenarios lack the details required to understand the extent of the weather conditions considered and the difference between the two scenarios: "worst-case" and "average."	21.6.5.3, p. 21-32
21-013	Assessment of Potential Effects "In the event of a maximum release of up to 14.9 m³, the released tailings would flow north, away from the solvent extraction and process plant." It is unclear how the maximum release of 14.9m³ was determined. Further, it is unclear what controls are in place to ensure that the release will not exceed 14.9 m³.	21.6.6.3, p. 21-34

2.18.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. A hazard scenario related to vehicle fires is considered and included within the EIS.
2. Consideration of an aquatic release to Patterson Lake as a bounding scenario for the assessment of effects of accidents and malfunctions.
3. Additional detail about verification undertaken regarding outcomes for Métis people, rights, and communities. If no verification was undertaken, TWC recommends that MN-S request additional text to acknowledge verification was not undertaken and to further acknowledge the limitations of the assessment in this regard.
4. Additional detail and rationale be provided in the EIS about the selection of the defined sections of the transportation route considered within the assessment.
5. Removal of the phase "Incorporation of Indigenous Knowledge" throughout the EIS and replacement with an acceptable alternative such as "application of Indigenous Knowledge". Concerns regarding the use of Indigenous Knowledge, separate from local knowledge, should be addressed through engagement and subsequent revisions

to the draft EIS. As indicated elsewhere in this review, it is recommended that the EIS remain in draft form until concerns regarding Indigenous Knowledge have been addressed.

6. That NexGen consider potential accidents or malfunctions related to in-lake infrastructure through the Hazard Identification process. Further, that these options are specifically discussed in the EIS. If they are not identified as bounding scenarios, rationale should be provided given the level of importance that Patterson Lake and the associated wildlife and habitat provide to MN-S Culture and practices.

7. Additional detail is provided in the EIS regarding the selection of bounding scenarios, including selection criteria and the inclusion of rationale for any high-risk scenarios that were not identified as a bounding scenario.

8. Additional detail is included in the EIS regarding terrestrial release due to a traffic accident as well as the associated fire or explosion risk associated with such a release.

9. Update the text of Section 21.6.3.4 to appropriately reflect the proposed mitigations.

10. Update the text of Section 21.6.4.2 to appropriately reflect the proposed mitigations.

11. That NexGen include additional detail in the EIS (re: identification of the assumed wind speeds and conditions) regarding both the “worst-case" and “average” scenarios and provide data and rationale for the selection of the scenario speeds and conditions.

12. That NexGen provide additional context and rationale to support 14.9 m^3 as the maximum release; this discussion should include clear identification of the controls in place that would limit the release to this volume.

2.19 ASSESSMENT OF EFFECTS OF THE ENVIRONMENT ON THE PROJECT (SECTION 22)

2.19.1 AREAS OF CONCERN

Rook I Project – Saskatchewan, Canada Environmental Impact Statement (April 2022)

Issue #	Concerns	Section, page
22-001	Introduction	22.1, p. 22-1
	"The assessment of potential effects of the environment on the Project includes identification of natural hazards deemed to have reasonably possible consequences for the proposed Project, and the mitigation measures that would be implemented to reduce or eliminate potential risks."	

Issue #	Concerns	Section, page
	The proposed mitigations do not include any collaborative activities to develop a shared understanding with MN-S of the natural hazards; nor was MN-S provided the opportunity to contribute to the identification of appropriate mitigations. Mitigations to address natural hazards must be informed by collaboration and contribution of MN-S. This applies for all mitigations mentioned in section 22.	
22-002	Risk Management "NexGen's objectives of risk management are to reduce all health, safety, and environmental risks to acceptable levels and to keep radiological exposures to workers and the environment as low as reasonably achievable." How does NexGen define "acceptable levels"?	22.1.2, p. 22-6
22-003	Risk Management "NexGen's objectives of risk management are to reduce all health, safety, and environmental risks to acceptable levels and to keep radiological exposures to workers and the environment as low as reasonably achievable." "Keeping radiological exposures as low as reasonably achievable" is vague. TWC recommends that MN-S request clarification of how low the radiological exposure will be targeted to be, what may impede the ability of NexGen to reach those targets and what measures will be taken to reduce the risk further throughout the lifecycle of the facility. TWC also recommends that NexGen provide clarification on the effects of radiological exposure on human health and the environment.	22.1.2, p. 22-6
22-004	Risk Management "Adaptive management may be used to reduce the uncertainty associated with hazards or risks when systems are highly dynamic and when there are gaps in information or understanding, opportunities to learn and gain new information, and opportunities to adjust activities or practices to realize improvements." It is important for MN-S to be involved in adaptive management throughout the lifecycle of the Project as adaptive management may impact the effectiveness of mitigation measures	22.1.2, p. 22-7

Issue #	Concerns	Section, page
22-005	Incorporation of Indigenous Knowledge Section title The use of "incorporated" does not reflect current best practices that acknowledge Indigenous Knowledge as an equal but different way of knowing (than western science). This terminology implies that Indigenous Knowledge can be absorbed into a scientific approach.	22.3, p. 22-8
22-006	Incorporation of Indigenous Knowledge "Indigenous and Local Knowledge included in the assessment of effects of the environment on the Project was shared by potentially affected First Nations and Métis Groups (collectively referred to as Indigenous Groups) and local priority area (LPA) community members through the Project engagement process." Terminology such as Métis Group (rather than Indigenous Nation) does not align with or reflect an understanding of MN-S as a rights holder. Terminology such as "First Nations" and "Indigenous groups" does not reflect current best practices or acknowledge the Rights, Title and Jurisdiction of MN-S. Each Indigenous Nation should be discussed and acknowledged independently.	22.3, p. 22-8
22-007	Incorporation of Indigenous Knowledge "The leadership of each Indigenous Group selected their Joint Working Group participants with consideration of group diversity; where possible, members included Elders, youth, different genders, a range of ages, and land users around Patterson Lake." It is unclear how MN-S's input was considered in section 22.	22.3, p 22-9
22-008	Incorporation of Indigenous Knowledge "Indigenous and Local Knowledge related to effects of the environment on the Project was incorporated into the assessment by viewing the information as complementary and influential alongside scientific information." See comment 22-007. The term 'complementary' implies that Indigenous Knowledge is used to complement scientific information rather than Indigenous Knowledge being an equal but different way of knowing (than western science).	22.3, p. 22-10
22-009	Incorporation of Indigenous Knowledge	22.3, p. 22-10

Issue #	Concerns	Section, page
	"Issues, concerns, and comments received during community engagement and Joint Working Group meetings as well as information from Indigenous Knowledge and Traditional Land Use Studies were considered in the design of the Project, and included topics such as potential effects of changing climatic conditions and extreme events (e.g., fire and flooding), as well as potential mitigation options." It is unclear how MN-S's input was considered in section 22.	
22-010	Incorporation of Indigenous Knowledge "Many of the comments from Indigenous Groups were based on the effects of changes in the environment on wildlife and terrestrial ecology, as well as disturbance to cultural sites (i.e., cabins), which they have observed in the recent past in comparison to how things used to be based on their historical knowledge of their traditional territory." Comments from Indigenous Nations should not be summarized as each Indigenous Nation has its own areas of priorities that are unique and must be represented individually. It is also unclear how this sentence pertains specifically to section 22.	22.3, p. 22-10
22-011	Natural Hazard Scenario "Natural hazards that have the potential to cause adverse effects on the Project include the following: - wildfire; - drought; - major precipitation events; - severe snowstorms; - tornado/severe thunderstorms; - extreme temperatures; and - seismic events." It unclear if MN-S had opportunities to comment on the list of natural hazards.	22.4.1, p. 22-11
22-012	Risk Measurement	22.4.3, p. 22-11

Issue #	Concerns	Section, page
	"Likelihood and consequence were estimated based on industry and operational experience, Project-specific conditions, and the knowledge base of the Project team." It is a good practice for Indigenous Nations to have input into risks and mitigations, as well as residual risks, to assess the potential of effects of the environment on the Project to affect MN-S's Indigenous Rights and Title.	
22-013	Climate Change "It is worth noting that some members of Indigenous Groups have observed and experienced the effects of climate change on the environment, including shifts in ecology, weather, and natural cycles, and changes in the distribution and abundance of wildlife populations and vegetation, which has affected their ability to practice traditional activities across their territories (TSD II: BNDN; TSD III BRDN; TSD IV: MN-S; TSD V.1: CRDN; TSD V.2: CRDN; TSD VI: YNLR)." Comments from Indigenous Nations should not be summarized as each Indigenous Nation has its own areas of priorities that are unique and must be represented individually.	22.5, p. 22-13
22-014	Climate Change "Given that climate change is occurring but there remains uncertainty in the future projections of climate change, NexGen would consider climate risks as a part of the continual improvement process, as outlined in TSD XXII, Climate Adaptation Framework." It is not specified if MN-S will be engaged on the continual improvement process related to the Climate Adaptation Framework.	22.5, p. 22-13
22-015	Hazard Scenario Identification "Indigenous Groups have also reported that increasing wildfires in northern Saskatchewan, in addition to the Government of Saskatchewan's forest fire response policy in remote areas have led to the destruction of several cabins and productive harvesting areas that community members depend on (TSD III BRDN; TSD IV:MN-S; TSD V.1: CRDN; TSD V.2: CRDN)." Comments from Indigenous Nations should not be summarized as each Indigenous Nation has its own areas of priorities that are unique and must be represented individually.	22.6.1.1, p. 22-14

Issue #	Concerns	Section, page
22-016	Hazard Scenario Identification "A fire protection system, consisting of lake intake, fresh water pumps, break tanks, and fire protection pumps strategically spaced around the Project site, would be on site to provide water for firefighting purposes. The fire protection system would meet the fire water demand for firefighting purposes for a duration of two hours as per the National Fire Protection Agency requirements (NFPA 2020)."	22.6.1.1, p. 22-17
22-017	Risk Measurement and Evaluation "Combined with the likelihood of Likely, the consequence for danger to worker safety due to smoke inhalation is assessed as Minor, and the risk level is evaluated as Low." Indigenous people experience disproportionate health and social outcomes in comparison to non-Indigenous people. The risk of smoke inhalation by Indigenous workers needs to be assessed separately.	22.6.1.2, p. 22-18
22-018	Risk Measurement and Evaluation Entire Section. It is unclear if the risk of explosions to the workers is being considered.	22.6.1.2, p. 22-18
22-019	FF-03: Fire Reaching Fuel Storage Tanks or the Surface Explosives Magazine Entire section It is unclear if the risk of explosions to the workers is being considered.	22.6.1.2, 22-19
22-020	Hazard Scenario Identification "Water management planning would be undertaken using a risk-based approach considering both routine and non-routine Project conditions and would be periodically re-evaluated throughout the Project lifespan to optimize water usage." It is not specified if MN-S will be engaged on the water management planning throughout the Project lifespan.	22.6.2.1, p. 22-21
22-021	Environmental Design Features "During Construction and Operations, there would be an increase of water being returned to Patterson Lake (i.e., with more water	22.6.2.1, p. 22-21

Issue #	Concerns	Section, page
	being released to Patterson Lake than being withdrawn). This increase is on account of collecting and treating groundwater recovered from the underground mine workings." It is unclear how much groundwater will be released into Patterson Lake and the effects of this release on Patterson Lake. The term "being returned" is misleading as the water does not originate from Patterson Lake. TWC recommends that MN-S request more information about the effects of releasing groundwater into Patterson Lake during construction and operations, and that the term "being returned" be replaced with "being released".	
22-022	Mitigation "During Construction and Operations, a Preliminary Decommissioning and Reclamation Plan would be developed updated at least every five years to reflect changing site-specific conditions. Prior to transitioning to Closure, a Detailed Decommissioning and Reclamation Plan would be developed to reflect mitigations necessary to avoid and limit the effects of drought on revegetation efforts, as required." Mitigation Plans such as the ones described here do not constitute mitigations in and of themselves. It is important to understand the actual mitigations that are planned to be in place to better understand the effectiveness of proposed mitigation measures. Mitigations must be informed by collaboration and contribution of MN-S.	22.6.2.1, p. 22-21
22-023	Risk Measurement and Evaluation "Native, drought-resistant vegetation species would be used for reclamation; however, drought conditions may still affect the successful establishment of some vegetation used in reclamation of the site, particularly if the drought corresponds to an immature standing crop." It is not clear which vegetation species would be used for reclamation.	22.6.2.2, p. 22-22
22-024	Hazard Scenario and Risk Identification '"The Project would be fully contained the competent crystalline basement rocks." This sentence requires clarification.	22.6.3.1, p. 22-23

Issue #	Concerns	Section, page
22-025	Risk Measurement and Evaluation "The likelihood of a major precipitation event causing a mine inflow is assessed as Unlikely. Combined with the consequence being assessed as Moderate, the risk level was evaluated as Low." The risk to employees is unclear from this risk measurement and evaluation.	22.6.3.2, p. 22-26
22-026	*Risk Measurement and Evaluation* TT-01: Tornado Damage It is not clear if the if the risk measurement and evaluation for tornado damage takes climate change into consideration.	22.6.5.2, p. 22-33
22-027	Introduction "Golder Associates Ltd. (Golder) has developed this detailed climate change dataset based on recent best guidance found in literature, including best guidance accepted by the Intergovernmental Panel on Climate Change (IPCC)."	22A1, p. 1
22-028	Using the Results "The uncertainty associated with any projections or forecasts is increased with the duration of the projected period and is subject to future developments; therefore, this work should be updated as new climate science is developed and after the release of downscaled climate projections from ClimateData.ca for the area of the Project following the AR6 by the IPCC (2021)." It is not clear as to how NexGen plans on reviewing climate change data throughout the lifecycle of the Project and how NexGen plans on engaging with MN-S on effects of the environment on the Project as a result.	22A3, p. 5
22-029	On-Site and Regional Stations "With no suitable observations available for the area of the Project, reanalysis data were selected to represent the current climate conditions over the same period as the modelled baseline (1981 to 2019)." It is concerning that the analysis informing the climate change dataset summary and section 22 is based on substantial data gaps.	22A4.1.1, p. 8

2.19.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Clarification of what constitutes acceptable levels of health, safety, and environmental risks and how these levels are measured to determine if these levels are acceptable to MN-S. This recommendation applies for all instances in Section 22 that refer to "acceptable levels of risk".

2. Clarification of how low the radiological exposure targets will be, what may impede the ability of NexGen to reach those targets, and what measures will be taken to reduce the risk further throughout the lifecycle of the facility.

3. Clarification from NexGen on the effects of radiological exposure on human health and the environment.

4. Receipt of adaptive management plans throughout the lifecycle of the facility so MN-S may provide input and ensure the adaptive management plans are properly scoped and adequately structured. This applies to all mentions of adaptive management in Section 22.

5. That the use of "Incorporation of Indigenous Knowledge" is replaced with "Application of Indigenous Knowledge" throughout the EIS.

6. That the terminology "Métis Group" and "Indigenous Groups" be replaced with MN-S (where appropriate) and "Indigenous Nations", respectively throughout the EIS.

7. Further clarification on how NexGen incorporated its input into Section 22.

8. Modification of the sentence "Indigenous and Local Knowledge related to effects of the environment on the Project was incorporated into the assessment by viewing the information as complementary and influential alongside scientific information" to represent that Indigenous Knowledge is an equal yet different way of knowing that must be represented individually and not in conjunction with western science.

9. That MN-S comments be represented individually rather than in an aggregated manner and that the linkage between the comments and Section 22 is clarified.

10. The opportunity to assess how effects of the environment on the Project may affect MN-S's Indigenous Rights and Title.
11. Engagement on the continual improvement process related to the Climate Adaptation Framework.
12. That the risk of exposure to smoke be assessed separately for Indigenous workers.
13. Greater clarity on the risk of explosions due to fire reaching fuel storage tanks or the

surface explosives magazine to workers.

14. Engagement on, and active participation in, water management planning throughout the Project lifespan.
15. More information about the effects of releasing groundwater into Patterson Lake during construction and operations, and that the term "being returned" be replaced with "being released".
16. More information about proposed mitigation measures and their effectiveness, as well as the opportunity to provide input into the plans as they are developed and updated throughout the lifecycle of the Project.
17. To provide input into the vegetation species that would be used for reclamation.
18. Clarification for the sentence, "The Project would be fully contained the competent crystalline basement rocks."
19. Clarification on the risk of mine inflow to employees.
20. Clarification as to whether the risk measurement and evaluation for tornado damage takes climate change into consideration. [22-026]
21. Clarification as to how and when NexGen will review climate change data throughout the lifecycle of the Project and how NexGen plans to engage with MN-S on effects of the environment on the Project as a result. [22-028]
22. Explicit identification of data limitations associated with the climate change dataset in Section 22, wherever climate change is considered in the risk assessment. Incorporation of data limitations into the risk assessment. [22-029]

2.20 SUMMARY OF MITIGATION, MONITORING, AND FOLLOW-UP PROGRAMS (SECTION 23)

2.20.1 AREAS OF CONCERN

This entire section is about future commitments and proposed approach. The title to the section is misleading. It is hardly a summary of what has been proposed so that MN-S can say if they are satisfied with the proposed mitigation, etc. The question for MN-S will be are they satisfied with an outline of an approach.

A lot of this section is also about proposed engagement. It should be read by the person doing engagement.

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Issue #	Concerns	Section, page
23-001	Engagement and Communication	23.2, p. 23-5

Issue #	Concerns	Section, page
	"… with the goal of disclosing information …" "... a grievance mechanism …" Engagement and communication go beyond information disclosure and grievance mechanisms. Will the program provide funding for Indigenous participants beyond the one full-time independent Indigenous Monitor (23.5.2)? Will the program allow for input and agreement on follow-up and monitoring measures and changes. "… Integrated Management System (IMS) Manual …" Need to provide review access to this manual. Reference to 23.5.2 is not sufficient.	
23-002	Engagement and Communication "… Integrated Management System (IMS) Manual …" Need to provide review access to this manual. Reference to 23.5.2 is not sufficient.	23.2, p. 23-5
23-003	*Mitigation Measures* "The mitigation measure effectiveness is categorized as high, medium, …" This section might be better placed in Methodology. It is useful additional information that fills in gaps of understanding in Section 6 Environmental Assessment Approach and Methods.	23.3.2.2, p. 23-11
23-004	Environmental Management The entire section discusses the purpose of the Management Plans but does not provide an opportunity to review the actual Plans to confirm if they will sufficiently track the proposed mitigation. It is more like a methodology and approach section on what the monitoring plans are intended to achieve. Statements of intention.	23.4.1, p. 23-12 to 23-20
23-005	Socio-economic Management This subsection describes the socio-economic management framework that is being developed for the Project. "NexGen is committed to continue engagement …" This statement and subsequent statements in the section suggests a deficiency or incompleteness in the draft EIS. Commitment to engage	23.4.2, p. 23-17, 23-18

Issue #	Concerns	Section, page
	is not a management plan.	
23-006	Socio-economic Management "The socio-economic framework will be enhanced through the establishment of formal Benefit Agreements …" It is unclear to what extent "Benefit Agreements" are intended to be a form of socio-economic mitigation especially where the socio-economic management initiatives are integrated into Benefit Agreements. This introduces a lack of transparency to determine sufficiency of mitigation. There is no indication of a timeline for achieving socio-economic capacity and by when the framework will be developed.	23.4.2, p. 23-17, 23-18

2.20.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. XX

2.21 CONCLUSIONS (SECTION 24)

2.21.1 AREAS OF CONCERN

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Issue #	Concerns	Section, page
24-001	None identified	

3 TSD I: INDIGENOUS ENGAGEMENT REPORT

Golder Associates Ltd. prepared the *TSD I: Indigenous Engagement Report* for NexGen Energy Ltd. in April 2022.

3.1 SCOPE OF ENGAGEMENT (SECTION 4)

3.1.1 AREAS OF CONCERN

TSD I: Indigenous Engagement Report

Issue #	Concerns	Section, page
IER-001	Joint Working Group "Traditional Foods study" A traditional food study had not been completed at the time the EIS was submitted, as this EIS states. MN-S submitted a food study budget to NexGen on May 26, 2022. NexGen approved the traditional food study budget by email on August 8, 2022, almost two months after the EIS was submitted. Therefore, reference to the traditional food study as being completed is not accurate.	4.2.1.1, p. 26

3.1.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Rewording of the "Traditional Foods study" text to accurately reflect the status of completion and the dates as indicated.

3.2 INDIGENOUS ENGAGEMENT CONDUCTED (SECTION 5)

3.2.1 AREAS OF CONCERN

TSD I: Indigenous Engagement Report

Issue #	Concerns	Section, page
IER-002	Métis Nation – Saskatchewan Table 5 Summary of Key Engagement Activities with the Métis Nation – Saskatchewan All content Comments made on tables in Section 2 Indigenous, Regulatory, and Public Engagement of the draft EIS would also apply to tables in TSD I (and its associated appendices).	5.2, p. 36 to 43

3.2.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Changes to Section 2 Indigenous, Regulatory, and Public Engagement of the draft EIS be reflected in the contents of a revised TSD I (and its associated appendices).

3.3 FEEDBACK RECEIVED (SECTION 6)

3.3.1 AREAS OF CONCERN

TSD I: Indigenous Engagement Report

Issue #	Concerns	Section, page
IER-003	Primary Indigenous Groups All content of section Combining all topics of interest in a global fashion and ascribing them to all Indigenous Nations does not facilitate review for understanding of how an individual Nation's interests may or may not have been addressed in the assessment.	6.1.1, p. 61 to 63
IER-004	Métis Nation – Saskatchewan Table 12 Summary of Issues Identified by the Métis Nation – Saskatchewan "Proper use of Métis Knowledge while protecting intellectual property rights and confidentiality" Repeat comment regarding NexGen's definition of Indigenous Knowledge. Noting the community interest in proper use of Métis Knowledge, it is particularly concerning that NexGen chose to define Indigenous Knowledge unilaterally.	6.2.2, p. 65

3.3.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Rewriting of Section 6.1.1 on a Nation-by-Nation basis. Verbiage such as "communities said" is unhelpful to understand how NexGen may have understood and addressed issues that affect individual Nations' rights and interests.

3.4 INDIGENOUS GROUP ENGAGEMENT ACTIVITIES (APPENDIX B)

3.4.1 AREAS OF CONCERN

TSD I: Indigenous Engagement Report

Issue #	Concerns	Section, page
IER-006	Indigenous Engagement Activities	TSDIB, p. 12 to 24

Issue #	Concerns	Section, page
	Table B-2 Métis Nation – Saskatchewan All content Table B-2 appears to be a repeat of Table 5. Repeating content such as this does not facilitate review.	

3.4.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. That MN-S review the EIS to eliminate unnecessary duplication such as Table B-2 being a repeat of Table 5.

3.5 SUMMARY OF ISSUES IDENTIFIED BY INDIGENOUS GROUPS (APPENDIX C)

3.5.1 AREAS OF CONCERN

TSD I: Indigenous Engagement Report

Issue #	Concerns	Section, page
IER-007	Summary of Issues Identified by Indigenous Groups Table C-2 Summary of Issues Identified by Métis Nation – Saskatchewan All content Comments made on tables in EIS Section 2 Indigenous, Regulatory, and Public Engagement would also apply to tables in this TSD.	TSDIC, p. 5 to 8

3.5.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Changes to the EIS recommended in Section 2 Indigenous, Regulatory, and Public Engagement be reflected in the contents of a revised TSD I (and its associated appendices).

4 TSD XVIII: SITE-WIDE WATER BALANCE AND WATER QUALITY MODELLING REPORT

Golder Associates Ltd. prepared the *TSD XVIII: Site-Wide Water Balance and Water Quality Modelling Report* for NexGen Energy Ltd. in March 2022.

4.1 FULL REPORT

This review was undertaken to identify red flags within the limit of the budget and only considered TSD XVIII. Other referenced documents could not be reviewed.

There were no red flag issues encountered within TSD XVIII.

Items of concern relevant to the site water balance would relate to any uncertainty with regards to hydrological model calibration as discussed in reference to Section 9 Hydrology above.

This report is extensive and relies upon several other model inputs. From the very limited review possible considering constraints in scope, it seems that the proponent has a satisfactory understanding of water balance processes with respect to the Project.

5 TSD XX: DOWNSTREAM USE AND IMPACT STUDY FOR PROPOSED TREATED SEWAGE DISCHARGE REPORT

Golder Associates Ltd. prepared the *TSD XX: Downstream Use and Impact Study for Proposed Treated Sewage Discharge Report* for NexGen Energy Ltd in March 2022.

5.1 FULL REPORT

There were no red flag issues encountered within Section TSD XX, although Table 2.1-2, p. 9 seems to be incorrectly labelled. It shares the same title as Table 2.1-1, p. 8.

6 TSD XXI: ENVIRONMENTAL RISK ASSESSMENT

Ecometrix Incorporated prepared the *TSD XXI: Environmental Risk Assessment* for NexGen Energy Ltd in April 2022.

6.1 FULL REPORT

Comments on the *TSD XXI: Environmental Risk Assessment* for NexGen Energy Ltd were not completed as of mid-October 2022 due to time constraints. Comments on this report will form part of a second submission.

7 ANNEX V AQUATIC BASELINE ROAD MAP

Golder Associates Ltd. prepared *Aquatic Baseline Road Map for the Rook I Project* for NexGen Energy Ltd. in March 2022.

7.1 FULL REPORT

No comments made on the section during consultant's review in September 2022.

8 ANNEX V.1 AQUATIC ENVIRONMENT BASELINE REPORT

Canada North Environmental Services prepared *Aquatic Environment Baseline Report for the Rook I Project* for NexGen Energy Ltd. in September 2021.

8.1 FISH AND FISH HABITAT (SECTION 9)

8.1.1 AREAS OF CONCERN

Annex V.1 Aquatic Environment Baseline Report

Issue #	Concerns	Section, page
AEB-001	Community and Chemistry Survey Black spots on fish not explained The Black spots identified during baseline work, on various fish species, at several locations, are not explained, and there are no photos. Black spots are mentioned as skin abnormalities in fish in Beet Channel, Naomi Lake, Clearwater River Near and Clearwater River Mid, but the spots are not specific to species. *See also* Appendix C Table 47, p. 1 which states a total of ninety-three (93) fish with external black spots in Patterson Creek, Beet Channel, Beet Lake, Beet Creek, Naomi Lake, Clearwater Creek, and Clearwater River. Speculation – naturally occurring condition of fish having black spots likely caused by trematodes.[26] The black spot was identified as baseline information to mine development. The presence of black spots on fish could be blamed on the mine site/company in the future.	9.3.2, p. 115–116

8.1.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Communication with the local community so they are aware that various fish species currently have black spots and—if it *is* caused by trematodes—that it is naturally occurring.

   Because the black spot was identified as baseline information *prior to mine development*, it should be clearly explained in the baseline documents and to local users and communities as an existing condition that naturally occurs in waterbodies (if it is caused by this type of trematode). Addressing this with a thorough explanation now is both good for the communities, and good for NexGen as it will prevent NexGen activity from being viewed as the cause of the black spot. Local users need to know the presence of black spots on fish (if trematode caused) are naturally occurring.

[26] Black Spot in Fishes (alberta.ca)

9 ANNEX V.2 OVERWINTERING FISH HABITAT REPORT

Golder Associates Ltd. prepared *Overwintering Fish Habitat Field Program Results Summary Report for the Rook I Project* for NexGen Energy Ltd. in March 2022.

9.1 FULL REPORT

No comments made on the section during review in September 2022.

10 ANNEXES VII VEGETATION BASELINE ROAD MAP

Golder Associates Ltd. prepared *Vegetation Baseline Road Map for the Rook I Project* for NexGen Energy Ltd. in March 2022.

10.1 VEGETATION BASELINE DOCUMENT MAP (SECTION 4)

10.1.1 AREAS OF CONCERN

Annex VII: Vegetation Baseline Road Map (Golder 2022)

Issue #	Concerns	Section, page
VB1-001	"Twenty-eight plant species or groups of plant species plant species [*sic*] were identified as traditional plant species used for food, medicinal, ceremonial, or other purposes within the IKTLU Studies, of which 34 species or genera [*sic*] potentially identified traditional use plant species were observed during the baseline surveys." The number of species identified as traditional plant species is less than the number of traditional use plant species observed during baseline surveys. There appears to be a disconnect between the field studies (e.g., inconsistent study areas) and the assessments (e.g., field data use to inform the assessment appears to be minimal). The field programs, or study area, focus on the Project footprint and the immediate vicinity—an area previously disturbed by extensive exploration activities. Therefore, the baseline conditions represent a chronically disturbed area.	4.6, p. 8

10.1.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Detailed responses to each of the issues raised in 10.1.1 be incorporated into the draft EIS.
2. Review the cumulative effects assessment to determine if all Reasonably Foreseeable Developments (RFDs) are considered appropriately.

3. Review the cumulative effects assessment to determine if all Reasonably Foreseeable Developments (RFDs) are considered appropriately.

11 ANNEX VII.1 VEGETATION BASELINE REPORT 1 (MAPPING)

Omnia Ecological Services prepared *Terrestrial Environment Vegetation Baseline Road Map for the Rook I Project* for NexGen Energy Ltd. in December 2021.

11.1 STUDY AREAS (SECTION 2)

11.1.1 AREAS OF CONCERN

Annex VII.1: Vegetation Baseline Report (Mapping)

Issue #	Concerns	Section, page
VB1-001	Study Area Selection Descriptions of the Local Study Area (LSA) and Regional Study Area (RSA) are provided in terms of effects on wildlife. Comments required on how the LSA, and RSA were designed to consider potential Project effects on vegetation	2.1, p. 10
VB1-002	*Landforms* The landforms within the region are described as having "large areas of bogs and peatlands"; however, small areas of wetland ecosites were identified within the RSA (Table 5.3-1). Report lacks information on this discrepancy and the suitability of the RSA for describing regional vegetation.	2.2.2, p. 11
VB1-003	*Landforms* "The landforms in these areas are more representative of Boreal Shield landforms than Boreal Plain landforms. Typically, the Boreal Plain usually contains more clay-sized materials and has a more diverse mineralogy". Unknown if soils investigations were completed to describe soil characteristics within the Project Study Areas.	2.2.2, p. 11

11.1.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Detailed responses to each of the issues raised in 11.1.1 be incorporated into the draft

EIS.

2. Review the cumulative effects assessment to determine if all Reasonably Foreseeable Developments (RFDs) are considered appropriately.

11.2 ECOSITE MAPPING (SECTION 5)

11.2.1 AREAS OF CONCERN

Annex VII.1: Vegetation Baseline Report (Mapping)

Issue #	Concerns	Section, page
VB1-004	*Predictive Ecosite Map* Lacking information on the data collected at each of the ecosite field sampling/ground truthing sites. What is the difference between a "vegetation/ecosite characterization survey" and "ground control points"? Lacking information on how soil characteristics—including characterization of moisture and nutrient regimes—were incorporated within Project-specific ecosite mapping and field verification.	5.2.1, p. 21
VB1-005	*Interpreted Ecosite Map* Lacking information on map scaling. At what scale was the interpreted ecosite map completed for the Project? What was the minimum, maximum, and average polygon size? What proportion of polygons were field verified?	5.2.2, p. 21
VB1-006	*Interpreted Ecosite Map* "The regenerating land cover types less than 40 years old that did not match any of the ecosites described by McLaughlan et al. (2010) …". McLaughlan et al. state that young (e.g., <40 years old) or modified sites may still be classified according to the guide, but elements or specific features of these sites may vary from the mature natural condition (2010). Lacking information on how the ecosite evaluation for these sites included supplemental information such as soil moisture and nutrient regimes or other soil attributes in accordance with the recommendations on page 63 of McLaughlan et al. 2010.	5.2.2, p. 22
VB1-007	*Predictive Ecosite Map*	5.3.1, p. 24

Issue #	Concerns	Section, page
	"The accuracy level is due to McLaughlan et al. (2010) not describing forest types under 40 years of age in their ecosite classification system". McLaughlan et al. state that young (e.g., <40 years old) or modified sites may still be classified according to the guide, but elements or specific features of these sites may vary from the mature natural condition (2010). Lacking information on how the ecosite evaluation for these sites included supplemental information such as soil moisture and nutrient regimes or other soil attributes in accordance with the recommendations on page 63 of McLaughlan et al. 2010.	
VB1-008	*Interpreted Ecosite Map* It is noted that regenerating land cover types were divided into three vegetation types—bog, coniferous, and deciduous—and that the "bog" vegetation type is the only lowland (wetland) regenerating land cover type. Unknown if regenerating fens, marshes or other wetland classes were mapped within the RSA.	5.3.2, p. 26

11.2.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Detailed responses to each of the issues raised in 11.2.1 be incorporated into the draft EIS.

2. Review the cumulative effects assessment to determine if all Reasonably Foreseeable Developments (RFDs) are considered appropriately.

11.3 ECOSITE CHARACTERIZATION, STRUCTURAL DIVERSITY, AND SPECIES RICHNESS (SECTION 6)

11.3.1 AREAS OF CONCERN

Annex VII.1: Vegetation Baseline Report (Mapping)

Issue #	Concerns	Section, page
VB1-009	It is noted that lesser duckweed (*Lemna minor*) was identified as a provincially listed species observed within ecosite BP25. This species was omitted from the EIS.	6.3, p. 72

11.3.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Detailed responses to each of the issues raised in 11.3.1.
2. Review the cumulative effects assessment to determine if all Reasonably Foreseeable Developments (RFDs) are considered appropriately.

12 ANNEX VII.2 VEGETATION BASELINE REPORT 2 (INVENTORY, RARE PLANTS, AND WETLANDS)

Canada North Environmental Services Ltd. prepared *Vegetation Baseline Report 2 (Inventory, Rare Pants, and Wetlands) for the Rook I Project* for NexGen Energy Ltd. in September 2021.

12.1 INTRODUCTION (SECTION 1)

12.1.1 AREAS OF CONCERN

Annex VII.2: Vegetation Baseline Report 2 (Inventory, Rare Plants, and Wetlands)

Issue #	Concerns	Section, page
VB2-001	Vegetation Study Area "The SSA consisted of an area 25 square kilometres (km2) (5 km x 5 km) encompassing the entire proposed Project footprint, whereas the LSA consisted of an area 225 km2 (15 km x 15 km) surrounding and including the SSA (Figure 1.2-1)." Please comment on the rationale for the size and shape of these study areas in relation to potential Project effects on vegetation.	1.2.2, p. 5
VB2-002	Vegetation Study Area "The SSA area was where effects (i.e., total area subject to vegetation and soil disturbance, which may have direct and indirect effects on vegetation and wildlife) are expected to occur on the terrestrial environment (GS 2014). The LSA included the area surrounding the SSA where there is reasonable potential of direct and/or indirect effects on the terrestrial environment from the Project activities on potential VCs resulting from existing and planned activities (CanNorth 2010; GS 2014; IAAC 2019)." Please comment on why most of the proposed Project access from Hwy 955 is not located the SSA; and the southwestern extent of the Project access road is not located within either the SSA or the LSA.	1.2.2, p. 5

12.1.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Detailed responses to each of the issues raised in 12.1.1 be incorporated into the draft EIS.

2. Review the cumulative effects assessment to determine if all Reasonably Foreseeable Developments (RFDs) are considered appropriately.

12.2 VEGETATION INVENTORY AND RARE PLANT SURVEY (SECTION 3)

12.2.1 AREAS OF CONCERN

Annex VII.2: Vegetation Baseline Report 2 (Inventory, Rare Plants, and Wetlands)

Issue #	Concerns	Section, page
VB2-003	Methods Please provide more detail on the method of aquatic vegetation sampling at each survey point. How was aquatic vegetation detected and sampled?	3.2, p. 15
VB2-004	Methods Surveys for vascular plant Species of Conservation Concern appear to have been completed in June and August of 2018; were surveys for non-vascular plant or lichen Species of Conservation Concern also completed?	3.2, p. 15

12.2.2 RECOMMENDATIONS

1. Detailed responses to each of the issues raised in 12.2.1 be incorporated into the draft EIS.

2. Review the cumulative effects assessment to determine if all Reasonably Foreseeable Developments (RFDs) are considered appropriately.

12.3 WETLAND CLASSIFICATION (SECTION 4)

12.3.1 AREAS OF CONCERN

Annex VII.2: Vegetation Baseline Report 2 (Inventory, Rare Plants, and Wetlands)

Issue #	Concerns	Section, page
VB2-005	Methods "A legend defining the boreal wetland classifications and their sub-categories is presented in Appendix A, Table 5." This table defines shallow open water wetlands as wetlands with "<25% herbaceous/woody vegetation present (submerged or floating-leaved vegetation may be present); persistent water table well above surface with flooded conditions". However, Table 4.3-1, p. 26 does not show any shallow open water wetlands identified within the LSA. Please comment on why no shallow open water wetlands were identified to be associated with persistent water <2m deep (as defined by the Canadian Wetland Classification System).	4.2, p. 25

12.3.2 RECOMMENDATIONS

2. Detailed responses to each of the issues raised in 12.3.1 be incorporated into the draft EIS.

Review the cumulative effects assessment to determine if all Reasonably Foreseeable Developments (RFDs) are considered appropriately.

13 ANNEX VIII.1 WILDLIFE BASELINE REPORT 1 (MAMMALS, WATERFOWL, AND RAPTORS)

Omnia Ecological Services prepared *Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors) for the Rook I Project* for NexGen Energy Ltd. in December 2021.

13.1 STUDY OBJECTIVES (SECTION2)

13.1.1 AREAS OF CONCERN

Annex VIII.1: Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors)

Issue #	Concerns	Section, page[27]
WB1-001	Study Objectives Section indicates that one of the objectives of the wildlife baseline studies was to "inventory wildlife occurrence". Please explain why the objective was not to determine habitat	2.0, p. 10

[27] Document lacks pagination. Page references are as numbered in the pdf.

Issue #	Concerns	Section, page[27]
	use/availability on a seasonal or year-round basis to support a habitat-based evaluation of changes for wildlife and wildlife habitat to inform the EIS? There is no mention of a "Project Footprint"; does the LSA include all components of the Project, including access, powerline, fibre optic cable and borrow sources? No actual Project components nor existing access are shown on Figure 3.1 on page 11. "Both LSA and RSA boundaries are of an appropriate size and location for the inventory and assessment of both local and regional effects on vegetation and wildlife from existing and planned activities." Yet, a "caribou regional study area (CRSA)" is added, indicating that the RSA was not appropriate? The relationship between the RSA and cumulative effects study area for all wildlife species is not clear – please provide clarification? And it is noted that different study areas were delineated for the assessment.	

13.1.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. An explanation on the inconsistencies between different aspects on the environmental assessment be incorporated into the draft EIS.

13.2 WINTER TRACK COUNT SURVEY (SECTION 4)

13.2.1 AREAS OF CONCERN

Annex VIII.1: Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors)

Issue #	Concerns	Section, page[28]
WB1-002	Methods The section provides no indication that the winter track count surveys were designed to sample the wildlife use of the available habitat types within the RSA.	4.2, p. 14

[28] Document lacks pagination. Page references are as numbered in the pdf.

Issue #	Concerns	Section, page[28]
WB1-003	Results Figure 4.3-1 Winter Tracking Survey Transects The figure shows only portions of two triangle surveys were completed in the CRSA, at the border of the RSA.	4.3, p. 16

13.2.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Clarification within the draft EIS that data collected was delineated by habitat.
   a. Were all habitat types in the RSA and CRSA sampled during the winter track count surveys?
   b. What, if any, habitat types were not sampled? For the "Anthropogenic" ecosite, were data on the habitat type on either side of the feature collected, and if not, clarify as to why it was not? It is noted that a larger RSA was delineated for the environmental assessment.
2. Comments on the lack of winter track count surveys in the CRSA relative to caribou and habitat use detection, and therefore, limitation for use in the effects assessment.

13.3 WINTER BACKTRAILING SURVEY (SECTION 5)

13.3.1 AREAS OF CONCERN

Annex VIII.1: Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors)

Issue #	Concerns	Section, page[29]
WB1-004	Results It is noted that none of the backtracking trails were completed in the CRSA.	5.3, p. 28, 29

13.3.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

[29] Document lacks pagination. Page references are as numbered in the pdf.

1. Clarification on the use of a study area within which no data were collected relative to the species it was delineated for.

13.4 SPRING UNGULATE PELLET GROUP/BROWSE AVAILABILITY SURVEY (SECTION 6)

13.4.1 AREAS OF CONCERN

Annex VIII.1: Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors)

Issue #	Concerns	Section, page[30]
WB1-005	*Woody Browse and Lichen Availability* Relative to terrestrial and arboreal lichens, and woody browse, the text uses terms such as "area of the Project" and "Project Area".	6.3.3, p. 37

13.4.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Clarification relative to the study areas delineated so that the reader has the appropriate context.

13.5 SMALL MAMMAL TRAPPING SURVEY AND TISSUE ANALYSIS (SECTION 7)

13.5.1 AREAS OF CONCERN

Annex VIII.1: Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors)

Issue #	Concerns	Section, page[31]
WB1-006	*Trapping/Inventory and Habitat Characterization* Figure 7.3-1 Small Mammal Trapping Transects Table 7.3-1 Small Mammal Captures per Transect in the LSA and Reference Sites – September 2018 It appears that not all of the transects identified in Table 7.3-1 are included on Figure 7.3.1; therefore, the context of the text is not clear.	7.3.1, p. 43, 44

[30] Document lacks pagination. Page references are as numbered in the pdf.
[31] Document lacks pagination. Page references are as numbered in the pdf.

13.5.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

13.6 SEMI AQUATIC FURBEARING MAMMAL SHORELINE SURVEY (SECTION 8)

13.6.1 AREAS OF CONCERN

Annex VIII.1: Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors)

Issue #	Concerns	Section, page[32]
WB1-007	Results Figure 8.3-1 Semi-aquatic Furbearer Shoreline Survey Locations Table 8.3-1: Semi-Aquatic Furbearer Shoreline Survey Observations–September 2018 Figure 8.3-1 does not number the creeks or lakes identified in Table 8.3-1; therefore, the context of the text is not clear.	8.3, p. 51

13.6.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

13.7 AERIAL WATERFOWL AND RAPTOR STICK NEST SURVEY (SECTION 9)

13.7.1 AREAS OF CONCERN

Annex VIII.1: Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors), Omnia 2021

Issue #	Concerns	Section, page
WB1-008	Methods "… areas were surveyed … at the maximum altitude that allowed for identification of avian species …" The section lacks other survey details.	9.2, p. 53

[32] Document lacks pagination. Page references are as numbered in the pdf.

13.7.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Specifics about the altitude and perspective (i.e., how far inland were observations possible) for the aerial surveys.

14 ANNEX VIII.2 WILDLIFE BASELINE REPORT 2 (AMPHIBIANS, BIRDS, AND BATS)

Canada North Environmental Services prepared *Wildlife Baseline Report 2 (Amphibians, Birds, and Bats) for the Rook I Project* for NexGen Energy Ltd. in September 2021.

14.1 INTRODUCTION (SECTION 1)

14.1.1 AREAS OF CONCERN

Annex VIII.2: Wildlife Baseline Report 2 (Amphibians, Birds, and Bats)

Issue #	Concerns	Section, page
WB2-001	Wildlife Study Area The study areas including birds in this report, are different from the study areas delineated in *Annex VIII.1 Wildlife Baseline Report 1 (Mammals, Waterfowl, and Raptors), Omnia 2018* for the study of waterfowl and raptors.	1.2.2, p. 6
WB2-002	Wildlife Study Area Figure 1.2-1: Overview of the Site Study Area and Local Study Area Sampled for Wildlife Baseline Studies, 2018 It appears that the Site Study Area (SSA) and Local Study Are (LSA) do not include a portion of the access into the site.	1.2.2, p. 8

14.1.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Comments on the effects and issues of different study areas to collect baseline information to support and inform the EIS for a single project.

2. Comments on the SSA and LSA missing a portion of access to the site in relation to collecting data for the Project to inform the EIS.

14.2 CONSERVATION DATABASE SEARCH AND EXISTING INFORMATION (SECTION 2)

14.2.1 AREAS OF CONCERN

Annex VIII.2: Wildlife Baseline Report 2 (Amphibians, Birds, and Bats)

Issue #	Concerns	Section, page
WB2-003	Methods No mention is made of the data collected on species at risk or sensitive species for the Project and presented in Annex VIII.1. For example, there is no mention of osprey or red-throated loon identified by Omnia (2018).	2.3, p. 9
WB2-004	Results With respect to woodland caribou, it states that "Habitat potential for this species is classified as moderate to high throughout the majority of the SSA and LSA." – Is this consistent with what is reported for caribou habitat in the Omnia (2018) report, and ultimately in the environmental assessment?	2.3, p. 9
WB2-005	Existing Information Several references to "the area of the Project" are made with no definition to provide context. As no RSA was delineated for this report, please provide a definition that puts it into context with the Project footprint, SSA and LSA.	2.4, p. 10

14.2.2 RECOMMENDATIONS

Consultants recommend that MN-S request

1. Clarity on how Indigenous Knowledge was used, or if it was used consistently, to inform these reports, which ultimately informed the EIA.

14.3 COMMON NIGHTHAWK SURVEYS (SECTION 5)

14.3.1 AREAS OF CONCERN

Annex VIII.2: Wildlife Baseline Report 2

Issue #	Concerns	Section, page
WB2-006	Results	5.3, p. 27

Issue #	Concerns	Section, page
	Table 5.3-1 Results of the Common Nighthawk Surveys, June 2018 Indicates the numbers of common nighthawks detected.	

14.3.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Clarification on the number of nighthawks reported for the ARUs and whether the numbers represent the number of calls recorded or were individual birds.

14.4 BAT SURVEYS (SECTION 8)

14.4.1 AREAS OF CONCERN

Annex VIII.2: Wildlife Baseline Report 2

Issue #	Concerns	Section, page
WB2-007	Methods "Collection and analysis of recordings was conducted in accordance with … the Wildlife Guidelines for Alberta Wind Energy Projects (GA 2011)."	8.2, p. 40
WB2-008	Methods Indicates that various protocols for Alberta wind farms were followed, and that a raised microphone for a bat detector (BAT 03) was installed at a height of 7 m. The Alberta protocol suggest a paired sampling of a raised microphone at 30 m height with a lower recorder height.	8.2, p. 40
WB2-009	Methods Figure 8.2-1 Bat Detector Locations, May to October 2018 The Project footprint shown in Figure 8.2-1 is different from the Project footprint shown in other figures, such as Figure 7.4-4?[33]	8.2, p. 42

[33] Canada North Environmental Services (2021). *Annex VIII.3: Wildlife Baseline Report 3 (Bird Migration and Bats).*, p. 39.

14.4.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Explanation as to why
   a. the more recent and up to date *Wildlife Directive for Alberta Wind Energy Projects, 2018* was not used, and
   b. there are differences between Project footprint Figures in the document.
2. Comments on the effect of the lack of a 30 m height detection on the data collected with respect to the flight paths of migrating bat species in the Project area.

15 ANNEX VIII.3 WILDLIFE BASELINE REPORT 3 (BIRD MIGRATION AND BATS)

Canada North Environmental Services prepared *Wildlife Baseline Report 3 (Bird Migration and Bats) for the Rook I Project* for NexGen Energy Ltd. in September 2021.

15.1 INTRODUCTION (SECTION 1)

15.1.1 AREAS OF CONCERN

Annex VIII.3: Wildlife Baseline Report 3 (Bird Migration and Bats)

Issue #	Concerns	Section, page
WB3-001	Study Objectives	1.1, p. 4

> "The objective of the 2020 surveys was to supplement baseline data, following recommendations in … the Wildlife Guidelines for Alberta Wind Energy Projects (GA 2011)."

Was the *Wildlife Directive for Alberta Wind Energy Projects, 2018* reviewed at this time as well?

15.1.2 RECOMMENDATIONS

15.2 AVIAN MIGRATION SURVEYS (SECTION 2)

15.2.1 AREAS OF CONCERN

Annex VIII.3: Wildlife Baseline Report 3 (Bird Migration and Bats)

Issue #	Concerns	Section, page
WB3-002	Study Area "Passage migration surveys followed standard guidance and methods for migration surveys for renewable wind energy projects …" Section makes no mention of the *Bird Migration Survey Protocol* [34] issued by the Government of Alberta in January 2020, which is cited later. Please comment.	2.2, p. 8

15.2.2 RECOMMENDATIONS

Consultants recommend that MN-S request

1. Comments on why the January 2020 *Bird Migration Survey Protocol* is not mentioned in Section 2.2.

15.3 BAT SURVEYS (SECTION3)

15.3.1 AREAS OF CONCERN

Annex VIII.3: Wildlife Baseline Report 3 (Bird Migration and Bats)

Issue #	Concerns	Section, page
WB3-003	Bat Survey Methods Figure 3.2-1 Location of Bat Detectors Shows that all detectors are in the same habitat type, and none of the detectors are near water which could attract bats.	3.2, p. 13

15.3.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Comments on the effect that the detector locations may have had on the bat survey results.

16 ANNEX X SOCIO-ECONOMIC BASELINE REPORT

Golder Associates Ltd. prepared *Socio-economic Baseline Report for the Rook I Project* for

[34] Government of Alberta (2020). *Bird Migration Survey Protocol*. aep-bird-migration-protocol-2020.pdf (alberta.ca)

NexGen Energy Ltd. in April 2022.

16.1 INTRODUCTION (SECTION 1)

16.1.1 AREAS OF CONCERN

Annex X: Socio-economic Baseline Report

Issue #	Concerns	Section, page
SEB-001	Introduction "… NexGen has engaged regularly and established relationships with local First Nation and Métis Groups (collectively referred to as Indigenous Groups), specifically those closest and with greatest access to the Project." Terminology such as "Métis Group"—rather than Indigenous Nation—does not align with or reflect an understanding of MN-S as a rights holder. Terminology such as "First Nations" and "Indigenous Groups" does not reflect current best practices or acknowledge the Rights, Title and Jurisdiction of MN-S. Each Indigenous Nation should be discussed and acknowledged independently.	1, p. 1
SEB-002	Introduction "… incorporation of Indigenous Knowledge throughout the Environmental Assessment (EA) process …" The use of "incorporation" does not reflect current best practices that acknowledge Indigenous Knowledge as an equal but different way of knowing (than western science). This terminology implies that Indigenous Knowledge can be absorbed into a scientific approach.	1, p. 1
SEB-003	Introduction "This report presents a detailed account of the socio-economic environment present in the potentially affected Denesuline (Dene) First Nations and Métis Groups (collectively referred to as Indigenous Groups) and communities." It is unclear from this statement which Indigenous Nations are within the scope of this report. Similarly, this text does not align with the text used within the EIS to identify those Indigenous Nations that have been considered within the assessments informed by this baseline.	1, p. 1

16.1.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Removal of the terms "Métis Groups" and "Indigenous Groups" from the baseline report and the EIS and replace with preferable terms such as "Indigenous Nations". Further, TWC recommends that MN-S clearly and accurately reference sources and avoid overarching references supported by terminology such as "Indigenous Groups".
2. Replacement of the phrase "incorporation of Indigenous Knowledge"—throughout the EIS—with "application of Indigenous Knowledge" which reflects that Indigenous Knowledge was applied to the assessment process.
3. Additional detail to clearly state which Indigenous Nations were considered within the assessment. Further, the level of detail provided should be consistent with the EIS content informed by the baseline.

16.2 METHODS (SECTION 4)

16.2.1 AREAS OF CONCERN

Annex X: Socio-economic Baseline Report

Issue #	Concerns	Section, page
SEB-004	Secondary Data Collection "For some socio-economic conditions, there is no data available for these communities, in which case, the 'other LSA communities' sub-section was omitted." The omission of data makes it challenging for readers to understand if the authors made an error in presenting material, or if insufficient data was available.	4.2, p. 11
SEB-005	Primary Data Collection "Other sources included community information sessions and workshops with youth and trappers to provide additional information and confirm the accuracy of secondary data (i.e., verification and triangulation)." The confirmation of secondary sources via primary sources is an important component of the verification process. However, it is unclear what steps NexGen took, in alignment with best practices, to verify that Indigenous Knowledge was appropriately applied and used as intended with Indigenous Nations.	4.3, p. 12

Issue #	Concerns	Section, page
SEB-006	Joint Working Groups (Joint Working Groups) "Three Joint Working Group sessions … were specifically conducted … to discuss community definitions of well-being, including the factors that both contribute to and detract from well-being, and how participants felt the Project might interact with these factors." Joint Working Group to increase understanding is a valuable and important exercise. However, it is unclear what steps NexGen took, in alignment with best practices, to verify that Indigenous Knowledge was appropriately applied and used as intended with Indigenous Nations.	4.3.3, p. 14
SEB-007	Quality Assurance / Quality Control "Quality assurance and quality control measures were employed throughout the data collection, analysis, and reporting process." The QA/QC described supports confidence that the data received is consistent, however this is not equivalent to verifying outcomes with potentially affected Peoples.	4.4, p. 18

16.2.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. That NexGen specifically indicate, as applicable and throughout the report, when data is insufficient to support the generation of content for baselines.
2. Updated baselines to reflect all verification processes undertaken with Indigenous Nations to confirm the application of Indigenous Knowledge within the report and explicit acknowledgement if a verification process was not undertaken.

16.3 CONTEXT (SECTION 5)

16.3.1 AREAS OF CONCERN

Annex X: Socio-economic Baseline Report

Issue #	Concerns	Section, page
SEB-008	Residential Schools General comment regarding content. This content, dated April 2022, fails to acknowledge the finding of	5.1.1.4.7, p. 27

Issue #	Concerns	Section, page
	unmarked graves at residential schools across Canada—first discovered in Spring 2021—and the impact of this on Indigenous Peoples across the country.	
SEB-009	First Nations "The MLTC is the tribal council for nine First Nations, including the CRDN, BNDN, and BRDN." This is the first usage of MLTC in this section of content.	5.2.2, p. 34

16.3.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Updates to "Section 5.1.1.4.7 Residential Schools" to reflect the finding of unmarked graves at Canadian Residential Schools.

2. That NexGen spell out abbreviations at first use within a new sub-section.

16.4 EXISTING SOCIO-ECONOMIC CONDITIONS (SECTION 6)

16.4.1 AREAS OF CONCERN

Annex X: Socio-economic Baseline Report

Issue #	Concerns	Section, page
SEB-010	Major Capital Projects "Major proposed projects in the RSA include the following …: Dennison Mines Corp. … the proponent is expected to enter the construction phase in 2022 … *Rabbit Lake Tailings Management Facility Expansion Project* … in February 2022 announced that it would restart operations amid uranium price gains ... *Highway 914 All-Weather Road* ... The project is expected to take approximately three years to complete and will connect Highway 905 and 914 …" The Reasonably Foreseeable Development (RFD) case included in the EIS does not mention any of these proposed Projects within the RSA and instead includes only the Fission Patterson Lake South Property which is located within the RSA. Under CEAA 2012, assessment of	6.2.1.3, p. 59

Issue #	Concerns	Section, page
	cumulative effects includes both projects that are "certain" and those that are "reasonably foreseeable".[35]	
SEB-011	*Highway 155* "Updated weight restrictions for specific vehicles travelling on primary or secondary highways can be found by contacting the Saskatchewan Ministry of Highways and Infrastructure ..." It is unclear why the reader is directed to contact the provincial government for additional data. If additional data is relevant to the baseline reporting it should be included; if it is not relevant, then this text is unnecessary.	6.3.2.10.2.1, p. 93
SEB-012	La Loche "Participation in the labour force is higher for males (i.e., 36.7%) than females (i.e., 30.4%) … The unemployment rate in the community is higher for males than females with a widening different; 14.0% difference in 2016 compared to 10.8% in 2006." It is unclear how males can be both higher participants in the workforce and higher in terms of unemployment. Population numbers in La Loche[36] are generally quite similar with a total La Loche population of 2370 (in 2016) with a composition of 47.9% males and 52.1% females.	6.4.1.2.2, p. 98
SEB-013	Buffalo Narrows "Around 19.1% of the Buffalo Narrows population aged 15 and over has completed high school as their highest level of education, lower than the Indigenous provincial average (i.e., 28.2%) and only slightly lower than the RSA average (i.e., 20.1%)." Given students are generally aged 17 to 18 at the time of graduation, inclusion of individuals under 17 in this dataset dilutes the accuracy of the results. A 15-year-old is unlikely to have had the opportunity to graduate high school, let alone accomplish any post-secondary education. This however does not automatically mean that those individuals will not graduate high school or pursue post-secondary	6.6.1.2.5, p. 120

[35] Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012 - Canada.ca
[36] Golder Associates Ltd., *Annex X: Socio-economic Baseline Report*, p. 42.

Issue #	Concerns	Section, page
	education.	

16.4.2 RECOMMENDATIONS

Consultants recommend that MN-S request:

1. Reevaluation of the RFD case, across all disciplines, in consideration of the proposed projects in the RSA that are identified in the Socio-Economic Conditions Baseline Report.
2. Review and revision or removal of the text in section 6.3.2.10.2.1 regarding Highway 155 weight restrictions.
3. TWC recommends that NexGen revise the content of 6.4.1.2.2 to provide clarity on employment and unemployment in La Loche as it relates to gender and the overall population demographics.
4. Updates to baselines throughout so that education and training statistics can be considered a robust and accurate reflection of the current conditions.

16.5 SUMMARY OF RESULTS (SECTION 7)

16.5.1 AREAS OF CONCERN

Annex X: Socio-economic Baseline Report

Issue #	Concerns	Section, page
SEB-014	Education and Training "Joint Working Group participants indicated that the standards for highs [*sic*] school certificates have been lowered, meaning graduates may not qualify for Grade 12 proficiency ..." This sentence is challenging to understand.	7.0, p. 179 to 180
SEB-015	Closure "Benefit Agreements have been developed and are being negotiated to define environmental, cultural, economic, training, employment, and business opportunities and other benefits to be provided to the primary Indigenous Groups by NexGen and to confirm the consent and support of those groups for the Project." It is not appropriate to identify a Benefit Agreement as an opportunity to confirm consent and support for the Project. Particularly given that NexGen has consistently identified in the draft EIS documentation that Impact-Benefit Agreements have been established or are being	7.2, p. 181

Issue #	Concerns	Section, page
	negotiated for the Project. As rights holders, Indigenous Nations have the right to self-governance and decision making. Negotiating with a proponent for the purposes of collaboration and mutual benefit does not automatically translate to Project consent.	

16.5.2 RECOMMENDATIONS

Consultants recommend that MN-S request

1. Update of the sentence in Section 7 of Annex 10 to provide clarity about the lack of qualification for Grade 12 proficiency.

2. Removal of all references to "Benefit Agreements" as an opportunity to confirm consent and support of the Project from this baseline report, all baseline reports, and the draft EIS in its entirety.

This concludes the technical review of the NexGen Rook I Project draft EIS as of October 2022. TWC looks forward to future discussions, and to supporting MN-S with comments, feedback, and potential next steps related to this review.

OVERVIEW OF JOINT WORKING GROUP PROCESS

Métis Nation of Saskatchewan (MN-S) sees the Joint Working Group as contributing to MN-S' meaningful and substantive participation in the Environmental Assessment for the Rook I Project. Meaningful and substantive participation includes:

- Recognition that MN-S *leadership,* not merely MN-S Citizens, must be involved at all points in the Joint Working Group process.
- Appropriate and fulsome technical support for MN-S leadership to understand Project effects and mitigation measures, and to fully participate in conversations on technical topics.
- Incorporation of MN-S feedback at all stages of the Environmental Assessment, especially before the Environmental Impact Statement is submitted to government.
- Supporting activities with MN-S Citizens that allow leadership to collect Citizens' perceptions, concerns, and suggestions. MN-S expects to organize and host meetings with its own Citizens that contribute to Project-related consultation.

Every two months is as frequently as MN-S can reasonably meet with NexGen, given the large volume of requests for engagement that MN-S receives from a variety of proponents. The schedule that follows shows the full range of topics related to the Environmental Assessment on which MN-S expects to be involved.

Table 1. Métis Nation of Saskatchewan (MN-S) Joint Working Group (JWG) Process for 2021-2022

The proposed process is tentative, based on the information available as of April 2021. Changes to topics, and frequency of meetings, would be agreed on in advance with MN-S.

Topic	MN-S Participants	Suggested NexGen or Other Participants	Materials and Information Provided by NexGen in Advance of the Meeting	Conceptual Timeframe	Notes
Clearing past Action Items Clarification of Consultation protocols and parameters Project re-introduction and overview – Project Description	MNS Duty to Consult Team MNS NR II leadership MNS Technical Consultants	NexGen Consultation Team Appropriate members of NexGen's engineering team that could speak to the Project Description	Minutes of past JWG meetings (previously shared with MN-S and available to both groups) Project Description that forms the basis of the EIS	Mid- or late June 2021	June start date allows election period to pass, and for new officials to receive their portfolios
Valued Components (VCs)	MN-S Duty to Consult team MNS NR II leadership	None CNSC and MOE invited to a half-day follow-up	None	Timing TBD 2021-2022[1]	Meeting facilitated by MN-S

[1] Timing of VC scoping activity proposed to be tied to existing MN-S meetings:
1) An Elders' gathering, proposed for October 2021, with a possibly delay to February 2022 due to Covid-19 conditions, as Elders prefer an in-person meeting.
2) A harvesting symposium, tentatively scheduled for September or October 2021. The harvesting symposium could be in person or virtual, again depending on public health guidance.

Topic	MN-S Participants	Suggested NexGen or Other Participants	Materials and Information Provided by NexGen in Advance of the Meeting	Conceptual Timeframe	Notes
Scoping – full-day workshop	Meeting with MN-S NR II Citizens, especially Elders MNS Technical Consultants	meeting, to be notified about the outcomes of the full-day Citizens' meeting	MN-S to share notes and minutes with NexGen as a courtesy.	Full-day meeting(s) (Citizens) Half-day follow-up meeting	
Additional TLUS Data Collection Begins Original TLUS was Phase 1 Defining a Phase 2 of improvements to TLUS (for NexGen's EIS) Creating a Phase 3 of TLUS (of sustained use and value for NR II)					
Geology, landforms, soils, air quality, surface and groundwater quality and quantity (Baseline, effects, mitigations, significance determination)	MN-S Duty to Consult team MNS Region II leadership MNS Technical Consultants related to: Geology, landforms, soils, air quality, surface and groundwater quality and quantity	NexGen Consultation Team NexGen consultants related to: Geology, landforms, soils, air quality, surface and groundwater quality and quantity	Issues tracking and action log revisited at beginning of meeting. Drafts of baseline reports, VC chapters, and other discipline-relevant documents would be shared with MNS one month in advance of the meeting. Plain-language executive summaries of drafts are expected to accompany the full drafts.	October 2021	

Topic	MN-S Participants	Suggested NexGen or Other Participants	Materials and Information Provided by NexGen in Advance of the Meeting	Conceptual Timeframe	Notes
Vegetation and wetlands, fish and fish habitat (including benthics), wildlife (including birds) (Baseline, effects, mitigations, significance determination)	MN-S Duty to Consult team MNS Region II leadership MNS Technical Consultants related to: Vegetation and wetlands, fish and fish habitat (including benthics), wildlife (including birds)	NexGen Consultation Team NexGen consultants related to: Vegetation and wetlands, fish and fish habitat (including benthics), wildlife (including birds)	Issues tracking and action log revisited at beginning of meeting. Drafts of baseline reports, VC chapters, and other discipline-relevant documents would be shared with MNS one month in advance of the meeting. Plain-language executive summaries of drafts are expected to accompany the full drafts.	December 2021	
Socioeconomics, Land and Resource Use, Current Use of Lands and Resources for Traditional Purposes, Human Health, Heritage, and Effects to Treaty Rights (as per CEAA 2012) (Baseline, effects, mitigations,	MN-S Duty to Consult team MNS Region II leadership MNS Technical Consultants related to: Socioeconomics, Land and Resource Use, Current Use of Lands and Resources for Traditional Purposes, Human Health, and Heritage	NexGen Consultation Team NexGen consultants related to: Socioeconomics, Land and Resource Use, Current Use of Lands and Resources for Traditional Purposes, Human Health, and Heritage	Issues tracking and action log revisited at beginning of meeting. Drafts of baseline reports, VC chapters, and other discipline-relevant documents would be shared with MNS one month in advance of the meeting. Plain-language executive summaries of baseline drafts expected to accompany the full drafts.	February 2022	

Topic	MN-S Participants	Suggested NexGen or Other Participants	Materials and Information Provided by NexGen in Advance of the Meeting	Conceptual Timeframe	Notes
significance determination)					
Overview of Project interactions and effects Effects of Environment on the Project, Accidents and Malfunctions (as per CEAA 2012)	MN-S Duty to Consult team MNS Region II leadership	NexGen Consultation team EA project manager Engineering team	Issues tracking and action log revisited at beginning of meeting. Summary of Project interactions and effects (extracted from EIS) Effects of Environment on the Project, Accidents and Malfunctions chapters of the EIS	April 2022	
Key Project interactions and effects and design-related mitigations	MN-S Duty to Consult team MNS Region II leadership Technical participation TBD based on the previous meeting	NexGen Consultation team EA project manager Technical participation TBD based on the previous meeting	Issues tracking and action log revisited at beginning of meeting. Detail on Project interactions	June 2022	
Overview of Mitigations and Accommodations	MN-S Duty to Consult team MNS Region II leadership	NexGen Consultation team EA project manager	Issues tracking and action log revisited at beginning of meeting.	August 2022	

Topic	MN-S Participants	Suggested NexGen or Other Participants	Materials and Information Provided by NexGen in Advance of the Meeting	Conceptual Timeframe	Notes
			Summary of key mitigations and accommodations		
Key Mitigation and Accommodation Measures, including significance determination for residual effects	MN-S Duty to Consult team MNS Region II leadership Technical participation TBD based on which VCs have effects and mitigation measures of significance	NexGen Consultation team EA project manager Technical participation TBD based on which VCs have effects and mitigation measures of significance	More detailed materials on mitigations and accommodations, as identified during August 2022 meeting	October 2022	
Cumulative Effects Monitoring and Evaluation	MN-S Duty to Consult team MNS Region II leadership Technical participation TBD	NexGen Consultation team EA project manager Technical participation TBD	Cumulative effects drafts (extracted from EIS)	December 2022	

CLEARWATER RIVER DENE NATION – TREATY 8

November 11, 2022

Nicole Frigault
Environmental Assessment Specialist, Technical Support Branch
Canadian Nuclear Safety Commission

RE: Nexgen Rook I Project Information Request

Hello Nicole,
Please find Clearwater River Dene Nation (CRDN) leadership approved Information Requests (IRs) below:

Engagement
Under section 4.1 Indigenous Engagement table 4.1-1: Summary of Primary Indigenous Group Key Engagement Activities, how is CRDN defined? Is the correspondence, meetings, joint working group, site tours data coming directly through engagement with Chief and Council members only? Or does this include CRDN leadership and community members? If community members are included, at what level? Treaty members? Local members? Community members that are considered hunters, trappers, gatherers and/or environmental advocates? On page 78, the job descriptions are identified within community, but they are not categorized with attached numbers/data.

- Need to host a working group to discuss topics including but not limited to Socio-economic, community well-being, and employment

Section 4.1
Data requires more demographical categorization, e.g., special groups, trappers, hunters, gatherers, knowledge keepers, Elders, environmental community advocates, educators, local business owners, local cabin owners, etc.

- Adapt to include more demographic information in all community engagement aspects/participate in the survey collection, interviews, and workshops.

This could help determine any real gaps in all types and methods of data collection and land use studies. There may not be enough participants identified and/or considered for both

Indigenous and local trappers, hunters, gatherers, etc. that carry Indigenous-local land intelligence no one else can claim (as these are intrinsic, inherent, and diverse ways of knowing) and this would be considered a massive loss and missed opportunity of vital local-traditional knowledge and deep understandings of the geography and biodiversity.

Section 2.5.1 General Communication Methods indicates NexGen exploring ways to further develop its use of social media for the Project and does not have a dedicated social media platform for communication in the Local Priority Area (LPA).

- Recommend contextualized social media: Recommend NexGen hire a social media representative within the community and work with them to create an Instagram, Tik Tok and Facebook account to educate our communities and ensure any workshops, presentations, interview selection, and all forms of communications and opportunities are not missed.

Creating these social media accounts will help close the communication and accessibility gaps. These social media platforms are great for sharing and providing important and valuable information in real time with little to no cost, capturing all LPAs.

Section 2.5.4 Public Engagement Methods there are no Indigenous methodologies being used to access and gain Indigenous insight. For example, when providing the project information packages (under table 2.5-1: Summary of Primary Indigenous Group Engagement Methods)

- Recommend hiring community member to contextualize and provide NexGen methodologies for all engagement opportunities including social media
    - E.g., photovoice, short creative videos, etc. Partnering to provide information updates on the project, identify opportunities to engage with the Project. E.g., maps and models can be co-created and co-designed to what is culturally appropriate and understood. Providing context for fluent first nation speaking communities/nations. The models, maps and distribution of materials need to be accessible and transmitted in ways that meet the needs of true community engagement through a more inclusive messaging. There are proactive alternatives to cartography (digital technologies by decolonial Indigenous artists, Indigenous indicators of cumulative impacts, etc.). “A better map is one that I am part of, not as an object, but as a subject of my own future” -Alais Ole-Morindat. There are participatory continuums and collaboration quality to be considered.

Section 4.4
Recommend clear definitions of Indigenous and Local knowledge, Indigenous knowledge has been defined by “input from Indigenous Groups, and relevant literature”. This is very vague and there are no sources being cited/referenced to the relevant literature.

In 2021, CRDN Elders, language workers, trappers, hunters, gatherers, and community care advocates developed a definition of what Indigenous Traditional Knowledge (ITK) means “a

network of knowledges, beliefs, and traditions intended to preserve, communicate, and contextualize Indigenous relationships with culture and landscape over time. Indigenous epistemologies (how knowledge can be known), pedagogies (how knowledge can be taught), and ontologies (our ways of life in the world) include the holistic, empirical data and knowledge in historical, geographical, cultural, spiritual, social, economic, environmental, and experiential studies of the natural world. Our diverse knowledges are portable, in that they call for reliance upon local resources and careful observations of the interactions between living beings and natural processes within an ecosystem (any ecosystem) to ensure human survival."

- Recommend to use this definition as a culturally appropriate definition of ITK for CRDN.

Adaptive Management
Summary Page 192
Gathers information to inform decision making

There is a need for government to create a regional monitoring body to manage impacts of this mine and other proposed mines in order to manage cumulative effects, conduct monitoring and recommend adaptive management techniques as concerns raised. This body must be co-developed with First Nations and provide for formal advisory and monitoring functions for First Nations.

Comment:

- Who determines the changes or 'adaptations' during the project
- Create body to provide CRDN advise to government
- CRDN should be involved in co-development of management plans

Environmental
Under Environmental Assessment, section 5.2 Atmosphere key findings, use language "remain low", 5.2.2 Noise key findings, "low magnitude", 5.2.3 Climate Change key findings, "no meaningful affect", and "low GHG emissions", 5.3.2 Hydrology key findings, "changes would likely be undetectable", 5.3.3 Surface Water Quality and Sediment Quality key findings, "not result in any threshold exceedances", "result in minor", 5.3.4 Fish and Fish Habitat key findings, "unlikely to be measurable", "not significant", 5.4 Land-5.4.3 Wildlife and Wildlife Habitat key findings, "restored to the extent possible", and "not significant". The key findings for incremental lifetime cancer risk are "negligible to very low", and the incremental and cumulative effects on human health are predicted to be "not significant" (pages 161-162).

- What are the definitions of this language, more specifically, how exactly are the potential risks calculated? At what concentration levels? What are the measurements being used to indicate and determine the "remain low", "no meaningful affect", etc. conclusions?

On page 155 there is mention of disturbance from lights and noise due to construction and operation of the project but no mention and focus to light pollution, which can affect bird

migration routes and other wildlife, including the quality of the night sky which affects navigation by wildlife and humans/people.

- How will light pollution be measured over the duration of project and what is the design to "minimize sensory disturbances"?
- How will the work and the buildings affect acoustical performance in the ecosystem? (i.e., mating calls, other communications - i.e., loons calling each other to prepare for migration, winds, and other ethological indicators)?

More Information regarding sampling frequency to indicate the time of year all samples were collected for all studies.

- No mention in this study of any specific lake stressors, such as cyanotoxins. Why no mention?
- What types of predictive models were applied to all environmental studies that have been conducted to date, to determine their potential direct and indirect environmental-human-social-economic impacts? What were these models based on?

Section 2.3.2 Project Components and Activities, Monitoring ponds:

- What will be monitored here?
- How is waste rock different from tailings?
- If tailings are stored underground, what is waste rock and why is it stored at surface?
- West bermed runoff collection area – where does runoff come from and what are the potential hazards of this runoff? How are these hazards assessed?

Section 1.2.6 – General Schematic:

- Are COPCs in groundwater and interstitial air tracked? Is this in permafrost and has projected permafrost thaw been accounted for? This was an issue at Giant Mine - they stored arsenic trioxide dust in underground stopes and now the permafrost is thawing, resulting in increased hydraulic conductivity in the ground, increased mobility of groundwaters, etc.

Section 1.2.7 Decommissioning and Reclamation

- Are there financial guarantees or reclamation bonds being required to ensure NexGen is responsible for all costs to restore the site to its original state?
- Please share the invasive species management plan.
- Will the future of buildings and landscapes be co-designed with the aesthetics of the community and landscape in mind? Recommend hiring community members as Indigenous architects, engineers, and community members to co-design plans.
- Draft and share a socioeconomic report and socioeconomic management plan.
    - How will the site contribute to neighbourhood quality improvement? Will the land owned, managed, and stewarded by CRDN maintain or increase in value?

- Is there consideration of thermal comfort? How much heat will be released over time? What current studies show the effects of increased heat on local biomes and human settlements?

Infrastructure and Design

- Are infrastructure and material conservation in place?
- Will the camp, maintenance shop, warehouse building, airstrip and associated facilities, power supply and distribution facilities, fuel storage facilities, information technology and communications facilities, site roads and access facilities, etc. going to be recyclable and reclaimable or will those supporting infrastructures end up in the dump or buried somewhere? If so, are the locations to recycle, reclaim, dump, or bury determined?

Community well-being

- What community protections for the site and for the local communities be put in place? What trauma-informed and restorative justice-based policing or protective services will be implemented?
    - Need clear guidelines on what services are provided
    - Recommend community members being hired for these positions for emotional support?
    - What are the timelines for “periodic” surveys and criteria for determining an increased need for support

The 'indicators' used for social and cultural impacts and wellbeing are limited.

- The Canadian Index of Wellbeing covers 8 domains and at least half a dozen indicators for each (University of Waterloo). Some key missing indicators are life expectancy, mental health, functional health, public health (i.e., workers bringing in viruses or transmissible diseases, especially worrisome in the case of women in the proximity of work camps and sexually transmitted diseases), income and wealth volatility and distribution, time use, social relationships, community safety, diversity of leadership, quality of community politics (democratic or familial/tribal governance mechanisms).
- Recommend reviewing all indicators of the social-cultural impacts and wellbeing to be included and analyzed.

Stress

The CRDN community have been dealing with long-term stress due to the modifications made to their traditional lands by the presence of uranium mining industry, the mill site and other associated development. CRDN are especially vulnerable to the stresses produced by the uranium industry development within their lands. The Treaty rights of the CRDN have been repeatedly overstepped, impeding the ability of this Nation to hunt, fish, gather or trap freely. This directly impacts the ability of this community to rely on their land, use their land in an sustainable way and limited ability to live off their land. The stress of the loss of this livelihood, lack of social connection associated with these traditional tasks and loss of identity combined with the stress of proximity of the uranium industry developments. Uranium, and the potential for radioactive contamination, which is historically known for negative health effects on the environment, results in the loss of community members to the area due to their fears and

associated stress. This stress is amplified when you consider that the lack of consultation results in reduced trust.

Quantifying Stress

Traditional environmental assessments (EA) failed to effectively consider these health concerns, "new assessment is needed attending to linked issues of equity, sustainability and Indigenous food sovereignty" (Jonasson, 2019). In particular, First Nation communities are becoming more concerned about the impacts and risk of industrial development and incidents on Indigenous health and wellness and current EA guidelines have ineffectively considered these impacts (Shandro J. J., 2018).

In 2021, new guidelines were published to support impact assessment professionals and indigenous communities to help address these gaps during conventional assessments (Salerno, 2021). Impact assessment (IA) "practitioners have therefore tended to ignore mental health impacts to focus on more easily observable or readily quantifiable impacts, such as sensory disturbance. However, the often-intangible nature of mental health does not make the impacts of project development on mental health any less real" (Salerno, 2021).

"Health Impact Assessment (HIA) is a voluntary and unstandardized process … has navigated the limitations of current EAs in which there is a tendency to focus on regulatory thresholds and quantitative measurements of risk" (Jones, 2015).

When considering that mental health risks are 'new' to the assessment process during project development:

- CRDN needs new and continued assessments completed to ensure thorough consideration of the mental well-being of their community members, especially regarding mental stress.

Perception of Risk

Being a subjective mix of both social and psychological factors, risk perception influences how harmful and chemical or exposure is perceived (Keller A, 2012). This report indicates that levels of stress and perception of stress affect health independently and were shown to increase the likelihood of worse health and mental health outcomes (Keller A, 2012).

Without clear federal or provincial guidelines on the acceptable level of risk during project development, it raises the question; what is an acceptable level of risk, or perception of risk, that is acceptable for the CRDN to tolerate for what seems an interminable future during the largest development-stage uranium project in Canada?

- CRDN needs to develop it's own standards/thresholds in order to understand the risks they are bearing.

Food Security & Traditional Diet
EIS - Pg 19-66-67

Actual or perceived contamination – discouraging traditional land use. Previous Uranium projects have resulted in increased negative opinions regarding the perceived risks to their traditional land, resulting in notable decreases in land-use amongst community members
Comments:

- How will this Project support perceived risks amongst the community members in order to increase the trust of the community members and therefore increase the reliance of their traditional lands, including harvesting traditional foods?

Heritage Resource
Summary - Page 164
No heritage resources identified
Comments:

- What is the protocol for chance finds?
- Community monitor should be present monitoring during all phases of development

Project Effects on indigenous land and resource use
Figure 5-6, Summary – Page 166
Does not account for the impact of stress on the indigenous community
Comment:

- Perceived risks need to be accessed and the impacts of long-term stress on the mental and emotional well-being of the community members

Employment Opportunities
Summary Document Page 21 and Page 5/6
Draft a Site Employment Management Plan

- Clear guidelines on how the site will be accessible for all workers. For which equity-deserving group categories (for example: sex, age, ethnicity, disability, economic status, gender, gender expression, pregnancy status, family status, neurodiversity, caste, nationality, race, sexual orientation, religion, language group, and creed)?
- Understanding the demographic of the CRDN and the commitment of the Project to hire community members– Recommend hosting Employment Workshops – hosting hiring fairs within the community makes employment opportunities accessible, achievable and supports trust the Project builds with community members. Commit to more than only funding to support indigenous monitors throughout the project; historically the community has already voiced they want to encourage training opportuning for higher ranges of employment opportunities.

Additional CRDN Recommendations:

1. CRDN to develop community-specific monitoring program that involves: (i) design of monitoring and (ii) conduct of monitoring – with the goal to produce a long term data set and track record of monitoring to restore community trust in area (or, to identify issues that are undermining community trust in terms of monitoring results).

2. Co- develop programs with CRDN to facilitate CRDN confidence in industry and land use safety.
3. CRDN requires all collected data within a reasonable and mutually agreeable timeframe.
4. Complete a Health Impact Assessment (HIA) that includes a perceived stress assessment and determine the level of acceptable stress the community can manage.
5. Develop notification and communication protocols so that CRDN to be notified and included in any investigations into causes of any discrepancy in environmental sampling.
6. CRDN to be engaged prior to any changes to sampling frequency during adaptive management.
7. CRDN community members to be present during each site visit.
8. CRDN requires funding support for environmental monitor training, survey and collection techniques, data management, etc. CRDN to develop and manage all aspects of training.
9. CRDN to expand monitoring program to align with all phases of the project: development, operations, and reclamation. CRDN will monitor environmental, geotechnical, perception of risk, land use, etc.
10. Develop broader regional Land Use Plan to manage new phase of uranium development and ensure CRDN lands remain healthy and viable for generations to come.

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October 07/22

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Commission canadienne de sûreté nucléaire / Gouvernement du Canada
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Dear Nicole,

Clearwater River Dene Nation (CRDN) are proud to provide this support letter as part of the formal federal draft Environmental Impact Statement (EIS) public review for the Rook I Project. Informed through long-standing engagement processes with the CRDN, the EIS that was submitted by NexGen Energy Ltd. (NexGen) to the Canadian Nuclear Safety Commission (CNSC) was confirmed by the CNSC on July 12, 2022, to contain the required information to proceed with the federal technical review of the EIS and was subsequently released for a 90-day public review period.

Engagement History

NexGen began exploration in our traditional territory in 2013. Prior to the first drill hole ever being drilled at the Rook I site, NexGen enagaged with our leadership and community. As NexGen continued to advance exploration programs from year to year, they continued to engage early and often for each subsequent program being conducted. The engagement NexGen conducted was to ensure that CRDN understood the scope of the programs and NexGen's continued prioritization of health, safety, and environmental aspects of all activities. Through this engagement, CRDN were made aware of applicable permitting processes, informed of regulatory applications, able to meaningfully participate in the assesment of the program applications, and subsequently benefitted through associated employment and contracting opportunities. Further to engagement on exploration activities, NexGen has worked closely with CRDN leadership to bring postive community

initiatives that enhance education, economic development, and cultural and traditional practices for all CRDN peoples and the community as a whole. Some of the intiaitves implemented and that continue to date are, the breakfast program at our local school, and the scholarship and summer student mentorship programs which provide our youth with opportunties and guidance for the future jobs that will be right in our backyard at Rook I.

This positive and early engagement set the foundation for continued engagement with NexGen through the Environmental Assesment (EA) for the Rook I Project, which was formalized through the signing of the Study Agreement between NexGen and CRDN on October 16, 2019. The Study Agreement provided a collaborative platform for CRDN and NexGen to identify potential impacts to Aboriginal and treaty rights and socio-economic interests, and to identify potential avoidance and accommodation measures in relation to the Rook I Project. This successful platform was conducted through a Joint Working Group (JWG) to support the inclusion of CRDN's traditional knowledge throughout the EA process and by incorporating the Indigenous Rights and Knowledge Survey (IRKS) and Dietary study that CRDN internally designed, scoped, and undertook. Throughout the entire process, NexGen provided the capacity funding for all aspects of the Study Agreement including the development and negotations of an Impact Benefit Agreement (IBA).

On April 22, 2022, NexGen and CRDN signed an industry-leading IBA. This IBA encompasses the most important principles to CRDN and its people in environmental protection and assurance and support for culture and traditional values. In addition to these important principles, this IBA also provides the CRDN membership with jobs, contracts, and sustainable financial assurance for generations to come. This IBA formalizes the respectful and meaningful relationship that CRDN and NexGen have developed over the past 10 years. Through this open, transparent, and respectful manner that NexGen engaged with our community, we have developed a strong relationship and solid partnership to collaboratively develop the Rook I Project in a responsible manner.

Environmental Assessment

The comprehensive and transparent engagement approach through the EA process was conducted jointly in a respectful manner between CRDN and NexGen. Through this process, the CRDN leadership, membership, and technical consultants were introduced to the EA process at an early stage. This approach provided CRDN the opportunity to review and provide input to assist in drafting of the EIS through avenues such as JWG meetings, leadership meetings, community information sessions, and our self-directed IRKS study.

The positive impact of this process has been validated by CRDN in reviewing the Rook I Project EIS that was released by the CNSC for public review on July 13, 2022. The EIS is consistent with what has been engaged on with CRDN by NexGen, reflects CRDN's input through engagement conducted to date, and demonstrates NexGen's accountability for environmental performance and safety at the highest levels.

Full Support for the Rook I EIS

The relationship built to date between CRDN and NexGen has been founded on trust, respect, and accountability. It is with this genuine relationship, and NexGen's approach to best in class practices and to continually addressing the Truth and Reconciliation Commission Call to Action #92, that we can say with confidence that CRDN fully supports the Rook I Project EIS. As a partner with NexGen, CRDN looks forward to progressing the Rook I Project in a responsible and sustainable manner with the objective to create as much positivity with all our Nation's members for generations to come.

Should you require further information on this item and file, please contact our engagement Lead Camm Willier at 403-505-6319

Marci cho,

Chief Teddy Clark

cc. Council Elect
Engagement Team
CRDN Community Forum
Leigh Curyer - NXE

Canadian Environmental Law Association
EQUITY. JUSTICE. HEALTH.

CELEBRATING 50 Years 1970 - 2020 OF ENVIRONMENTAL PROTECTION

SUBMISSION BY THE CANADIAN ENVIRONMENTAL LAW ASSOCIATION TO THE CANADIAN NUCLEAR SAFETY COMMISSION REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR NEXGEN ENERGY LTD.'S PROPOSED ROOK I PROJECT

CEAA Reference Number: 80171

Prepared by:
Sara Libman, Legal Counsel
Luc Lance
Dr. Robert Patrick

October 12, 2022

CONTENTS

LIST OF ACRONYMS

ALARP/ALARA	As Low as Reasonably Practicable/As Low as Reasonably Achievable
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
CEA Agency	Canadian Environmental Assessment Agency
CNSC	Canadian Nuclear Safety Commission
COPC	Constituent of Potential Concern
CRDN	Clearwater River Dene Nation
EA	Environmental Assessment
EcoRA	Ecological Risk Assessment
EIS	Environmental Impact Statement
ERA	Environmental Risk Assessment
GHG	Greenhouse Gas Emissions
GUDI	Groundwater Under the Direct Influence of Surface Water
LSA	Local Study Area
IAAC	Impact Assessment Agency of Canada
NSCA	*Nuclear Safety and Control Act*
PAG	Potentially Acid Generating
RFD	Reasonably Foreseeable Development
RSA	Regional Study Area
SDG	Sustainable Development Goal
SMR	Small Modular Reactor
SWPP	Source Water Protection Plan
UGTMF	Underground Tailings Management Facility
WRSA	Waste Rock Management Facility
WNISR2022	World Nuclear Industry Status Report 2022
VC	Valued Component
ZOI	Zone of Influence

I. INTRODUCTION

The Canadian Environmental Law Association ("CELA" or the "intervenor") welcomes the opportunity to review the draft Environmental Impact Statement ("EIS") for the proposed Rook I Project submitted by the proponent, NexGen Energy Ltd ("NexGen").[1]

Based on CELA's initial review of the draft EIS and the deficiencies contained within, this submission should be considered a commentary on missing and inadequate information for decision making. We reserve the right to provide additional substantive comment on subsequent stages of this environmental assessment being reviewed under the *Canadian Environmental Assessment Act, 2012*.

II. INTEREST AND EXPERTISE OF THE INTERVENOR

CELA is a non-profit, public interest law organization. CELA is funded by Legal Aid Ontario as a speciality legal clinic to provide equitable access to justice to those otherwise unable to afford representation for environmental injustices. For over 50 years, CELA has used legal tools to advance the public interest, through advocacy and law reform, in order to increase environmental protection and safeguard communities across Canada.

CELA has been involved in number of nuclear facility licensing and regulatory matters before the CNSC including federal environmental assessments. CELA also maintains an extensive library of public legal education materials related to Canada's nuclear sector on its website.[2]

Supporting this intervention are experts Luc Lance and Dr. Robert Patrick, who CELA has retained to provide advice on NexGen's draft Environmental Impact Statement ("EIS").

Luc Lance is a certified Radon Measurement and Analytical Provider, certified by the Canadian National Radon Proficiency Program and also a member of the Canadian Association of Radon Scientists and Technologists. Mr. Lance has extensive experience in the monitoring of radiological hazards, the sufficiency of controls and monitoring of radiological hazards, including but not limited to water sampling (ground and surface), air monitoring programs, offsite controls and monitors and mitigation techniques.

Dr. Robert Patrick is an Associate Professor in the Department of Geography and Planning at the University of Saskatchewan, specializing in regional and environmental planning, cumulative effects analysis and watershed planning for source water protection, mainly with First Nation communities in Alberta and Saskatchewan.

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[1] NexGen Energy Ltd, "Rook I Project Saskatchewan Canada: Environmental Impact Statement" (April 2022), online: https://www.ceaa-acee.gc.ca/050/evaluations/document/144418 [**Draft EIS**]
[2] Canadian Environmental Law Association, online: www.cela.ca

III. BACKGROUND/FACTS

A. Project

NexGen is proposing the development of an underground uranium mine and milling operation, called the Rook I Project. It is estimated that the project would produce up to 14 million kg of U_3O_8 annually for twenty-four years.[3] NexGen anticipated that the lifespan of the project would be 43 years, based on the following phases and their timelines:

- Construction (4 years);
- Operations (24 years);
- Closure (15 years)
    - Active Closure Stage (5 years)
    - Transitional Monitoring Stage (10 years).[4]

The project would be developed on the Patterson Lake peninsula in Northwestern Saskatchewan, which is situated within the southern Athabasca Basin, along the upper Clearwater River System, and the site intersects the Boreal Shield and Boreal Plain Ecozones.[5] The project site is situated on Provincial Crown Land within Treaty 8 territory and the Métis Homeland, and adjacent to Treaty 10 territory.[6]

On February 20, 2020, the Canadian Nuclear Safety Commission ("CNSC") released its decision on the scope of an environmental assessment for the proposed Rook I Project. The proposed project meets the definition of a "designated project" under section 31 of the *Regulations Designating Physical Activities* made under the *Canadian Environmental Assessment Act, 2012* ("*CEAA 2012*")[7], requiring that an environmental assessment ("EA") be carried out for the project.[8] Although the *Impact Assessment Act*[9] came into force in August 2019, replacing *CEAA 2012*, it includes provisions to allow ongoing projects with EAs initiated under *CEAA 2012* to continue under their existing EA processes.

[3] Impact Assessment Agency, "Rook I Project", Canadian Impact Assessment Registry, online: https://www.ceaa-acee.gc.ca/050/evaluations/proj/80171?&culture=en-CA
[4] Draft EIS, p. 1-43.
[5] Draft EIS, p. 1-18.
[6] Draft EIS, p. 1-14.
[7] *Canadian Environmental Assessment Act, 2012* (SC 2012, c 19m s 52) at s. 31. [**CEAA 2012**]
[8] Canadian Nuclear Safety Commission, Record of Decision dated February 20, 2020, online: https://www.ceaa-acee.gc.ca/050/documents/p80171/134827E.pdf
[9] *Impact Assessment Act*, SC 2019, c 28, s 1.

In addition to the EA under CEAA 2012, this project is also subject to the environmental assessment requirements of the Government of Saskatchewan, and must be approved and licenced by the CNSC in accordance with the *Nuclear Safety and Control Act*.[10]

B. Scope of Review

CELA received participant funding to review NexGen's draft EIS, provide recommendations in response to the purposes and scope of factors to be considered in an EA per *CEAA 2012*, review the sufficiency of their considerations in the draft EIS, and to review and comment on any CNSC Commission Member Documents and applicable Regulatory Documents.

Pursuant to our Participant Funding Program application, CELA has engaged the professional services of Luc Lance and Dr. Robert Patrick. Section V of this report, titled "Radon and Gamma Monitoring & Workers' Health ", comments on the document's assessment of radon, considering the sufficiency of existing controls and monitoring radiological hazards, and mitigation techniques to reduce exposure. Section VI of the report, titled "Source Water Protection", provides comments on the Draft EIS's review of impacts to ground and surface waters from a watershed planning and source water protection perspective.

Our recommendations, are summarized in **Appendix A**. A summary of our information requests are compiled in **Appendix B**.

[10] Nuclear Safety and Control Act, SC 1997, c 9 [**NSCA**].

IV. LEGAL FINDINGS & ANALYSIS

CELA submits that due to deficiencies within the Draft EIS, the requisite statutory and regulatory requirements of *CEAA 2012* have not been fulfilled. Additional information is required before NexGen's Draft EIS can be deemed sufficient. The deficiencies within the Draft EIS are broken down into three issues, each detailed below:

A. NexGen's assessment of environmental effects lacks adequate detail and analysis to meet the purposes of *CEAA 2012*;
B. The Draft EIS has failed to adequately consider key factors required in undertaking an EA under *CEAA 2012*; and
C. There are procedural issues which prevent this EA from being transparent, inclusive, informed, and meaningful.[11]

A. Assessing 'Adverse Environmental Effects' and the Purposes of *CEAA 2012*

CELA submits there are significant issues and gaps in information within the Draft EIS, and without amending these issues and gaps, the CNSC will be unable to find under section 7 of *CEAA 2012* that the project is not likely to not cause significant adverse environmental effects.[12]

NexGen has made the following determination on adverse environmental effects:

> No significant adverse effects on biophysical, cultural, and socio-economic VCs were predicted for the Project or for the Project in combination with RFDs, with the exception of woodland caribou. Effects on woodland caribou are already significant under existing conditions, and NexGen's commitment to implementing a Caribou Mitigation and Offsetting Plan is expected to provide a net increase in functional woodland caribou habitat.[13]

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[11] Minister of Environment and Climate Change, Building Common Ground: A New Vision for Impact Assessment in Canada (2017), online: https://www.canada.ca/content/dam/themes/environment/conservation/environmental-reviews/building-common-ground/building-common-ground.pdf, pp. 13-14. *This report determined that for the assessment process to be effective, the assessment process must be governed by these four principles.* [**Expert Report**]

[12] *CEAA 2012* at s. 7 provides: A federal authority must not exercise any power or perform any duty or function conferred on it under any Act of Parliament other than this Act that could permit a designated project to be carried out in whole or in part unless
(a) the Agency makes a decision under paragraph 10(b) that no environmental assessment of the designated project is required and posts that decision on the Internet site; or
(b) the decision statement with respect to the designated project that is issued under subsection 31(3) or section 54 to the proponent of the designated project indicates that the designated project is not likely to cause significant adverse environmental effects or that the significant adverse environmental effects that it is likely to cause are justified in the circumstances.

[13] Draft EIS at p. 24-28. "VC" stands for valued component, and "RFD" stands for reasonably foreseeable development.

CELA undertook a sustainability-based evaluation of the NexGen's Draft EIS for the Rook I Project. This section considers the purposes of *CEAA 2012* which guides the process for assessing adverse environment effects, and evaluates how the purpose and justification of the Rook I Project fit within the context of an environmental assessment, pursuant to the purpose of *CEAA 2012*.

Our analysis rested in part of the purpose of *CEAA 2012*, as set out in sections 4(1)(b), (h), and (i):[14]

> **4(1)** The purposes of this Act are:
>
> **(b)** to ensure that designated projects…are considered in a careful and precautionary manner to avoid significant adverse environmental effects;
>
> **(h)** to encourage federal authorities to take actions that promote sustainable development in order to achieve or maintain a healthy environment and a healthy economy; and
>
> **(i)** to encourage the study of the cumulative effects of physical activities in a region and the consideration of those study results in environmental assessments.

These three factors indicate that the purpose of *CEAA 2012* is to ensure there is a well-rounded, precautionary approach to assessing potential risks that could cumulatively and adversely affect the environment. The intervenor submits that NexGen's Draft EIS fails to fulfill the purpose of *CEAA 2012* as the consideration of "environmental effects" is grossly inadequate. CELA submits these inadequacies arise from the following issues, which will be addressed below:

1. The Draft EIS disregards the purpose of the Act requiring the application of a precautionary approach for matters of uncertainty and potential risk per section 4(1)(b) of *CEAA 2012*;

2. The purpose of the project is based on a faulty sustainable development justification; and

3. The Draft EIS fails to properly apply a cumulative effects assessment to fully assess the environmental effects associated with the proposed project.

1. The Precautionary Principle

The precautionary principle, a fundamental purpose of *CEAA 2012*,[15] is also a principle in which a federal authority (i.e., the CNSC) is mandated to exercise when administering their powers to

[14] *CEAA 2012* at ss. 4(1)(b),(h),(i), *emphasis added*.
[15] *CEAA 2012* at s. 4(1)(b).

protect the environment and human health.[16] The precautionary principle, requires a cautionary approach in which a decision-maker presented with evidence that an activity is likely to cause irreversible harm to the environment is obligated to prevent or terminate the activity.[17] This principle of international environmental law has also been adopted into Canada's application of environmental law, as held by the Supreme Court of Canada in its seminal 2001 decision in *Spray-Tech*:

> The interpretation of By-law 270 contained in these reasons respects international law's "precautionary principle", which is defined as follows at para. 7 of the Bergen Ministerial Declaration on Sustainable Development (1990):
>
> > In order to achieve sustainable development, policies must be based on the precautionary principle. Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.[18]

As such, there is a positive duty on the CNSC to ensure the activities it licences do not cause unacceptable or irreversible harm to the environment.[19] The intervenor **submits** that the Draft EIS fails to provide sufficient data for the CNSC to determine that the Rook I Project would not cause unacceptable or irreversible harm to the environment.

First, the intervenor **submits** NexGen has not provided a sufficient assessment of the potential adverse environmental effects of this project beyond the closure phase. The Draft EIS divides the project's estimated 43-year lifespan into three phases: construction, operations, and closure. Beyond the projected 15-year decommissioning and reclamation (closure) phase, the Draft EIS makes reference to a "far-future scenario" throughout the assessment. The far-future scenario, which is discussed further in Section IV. B.1 of this submission, is explained in the Draft EIS's Environmental Assessment Approach and Methods section:

> In certain circumstances, the duration of effects may extend beyond specific phases of the Project, including Closure, depending on the physical, biological, social, and/or cultural properties and resilience of VCs and intermediate components. Under these circumstances, effects from the Project that may occur well beyond Closure were also assessed using a far-future scenario. This far-future scenario is not a Project phase; it encompasses the long-

[16] *CEAA 2012* at s. 4(2).
[17] Cameron J and Abouchar J, "The precautionary principle: a fundamental principle of law and policy for the protection of the global environment" (1990) 14:1 Boston College International and Comparative Law Review at p. 3, online: https://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1335&context=iclr [**Cameron & Abouchar**].
[18] 114957 Canada Ltee (Spray-Tech) v Hudson (Ville), 2001 SCC 40 (CanLII) at para. 31.
[19] Cameron & Abouchar at p. 22.

> term period during extremely slow migration of COPCs from the underground tailings management facility and waste rock storage areas to the environment are anticipated (i.e., more than 5,000 years). The far-future scenario is applicable for groundwater and surface water quality intermediate components and to the human health VC, including ecological receptors, which are assessed through the ERA. While it is not possible to accurately predict any process thousands of years into the future, the far-future scenario is a reasonable representation of the long-term return to steady-state conditions.[20]

The "far-future" scenario is mentioned 267 times within the Draft EIS,[21] and depending upon the context of the far-future scenario (e.g., hydrological conditions, water quality and sediment quality, etc.), the far-future timeline can range from 200 years to more than 5000 years.[22] However, there is no dedicated section to summarize all far-future scenarios, and provide a timeline of the anticipated durations for various scenarios. CELA **recommends** that the Draft EIS be updated to include a timeline of various far-future scenarios, which would provide a visual of the potentially adverse environmental effects that future generations would be burdened with should this Project be approved.

As stated in by the Draft EIS above, it is not possible to accurately predict any process thousands of years in the future. And while NexGen does take climate change into consideration with assessment modelling, the variables of climate change are unpredictable, and the scale of climate change impacts are dependent on local and global action on Greenhouse Gas emissions and other decarbonization actions. As there are many variables that can impact the proposed project, the far-future modelling within the Draft EIS becomes riddled with uncertainty. Approaching this proposed project in a precautionary manner would indicate that there is a lack of scientific certainty regarding the likelihood of serious or irreversible environmental harm.

Second, the intervenor **submits** that the post-closure and far-future time periods surrounding the proposed project lack sufficient detail on what monitoring and maintenance mechanisms are required to prevent adverse environmental effects from occurring in the future. The Rook I Project is anticipated to complete the Decommissioning and Reclamation (Closure) phase after 15 years. The Draft EIS explains that "once performance criteria have been fully demonstrated, an application to be released from the CNSC licence would be submitted to the CNSC for approval.

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[20] Draft EIS at p. 6-19, *emphasis added*.

[21] This was found by conducting a "CTRL +f " (or on Mac commuters a "command +f") search of "far-future" within the Draft EIS document. A significant number of word search hits for "far-future" where found within the headers of individual pages (e.g., "Appendix 11A, Aquatic Health Assessment of the Potential Adverse Effects of Predicted **Far-Future** Copper Concentrations in Patterson Lake"), and therefore "far-future" was not necessarily discussed 267 times within the Draft EIS.

[22] *See for example,* Draft EIS at p. 10-19 marks surface water quality modelling over a span of 400 years, including the 43-year project timeline and 357 years after closure. Whereas, p. 6-19 (cited above) indicates that the COPCs from the UGTMF and the WRSA facilities are expected to migrate into the environment over the course of 5,000 years.

Once release from licence is achieved, and upon Provincial approval, the land would be transferred under Provincial management through the Institutional Control Program."[23]

Therefore, according to the Draft EIS, after NexGen gains the financial benefit of owning and operating the mine for 24 years, closes down the project site for approximately 15 years, and then turns over the perpetual care of the site to the Province of Saskatchewan. Decommissioned uranium mines must be managed in perpetuity in order to prevent contaminated tailings and waste rock from being released into the local environment, as emphasized by the Pembina Institute:

> The management of all decommissioned mines must be considered in perpetuity. The Auditor General of Canada has observed that,
>
> > In Canada, a "walk-away" solution is not realistic for decommissioning most uranium tailings sits. Long-term storage requires long-term institutional care to monitor and maintain the containment structures and to control access to, and use of, the land.[24]

With the far-future scenario indicating that there is an anticipated slow migration of constituents of potential concern from the underground tailings management facility and waste rock storage areas to the environment, the Rook I Project is a site that must be monitored and maintained in perpetuity. However, beyond the closure phase, the Draft EIS does not elaborate on the remedial measures needed in the future.

For example, in the far-future scenario for surface water quality, there is an assumption that the potentially acid generating ("PAG") waste rock storage area ("WRSA") liner would not function in the far future and that "all infiltration and seepages through and from the WRSAs and UGTMF would generate mass loading via contact with waste rock and tailings and carry the loads to surface waters via groundwater pathways."[25] This far future scenario was based on modelling that spanned 400 years, including the 43-year project timeline and the 357 years after closure.[26] By the time that the PAG WRSA liner is no longer functioning, the project would not be the responsibility of NexGen. The Draft EIS is not clear about what would need to be done in the far-future to mitigate the adverse effects of the anticipated releases of cobalt and copper (these releases would exceed thresholds).[27] The Draft EIS indicates that should the project be approved, monitoring and follow-up plans and management plans would further be developed.[28] Without a fulsome managing and

[23] Draft EIS at p. 1-34, Table 1.2-3.
[24] M Winfield et al., "Nuclear Power in Canada: An Examination of Risks, Impacts and Sustainability" (December 2006), The Pembina Institute, online: https://www.pembina.org/reports/Nuclear_web.pdf at p. 39
[25] Draft EIS at p. 10-19.
[26] Draft EIS at p. 10-19.
[27] Draft EIS at p. 10-97.
[28] Draft EIS at p. 23-12.

monitoring process available for the CNSC to review at this stage of the EA, there is insufficient information available to determine that adverse environmental effects will not occur post-closure.

CELA **requests** that NexGen provide plans for monitoring and follow-up programs and management plans to be assessed within the context of the EIS. CELA also **requests** that NexGen provide details about the expected lifespan of the PAG WRSA liners, as well as recommended management systems for the far-future generations that would be burdened with the COPC metal concentrations expected to flow from the site.

Third, CELA **submits** that the scoping analysis within the Draft EIS is inadequate and prevents a thorough study of environmental effects from being completed in compliance with the purpose of *CEAA 2012*. CELA has identified a number of deficiencies in the study of valued components ("VCs")—specifically the climate change, fish and fish habitat, terrain and soils, vegetation, and wildlife and wildlife habitat VCs—in which the Draft EIS is missing crucial environmental data. Additionally, the scoping of both spatial and temporal boundaries is too narrow. Section IV.B.1 addresses the specific shortfalls within the environmental effects assessment of VCs and scoping boundaries. CELA **submits** that the gaps in environmental effects assessment data prevents the precautionary approach from being implemented by the CNSC to determine whether this project is likely to cause irreversible harm to the environment.

For instance, in one far-future modelling timeframe, copper was predicted to exceed both water quality guidelines for the protection of aquatic life and reference values used in the Ecological Risk Assessment ("EcoRA") and aquatic health assessment, and "the survival and reproduction of fish VCs could be directly affected by exposure to copper in the water column or indirectly by changes in habitat availability resulting from potential effects on the lower trophic food base for fish…"[29] According to the EcoRA and the aquatic health assessment:

> … Effects on the health of fish due to direct exposure to copper in the water column, and therefore survival and reproduction, are not expected for predator fish (e.g., lake trout, walleye, northern pike) and are unlikely for forage fish (e.g., lake whitefish). As described above, only limited effects on the available food supply for fish are possible due to exposure of lower trophic level organisms and forage fish species to predicted copper concentrations. Additionally, these effects would be spatially limited to Patterson Lake North Arm – West Basin. Broad scale changes to the fish food base are not expected to occur. Therefore, any changes in habitat quality are considered unlikely to measurably affect the survival and reproduction of fish VCs.[30]

[29] Draft EIS at section 11, pp. iv-v.
[30] Draft EIS at section 11, p. v.

The intervenor **submits** that the determination that any changes in habitat quality are considered unlikely to measurably affect the survival and reproduction of fish VCs to be inadequate, as the study of fish and fish habitat VCs is lacking crucial environmental data—which will be discussed further in this submission. Before such a determination about far-future fish VC effects can be drawn, the fish VC information gaps need to be rectified in this EIS.

Recommendation 1: The Draft EIS should be updated to include a timeline of various far-future scenarios, which would provide a visual of the potentially adverse environmental effects that future generations would be burdened with should this Project be approved.

Recommendation 2: To ensure the purposes set out in sections 4(1)(b) and 4(2) of *CEAA 2012* are upheld, greater attention must be paid to the precautionary principle. This means the far-future scenarios proposed by NexGen need to be re-assessed to align with any further data provided for VCs and boundary scoping.

Information Request 1: NexGen to provide plans for monitoring and follow-up programs and management plans specific to the various far-future scenarios to be assessed within the context of the EIS.

Information Request 2: NexGen provide details about the expected lifespan of the PAG WRSA liners, as well as recommended management systems for the far-future generations that would be burdened with the COPC metal concentrations expected to flow from the site.

2. Climate Change and Sustainable Development

CEAA 2012 at section 19 enumerates the factors to be considered when conducting an EA—some of which CELA has found not to have been properly considered in NexGen's draft EIS.[31] One such factor as set out in subsection 19(1)(f), is the purpose (i.e. justification) of a proposed project, which must be taken account during the assessment process.[32]

NexGen attempts to justify the need or purpose of the project as a means to address climate change through the reduction of greenhouse gas emissions ("GHGs"). The Draft EIS states that:

> The Project could meaningfully contribute to the Government of Canada's ability to meet its environmental obligations and commitments with respect to climate change (Prime Minister of Canada 2021) by displacing high-GHG intensity fossil fuel (e.g., coal, natural gas)

[31] Section IV.B. of this submission provides additional commentary on the factors that must be considered within an EA.
[32] *CEAA 2012* at s. 19(1)(f) states: The environmental assessment of a designated project must take into account the following factors: … (f) the purpose of the designated project.

> electricity generation in favour of low-GHG emitting, green energy. Providing a potential source of uranium would also support Saskatchewan's objective of developing lower carbon emission electricity generation over the next decade (Government of Saskatchewan 2019a). While uranium is not the only option to support these local and global endeavours, the demand for uranium is increasing, and this energy source can be an important part of the solution as the world moves towards more sustainable measures to protect the environment and reduce effects on climate change.[33]

In reviewing the stated purpose of the designated project, the federal authority conducting the assessment, i.e., the CNSC, must ensure that the proposed project aligns with the purposes of the Act, including section 4(1)(h) which encourages the CNSC to take actions that promote sustainable development in order to achieve or maintain a healthy environment and a healthy economy.[34]

NexGen attempts to justify the Rook I Project through their own sustainability lens of supplying uranium globally to address the forecasted increase in the global demand in electricity, noting that there would need to be an "80% increase in global nuclear power production by 2040 compared to current production levels, along with investments in renewable energy sources."[35] NexGen states that global demand for uranium is increasing, which is where the proponent roots the purpose of this project:

> The purpose of the proposed Project is to provide a potential source of uranium as part of meeting global demand for electricity through low-GHG emitting energy options. The development of the Project can support the establishment of renewable energy options, help meet the growing global electricity demands, and support both national and international efforts to reduce GHG emissions.[36]

As CELA sets out in the following sections (as well as in Dr. Robert Patrick's expert report at Section VI; which recommends the implementation climate change resiliency and source water protection plans for this Project), the justifications for the Rook I Project provided within the Draft EIS, namely that the project will support international and national climate efforts, are not well founded and thus do not align with the principles of sustainable development, which is a core purpose of *CEAA 2012*.

[33] Draft EIS at p. 1-15.
[34] As set out within the purpose of *CEAA 2012* at s. 4(1)(h).
[35] Draft EIS at p. 4-4.
[36] Draft EIS at p. 4-5.

Climate Change within EA

As one of the defining challenges of the 21st Century, climate change requires global collective action to slow the increase in global temperatures.[37] The changes to the climate since the Industrial Era have consequences global, and locally within Canada, impacting human health and natural ecosystem health.[38] In 2015, Canada adopted the 2030 Agenda for Sustainable Development at the UN General Assembly. The Agenda consists of 17 Sustainable Development Goals ("SDGs"), and SDG 13 requiring climate action.

As Target 13.2 requires nations to integrate climate change measures into national policies, strategies and planning,[39] CELA **submits** climate change becomes an integral part of assessing the sustainability of a proposed project, pursuant to section 4(1)(h) *CEAA 2012*.

However, CELA **submits** that considering climate change within EA is not simply an assessment of whether a project aids in meeting Canada's climate objectives, but rather whether the project itself is aligned with sustainability. The following questions assist in determining whether a project is aligned with sustainability:

- Does the project cause, induce, or exacerbate extreme weather events or slow onset events?
- Does it irreversibly alter an ecosystem?
- Does it make a community less resilient?
- Does it affect its life support systems?
- Does it sustain nature, life support systems and the community?[40]

Table 1 below offers a brief summary of differences between a traditional approach to climate change. As drafted, GenPGM's EIS documents reflect a traditional approach to climate change in EA.

[37] Environment and Climate Change Canada, "Canada's Changing Climate Report" (2019) Government of Canada, online: https://changingclimate.ca/site/assets/uploads/sites/2/2020/06/CCCR_FULLREPORT-EN-FINAL.pdf at p. 11 [**CCCR2019**]
[38] CCCR2019 at p. 428.
[39] United Nations, "Goal 13: Take urgent action to combat climate change and its impacts", Sustainable Development Goals, online: https://www.un.org/sustainabledevelopment/climate-change/
[40] A Majekolagbe, "Impact Assessment, Sustainability, and Climate Change: Lessons from Lower Churchill" (2021) Dalhousie Law Journal, online: https://digitalcommons.schulichlaw.dal.ca/cgi/viewcontent.cgi?article=2160&context=dlj, p 84 [**Majekolagbe, 2021**]

Table 1. Summary of Climate Change in Traditional IA and Sustainability based IA[41]

Climate Change in Traditional EA	Climate Change in Sustainability
Mitigation focused	Mutually considers mitigation, adaptation and loss and damages
Based on project's contribution to national mitigation commitment	Applies a presumption of harm approach
Project's emission intensity is determined on an individual project basis	Effects are considered cumulatively
Negative contribution to global warming is a primary contribution	Emphasizes positive contribution to nature, life support system, and the community
Trade-off is resolved in favour of emission mitigation	Trade-off is resolved in favour of overall contribution to sustainability

International Climate Efforts

CELA **submits** that NexGen's emphasis on the project's uranium production supporting international efforts to reduce GHG emissions does not align with a sustainability-based impact assessment.[42] The proponent focuses on the negative contribution to global warming, when there needs to be an emphasis on positive contributions to nature, life support systems, and the community. Furthermore, NexGen's and assertion that the Project will "support the establishment of renewable energy options" is not well founded nor supportable.

Unquestionably, the investment in a variety of renewable energy sources is crucial to address the global demand for electricity, and 2021 saw a global increase in wind power generation. The *World Nuclear Industry Status Report 2022* ("WNISR2022") states: "In 2021, the annual global growth rates for the generation from wind power were 17.0 percent (11.9 percent in 2020), 22.3 percent (20.9 percent in 2020) for solar PV, and 3.9 percent (-4 percent in 2020) for nuclear power."[43] The WNISR2022 further states that the global contribution of nuclear energy fell to 9.8 percent, with the nuclear share being below 10 percent for the first time in four decades.[44]

The role of nuclear power becomes increasingly complicated, however, taking into account the dramatic geopolitical changes in 2021. Because of the war in Ukraine, for the first time the WNISR2022 includes a chapter titled "Nuclear Power and War."[45] This chapter focuses on the risks of nuclear power facilities in war situations, and the risks of possible major releases of

[41] Majekolagbe, 2021
[42] Draft EIS at p. 4-5.
[43] M Schneider and A Froggat, "The World Nuclear Industry Status Report" (October 2022), Paris, online: https://www.worldnuclearreport.org/IMG/pdf/wnisr2022-lr.pdf at p. 32 [**WNISR2022**].
[44] WNISR2022 at p. 32.
[45] WNISR2022 at pp. 244-276.

radioactivity into the environment. The war in Ukraine has also highlighted the problems of dependency, especially of a single source, on fossil fuel imports, as some European nations have been dependent on fossil fuels from Russia.[46]

With the need for global transitioning away from fossil fuels from both a climate perspective and a geopolitical perspective, nuclear power generation is not the focal point to meet growing electricity demands. The WNISR2022 explains that:

> … renewables outcompete nuclear power and in fact fossil fuels in the majority of markets as they are cheaper and faster to build and ultimately produce less expensive power. Consequently, more investment is taking place in renewables, which leads to lower prices and more deployment experience, creating a virtuous circle in which renewables are becoming cheaper than all other forms of electricity generation.[47]

As the WNISR2022 points out, military conflict increases the environmental risks from nuclear power generation. However, the discussion of GHG emissions, security risks and environmental impacts of shipping and distributing uranium globally is omitted from the discussion in NexGen's Draft EIS.

National Climate Efforts

In addition to contributing to international climate emissions reductions, NexGen frames the purpose of the project[48] within the Draft EIS as assisting Canada in meeting its GHG-reduction targets.[49] The Draft EIS submits that "to meet [Canada's] growing demands and the GHG emission reduction targets, significant new nuclear and other low-carbon emitting electrical capacity would have to be established."[50]

The justification of the project also rests within Saskatchewan pursuing a small modular reactor ("SMR") in the early to mid 2030s.[51] The *Net-Zero Framework* which accompanies the Draft EIS provides further reliance on the development of an SMR in Saskatchewan. This *Framework* states:

> Federal and provincial government support would be required to overcome the barriers associated with implementation of SMRs, specifically the following:

[46] WNISR2022 at p. 35.
[47] WNISR2022 at p. 278.
[48] Draft EIS at section 4.2.
[49] Draft EIS at p. 4-5.
[50] Draft EIS at p. 4-4.
[51] Draft EIS at p. 4+4.

- increasing public awareness and acceptance for implementation of SMRs; increasing the investment and innovation in the SMR technology and infrastructure;
- defining regulatory requirements (e.g., permitting and licensing) and ensuring the regulatory processes are efficient for implementation of the technology;
- conducting a detailed, sector-wide study that could help define the strategies and/or incentives for implementation of SMRs on the provincial scale; and
- aligning with the emission reduction potentials outlined in the Made-in-Saskatchewan Climate Change Strategy (Government of Saskatchewan 2017), by implementation of SMRs on remote mine sites.[52]

The Draft EIS depends on the hypothetical development of SMRs in order to justify the approval of the Rook I Project. CELA **submits** that the reliance on the development of SMRs to meet Saskatchewan's energy targets is not a sustainable justification for this project. CELA has previously expressed concerns about the unviability of SMRs due to cost of production in comparison with other low-carbon energy sources, as well as the concerns surrounding the lack of environmental assessment measures governing the approval of SMRs.[53]

The recently released WNISR2022 also emphasizes the shortfalls of SMRs, noting: "Small modular (nuclear) reactors or SMRs continue to hog the headlines in many countries, even though all the evidence so far shows that they will likely face major economic challenges and not be competitive on the electricity market."[54] In the context of Canada, the WNISR2022 points out that the development of SMRs like the proposed Micro Modular Reactor Project at the Chalk River Laboratories in Ontario are unlikely to meaningfully contribute to energy production:

> According to its proponents, the Micro Modular Reactor Project is intended to be "a commercial demonstration reactor" and "a model… to provide safe and sustainable low-carbon power and heat to industries, such as mining, and remote communities".930 The net electricity demand from remote mines and communities in Canada are insufficient to develop the facilities needed to manufacture SMRs, and the costs of the electricity any reactors small enough to power a remote mine or community would be prohibitively high.[55]

SMRs are not only economically unviable; these reactors do not fit within a sustainable development perspective in Canada, as SMRs are exempt from impact assessment under the *Impact Assessment Act.* Impact assessment is one of the key tools the federal government has to

[52] Golder Associates Ltd., "Net-Zero Framework Technical Support Document for the Rook I Project" (April 2022), online: https://www.ceaa-acee.gc.ca/050/evaluations/document/144429, at p. 12 [**TSD XII**]
[53] *See for instance:* Canadian Environmental Law Association, "Primer: Small Modular Nuclear Reactors (SMRs)", (November 17, 2020) CELA Blog, online: https://cela.ca/primer-small-modular-nuclear-reactors/
[54] WNISR2022 at p. 228.
[55] WNISR2022 at p. 232.

assess a project's impact or contribution to sustainability however, as the *Impact Assessment Act* only requires the largest of nuclear reactors to undergo review, SMRs are effectively exempt. [56]

While recognizing that NexGen would not be an SMR proponent, by supplying the uranium for these proposed reactors, the Rook I project would be cumulatively contributing to the potentially adverse environmental effects that would result from these non-assessed SMRs. With one of the key goals of sustainable assessment being the discouragement of decisions which would transfer the negative impacts of present day activities onto future generations,[57] the environmental uncertainty surrounding the impacts of SMRs would therefore negate NexGen's justification of this project resting in supplying uranium to operate these reactors.

CNSC Regulatory Guidance

In addition to the purposes of *CEAA 2012,* CNSC policy guidance provides another source from which to review NexGen's approach to sustainable development. REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures, Version 1.2,* specifies the CNSC's guiding environmental protection principles when making licensing decisions at section 2.1, including the implementation of the "polluter pays" principle:

> For each facility or activity that has direct interactions with the environment, the CNSC must determine that the licensee or applicant has made adequate provision for the protection of the environment. The applicant or licensee's licence application shall demonstrate (through performance assessments, monitoring or other assessments) that their environmental protection measures: […]
>
> - respect the precautionary principle, the "polluter pays" principle, and the concepts of pollution prevention, sustainable development and adaptive management […][58]

The "polluter pays" principle is a core concept within sustainable development, as this principle is centred around society acting for the long-term protection of the planet and future generations.[59] The polluter pays principle deems waste owners "…responsible for the funding, organization, management and operation of the facilities required to safely manage their wastes over the short

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[56] Kerrie Blaise and Shawn-Patrick Stensil, "Small Modular Reactors in Canada: Eroding Public Oversight and Canada's Transition to Sustainable Development" in Jonathan L Black-Branch and Dieter Fleck (eds), Nuclear Non-Proliferation in International Law – Volume V – Legal Challenges for Nuclear Security and Deterrence (2020, Asser Press: The Hague) 209 at p. 219 [**Blaise and Stensil, 2020**].
[57] Blaise and Stensil, 2020 at p. 224.
[58] CNSC, REGDOC-2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures, Version 1.2 (September 2020), online: http://www.nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-documents/published/html/regdoc2-9-1-vol1-2/index.cfm#sec-2-1 at s. 2.1 [**CNSC, REGDOC-2.9.1**, **Version 1.2**].
[59] Blaise and Stensil, 2020 at p. 211.

and long terms."[60] By placing this financial burden on the polluter, there arises an economic interest for the producers of waste to engage in management and monitoring practices that would reduce the costs of environmental clean-up.

While the Draft EIS indicates that the proposed project would be "fully self-funded, and would not require any financial support from federal or provincial authorities,"[61] there is no indication within the Draft EIS of the anticipated costs for closure, or how much money would be set aside for monitoring the site post-closure, when NexGen would seek to absolve itself from maintaining the site. Because there are no management plans, monitoring and follow-up programs, or decommissioning and reclamation plans concretely provided within the Draft EIS,[62] it is not possible to determine whether there are adequate monitoring and management programs in place to protect future generations from environmental harm. CELA **submits** that NexGen must be responsible for its emissions into the environment in line with the polluter-pays principle, and is obligated to offset said emissions.

Recommendation 3: In order to fulfill *CEAA 2012*'s purpose promoting sustainable development and upholding international climate commitments, NexGen must incorporate climate change *within* sustainability, specifically applying a presumption of harm approach towards the projects that would depend on the uranium produced by the proposed Rook I Project.

Recommendation 4: The Purpose of this Project needs to be re-assessed to ensure that the information before the CNSC is grounded in sustainability, and does not contribute to irreversible environmental effects at a local or global scale.

Recommendation 5: The EIS should be updated to include management plans, monitoring and follow-up programs, or decommissioning and reclamation plans to allow the CNSC to consider the sustainability of the project and the measures that would be implemented to protect future generations from environmental harm.

Information Request 3: NexGen should an estimate of the costs required to adequately close, as well as monitor the mine site post-closure, in order to adhere with the polluter-pays principle.

[60] CNSC, "Oversight of Canada's Framework for Radioactive Waste Management" (April 2018) CNSC Fact Sheets, online: https://nuclearsafety.gc.ca/eng/resources/fact-sheets/oversight-canada-framework-radioactive-waste-management.cfm
[61] Draft EIS at p. 1-17.
[62] Draft EIS at pp. 23-12 and 23-17: the proponent indicates in the Summary of Mitigation, Monitoring and Follow-Up Programs section of the Draft EIS that these plans would be further developed if the EA is approved.

3. Cumulative Effects Assessment

One of the purposes of *CEAA 2012* is to encourage the study of cumulative effects of physical activities in a region and the consideration of those study results in environmental assessments.[63] Cumulative effects assessment is also a mandatory factor in an EA, pursuant to section 19(1)(a):

> **19 (1)** The environmental assessment of a designated project must take into account the following factors:
>
> > **(a)** the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out [emphasis added][64]

For EAs conducted by the CNSC, the approach and methods used by an applicant to identify and assess cumulative effects should be consistent with *Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012* ("*Cumulative Effects OPS*").[65] The *Cumulative Effects OPS* was prepared by then Canadian Environmental Assessment Agency ("CEA Agency") (which has now been replaced by the Impact Assessment Agency ("IAAC")) to assist proponents in complying with the cumulative effects assessment factor enumerated in *CEAA 2012*.[66]

The *Cumulative Effects OPS* sets out a 5-step framework that should be followed when conducting a cumulative effects assessment:

> **Step 1: Scoping**
> Step 1 defines the scope of the assessment. This includes identifying VCs for which residual environmental effects are predicted, determining spatial and temporal boundaries to capture potential cumulative effects on these VCs, and examining the relationship of the residual environmental effects of the designated project with those of other physical activities. Scoping helps determine which VCs should be carried forward to Step 2 analysis.

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[63] *CEAA 2012* at s. 4(1)(i).
[64] *CEAA 2012* at s. 19(1)(a), *emphasis added*.
[65] CNSC, REGDOC-2.9.1, Version 1.2 at Appendix A.3.5.
[66] CEA Agency, Operational Policy Statement *Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012*, Version 2, Ottawa, Canada, (2018), online: https://www.canada.ca/content/dam/iaac-acei/documents/policy-guidance/assessing-cumulative-effects-ceaa2012/assessing-cumulative-environmental-effects.pdf [**Cumulative Effects OPS, 2018**].

Step 2: Analysis
Step 2 considers how the physical activities examined during Step 1 may affect the VCs identified for further analysis in Step 1. Step 2 addresses those VCs within spatial and temporal boundaries determined for the assessment of cumulative effects.

Step 3: Mitigation
Step 3 aims to identify technically and economically feasible measures that would mitigate adverse cumulative effects. Mitigation may include elimination, reduction or control or, where this is not possible, restitution measures such as replacement, restoration or compensation should be considered.

Step 4: Significance
Step 4 is concerned with determining the significance of any adverse cumulative environmental effects that are likely to result from a designated project in combination with other physical activities, taking into account the implementation of mitigation measures.

Step 5: Follow-up
Step 5 involves the development of a follow-up program that addresses both project-specific environmental effects and cumulative effects. A follow-up program verifies the accuracy of the EA and determines the effectiveness of any mitigation measures that have been implemented.[67]

In order to properly execute this 5-step process, it is crucial to understand the types of cumulative effects that may be captured for analysis through the scoping process namely:

- Additive (the sum of individual effects of two or more physical activities);
- Synergistic (results from the interaction between two or more effects, when the resultant combination is greater or different than the simple addition of the effects);
- Compensatory (effects from two or more physical activities that "offset" each other); and
- Masking (effects of one project might mask or hide the effects of another in the field).[68]

CELA **submits** that the cumulative effects assessment conducted within the Draft EIS is insufficient, as it lacks crucial environmental data needed to complete the 5-step process of a cumulative effects assessment.

First, the scoping of VCs, spatial boundaries and temporal boundaries is inadequate, and without proper scoping, the rest of the cumulative effect assessment is disoriented and lacking key details required for analyzing the cumulative effects on VCs relevant to the project. CELA provides a

[67] Cumulative Effects OPS, 2018 at p. 5.
[68] Cumulative Effects OPS, 2018 at pp. 42-44.

breakdown of the inadequacies of valued component identification at Section IV.B.2. CELA also determined that the scoping of some spatial and temporal boundaries is too narrow, which narrows the identification of physical activities that may interact with the project and identified VCs. Details about the narrow scoping of spatial and temporal boundaries are provided in Section IV.B.2 of this submission.

Second, when conducting the analysis of environmental effects on the various VCs identified by the proponent, the Draft EIS does not clearly state what type of cumulative effect (e.g., additive, synergistic, compensatory, or masking) is being analysed. The Draft EIS does not provide a general explanation of the different types of cumulative effects. CELA **submits** that the providing a backgrounder of cumulative effects within the EIS would benefit the public in understanding how environmental effects are being analysed by the proponent. The Cumulative Effect OPS notes that "environmental effects of other physical activities can interact with those of the project in various ways. For example, some effects may simply be additive, while others may result in effects greater than if they had occurred on their own."[69] By clearly identifying the types of cumulative effects considered by the proponent for each VC, it is easier to determine that the proponent effectively assessed *how* the cumulative effects are acting on VCs.

For example, one wildlife VC identified within the Draft EIS is the little brown myotis. In the significance determination of the residual effects on little brown myotis, the Draft EIS points out that climate change will have permanent effects on survival and reproduction, stating:

> The peak abundance of some insects may shift as a result of climate change, which could limit survival of reproductive females and pups. It is unclear how climate change may affect the spread of WNS in the boreal portions of Canada and if winter temperatures would remain low enough to limit its sustained presence in bat populations (Layng et al. 2019). As discussed in previous subsections, there is a high degree of uncertainty in the direction and magnitude of effects from the climate change in the RSA.[70]

What is not clear within the Draft EIS is whether the cumulative effects assessment considered how climate change may mask the Rook I Project's potential effects to abundance of insects due to habitat disturbance in construction, or day-to-day operations on the site. This masking could ultimately result in a synergistic effect of depleting the primary food sources of regional little brown myotis, and therefore amplify significant adverse effects on the survival of the regional little brown myotis. To truly understand how the different cumulative effects associated with the little brown myotis are assessed, the Draft EIS must show that all the relevant types of cumulative effects were identified by the proponent. CELA **recommends** that the EIS be updated to clearly identify all the types of cumulative effects that were assessed for each VC.

[69] Cumulative Effects OPS, 2018 at p. 32.
[70] Draft EIS at p. 14-279.

Third, CELA **submits** the Draft EIS lacks accessible details surrounding the examination of different physical activities. The *Cumulative Effects OPS* provides guidance on examining physical activities that have been and will be carried out, which is a part of the scoping step. With regards to outcome documentation, the *Cumulative Effects OPS* emphasizes that the outcome of this scoping element should be clear, and that a table or matrix may be useful for presenting information regarding the rationale for including each physical activity identified and the VCs that they may effect.[71] This section of the *Cumulative Effects OPS* provides a sample matrix structure that could be used in a cumulative effects assessment to display this information.

CELA has reproduced this sample matrix at **Figure 1**, as the intervenor highly recommends this type of matrix be implemented in the EIS to provide clarity surrounding the different physical activities identified and the VCs that they may effect.

When reading through the Draft EIS, there are various physical activities revealed that one would expect to be included within a cumulative effects assessment. For example, Figure 1.2-1 in the Draft EIS shows a map which sets out the location of the Rook I Project in the context of northern Saskatchewan.[72] In addition to the populated places, and First Nation Reserves of the region, this map also identifies active uranium mining facilities, decommissioned uranium mining facilities, provincial parks, highways, and the Preston Lake Wildlife Preserve. However, throughout the various cumulative effects assessments, there is no specific mention of these sites. In fact, there is hardly any mention of decommissioned uranium mining facilities as physical activities that could interact with this project.

While CELA suspects that the omission of various uranium facilities is due to boundary scoping deficiencies, readers of the Draft EIS would benefit from understanding which physical activities were selected for analysis in the context of each VC. Furthermore, the Draft EIS has a tendency to discuss the proposed Patterson Lake South Property, planned by Fission Uranium Corp. as a designated reasonable foreseeable development ("RFD") for most VCs.[73] In the specific case of the woodland caribou VC, the assessment also included the physical activities associated with the future harvest areas of Carrier Forest Products and Mistik Management Ltd. Forest Management Plans, which are located south of La Loche and well outside of the Regional Study Area ("RSA"). These were included because both companies operate within the SK2 West Caribou Administration Unit.[74] The variables in selecting physical activities to analyze in the cumulative effects assessment should be clearly presented within the EIS to ensure that the EA conducted for Rook I Project is thorough and can truthfully come to the determination that no adverse effects are anticipated.

[71] Cumulative Effects OPS, 2018 at p. 30.
[72] Draft EIS at p. 1-20.
[73] Draft EIS at p. 6-21.
[74] Draft EIS at p. 14-35.

CELA therefore **recommends** that NexGen adopt a matrix structure like **Figure 1**, below, in order to provide clarity about the physical activities identified within the cumulative effects assessment.

Figure 1: Example of a Matrix Structure for Outcome Documentation[75]

Past, Existing, and Future Physical Activities in a Largely Undeveloped Area	Valued Components				
	1	2	3	4	Description
Physical Activity A	✓	✓			This future physical activity is reasonably foreseeable, since it is currently under regulatory review. It has the potential of affecting VC#1 & VC#2, given the nature of the physical activity and predicted effects pathways within the spatial boundaries established for these VCs. Furthermore, such effects on VC#1 & VC#2 are likely to occur within the same timeframe as the potential effects of the project on the same VCs. The effects of Physical Activity A and those of the project therefore both fall within the established temporal boundaries for VC#1 and VC#2. The environmental effects of Physical Activity A on these two VCs will be considered further in the Step 2 analysis.
Physical Activity B	✓	✓	✓		This is a past activity that will yield useful information about potential future effects on VC#1, VC#2 and VC#3.
Physical Activity C			✓	✓	This is a certain future physical activity with potential effects on VC#3 and VC#4. In the context of the area, it can be considered induced development.
Physical Activity X					This activity is not expected to affect any of the VCs identified for the cumulative effects assessment, therefore it is not included.

Recommendation 6: NexGen needs to rectify the deficiencies in the cumulative effects assessment by reconducting the scoping phase in accordance with CELA's VC and boundary recommendations.

Recommendation 7: The EIS be updated to clearly identify all the types of cumulative effects that were assessed for each VC.

Recommendation 8: The EIS should include a matrix or table which would present information regarding rationale for including each physical activity identified and the VCs that they may effect.

B. The Draft EIS Fails to Consider Key EA Factors Required by *CEAA 2012*

CELA **submits** that NexGen's draft EIS's consideration of "environmental effects" is grossly inadequate as the EIS reaches a finding of "no significant adverse effects on biophysical VCs predicted for the Project or for the Project in combination with RFDs, with the exception of woodland caribou", is rooted in insufficient environmental data.

This section addresses the Draft EIS's shortfalls in considering environmental effects, the inadequate assessment of malfunctions and accidents associated with the project, and the

[75] Cumulative Effects OPS, 2018 at p. 30. *Note:* "WNS" stands for white-nose syndrome.

insufficient details provided in the Alternative Means analysis. These three factors, which are set out in sections 19(1)(a) and 19(1)(g) of *CEAA 2012* respectively, must be adequately considered and addressed within a proponent's EIS in order to accurately determine whether adverse environmental effects are expected to arise from the proposed project.

1. Environmental Effects and Valued Components

As set out section 4(1)(b) of the Act, avoiding significant adverse environmental effects requires a designated project to be considered in a careful and precautionary manner. To do so, section 19(1)(a) requires an EA to consider: "the environmental effects of the designated project, including …. any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out"[76]

As indicated within the *Cumulative Effects OPS*, the first step in a cumulative effects assessment is the scoping of the assessment, which includes identifying VCs for which residual environmental effects are predicted, and the spatial and temporal boundaries which capture the potential cumulative effects of identified VCs.[77] If a cumulative effects analysis is not completed thoroughly, there is a greater uncertainty in determining whether there will be significant adverse environmental effects.

The *Generic Guidelines for the Preparation of an Environmental Impact Statement—Pursuant to the Canadian Environmental Assessment Act, 2012* [the "Guidelines"] is a guiding document prepared by the CNSC to assist proponents with the preparation of an EIS in compliance with *CEAA 2012*.[78] The *Guidelines* discuss the scope of the environmental assessment, and specifically discuss valued components (VCs), and spatial and temporal boundaries. The EIS must provide a rationale for selecting specific VCs (e.g., its role in an ecosystem, or scientific, social, cultural, economic, historical, archeological or aesthetic values). Rationale for including or excluding a VC must be provided. The *Guidelines* note that examples of justification include: "primary data collection, computer modelling, literature references, public consultation, expert input or professional judgement."[79]

In terms of spatial and temporal boundaries, the *Guidelines* explain that these boundaries may vary depending on the VC and will be considered separately for each VC. When defining these boundaries, a proponent is encouraged to consult with: "…the CNSC, federal and provincial

[76] *CEAA 2012* at s. 19(1)(a). Section 19(1)(b) of *CEAA 2012* requires the significance of these effects to be considered.
[77] Cumulative Effects OPS, 2018 at p. 5.
[78] CNSC, Generic Guidelines for the Preparation of an Environmental Impact Statement—Pursuant to the Canadian Environmental Assessment Act, 2012, (2021), online: http://www.nuclearsafety.gc.ca/eng/resources/environmental-protection/ceaa-2012-generic-eis-guidelines.cfm [**CNSC, Generic Guidelines**].
[79] CNSC, Generic Guidelines at s. 5.2.1.

government departments and agencies, local government and Indigenous groups. It is also encouraged to take into account public comments when defining the spatial boundaries used in the EIS."[80]

To ensure that the EIS provides an accurate representation of the potential environmental effects associated with the Rook I Project, CELA provides a series of recommendations and information requests that seek to fill gaps in the scoping of VCs, and the spatial and temporal boundaries. By rectifying these deficiencies, NexGen will be able to amend the cumulative effects assessment that is required under *CEAA 2012*.

Valued Components Assessment

This section provides a series of recommendations for the scoping of valued components (VCs). Some of CELA's concerns arise from gaps in the analysis of certain VCs and rationale for excluding other VCs.

The Draft EIS identified the following VCs to scope the cumulative effects assessment:

- Climate change;
- Fish and fish habitat (Lake trout, Lake whitefish, Walleye, and Northern pike);
- Vegetation (upland ecosystems, wetland ecosystems, riparian ecosystems, and Traditional use plants);
- Wildlife and wildlife habitat (Woodland caribou, Moose, Wolf, Black bear, Beaver, Little brown myotis, Olive-sided flycatcher, Mallard, Goldeneye, Rusty blackbird, and Canadian toad);
- Human Health (camp worker, subsistence harvester, seasonal resident/ lodge operator, future permanent resident of the Patterson Lake North Arm area);
- Cultural and heritage resources;
- Indigenous land and resource use;
- Other land and resource use;
- Economy; and
- Community well-being.[81]

In addition to the VCs, the Draft EIS assessed "intermediate components", which include physical attributes of the biophysical environment or media upon which VCs rely, such as air quality and hydrology. The identified intermediate components in the Draft EIS are:

- Air Quality;

[80] CNSC, Generic Guidelines at s. 5.2.2.
[81] Draft EIS at pp. 6-12—6-13 (Table 6.3-1).

- Noise;
- Hydrogeology (groundwater quality and quantity);
- Hydrology;
- Surface Water Quality;
- Sediment Quality; and
- Terrain and Soils.[82]

CELA **strongly urges** that the following requests and recommendations be rectified within the EIS to ensure there is a proper cumulative effects assessment conducted.

a) Intermediate Components

CELA **submits** that the classification of certain components as "intermediate components" is does not comply with the parameters of *CEAA 2012*. In "Section 6, Environmental Assessment Approach and Methods", the Draft EIS indicates that these components do not undergo the complete cumulative effects assessment process (i.e., no significance criteria):

> Intermediate components are identified using the same process described for VCs (Section 6.3.1, Valued Components). Similarly, VCs and intermediate components are assessed using the same steps. However, unlike VCs, intermediate components do not have assessment endpoints or significance criteria. The significance of changes in intermediate components can only be evaluated in the context of related influences to VCs, which are the ultimate receptors. As an example, changes to surface water quality cannot be evaluated without the context of what these changes would mean to fish, vegetation, wildlife, and human health VCs. The determination of significance requires a defined assessment endpoint or threshold, and thresholds for water quality are related to guidelines, which are explicitly linked to the health of aquatic organisms and people. Therefore, the consequences and significance of changes in surface water quality were evaluated in the context of those VCs.[83]

The *Guidelines* state that "in the EIS, the applicant should include a detailed analysis of the significance of each residual effect. The applicant should clearly explain the method and definitions used to describe the level of the residual adverse effect (e.g., low, medium, high) for each of the criteria assessed."[84] CELA **submits** that claiming that the significance of changes in intermediate components can only be evaluated in the context of related influences to VCs, which are the ultimate receptors, is a narrow view that diminishes the inherent value of components like air quality, for example. Components like air quality have been treated as valued components in

[82] Draft EIS at pp. 6-14—6-15 (Table 6.3-2).
[83] Draft EIS at p. 6-14.
[84] CNSC, Generic Guidelines at s. 10.

the EAs of other projects in Canada.[85] Additionally, the decision to deem some components as intermediate and others as valued, is inconsistent with the assessment of climate change, which was identified as a VC that has an influence on other VCs and the Project itself.[86] This treatment of climate change could easily be applied to the components identified as intermediate components, because from a sustainable, holistic lens, all the VCs interact and influence one another in some manner. If climate change can undergo a full cumulative effects assessment, then surface water quality, and the other intermediate components, require the same level of assessment.

CELA **requests** that the components identified as "intermediate components" should be assessed in the same manner as "valued components" and must undergo the full 5-step framework for conducting a cumulative effects assessment.

b) Climate Change[87]

As stated, climate change was deemed to be a VC requiring a cumulative effects assessment. Climate change has an interesting role with the environmental assessment of this project, as it is not only treated as a VC, but is considered in the context of other intermediate components and VCs, as well as potential effects of the environment on the Project.[88]

As a VC, the Draft EIS considers the influence of Project greenhouse gas ("GHG") emissions on climate change. The Draft EIS identified the following GHG emission sources:

- Electricity generation;
- On-site mobile equipment;
- Heating;
- Land-use change;
- Stationary combustion;
- Waste incinerators;
- Industrial processes; and
- Explosives.[89]

[85] *See for example:* Pacific NorthWest LNG, "Environmental Impact Statement and Environmental Assessment Certificate Application" (February 2014), online: https://www.ceaa-acee.gc.ca/050/documents/p80032/98680E.pdf at Section 6: Air Quality. This EIS notes: "Air Quality is a valued component (VC) because of its intrinsic importance to the health and wellbeing of people, wildlife, vegetation and other biota. The atmosphere is an important pathway for the transport of contaminants to the freshwater, terrestrial and human environments."
[86] Draft EIS at p. 7-1.
[87] *See* Draft EIS Section 7, Air Quality, Noise, and Climate Change.
[88] Draft EIS at p. 7-1.
[89] Draft EIS at Appendix 7C Greenhouse Gas Emissions Estimation Methodology Report, Table 7C-1: Greenhouse Gas Emission Sources.

What appears to be absent from the GHG emission sources is the estimated emissions associated with flights to and from the project site over the course of operations, as well as vehicular emissions associated with transporting conventional waste disposal (hazardous) off-site, decommissioning demolition waste disposal (hazardous) off-site, and bringing uranium to market. Omitting these sources from the GHG emissions results in the full extent of GHG emissions for this project being downplayed.

CELA **requests** that NexGen provide estimates for the GHG emissions associated with flights to and from the project site, and off-site transportation (e.g. off-site waste disposal during operations and decommissioning phases, and the delivery of finished product to market). CELA also **requests** NexGen to provide an estimate on the number of anticipated flights annually during the project's operations.

c) ***Fish and Fish Habitat***[90]

The Draft EIS identified four fish species (i.e., lake trout, lake whitefish, walleye, and northern pike) to represent the Fish and Fish Habitat VCs in the EA. NexGen noted that these four species were selected "…based on the respective roles and linkages of each species in the ecosystem and food web, the high traditional and cultural importance of these species to local communities, and the species' presence within nearby waterbodies and watercourses."[91]

When determining which fish to select as VCs, there were 10 fish species identified (including the 4 species selected). The six species that were not selected as VCs were:

- White sucker;
- Longnose sucker;
- Burbot;
- Yellow perch;
- Cisco; and
- Arctic grayling.[92]

The proponent's rationale for fish VC selection was: "…to capture a range of potential effects of the Project on fish and fish habitat, while simultaneously avoiding redundancy by selecting one representative species when multiple species occupy a similar ecological niche and/or functional role in the aquatic food web."[93]

[90] *See* Draft EIS Section 11, Fish and Fish Habitat.
[91] Draft EIS at Section 11 Executive Summary.
[92] Draft EIS at pp. 11-15—11-16.
[93] Draft EIS at p. 11-17.

CELA **submits** that "avoiding redundancy" is not an acceptable rationale for excluding species of fish from the cumulative effects assessment. Furthermore, excluding certain species because they were "mentioned relatively infrequently by communities during engagement compared to species retained as VCs,"[94] is not a sufficient reason for exclusion. This line of reasoning pan-Indigenizes the communities that were consulted by NexGen. For example, the Clearwater River Dene Nation ("CRDN") identified grayling as a species that is considered important to community members.[95] The reasons for excluding the Arctic Graying from being a VC are as follows:

- Infrequently captured during the 2018 and 2019 baseline surveys (Annex V.1). A single Arctic grayling was captured during the baseline surveys, in the Clearwater River downstream of Naomi Lake. Therefore, this species is not representative of effects in the RSA.
- Functional role as forage species overlaps with that of lake whitefish, which has been included as a VC. Additionally, there is overlap with northern pike, which has been included as a VC, and is considered suitable for assessing potential changes to watercourse habitats.
- Number of comments received from communities about the importance of Arctic grayling was minimal compared to species that have been included as VCs.[96]

Because the other consulted communities did not refer to the Arctic Grayling, it was excluded, thus dismissing its value to the CRDN. Additionally, the infrequency of capture during baseline studies should not be a reason for excluding this species, as its presence has been indicated by the CRDN. By dismissing the low frequency of grayling captures as deeming the species as being non-representative of effects in the RSA, any underlying issues surrounding grayling populations go unnoticed, and the cumulative effects of the project would go undetected on this species.

CELA **submits** "avoiding redundancy" is not an acceptable reason for excluding fish species from VC scoping, and when selecting fish VCs, rationale come from a balancing of the recommended lines of reasoning: primary data collection, computer modelling, literature references, public consultation, expert input or professional judgement.[97] As a result, the scoping of fish species VCs needs to be restarted to ensure that the cumulative effects assessment accurately captures the potentially adverse environmental effects that would require mitigation and monitoring.

Because of the narrow scoping of fish VCs, NexGen has made determinations that do not adequately reflect the potential impacts of all relevant fish species in the RSA:

[94] Draft EIS at p. 11-13.
[95] Draft EIS at p. 11-13.
[96] Draft EIS at p. 11-16.
[97] CNSC, Generic Guidelines at s. 5.2.1.

> The predicted effects from the Project would not have a significant adverse effect on the assessment endpoint for fish and fish habitat. Although changes to habitat availability and survival and reproduction are possible, the predicted effects would be within the resilience and adaptability limits for the four fish VCs.[98]

CELA **requests** that the EIS be updated with a new cumulative effects assessment to reflect a proper selection of fish VCs.

d) Terrain and Soils [Intermediate Component][99]

In the discussion of project activities that would have the potential to affect terrain and soils during the project lifespan, NexGen noted that "As the pathways associated with these activities[100] do not have the potential to overlap with the pathways of the Fission Patterson Lake South Property, only the potential effects of the project were considered in the subsequent steps of the assessment process."[101] CELA suggests that the activities at the proposed Fission Patterson Lake South Property would be similar to that of the Rook I Project, including changes to air and water quality (which in turn could impact terrain and soils within the RSA). Given that these two proposed projects would be operating along the shores of Patterson Lake, there is potential for the Fission Patterson Lake South Property to adversely impact the air and water quality within the RSA, which in turn could impact the Rook I Project's activities cumulatively in the context of terrain and soils.

The Draft EIS goes on to identify climate and natural disturbance factors that can effect terrain and soils, namely:

- Increased precipitation can cause groundwater levels to rise, which can increase mobility of solutes for the soil to waterbodies. The removal of solutes can negatively change soil quality due to the decrease in available soil nutrients; and

- Forest fires in boreal environments can remove vegetative cover, increase erosion potential, and affect soil nutrients.[102]

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[98] Draft EIS at p. 20-4, Table 20.3-1.
[99] *See* Draft EIS Section 12, Terrain and Soils.
[100] NexGen identified the following activities that could affect terrain and soil:
- Land clearing;
- Site preparation;
- Construction of facilities and infrastructure;
- Handling of ore and waste rock;
- Changes to air and water quality; and
- Other supporting mining construction, operation, and decommissioning and reclamation activities.

[101] Draft EIS at Section 12 Executive Summary, p. ii.
[102] Draft EIS at p. 12-66.

With the potential for groundwater levels to rise, along with forest fires risking increased erosion potential due to climate change, the potential pathways from the Fission Patterson Lake South property should not be ruled out within the context of terrain and soils. CELA **requests** the proponent use the precautionary principle to re-assess potential pathways from the proposed Fission Patterson Lake South Property on the terrain and soils cumulative effects assessment.

e) Vegetation[103]

The Draft EIS claims a moderate to high degree of confidence in the predictions related to changes in vegetation VCs.[104] It is admitted that there is "some uncertainty regarding the quantity, distribution, and ecological function (i.e., condition) of reclaimed ELC units during and after Closure."[105] CELA **submits** there is too much uncertainty surrounding the vegetation VC for NexGen to establish a moderate to high degree of confidence within the assessment. For example, the section's Executive Summary comments:

> Currently, it is unclear whether climate change would positively and/or negatively affect vegetation VCs. Projected future climate extremes indicate a future that is likely to be warmer and wetter on an annual basis. Changes to upland ecosystems would likely be driven by shifts in the fire regime, which is closely related to weather and climate; such changes would be permanent and occur beyond the RSA scale. Wetland ecosystems may be adversely affected by climate change as these ecosystems are considered one of most sensitive to changes in precipitation and temperature.[106]

The *Cumulative Effects OPS* urges that:

> Caution should be exercised if the degree of uncertainty is unusually large (e.g., effects are expected in the future, but it is not possible to predict whether they will improve or harm a particular VC). In these cases, predictions will be highly sensitive to the assumptions made. Relying on a particular assumption could result in a faulty conclusion. It would therefore be appropriate to present the results as a range, in line with the range of underlying assumptions.[107]

Given the high degree of uncertainty surrounding the effects of climate change on the vegetation VC, CELA **recommends** that the proponent re-evaluate its confidence level of moderate to high, as this determination likely arose from a faulty conclusion based on uncertain climate change assumptions.

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[103] *See* Draft EIS Section 13, Vegetation.
[104] Draft EIS at p. 13-167.
[105] Draft EIS at p. 13-167. Note: "ELC" means "Ecological land classification".
[106] Draft EIS at Section 13 Executive Summary, p. vi, *emphasis added*.
[107] Cumulative Effects OPS at p. 39.

CELA also **submits** that the vegetation VC assessment is missing data to assess. During the discussion of Valued Components, the Draft EIS states:

> Habitat requirements for species that are not well known or understood (i.e., tracked bryophytes, such as mosses, and lichens) were excluded as VCs because of the high degree of uncertainty associated with the distribution of these taxa (e.g., species) within the area of the anticipated Project (and generally in Saskatchewan) (DeVries and Wright 2015) and because such organisms often require detailed chemical or taxonomic procedures for their identification (Eldridge et al. 2003).[108]

Excluding this information is not advised by the Canadian Environmental Assessment Agency/Impact Assessment Agency, as the *Cumulative Effects OPS* explains that "where there is little supporting data, or where there is predictive uncertainty, the assessment of cumulative effects should still be conducted."[109] The exclusion of data surrounding the habitat requirements for mosses and lichens is not only problematic for the vegetative VC assessment, but the woodland caribou assessment as well, since lichens are a part of this species' diet. CELA **requests** that the EIS include the habitat requirements for tracked bryophytes—despite the lack of data available. CELA **requests** that the proponent conduct studies of bryophyte habitat requirements to assist in filling in the gaps in knowledge.

Additionally, as mentioned for the fish and fish habitat VC discussion, avoiding redundancy is not an acceptable reason for determining vegetation VCs. Of the multiple considerations involved in selecting vegetation VCs, one consideration listed was "avoidance of redundancy with other VCs; for example, if two potential VCs represent the same attributes, mitigation actions, and potential effects from the Project, only one was evaluated as part of the assessment."[110] CELA **recommends** that any species disqualified from being included as a VC on the grounds of redundancy should be re-evaluated to ensure the cumulative effects assessment of vegetation accurately captures any potential environmental effects requiring mitigation and monitoring.

f) Wildlife and Wildlife Habitat[111]

First, a recurring theme within the Draft EIS's Cumulative Effects Assessment is the scoping of VCs through avoiding redundancy. When selecting wildlife VCs, the Draft EIS explains: "Wildlife VCs were selected to focus the assessment on the primary areas of concern with respect to the Project. In cases where effects would be similar for multiple wildlife species that use similar habitats, only one species was selected as a VC to reduce ecological and assessment

[108] Draft EIS at p. 13-13, *emphasis added*.
[109] Cumulative Effects OPS at p. 30.
[110] Draft EIS at p. 13-10.
[111] *See* Draft EIS Section 14, Wildlife and Wildlife Habitat.

redundancy."[112] CELA **reiterates** that avoiding redundancy should not be a reason when selecting wildlife VCs, and submits there can be no "ecological redundancy" when attempting to understand how an ecosystem operates, and what dynamics exist between different species within the ecosystem.

For the wildlife and wildlife habitat VC, there were 37 species considered, but only 11 were selected as VCs.[113] There were three federally listed species (northern myotis, common nighthawk, and barn swallows) which were not selected as they "are appropriately represented by other by other species."[114] CELA **submits** that federally listed species should not be excluded as VCs simply because they are represented by other species. The point of an EA is not to have the shortest cumulative effects assessment as possible; it is to ensure there is an accurate assessment of significant adverse environmental effects. When sensitive species are excluded from a cumulative effects assessment for the sake of "redundancy", crucial information to shape mitigation and monitoring is lost from the assessment equation.

In addition to federally list species excluded as VCs, CELA **submits** that there are other species worth revising as VCs to assess. For example, the river otter was excluded as a VC for the following reasons:

- They occupy similar habitats as beavers; and
- Assessments of beaver and wetland and riparian ecosystem VCs are representative of effects on river otter.[115]

The Draft EIS indicates that river otters were requested as VCs by Indigenous communities, and there has been an observed decrease in the population of furbearers (such as river otters). With these factors in mind, the river otter would be an excellent choice of a VC. CELA further **submits** that the beaver VC is not representative of the river otter, namely because a beaver is a herbivore, whereas river otters are opportunistic omnivores, whose diet preferably consists of fish.[116] As a distinct species that has an intertwined relation with the fish and fish habitat VC due to its diet, the EIS should reconsider the river otter as a wildlife VC. CELA **requests** that the listed species in Table 14.2-1 of the Draft EIS be re-evaluated to ensure the cumulative effects assessment for wildlife VCs accurately assesses how this proposed project may impact a large variety of species within the RSA.

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[112] Draft EIS at p. 14-12.
[113] Draft EIS at pp. 14-15—14-18, Table 14.2-1: Species Considered for Selection as Valued Components.
[114] Draft EIS at p. 14-11.
[115] Draft EIS at p. 14-16.
[116] Environment and Climate Change Canada, "North American river otter: non-detriment finding" (February 17, 2014) Trade in protected species: non-detriment findings, online: https://www.canada.ca/en/environment-climate-change/services/convention-international-trade-endangered-species/non-detriment-findings/north-american-river-otter.html *See also*: Nature Conservancy of Canada, "Beaver" (no date), Resource Centre, online: https://www.natureconservancy.ca/en/what-we-do/resource-centre/featured-species/mammals/beaver.html

Second, when reviewing the VCs selected by the proponent, there was no identification of insects as potential VCs. According to the Terms of Reference for the Rook I Project, the initial list of VC categories identified in relation to the Environmental Risk Assessment ("ERA") included terrestrial invertebrates and aquatic invertebrates.[117] While benthic invertebrates are referenced throughout the Draft EIS in the context of assessment for fish and fish habitat modelling, [118] and insects are mentioned in passing during climate change discussions,[119] there are no identifiable insect VCs.

While insects may not necessarily deemed economically, or culturally significant, they do play key roles within ecosystems (e.g., playing a key role in food chains, especially for species like little brown myotis). Furthermore, there are a number of arthropods (insects) found on the federal Species at Risk Public Registry which are found in Saskatchewan.[120] There is no mention of any of the listed species from the Species at Risk Public Registry within the Draft EIS. CELA **seeks clarification** on whether NexGen considered insects as wildlife VCs, and whether any federally-listed arthropods were located within the RSA. If the answer to both of these questions is no, CELA **recommends** that the EIS address the absence of insects within the scoping of VCs.

Third, CELA has concerns about the woodland caribou VC. As explained in the Draft EIS, residual adverse effects to woodland caribou are predicted to be significant.[121] Habitat loss, habitat alteration, and sensory disturbance were all identified as pathways for residual effects for woodland caribou.[122]

The Draft EIS notes that the caribou in SK2 West are designated as unlikely to be self-sustaining because the amount of critical habitat available does not meet the threshold of 65% undisturbed habitat, "…even the incremental effects due to the small amount of habitat loss from the Project in SK2 West are predicted to result in a significant adverse effect on caribou in the Application Case."[123] In terms of mitigation measures, the Draft EIS states:

> A Caribou Mitigation and Offsetting Plan would be developed and implemented for the Project, whereby offsets would be used to reduce the residual effects on woodland caribou

[117] Draft EIS at Appendix 1A, p. 12, Table 1A-2: Rook I Project Concordance Table for the NexGen Energy Ltd. Rook I Project Terms of Reference (NexGen 2019).
[118] For example, mentioned at Draft EIS p. 11-1.
[119] For example, Draft EIS at p. 14-37 states: "changes in temperature may lead to increased potential for insect invasion, particularly by mountain pine beetles."
[120] Government of Canada, "Species at risk public registry, species search" (accessed October 8, 2022), online: https://species-registry.canada.ca/index-en.html#/species?ranges=3&taxonomyId=8&sortBy=commonNameSort&sortDirection=asc&pageSize=10. *Note: this search is filtered to Saskatchewan specific species.*
[121] Draft EIS at Executive Summary p. x.
[122] Draft EIS at p. 14-175.
[123] Draft EIS at p. 14-198.

> and provide a net increase in functional habitat for caribou. Offsets may be achieved through a financial mechanism, or through management actions that protect or enhance existing biodiversity. Offset requirements to date for woodland caribou in Canada have primarily focused on habitat restoration, but in some cases financial compensation.[124]

CELA has a number of concerns surrounding the mitigation measures proposed for woodland caribou. Because the Caribou Mitigation and Offsetting Plan is not readily available with the Draft EIS, there is no way to accurately gauge whether this plan would adequate mitigate the significant effects woodland caribou face with this proposed project. This plan should be provided with the EIS in order to have a complete cumulative effects assessment.

CELA also **requests** that NexGen provide details about offsetting through a financial mechanism, and how that will protect both existing and far-future woodland caribou from the environmental effects of this proposed uranium mine.

CELA **requests** clarification on how NexGen intends to balance the mitigation measures required for different VCs. For example, a wildlife and bird deterrents around contact water ponds (e.g., fences, cannons, sonic guns) would be proposed for a project-specific Environmental Protection Program,[125] meanwhile noise suppression is also proposed throughout the site[126] Given that woodland caribou are sensitive to sensory disturbance, how does NexGen balance this issue with the importance of protecting wildlife from contact water ponds by using sensory disturbance devices?

Narrow Scoping of Spatial and Temporal Boundaries

The scoping of spatial boundaries and temporal boundaries should be identified and justified clearly to ensure that potential environmental effects on selected VCs are accurately captured within the cumulative effects assessment. When reading through the Draft EIS, CELA identified a number of concerns related to various spatial boundaries and temporal boundaries identified by NexGen. CELA requests that the following recommendations and information requests be resolved within the EIS before this project undergoes further assessment.

Spatial Boundaries

When determining spatial boundaries, there are a number of different methods that may be utilized, such as: VC-centred spatial boundaries; ecosystem-centred spatial boundaries; activity-centred

[124] Draft EIS at p. 14-356.
[125] Draft EIS at Appendix 23A, Table 23A-1: Summary of Environmental Design Features and Mitigation Measures Proposed for the Project including Linkages to Management and Monitoring Programs and Plans.
[126] Draft EIS at Appendix 23A, Table 23A-3: Summary of Environmental Design Features and Mitigation Measures Proposed for the Project Pertaining to Air, Noise and Climate Change.

spatial boundaries; administrative, political, or other human-made spatial boundaries; or any other option.[127] Of these approaches, VC-centred spatial boundaries is the option that is generally recommended, as it allows for the most meaningful spatial boundaries to be drawn for the identified VCs undergoing the cumulative effects assessment.[128]

The Draft EIS indicates that NexGen opted for setting spatial boundaries for each VC or for related sets of VCs.[129] When considering the spatial boundaries identified for certain VCs within the Draft EIS, CELA identified several instances in which the scoping is too narrow and the zone of influence ("ZOI")[130] is not accurately captured. CELA requests that the EIS rectify the following spatial boundary scoping issues:

First, CELA submits that the spatial boundaries for VCs (and intermediate components) like hydrology, hydrogeology, and fish and fish habitat are too narrow. For the Hydrological assessment, for example, the local study area ("LSA") encompassed the Clearwater River watershed to Naomi Lake outlet, and the RSA encompassed the Clearwater River watershed above the Mirror River confluence.[131]

Figure 1.2-1, Location of the Rook I Project within the Draft EIS indicates the project's proximity to Lake Athabasca.[132] A map of major basins within Saskatchewan prepared by the Saskatchewan Water Security Agency indicates that the project Lake Athabasca Basin.[133] CELA **submits** that the scoping of spatial boundaries for VCs associated with water should encompass the Lake Athabasca Basin. By considering a wider watershed ZOI for these VCs, there will be a better identification of potential environmental impacts from activities within the watershed.

For example, north of the Rook I Project rests the decommissioned Cluff Lake uranium mill and mine, which is also situated within the Lake Athabasca Basin. This mine closed in 2002 and is currently in a long-term monitoring and maintenance phase.[134] This mine has been a topic of concern amongst Indigenous groups and other local communities according to the proponent's consultation and engagement opportunities: "Indigenous Groups have expressed concerns regarding potential Project effects on water quality, and have indicated that they are experiencing adverse effects from industrial developments, including mineral exploration activities and the

[127] Cumulative Effects OPS at p.. 14-16.
[128] Cumulative Effects OPS at p. 14.
[129] Draft EIS at p. 6-18.
[130] Cumulative Effects OPS at p. 14: "The ZOI sets a spatial limit beyond which the residual environmental effects of the designated project and other physical activities on a given VC are not detectable."
[131] Draft EIS at Appendix 9A Hydrological Modelling Summary Report, p. 2.
[132] Draft EIS at p. 1-20.
[133] Saskatchewan Water Security Agency, "Major Basins in Saskatchewan" (2013), map, online: https://www.wsask.ca/wp-content/uploads/2021/03/WSA_Major_Basins_M181_8_5X11.pdf
[134] Draft EIS at p. 5-11.

Cluff Lake Mine, which they believe has affected the health of the land and resources."[135] When looking at the maps of various water-centric VCs, Cluff Lake and the history of its activities are not captured within the determined RSAs.[136] CELA **submits** Cluff Lake is a physical activity that is should be considered within the context of various water-centric VCs.

Additionally, the use of the Lake Athabasca Basin as an aquatic spatial boundary for various VCs would allow projects surrounding Lake Athabasca (e.g., former projects in the Uranium City region) to be considered during the cumulative effects analysis phase.[137] Considering these projects in the context of hydrological processes ensures that cumulative effects analyses are not shaped by shifting baseline syndrome. Therefore, CELA **recommends** that certain VCs would benefit from spatial boundaries being refined ecologically (e.g., utilizing watershed boundaries).

Second, CELA requests that information be provided concerning the baseline RSA for the Vegetation VC. The Draft EIS states:

> The RSA includes the LSA, Forrest Lake, Beet Lake, Naomi Lake, and the watershed east and north of the confluence of the Clearwater and Mirror rivers as described in the hydrology assessment (Section 9.2.3, Spatial Boundaries). The RSA also overlaps the transition between the Boreal Plain and Boreal Shield ecozones and likely includes any potential variability in diversity between the two ecozones. The combined coarse- and fine-filter approach applied to the assessment of vegetation (Section 13.2.2.1, Valued Components) and wildlife VCs (Section 14.2.2.1, Valued Components) and the assessment of fish and fish habitat (Section 11.2.3, Spatial Boundaries) at the watershed scale and represents the use of both VC- and ecosystem-centred approaches to defining the RSA (CEA Agency 2018) and in determining Project effects on overall biodiversity.[138]

The RSA covers approximately 107,491 ha (1,075 km2), and is "…expected to be at a scale suitable for assessing the significance of effects on upland, wetland, riparian ecosystems and traditional use plants distributed inside the RSA.".[139] The Draft EIS provides a map displaying the vegetation baseline and assessment study areas at Figure 13.2-1.[140] When comparing the Vegetation RSA with the baseline RSA used by Omnia Ecological Serves (Omnia) to conduct

[135] Draft EIS at p. 8-61 (Hydrogeology Section).
[136] See for example, Draft EIS at pp. 11-23—11-24: Figures 11.2-1 and 11.2-2 highlight the Aquatic Environment Baseline Study Area and the Fish and Fish Habitat Assessment Study Areas in the context of the Fish and Fish Habitat VC.
[137] Saskatchewan Geological Survey (2022): Resource Map of Saskatchewan, 2022 Edition; Saskatchewan Ministry of Energy and Resources, Saskatchewan Geological Survey, Miscellaneous Report 2022-1, online: https://publications.saskatchewan.ca/api/v1/products/84143/formats/112504/download
[138] Draft EIS at p. 13-16.
[139] Draft EIS at p. 13-15.
[140] Draft EIS at p. 13-18.

vegetation surveys, there is a large size discrepancy in the boundaries of these two different RSAs. The baseline LSA used by Omnia includes the entire footprint of the assessment LSA.[141]

The Draft EIS notes "Baseline study areas were selected with limited knowledge of the precise location and layout of the Project footprint to be used in the assessment. As a result, the baseline study areas are different than the spatial boundaries or assessment study areas defined for the EA, which were based on more recent and detailed Project design information."[142] CELA **submits** that there is a drastic difference between the baseline RSA and the assessment RSA, which impacts the understanding of the existing environmental conditions within the vegetation VC's RSA. While having limited knowledge of precise location and layout of the Project during the baseline study stage is somewhat understandable, this degree of variance in study area size impacts the accuracy of the cumulative effects assessment conducted for the vegetation VC. Vegetation plays a key role in ecosystem health, and interacts with. Numerous VCs selected for this project.

Therefore, CELA **requests** a revised baseline study for the vegetation VC be conducted to accurately reflect the established RSA. CELA **submits** the EA process for this Project should be paused until a more accurate cumulative effects assessment is conducted for the vegetation VC, following the revised baseline study within the vegetation RSA.

Temporal Boundaries

When determining temporal boundaries, there are a number of different methods that may be utilized, such as: VC-centred temporal boundaries; ecosystem-centred temporal boundaries; activity-centred temporal boundaries; or any other option.[143] The Activity-centred temporal boundary option may help inform the setting of temporal boundaries, but it should not be used in isolation: Focusing purely on physical activities for setting temporal boundaries may create a number of issues:

- time horizons of physical activities may not align well with consequential environmental effects on VCs (i.e., the lag time it might take a VC to respond to or recover from an environmental effect may extend beyond the phases of physical activities);
- this approach may not reflect natural variation in the VC over time, or its continuing evolution in response to effects from current or past physical activities; and
- temporal boundaries could stretch too far into the past or future, requiring extra effort to support the analysis, or may require information that cannot be obtained, as

[141] Draft EIS at p. 13-15: there is even 1.6km buffer to the preliminary Project site layout for the scoping of the baseline LSA, meaning that all of the LSA and then some is captured by baseline studies.
[142] Draft EIS at p. 13-16.
[143] Cumulative Effects OPS at pp. 19-20

> uncertainty generally increases the farther into the future the temporal boundary is extended.[144]

The Draft EIS provides the following rationale for temporal boundary scoping:

> The temporal scope of the EA focuses on the 43-year period from initial Construction to the end of Decommissioning and Reclamation (i.e., Closure). The temporal scope of the EA is intended to evaluate the shorter- and longer-term changes from the Project and the associated Project-specific and cumulative effects on biophysical, cultural, and socio-economic environments.[145]

While the temporal scope varies by VC, the minimum temporal boundary for the EA is defined by the Construction, Operations, and Closure [which consists of an Active Closure phase and a Transitional Monitoring phase] Phases.[146] Furthermore, the Draft EIS states: "in certain circumstances, the duration of effects may extend beyond specific phases of the Project, including Closure, depending on the physical, biological, social, and/or cultural properties and resilience of VCs and intermediate components."[147]

CELA **submits** the Proponent's focus on activity-based temporal boundaries is not appropriate for the Rook I Project, as the environmental effects of a uranium mine require monitoring in perpetuity to protect future generations from radiological impacts.[148] This is precisely one of the issues pointed out within the *Cumulative Effects OPS*—temporal boundaries could stretch too far into the past or future.

While the Draft EIS also notes that "the temporal boundaries used in the EA were specific to the VCs and intermediate components and considered the identified Project phases,"[149] the emphasis of temporal boundaries is grounded within the 43-year scope of the Project's phases, and less so on the VCs being assessed.

For example, for wildlife VCs, the temporal boundaries are project-centric, focusing on the 43-year phase timeline. For woodland caribou, the Draft EIS predicts that effects from habitat loss are predicted to be reversible 40 years after the Active Closure Stage when reclaimed areas have reached defined critical habitat for caribou.[150] Habitat availability, habitat distribution, and survival and reproduction are anticipated to be reversible effects, and NexGen claims that "overall,

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[144] Draft EIS at p. 20.
[145] Draft EIS at. pp. 6-18—6-19.
[146] Draft EIS at p. 6-19.
[147] Draft EIS at p. 6-19.
[148] Draft EIS at p. 6-19, the Draft EIS relies on far-future scenarios for effects that extend beyond the specific phases of the project (i.e., environmental releases more than 5000 years in the future).
[149] Draft EIS at p. 6-19.
[150] Draft EIS at p. 20-6, Table 20.3-1: Summary of Residual Project and Cumulative Effects.

the Project is predicted to contribute little to the existing cumulative effects on caribou."[151] The reversibility of survival and reproduction effects do not neatly fit within the activity-focused temporal boundary timeframe. This is one of the issues with an activity-centred temporal boundary: "time horizons of physical activities may not align well with consequential environmental effects on VCs."[152]

In the case of woodland caribou, the temporal boundary scoping would be better suited through the VC-centred option: "determining temporal boundaries according to each selected VC enables an examination of the unique characteristics of environmental effects on VCs and takes into account the VC's natural variation over time."[153] Therefore, taking this approach to scoping woodland caribou temporal boundaries would better consider the behavioural changes in the caribou associated with Project activities, estimating a recovery period for caribou to feel comfortable returning to the (potentially) restored habitat.

CELA **recommends** that the cumulative effects assessment for the EIS revisit the temporal boundaries of different VCs, and apply more VC-centric or ecosystem-centric modelling for temporal boundaries. The application of an activity-centric temporal boundary arises in too many issues due to the complex timeline of a uranium mine's potential environmental effects which exceed the 43-year operation timeline.

Another issue arising from the scoping of spatial and temporal boundaries is the exclusion of potential physical activities. The Draft EIS notes that there are approximately 92 active mineral dispositions that have been granted to twelve companies which are located within, or partially overlap, with the Project's LSA for other land and resource use VCs, including the project and Fission's mineral dispositions, which are proposed for development.[154] These active mineral dispositions are not included in the Project's assessment of potential physical activities for the cumulative assessment of VCs, because the Draft EIS comments: "although mineral dispositions are in the area, they do not necessarily lead to the development of resources due to the many factors that exist (e.g., resource geology, environment, technical and economic feasibility, markets)."[155]

The exclusion of these dispositions from this project's EA does not align with the rationale for the Rook I Project to be approved; NexGen alleges there is a need for uranium,[156] therefore one would assume that these twelve companies would be interested in exploration processes to potentially develop resources that are allegedly desired in local and global markets.

[151] Draft EIS at p. 20-6, Table 20.3-1: Summary of Residual Project and Cumulative Effects.
[152] Cumulative Effects OPS at p. 20.
[153] Cumulative Effects OPS at p. 19.
[154] Draft EIS at Section 17 Executive Summary, p. ii.
[155] Draft EIS at p. 1-19.
[156] Draft EIS at p. 1-15.

CELA **submits** that given these mineral dispositions would be consistent with the long-term economic of financial assumptions made for the Rook I Project's planning purpose (i.e., the need to produce uranium for market demand),[157] these future physical activities (i.e., future mines) could be considered reasonably foreseeable and should be included in the cumulative effects assessment. They are situated within the LSA for other land and resource use VC (and would likely fall within other VC LSAs or RSAs), and given NexGen's claim of urgent need for uranium, development (even early development) of resource extraction for these mineral dispositions would likely fall within the Rook I Project's temporal boundaries.

Recommendation 9: The components identified as "intermediate components" need to be assessed in the same manner as "valued components" and must undergo the full 5-step framework for conducting a cumulative effects assessment.

Recommendation 10: "Avoiding redundancy" is not an acceptable reason for excluding fish species from VC scoping, and when selecting fish VCs, rationale come from a balancing of the recommended lines of reasoning: primary data collection, computer modelling, literature references, public consultation, expert input or professional judgement. As a result, the scoping of fish species VCs needs to be restarted to ensure that the cumulative effects assessment accurately captures the potentially adverse environmental effects that would require mitigation and monitoring.

Recommendation 11: The EIS should provide an updated cumulative effects assessment for fish and fish habitats to reflect proper selection of fish VCs.

Recommendation 12: The proponent should re-evaluate its confidence level of moderate to high in assessing cumulative effects on vegetation VCs, as this determination likely arose from a faulty conclusion based on uncertain climate change assumptions.

Recommendation 13: Any vegetation species disqualified from being included as a VC on the grounds of redundancy should be re-evaluated to ensure the cumulative effects assessment of vegetation accurately captures any potential environmental effects requiring mitigation and monitoring.

Recommendation 14: Any wildlife species disqualified from being included as a VC on the grounds of redundancy should be re-evaluated to ensure the cumulative effects assessment of wildlife and wildlife habitat accurately captures any potential environmental effects requiring mitigation and monitoring.

[157] Cumulative Effects OPS at p. 26.

Recommendation 15: Federally listed wildlife species (northern myotis, common nighthawk, and barn swallows) should not be excluded from VCs on the grounds of "appropriate representation" by other species.

Recommendation 16: The EIS should be updated with cumulative effects assessment scoping for potential insect VCs.

Recommendation 17: The Caribou Mitigation and Offsetting Plan needs to accompany the EIS in order to determine mitigation measures will effectively reduce residual effects on woodland caribou.

Recommendation 19: The scoping of spatial boundaries for VCs associated with water should encompass the Lake Athabasca Basin.

Recommendation 20: Certain VCs would benefit from spatial boundaries being refined ecologically (e.g., utilizing watershed boundaries), and the proponent should assess whether certain ecological boundaries need to be utilized to provide a more fulsome scope of potential physical activities that may interact cumulatively with the proposed project.

Recommendation 21: The EA process for this Project should be paused until a more accurate cumulative effects assessment is conducted for the vegetation VC, following the revised baseline study within the vegetation RSA.

Recommendation 22: The cumulative effects assessment for the EIS should revisit the temporal boundaries of different VCs, and apply more VC-centric or ecosystem-centric modelling for temporal boundaries. The application of an activity-centric temporal boundary arises in too many issues due to the complex timeline of a uranium mine's potential environmental effects which exceed the 43-year operation timeline.

Recommendation 23: The 92 mineral dispositions located in close proximity to the Rook I Project site should be considered reasonably foreseeable physical activities (future mines), and should therefore be included in the cumulative effects assessment for the Rook I Project.

Information Request 4: NexGen should provide estimates for the GHG emissions associated with flights and off-site transportation, as well as estimates on the number of anticipated flights annually during the project's operations.

Information Request 5: There should be a re-assessment of potential pathways from the proposed Fission Patterson Lake South Property on the terrain and soils cumulative effects assessment, to ensure the precautionary principle is being adhered to.

Information Request 6: The EIS should include the habitat requirements for tracked bryophytes—despite the lack of data available.

Information Request 7: The proponent should conduct studies of bryophyte habitat requirements to assist in filling in the gaps in knowledge.

Information Request 8: The EIS should re-assess the wildlife VCs and include the following species as VCs:

(a) Northern myotis;
(b) Common nighthawk;
(c) Barn swallow; and
(d) River otter.

This is not an exhaustive list of species to reconsider as VCs; the EIS should provide an updated assessment for selecting wildlife VCs that aligns with cumulative effects assessment scoping guidelines.

Information Request 9: NexGen should provide clarification on whether insects were as wildlife VCs, and whether any federally-listed arthropods were located within the RSA.

Information Request 10: NexGen should provide details about offsetting through a financial mechanism, and how that will protect both existing and far-future woodland caribou from the environmental effects of this proposed uranium mine.

Information Request 11: Seeking clarification on how NexGen intends to balance the mitigation measures required for different VCs (e.g., woodland caribou sensory disturbance reduction vs. detracting wildlife from contact water ponds via cannons or sonic guns).

Information Request 12: A revised baseline study for the vegetation VC should be conducted to accurately reflect the established RSA

2. Inadequate Assessment of Accidents and Malfunctions

Another enumerated factor within *CEAA 2012* that must be taken into account is the environmental effects of malfunctions and accidents, which is set out in subsection 19(1)(a):

> **19(1)** The environmental assessment of a designated project must take into account the following factors:
>
> > **(a)** The environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and any cumulative environmental effects that are likely to result from the

> designated project in combination with other physical activities that have been or will be carried out;[158]

The CNSC provides specific guidelines within REGDOC-2.9.1 to ensure proponents undergoing a *CEAA 2012* environment assessment are properly assessing malfunctions and accidents.[159] CELA **submits** the assessment of malfunctions and accidents within the Draft EIS are inadequate, and fail to capture the potential health and environmental effects resulting from postulated radiological and conventional malfunctions or accidents.[160]

The Draft EIS ought to provide a description of postulated malfunction and accident sequences leading to radiological or non-radiological (conventional) releases.[161] The Draft EIS claims there were 93 accident and malfunction hazard scenarios were identified and evaluated in the "hazard identification analysis."[162] The full list of these hazards is provided in Appendix A of the "Accidents and Malfunctions for the Rook I Project- Technical Support Document" ("TSD VIII"), which identifies the for each hazard: the accident/malfunction; the phase when it could occur; the consequence; the existing safeguards/design features; the likelihood; the severity; its risk ranking/significance; and the screening decision/rationale. [163]

While these 93 hazards were identified, not all of them were subjected to further assessment such that a more detailed evaluation risk and potential management activities could be considered.[164] Instead, NexGen reviewed these hazard scenarios to select bounding scenarios: "the approach for selecting bounding scenarios focused on key accidents or malfunctions that were equal to, or exceeded the potential severity of, other possible scenarios that could occur. This approach maintained an appropriate level of conservatism in the assessment while avoiding redundancies."[165] NexGen selected six hazard scenarios as bounding scenarios:

1. An aquatic (i.e., to water) release of uranium concentrate and radioactivity from a traffic accident at or near the access road bridge crossing of the Clearwater River.
2. An aquatic release of fuel or hazardous chemicals from a traffic accident at or near the access road bridge crossing of the Clearwater River.

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[158] *CEAA 2012* at s. 19(1)(a), *emphasis added.*
[159] CNSC, REGDOC-2.9.1, Version 1.2 at Appendix A, section A.3.4, Malfunctions and Accidents.
[160] CNSC, Generic Guidelines at s. 9.4.1.
[161] CNSC, REGDOC-2.9.1, Version 1.2 at Appendix A, section A.3.4, Malfunctions and Accidents.
[162] Draft EIS at Section 21, Accidents and Malfunctions Executive Summary p. ii.
[163] Ecometrix Incorporated, "Accidents and Malfunctions for the Rook I Project- Technical Support Document" (May 2, 2022), online: https://www.ceaa-acee.gc.ca/050/evaluations/document/144426, at Appendix A pp. 3.2-3.24 [**TSD VIII**]
[164] Draft EIS at Section 21, Accidents and Malfunctions Executive Summary p. ii.
[165] Draft EIS at Section 21, Accidents and Malfunctions Executive Summary p. ii.

3. An atmospheric (i.e., to air) release of uranium and radioactivity from a fire or explosion involving equipment or vessels containing uranium-bearing solutions in the solvent extraction building.
4. A terrestrial (i.e., to ground) release of uranium and radioactivity from a tailings transfer pipe or pump failure at surface.
5. A terrestrial release of uranium and radioactivity from untreated effluent transfer pipe failure at the surface.
6. An atmospheric release of sulphur dioxide from an acid plant tail gas scrubber failure.[166]

CELA **submits** that the process for reviewing the 93 potential accidents/malfunctions is insufficient, and ignores the principles set out in REGDOC-2.9.1.

First, by classifying certain accidents/malfunctions as low risk, or ALARP (as low as reasonably practicable), moderate risk, most identified accidents/malfunctions do not contain additional environmental information because it was deemed that these hazards would not undergo further assessment. For instance, REGDOC-2.9.1 explains: "the EIS should include source, quantity, mechanism, pathway, rate, form and characteristics of contaminants and other materials (physical and chemical) likely to be released to the surrounding environment during the postulated malfunctions and accidents."[167]

After reviewing Appendix A within TSD VIII. CELA compiled a sample of accident/malfunction scenarios (see **Figures 2, 3, and 4**, below) that did not undergo further assessment, despite having high severity scores.[168]

Figure 2: Table 3-10: Hazard Identification Evaluation – Tailings Transfer Pipe and UGTMF[169]

Table 3-10: Hazard Identification Evaluation – Tailings Transfer Pipe and UGTMF

ID#	Accident/Malfunction	Phase or Stage	Consequence	Existing Safeguards / Design Features	L	S	RR / Significance	Screening Decision / Rationale
10.1	Failure of tailings cell containment	OP / ADR	Potential for groundwater contamination	Engineered Design Groundwater monitoring	1	5	ALARP, moderate	Best practice in tailings management and highly unlikely event resulting in ALARP, Inherent Safety, no further assessment
10.2	Tailings transfer pipe or pump failure	OP / ADR	Potential for soil / groundwater contamination	The pipe is in a secondary containment Groundwater monitoring Routine inspection and maintenance Emergency response plan	3	3	ALARP, moderate	Recommended for further assessment

OP = Operation; ADR = Active Decommissioning and Reclamation; L = likelihood; S = severity; RR = risk ranking; ALARP = As Low as Reasonably Practicable.

[166] Draft EIS at Section 21, Accidents and Malfunctions Executive Summary p. ii.
[167] CNSC, REGDOC-2.9.1, Version 1.2 at Appendix A, section A.3.4, Malfunctions and Accidents.
[168] TSD VIII at Appendix A, pp. 3.13, 3.15, 3.17.
[169] TSD VIII at Appendix A, p. 3.13.

Figure 3: Table 3-12: Hazard Identification Evaluation – Ore, Special, and Potentially Acid Generating Waste Rock Stockpiles[170]

12.4	Uncontrolled leachate / seepage release through lining failure	CO / OP / ADR	Discharge of contaminants into the environment	Regular inspection and maintenance of lining Groundwater monitoring Spill response plan	1	4	ALARP, moderate	Best management practice results in ALARP, highly unlikely event, no further assessment

Figure 4: Table 3-14: Hazard Identification Evaluation – Ponds and Retention Berms[171]

Table 3-14: Hazard Identification Evaluation – Ponds and Retention Berms

ID#	Accident/Malfunction	Phase or Stage	Consequence	Existing Safeguards / Design Features	L	S	RR / Significance	Screening Decision / Rationale
14.1	Pond overtopping	OP / ADR	Contaminant and radioactivity release	Ponds to have capacity for a 24-hour probable maximum precipitation or 1 in 100 year event Process control Surface water management Ambient monitoring Spill and emergency response plan	2	3	Low	Low risk, low probability event, no further assessment
14.2	Pond containment or embankment failure	OP / ADR	Contaminant and radioactivity release	Regular inspection and maintenance program Surface water management Ambient monitoring Spill and emergency response plan	1	5	ALARP, moderate	Best engineering practice in maintenance and inspection of the containment systems and berms. No further assessment
14.3	Pond lining failure and leakage	OP / ADR	Contaminant and radioactivity release	Groundwater monitoring Hydraulic containment with a separate well	2	4	ALARP, moderate	Best engineering practice in maintenance, no further assessment
14.4	Surface flooding	OP / ADR	Contaminant and radioactivity release	Ponds to have capacity for a 24-hour probable maximum precipitation event Process control Surface water management Ambient monitoring Spill and emergency response plan	1	3	Low	Low risk, low probability event, no further assessment

OP = Operation; ADR = Active Decommissioning and Reclamation; L = likelihood; S = severity; RR = risk ranking; ALARP = As Low as Reasonably Practicable.

For example, **Figure 4** indicates that pond contaminant or embankment failure would result in contaminant and radioactivity release, which is a catastrophic consequence.[172] However, because of "best engineering practice in maintenance and inspection of the containment systems and berms," it was established that there would be no further assessment of this hazard. While the likelihood of this scenario happening is low, accidents and malfunctions still happen. But due to the assessment process provided within the Draft EIS, there are no details surrounding the quantities, rate, form or characteristics of contaminants and other materials (physical and chemical) likely to be released to the surrounding environment during this accident or malfunction.

CELA **strongly recommends** the EIS be updated to provide include source, quantity, mechanism, pathway, rate, form and characteristics of contaminants and other materials (physical and chemical) likely to be released to the surrounding environment during the 93 postulated malfunctions and accidents, pursuant to REGDOC-2.9.1.

Second, CELA **cautions** against the Draft EIS utilization of "bounding scenarios" within the assessment of accidents and malfunctions. When assessing radiological accidents and malfunctions, REGDOC-2.9.1 explains that:

[170] TSD VIII at Appendix A, p. 3.15.
[171] TSD VIII at Appendix A, p. 3.17.
[172] TSD VIII at Appendix A, p. 2.2.

> The applicant can use a bounding approach or use facility- or activity-specific information (for example, design, operation, projected environmental releases) in the assessment of radiological accidents and malfunctions. If a bounding approach is used, the applicant should provide a detailed rationale for the selection of each bounding scenario.[173]

NexGen's selection of bounding scenarios for both radiological and non-radiological accidents/malfunctions results in an oversimplification of the 93 identified hazard scenarios. In the Draft EIS, bounding scenarios are described as events for which "…the potential effects are considered to represent those associated with similar accident and malfunction scenarios; or, alternatively, the potential effects of scenarios that are bounded by another scenario are expected to fit within the scope of those associated with the bounding scenario."[174]

The sheer volume of hazards identified by NexGen indicate that a bounding scenario approach is not appropriate for assessing the accidents and malfunctions associated with this project. To better capture the extent of the potential environmental risks that would arise from Rook I Project accidents/malfunctions, CELA **submits** this assessment would have been better suited by reviewing and assessing both facility-specific information (e.g., UGTMF operations) and activity-specific information (radioactive waste management), depending on the situation. CELA **recommends** not adopting a bounding approach, and revising the EIS using a different approach for assessing accidents and malfunctions to ensure all identified accident/malfunction scenarios are adequately reviewed.

Recommendation 24: The EIS be updated to provide include source, quantity, mechanism, pathway, rate, form and characteristics of contaminants and other materials (physical and chemical) likely to be released to the surrounding environment during the 93 postulated malfunctions and accidents, pursuant to REGDOC-2.9.1.

Recommendation 25: The sheer volume of hazards identified by NexGen indicate that a bounding scenario approach is not appropriate for assessing the accidents and malfunctions associated with this project. The EIS should not use a bounding approach, and should be revised to use a different approach for assessing accidents and malfunctions to ensure all identified accident/malfunction scenarios are adequately reviewed.

[173] CNSC, REGDOC-2.9.1, Version 1.2 at Appendix A, section A.3.4, Malfunctions and Accidents.
[174] Draft EIS at p. 21-13.

3. Alternative Means Analysis

The alternative means of carrying out the designated project is another enumerated factor in *CEAA 2012* which requires consideration within the EA, as set out in section 19(1)(g):

> **19(1)** The environmental assessment of a designated project must take into account the following factors:
>
> > **(g)** alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means;

The former Canadian Environmental Assessment Agency ("CEA Agency") defines "alternative means" as: "the various technically and economically feasible ways under consideration by the proponent that would allow a designated project to be carried out."[175] Addressing alternative means for a project should consider: the characteristics of the project; the environmental effects associated with the potential alternative means; the health or status of VCs that may be impacted by the alternative means; the potential for mitigation and the extent to which mitigation measures may address potential environmental effects; and the level of concern expressed by Indigenous groups or the public.[176]

When considering the alternative means of carrying out a designated project, there are four steps that should be followed:

1. Identify all technically and economically feasible alternative means;
2. List their potential effects on valued components;
3. Select the approach for the analysis of alternative means (i.e., identify the preferred means); and
4. Assess the environmental effects of alternative means (i.e., focus the analysis on the environmental effects of the preferred means).[177]

CELA **submits** the discussion of alternative means for the Rook I Project is insufficient, and does not fully address the environmental effects associated with the potential alternative means. The 4-Step process identified by the CEA Agency for considering the alternative means for this project should be used in the EIS. This ensures there is a robust assessment of how different alternatives will affect the environment. Table 4.4-2 within the Draft EIS provides the categories and key

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[175] Canadian Environmental Assessment Agency (CEA Agency), *"Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act, 2012*, (2015), online: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/addressing-purpose-alternative-means-under-canadian-environmental-assessment-act-2012.html [**CEA Agency, "Alternative Means"**].
[176] CEA Agency, "Alternative Means".
[177] CEA Agency, "Alternative Means".

considerations for evaluating alternatives assessments. It identifies four assessment categories: environmental considerations; technical feasibility; economic feasibility; and social considerations.[178]

The key considerations for "environmental considerations" are not specific enough to fulfill Step 2 requirements for identifying the potential effects on VCs. The environmental considerations identified in the Draft EIS include: how do the likely effects on the aquatic, terrestrial, or atmospheric environments compare; and can the alternative be constructed, operated, and decommissioned in a manner that provides long-term protection of ecological health?[179] According to the CEA Agency, when completing Step 2 of the alternative means assessment, the proponent should:

- Identify the key VCs potentially affected by each alternative means. The end result is an understanding of what VCs should be retained for analysis given the nature of the alternative means under consideration.
- Examine briefly the potential effects on the VCs for each alternative means. The intent is to relate the alternative means under consideration with their potential effects on key VCs. A full assessment of environmental effects is not necessary at this stage.

The intent is to develop a sufficient understanding of potential environmental effects of the alternative means under consideration to inform the selection of an approach in Step 3 and subsequently, to serve in scoping the assessment of environmental effects in Step 4.[180]

In the context of environmental considerations, the Draft EIS identifies ecological integrity, hydrologic regime, and air quality as "assessment sub-categories."[181] However, no VCs are identified for the assessment of each alternative means.

For example, Table 4.5-33 in the Draft EIS presents the alternatives assessment for Sewage Treatment Technology in the environmental assessment category, the sub-criteria identified was the potential to affect Lake Patterson, surface water, or groundwater.[182] For this assessment, there were three options assessed, and the Table 2 below provides the environmental considerations for each option:

[178] Draft EIS at p. 4-11.
[179] Draft EIS at p. 4-11.
[180] CEA Agency, "Alternative Means", *emphasis added*.
[181] Draft EIS at. p. 4-1: "sub-categories were not used in an assessment if considered non-differentiating for the alternatives being evaluated."
[182] Draft EIS at p. 4-97.

Table 2: Environmental Assessment of Sewage Treatment Technology Alternative Means

Sewage Treatment Technology Option	Environmental Assessment
Sewage Lagoon [selected alternative]	- Larger footprint required - Treated effluent quality acceptable for environmental discharge
Membrane Bioreactor (MBR)	- Better treated effluent quality - Smaller footprint - Potential reduction in water supply and discharge volumes due to reuse of treated sewage effluent in process plant
MBR with nanofiltration (NF) or reverse osmosis (RO)	- Best treated effluent quality - Smaller footprint - Potential reduction in water supply and discharge volumes due to reuse of treated sewage effluent in process plant

As this summary in **Table 2** shows, there is no identification of key VCs (i.e., fish and fish habitat); instead, NexGen references a catch-all of surface water or groundwater. The Draft EIS does mention that certain alternatives assessments used a different assessment approach (an MAA assessment). These assessments were for complex alternatives with high interdependencies and/or potential significance to achieving Project success, such as mine waste (i.e., tailings, gypsum, and waste rock), effluent treatment plant technology, and conventional and demolition waste disposal.[183]

In considering NexGen's mine waste storage assessment, there is a breakdown of the criteria for the environmental sub-categories. For instance, the ecological integrity sub-category includes "potential effect on plant, fish, and other wildlife population and habitat during construction, operation, and closure."[184] However, these are still high-level references to VCs like fish. And when the actual alternatives assessment for mine waste storage is reviewed at Table 4.5-9 in the Draft EIS, the ecological integrity assessment for the selection option (underground with paste at location U-4), is vaguely summarized as: "lease surface disturbance area and potential to affect the environment."[185]

CELA **submits** the vague and inconsistent references to VCs within the alternative means assessments fail to develop a sufficient understanding of potential environmental effects of the alternative means under consideration, and CELA **recommends** the alternative means assessment within the EIS carefully assess potential effects on VCs.

[183] Draft EIS at p. 4-13.
[184] Draft EIS at p. 4-38.
[185] Draft EIS at p. 4-39.

In terms of one of the alternative means assessed in the Draft EIS, CELA is seeking more information concerning the selected alternative means. For the power supply type assessment, there were four alternatives considered:

- Grid power;
- In-site diesel power plant;
- On-site liquified gas (LNG) power plant; and
- On-site hybrid system (LNG power plant and renewable energy supply).[186]

After conducting the alternative means analysis, NexGen selected the "on-site LNG power plant". The Draft EIS also explains:

> A feasibility study was conducted to assess the economic viability of alternative energy options (Stantec 2019). In that study, economically viable combinations of numbers and sizes of generators, wind turbines, solar cells, and batteries were identified and assessed in terms of net present cost. Results of the study indicated that a hybrid system would be more economically attractive than connecting to the existing power grid. Results also indicated that the combination of generator (assumed to be LNG) and wind turbines would be the most attractive type of hybrid system. Further study is ongoing to confirm the potential of integrating a hybrid power system at the Project.[187]

According to *the Net-Zero Framework* for the Rook I Project, on-site electricity generation would account for 59.3% of the Project's annual GHG emissions.[188] With NexGen's stated interest in reducing GHG emissions, transitioning to a hybrid system would be the goal to pursue. To gain a better understanding of the on-site hybrid system alternative and the economic considerations set out in the Draft EIS,[189] CELA request that the following feasibility studies be made available for the public to review:

- SLR Consulting (Canada) Ltd. 2021. Renewable Energy Scoping Study for Mining Operations. Prepared for NexGen Energy, Arrow Development – Rook I Project.

- Stantec Consulting Ltd. 2019. Alternative Energy Assessment, Arrow Deposit, Rook I Project. Prepared for NexGen Energy Ltd.

[186] Draft EIS at p. 4-60.
[187] Draft EIS at pp. 4-60—4-61.
[188] TSD XII at p. 3.
[189] Draft EIS at p. 4-11 provides the following economic feasibility considerations: How does the total cost of each alternative over the Project lifespan compare to the other(s)?; Are the costs of the alternative supportable within the current funding framework?; and Are the costs of the alternative well defined and sustainable through the Project lifespan?

Recommendation 26: The 4-Step process identified by the CEA Agency for considering the alternative means for this project should be used in the EIS.

Recommendation 27: The vague and inconsistent references to VCs within the alternative means assessments fail to develop a sufficient understanding of potential environmental effects of the alternative means under consideration, and therefore the alternative means assessment within the EIS carefully assess potential effects on VCs.

Information Request 13: To gain a better understanding of the on-site hybrid system alternative and the economic considerations set out in the Draft EIS, the following feasibility studies should be made available for the public to review:

- SLR Consulting (Canada) Ltd. 2021. Renewable Energy Scoping Study for Mining Operations. Prepared for NexGen Energy, Arrow Development – Rook I Project.
- Stantec Consulting Ltd. 2019. Alternative Energy Assessment, Arrow Deposit, Rook I Project. Prepared for NexGen Energy Ltd.

C. Procedural Issues

The following section addresses procedural issues that impact the quality of the EA process being conducted for the Rook I Project. Here, CELA provides recommendations for ensuring that the EA process is transparent, inclusive, informed, and meaningful.[190]

1. Accessibility of the Draft EIS Document

CELA's first procedural issue concern is that of the presentation of NexGen's EA findings. According to the *Generic Guidelines* prepared by the CNSC,

> One of the purposes of the EA identified in the CEAA 2012 is to ensure opportunities for meaningful public participation during an EA. The CNSC ensures that the public is provided with opportunities to participate in the EA. Meaningful public participation is best achieved when all parties have a clear understanding of the proposed project as early as possible in the review process. The proponent is required to provide current information about the project to the public and especially to the communities likely to be most affected by the project.[191]

One of the barriers to having meaningful public participation is the lack of informed participation. The *Building Common Ground Final Report* emphasized that the information regarding proposed activities and the assessment processes must be easily accessible and understandable for members

[190] Expert Report at pp. 13-14.
[191] CNSC, Generic Guidelines at s. 2.3, *emphasis added*.

of the public, stakeholders and Indigenous Peoples.[192] In particular, participants in the *Building Common Ground Final Report* study found that, "…it is sometimes difficult to access complete and thorough information to review; and it is often difficult to understand the information that is provided, especially for lay persons looking to review long technical documents without in-house expertise.[193]

In the context of the Rook I Project's Draft EIS, it is a large document—both in page number and file size. CELA **recommends** the EIS document be uploaded into multiple PDFs, broken down by section (in addition to uploading the EIS as one whole document). There are several reasons why this would improve the informed participation of this EA.

First, by having multiple, smaller pdf documents, it is much easier for individuals with slow internet or older electronic devices to download and review the elements of the EIS that they are concerned about.

Second, it allows readers to conduct key-word searches in different documents without overloading the processing power of whatever device is being used to access the EIS.

Third, having smaller documents makes approaching the EIS less daunting for individuals, be it a member of the public or subject matter expert, to navigate the Draft EIS and areas of interest. Multiple documents would provide greater ease to those interested in reviewing the Draft EIS.

Other **recommendations** to build informed participation within this Project's EA include the following:

- Upload a "Master Index" so that interested parties can have an overview of where certain topics are covered throughout the EIS.
- Upload a document that provides hyperlinks to the various Technical Study Documents referenced throughout the EIS. This simplifies the process of locating these documents on the EA registry for the Rook I Project.
- PDFs should not be "locked". Currently, the Draft EIS is locked, which prohibits text from being copied in the document to be pasted elsewhere. By preventing this simple action from being done, it creates a barrier for concerned parties to engage with content in the EIS by compiling verbiage that is of concern. For example, the block-quote references throughout this submission could not be copy-pasted, and had to be typed out verbatim. This is an accessibility barrier, and an unfair presentation of information.

[192] Expert Report at p. 40.
[193] Expert Report at p. 40.

Recommendation 28: the EIS document should be uploaded into multiple PDFs, broken down by section (in addition to uploading the EIS as one whole document).

Recommendation 29: Upload a "Master Index" so that interested parties can have an overview of where certain topics are covered throughout the EIS.

Recommendation 30: Upload a document that provides hyperlinks to the various Technical Study Documents referenced throughout the EIS. This simplifies the process of locating these documents on the EA registry for the Rook I Project.

Recommendation 31: PDFs uploaded by the proponent should not be "locked," prohibiting the copying and pasting of text.

2. CNSC as an Authority for Federal EA

To ensure that the Environmental Assessment process for the Rook I Project—including the review of the Draft (and Final) EIS documents—is conducted in a manner that reflects the purpose of protecting the environment from significant adverse environmental effects, the intervenor is compelled to address the role of the CNSC as the federal authority for this EA.

As the federal authority responsible for conducting the EA process for this Project under *CEAA 2012*, the CNSC must comply with *CEAA 2012*'s mandate, which states:

> **4(2)** The Government of Canada, the Minister, the Agency, federal authorities and responsible authorities, in the administration of this Act, must exercise their powers in a manner that protects the environment and human health and applies the precautionary principle.[194]

CELA **reiterates** the importance of CNSC exercising its powers to protect the environment and human health in the context of this environmental assessment. Adhering to this mandate is essential in preventing the further erosion in the public's trust of the CNSC ability to responsibly conduct EAs.

The lack of public trust and confidence in the CNSC acting as an environmental assessment regulator arises from the structure of the CNSC-led EAs of designated nuclear projects, where public interest participants have found the process to be narrowly-focused, insufficiently robust and procedurally unfair.[195] In particular, the *Building Common Ground Final Report* identified

[194] *CEAA 2012* at s.4(2), emphasis added.
[195] Kerrie Blaise, Theresa McClenaghan and Richard Lindgren, "Nuclear Law, Oversight and Regulation: Seeking Public Dialogue and Democratic Transparency in Canada" in Black-Branch J., Fleck D. (eds) Nuclear Non-

public concerns grounded in a perceived lack of independence and objectivity due to the close relationship between the CNSC and the nuclear industry which it promotes.[196]

Members of the public also cited concerns that "….industry-specific regulatory agencies are more focused on technical issues than they are on the planning process that is fundamental to a thorough IA. Participants felt the issues were not properly assessed and were put off to the post-decision regulatory phase."[197] CELA **urges** the CNSC to refrain from delaying the assessment of issues to the post-regulatory phase; the fundamental scoping and planning processes must be carefully considered before making an EA decision on this project.

Public trust and confidence in the environmental assessment process for the Rook I Project is crucial to all parties, and an absence of it de-legitimizes any outcomes from the assessment process.[198] In this case, the CNSC must conduct its review process in a manner that is transparent and in line with the purpose of *CEAA 2012*.

CELA **urges** the CNSC carefully consider the critiques and recommendations within this submission to ensure the Draft EIS and its future iteration accurately reflect the necessary factors that must be assessed to protect the environment and human health from significant adverse environmental effects that may arise from the proposed Rook I Project.

As has been previously raised by CELA, there remains a need for legislative review of *Nuclear Safety and Control Act,* in order to address weaknesses in the current legal framework and the CNSC's EA authority.[199]

Recommendation 32: The CNSC must refrain from delaying the assessment of issues to the post-regulatory phase; the fundamental scoping and planning processes must be carefully considered before making an EA decision on this project.

Recommendation 33: The CNSC must carefully consider the critiques and recommendations within this submission to ensure the Draft EIS and its future iteration accurately reflect the necessary factors that must be assessed to protect the environment and human health from significant adverse environmental effects that may arise from the proposed Rook I Project.

Proliferation in International Law - Volume IV (2019), T.M.C. Asser Press, The Hague, online: https://doi.org/10.1007/978-94-6265-267-5_12 at pp. 242-243 [**Blaise et al**].

[196] Blaise et al at p. 243; Expert Report at p. 49.

[197] Expert Report at pp. 49-50.

[198] Expert Report at p. 50.

[199] The Convention on Nuclear Safety requires that all Contracting Parties (including Canada) take the appropriate steps to ensure an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy; *See also*: Blaise et al; CELA letter to Prime Minister Trudeau re: CNSC oversight (2021), online: https://cela.ca/wpcontent/uploads/2022/01/CNSC_Oversight_22NOV21.pdf.

V. EXPERT REPORT ON RADON AND GAMMA MONITORING, & WORKERS' HEALTH BY LUC LANCE

I, Luc Lance, provide the following comments on the draft EIS. I am A certified Radon Measurement and Analytical Provider, certified by the Canadian National Radon Proficiency Program and a member of the Canadian Association of Radon Scientists and Technologists. I have extensive experience in the environmental monitoring field in the uranium mining industry. My experience includes monitoring of radiological hazards, water sampling (ground and surface), air monitoring programs, offsite controls and monitors, mitigation techniques and operation of Water and Wastewater Treatment Plants.

Having thoroughly reviewed the draft EIS, I am dismayed that in all aspects of the mining project proposed, the proponent only has a moderate degree of confidence in their predictions. Generally, there was a lack of specific details on critical worker and environmental health and safety matters, including management plans, monitoring schedules, personnel who will conduct the testing and carry-out the analysis of the water samples etc. More accurate and defined detail is necessary to determine that the predictions contained in the draft EIS will be met. Only by establishing a rigorous equality control and quality assurance program within the draft EIS can there be confidence in their predictions. My CV is attached as **Appendix C.**

Ventilation

The draft EIS states that the production shaft will be used to remove ore and waste rock from underground and function as the fresh air intake for the underground operation. Information on fresh air intake is critical to the health of workers and indoor environment. Sufficient modelling with specificities of location of fans, their volume and size ought to be provided.

Information Request 14: Where will the fans be located, at the production shaft or at the fresh air intake? The size of fans and volume of air circulated must be specified.

Gamma Monitoring Program

Mine rock is any naturally occurring material that could be removed from underground activities. The mine rock that will be removed from the underground areas is classified into four categories, ore, special waste rock, potentially acid generating waste rock and non-potentially acid generating waste rock.

A gamma radiation monitoring program should be in place to determine the gamma radiation levels close to the ore and waste rock stock piles. The gamma radiation measurement is required

to determine an employee's total external dose when the radiation source is outside of (or external to) the body. As these stockpiles increase in size gamma radiation will be more evident.

Recommendation 34: A gamma radiation monitoring program should be in place to determine the gamma radiation levels close to the ore and waste rock stock piles. The monitoring program must specify the frequency of monitoring, how data will be made available to workers, and thresholds which will be put in place to ensure radiation doses remain As Low As Reasonably Achievable. Critical to the health and safety of all workers at the site is radiation protection. This issue is given little attention in the draft EIS and must be remedied.

Recommendation 35: All employees who frequent the area must wear a gamma radiation dosimeter badge. The gamma radiation dosimetry badges worn by employees must be replaced on a quarterly basis. Workers' written consent must be obtained for a position where exposure to radiation above the allowable annual dose to the public may occur.

Recommendation 36: Proper signage should be place in the area indicating that gamma radiation exposure is in effect. This area should be delineated with a barrier such as a fence or berm.

Radon Monitoring

Radon is a radioactive noble gas that comes from the decay of radium. Radium is also a daughter or progeny nuclide of Uranium (Uranium decay). Radon is a colorless, odorless, invisible gas that can only be detected through the use of proper equipment and protocols. Chronic exposure to elevated radon levels has been linked to an increased incidence of lung cancer in underground miners.

Recommendation 37: A program should be in place for wetting the ore and special waste stockpiles to reduce air born radioactive dust. The special waste rock may contain insufficient grade but still has some uranium content. This is especially necessary as radioactive dust could be blown towards buildings, such as the bunk houses and as a result radon levels could increase within the buildings.

Recommendation 38: A radon progeny and gamma radiation program must be implemented for all underground and surface employees. The gamma radiation dosimetry badges worn by employees must be replaced on a quarterly basis. Radon progeny testing must be completed at all underground workplaces and designated surface locations on a monthly basis.

Recommendation 39: The Working Level results and hours worked at each workplace must be documented to determine the radiation dose for each employee. The accumulated yearly radiation dose from radon progeny should not exceed 4WLM/year (Working Level Month). More

information on radiation protection is found in Section 4 of the CNSC Radiation Protection Program. All licensees are required to implement a radiation protection program and this ought to be profiled and detailed in the draft EIS.

Recommendation 40: The Environmental Protection Program, Industrial Air Source Environmental Protection Plan and baseline monitoring program would continue through all phases of the project. Radon gas and dust monitoring from mining activities not clearly defined.

Recommendation 41: An Environmental Surveillance Program should include ambient air monitoring stations for control measures. The types of air monitoring equipment must include dust fall jars, high-volume air sampling units, meteorological stations, and radon detector monitoring stations. Air monitoring stations for radon should installed in buildings on the mine sites. This would include bunk houses and other enclosed areas where radon could accumulate to elevated levels. Radon detectors should be located at the mine exhaust and downstream to determine radon concentrations. Dust fall jars must also be installed downstream of the mine exhaust to determine the distance the mine dust could potentially travel and accumulation of airborne radionuclides.

Environmental and Wastewater Monitoring

Recommendation 42: Ground water monitoring boreholes should be installed at several locations around the perimeter of the ore, special waste and acid generating stockpiles. Testing of the ground water on a semi-annual schedule would ensure that the ground water surrounding the stock-plies does not become contaminated and to ensure the integrity of the polyethylene liner has not failed.

Recommendation 43: The contingency pond should be kept full of water as to not allow the polyethylene liner to dry out and crack and to allow frost build-up in the ground under the liner and potentially cracking it.

Recommendation 44: The potentially acid generating stockpile should be dual-lined. Acid generated from this pile could potentially cause deterioration of the liners and contaminate the ground water.

Recommendation 45: There is no mention of which water disinfection treatment would be used for the potable water treatment system. Disinfection kills or removes pathogens from drinking water, reducing health risks. You can disinfect water by adding chemicals, ultraviolet (UV) radiation, filtration, or a combination of these methods.

Recommendation 46: The sludge generated by the operation of the sewage wastewater treatment plant should be disposed in a designated land fill location within the mine area. The location should be signed, fenced, and gated as such.

Recommendation 47: The heavy metal sludge which was generated from the chemical treatment in the treatment plant and settled in the pond must be properly disposed. In the uranium milling process radium is removed by chemical treatment. In most cases barium chloride is added at the treatment plant. This allows the radium to precipitate out into the settling ponds producing a radium sludge. It is important that the radium is removed from the water as to not affect the water quality at the final water sampling location which must meet provincial water quality and CNSC standards. Iron precipitated by lime addition to regulate pH levels from the mine wastewater forms a sludge in the settling ponds and must be removed as to not allow the ponds to fill up with sludge. The more sludge the less retention time for treated mine water to remain in the ponds.

Recommendation 48: Water sampling boreholes should be installed in the West Berm. This is the final overflow of the water collected around the mine site. It is essential that the ground water at this point meet all water quality standards. This would include suspended solids. The berm is designed as a filter, however the sludge accumulating against the berm may affect the ground water as well as overflow water quality.

Recommendation 49: A silica dust monitoring program for underground workers must be implemented. Silica dust particles become trapped in lung tissue causing inflammation and scarring. The particles also reduce the lungs' ability to take in oxygen. When silica dust particles are less than 10 μm, they will stay airborne for up to several hours until gravity and electrostatic forces help them settle onto surfaces. Of greater importance, at this size, they can easily enter the lungs, where they are even more toxic than coal dust. The monitoring program should include monthly testing at all underground workplaces and the dust monitors must be worm by the mine employee.

Radioactive Waste

The draft EIS mentions that conventional waste (domestic/industrial) will be incinerated, and hazardous waste recycled. Concerningly, there is no mention of final disposal of low-level radioactive waste, only that it will be placed in a colour coded bin and labeled to minimize contamination.

Items from the mining and milling process become radioactively contaminated. This would include rags, wood, machinery, valves, and rubberized piping. Valves and non- rubberized piping must be cleaned in a specified location as to minimize contamination. The contaminated water would require diversion to the underground or to the water treatment plant.

Information Request 15: The proponent must detail all plans for all wastes, both non-radioactive and radioactive, including but not limited to their storage and handling, environmental monitoring, worker health and safety programs, and their oversight throughout the project's lifecycle.

Other Comments

The draft EIS fails to mention a Mine Rescue Station. Operating mines must have a mine emergency response mine rescue program. The main goals of mine rescue are to:

1. Ensure the safety of the mine rescue team.
2. Make every effort to rescue or secure the safety of trapped workers.
3. Protect mine property from further damage caused by fire, cave-in, etc.
4. Return the mine to a safe condition so operations can resume.

Fish and fish habitat are considered a Valued Component. There is no mention of a creel census monitoring program for Patterson Lake or the fishery downstream of mining activities. It is important that a program be set up to ensure that the fishery is not affected by the mining activities. If there is a reduction in the fish population a creel census (duration of a several years) would determine that overfishing may be the cause and not mining related.

VI. EXPERT REPORT ON SOURCE WATER PROTECTION BY DR. ROBERT PATRICK

I, Bob Patrick, of Integrated Water Resource Planning provide the following comments resulting from my review of the ROOK 1 Project Draft Environmental Impact Statement dated April 2022 prepared by NexGen Energy Ltd., specifically sections 5, 6, 8, 9,and 10.

I am an Associate Professor in the Department of Geography and Planning at the University of Saskatchewan, specializing in regional and environmental planning, cumulative effects analysis and watershed planning for source water protection, mainly with First Nation communities in Alberta and Saskatchewan. My CV is attached as **Appendix D.**

Section 5: Project Description

Bio-Regional Setting:

Rook 1 project is centrally located and surrounded by pristine lakes, rivers, and wetland environments. Each of these environments contains unique ecosystems supporting a rich diversity of interconnected and interdependent habitats. The site of Rook 1 mining activity is on a peninsula surrounded by the aforementioned aquatic ecosystems. This is a sensitive lake basin containing abundant wetlands. The ecological value of this environment has not been adequately assessed in the project description. The ecosystem benefits to humans and ecosystem services have not been valued within the overall description of the project. More specifically, the carbon sequestration of wetlands and lake environments is second only to the world's oceans. The global and regional importance of this wetland environment has not been expressed.

Recommendation 50: The global and regional importance of this wetland environment ought to be described.

Transportation of materials off-site:

While there is detail contained in the EIS (April 2022) provided on infrastructure for extraction activities, there is a noticeable absence of information regarding safe transport of materials offsite. There is also lack of clarity what will be transported offsite. Reference is made to "special waste rock" that is of "low grade ore", and yet this ore will contain U_3O_8. Please define "Low Grade Ore" and its hazard level. The impacts of the proposed mine site development and operation on Highway 955 have not been discussed. The addition of heavy transport trucks and other vehicles on Highway 955 and other roads to the south will impact road safety and roadway condition. These impacts will be borne by Indigenous community members dependent on the aforementioned road system.

Information Request 16: Provide information regarding safe transport of materials offsite, including definitions for low grade or and hazard levels, impacts to road safety and roadway condition due to large trucks, and impacts borne to Indigenous communities.

Site detail:

The project development fronts Patterson Lake. In places there will be vegetation removal to the lake. The bulk of buildings and project infrastructure will be located approximately 50 meters from the lake shore. Patterson Lake forms a partial headwater to downstream waterbodies including rivers, lakes and wetlands. In addition, this is a sloping site where surface drainage will flow to the lake and lowland areas within the site. The provision of vegetation buffers, density of vegetation, species selection and areal coverage of vegetation is not mentioned. There appears to be insufficient setback of the mine development site from neighbouring water bodies. The site detail placed greater emphasis on describing built infrastructure rather than local drainage and the proposed methods of surface water and groundwater protection.

The main site development will be approximately 50 metres from Patterson Lake. Surface "contact water" run off, settling pond and the placement of constructed berms in the event of an uncontrolled spill, or climate-related flood event, are not discussed. Any method of site containment in such an event is not mentioned (see Section 6 comments). The lakeshore zone may be compromised by development to facilitate road and dock access and servicing infrastructure.

Vegetation removal is a major concern across the full lakeshore zone. Removal of vegetation from the lakeshore will impact shade protection for aquatic species but also limit the ability of natural processes to bio-accumulate and filter surface water runoff contaminants. The absence of any riparian buffer along the shoreline is alarming. Site infrastructure encroaches to within 300 metres of the lake (see Figure 5.4-22). Groundwater-to-surface water interaction is not discussed. Groundwater flow to lakes and streams is critical during drought conditions. Groundwater contamination will transmit pollutant to adjacent water courses. Groundwater is not sufficiently assessed in the EIS report. Overall, methods and processes to protect both surface water and groundwater are not considered nor addressed adequately.

Climate change appears to be discussed on a global-scale context and not specifically to the proposed site development. Increasingly, climate change is being associated with an increased incidence of violent weather, including prolonged drought, sudden flooding and wildfire events. These extreme conditions have not been identified as having potential for negative impacts on the site or even the region. In what ways can the proposed mine site adapt to climate change by adaptive and resilient design features in order to thrive under extreme weather events?

Onsite wastewater (black and grey water) servicing is by septic tank (section 5.4.55). The details of this tank and its servicing are not described. Is this secondary or tertiary wastewater treatment. Maintenance of these systems is critical to their medium and long-term operation. How will septic tank solids be removed? Where will these solids be disposed of, and how frequently?

What constitutes domestic and industrial hazard waste? In what way will it be safely stored on site? The term "storage solution" is used, we are unclear of the meaning (5.4.6.2). Again, proximity of the lakes to the proposed mine site activities, slope of site terrain to lake, removal of vegetation and "hard" surfacing of mine site requires a high level of surface and groundwater protection.

The location of the explosives storage appears to be precariously close to the runway.
Site construction and development is silent on any priority for proactive environmental protection (see Source Water Protection section). For example, what means of protection are planned for fuel storage containment to protect against leaks.

The proposed mineshaft is extremely deep relative to other similar ore-bearing provincial mines. This mineshaft will generate much mine rock waste (see earlier comments regarding storage and transportation). Groundwater impacts relating to a deep mine have been given no extra consideration in the EIS.

Recommendation 51: Impacts to groundwater must be sufficiently assessed in the Draft EIS report. Overall, methods and processes to protect both surface water and groundwater are not considered nor addressed adequately.

Information Request 17: In reference to onsite wastewater (section 5.4.55) the following gaps remain: is this secondary or tertiary wastewater treatment? How will septic tank solids be removed? Where will these solids be disposed of, and how frequently? What constitutes domestic and industrial hazard waste? In what way will it be safely stored on site?

Section 6: EA Approach and Methods

Applying a simple word search it was revealed that: "Riparian protection"; "buffer protection" and "Lake buffer"; "Source water" and "Source Water Protection" do not appear in this EIS document. This is surprising given the proposed mine site location in a lake and wetland dominant ecosystem. Similarly, there is no mention of groundwater protection. Reference is made to the diversion of "clean rainwater and runoff". The method of diversion is not discussed in the EIS. There is strong evidence suggesting that containment and diversion of rainwater and surface water merely transfers surface and airborne contaminants to a single, concentrated area. In addition, the erosive force of water increases when water is concentrated in a collection system. Onsite retention and

mediation is a preferred method. The diversion of rainwater off-site may create new, and unintended, flood and contamination problems.

Further, while reference is made to valued ecosystem components (VECs), no description of specifics regarding any ecosystem is made (section 6.1.2). What are the identified ecosystems that are valued in this proposed mine site development? The methodology and approach specified in Section 6 does not adequately address water quality and site development impacts on groundwater. Cumulative impacts monitoring and assessment should be detailed and described in this section. This could be better addressed by inclusion of a source water protection planning process (see Source Water Protection).

Recommendation 52: Cumulative impacts monitoring and assessment should be detailed and described within Section 3. This could be better addressed by inclusion of a source water protection planning process.

Information Request 18: What are the identified ecosystems that are valued in this proposed mine site development?

Section 7: Air Quality, Noise and Climate Change

Noise and visual impacts should be detailed over the timing of site development and mine site operation. Impacts should be provided for time of day, and time of year. These impacts should be assessed against bird migration patterns and wildlife movement. Can a corridor of transit be implemented for wildlife in this area to facilitate access to and between waterbodies?

Climate change is having, and will continue to have significant impacts on facilities and operations in industrial activities in Canada. The EIS blends climate change with noise and air quality (section 7.7). The key finding respecting climate change from this section states that the project will improve Canada's commitment to Green House Gas (GHG) reduction targets by producing uranium for nuclear power generation. While this may be true regarding climate change mitigation at some level, this observation does not address the potential impacts of climate change on the project. There is no mention of how this project will adapt to the very real impacts of climate change such as increased incidence of drought and wildfire or violent weather creating floods and other sudden weather events. How will resiliency be built into this project in the face of continued regional impacts of climate change?

Recommendation 53: Noise and visual impacts should be detailed over the timing of site development and mine site operation. Impacts should be provided for time of day, and time of year. These impacts should be assessed against bird migration patterns and wildlife movement.

Information Request 19: What are the noise and visual impacts detailed over the timing of site development and mine site operation? Can a corridor of transit be implemented for wildlife in this area to facilitate access to and between waterbodies?

Information Request 20: There is no mention of how this project will adapt to the very real impacts of climate change such as increased incidence of drought and wildfire or violent weather creating floods and other sudden weather events. How will resiliency be built into this project in the face of continued regional impacts of climate change?

Section 8: Hydrogeology

During mine site development and operation there is a significant potential for negative impacts to Patterson Lake from groundwater inflow. Groundwater depletion and groundwater quality impacts are noted in the EIS. However, there is little evidence, nor analysis, to suggest that these impacts will recover after mine closure. Wetland impacts from groundwater depletion is not discussed.

Recommendation 54: Groundwater recovery after mine closure ought to be detailed as well as wetland impacts from groundwater depletion.

Section 9: Hydrology

There is a lack of information regarding subsurface disturbance with only proposed mitigation measures mentioned. No specific details are provided regarding mitigation. Groundwater contributions to wetlands and Patterson Lake are absent. Groundwater is significant to the regional water balance. There is a lack of studies to provide necessary details regarding groundwater contributions to regional water balance. Similarly, few details are provided regarding any long term monitoring program.

Baseline data on local water quality, groundwater recharge rates, and water quantity is not described in any detail. Sediment transport and local impacts on water quality are predicted to be small, yet there is no proof of this and no integrated monitoring proposed. In addition, in this section, and in all other sections, there is a repeated message that "Indigenous and Traditional Knowledge is incorporated into the project". While such language is an open expression of respect toward Indigenous land users, there is little substantive evidence to suggest how this approach will be mobilized and monitored during the lifespan of the proposed project.

Recommendation 55: Baseline data on local water quality, groundwater recharge rates, and water quantity ought to be described in detail.

Section 10: Water Quality

To help address many of the aforementioned concerns around surface and groundwater condition, a source water protection (SWP) planning approach is recommended (see next section). The EIS has not taken a proactive, preventative approach to water quality protection. A threats analysis followed by a risk assessment would be a beneficial addition to the EIS.

The Canadian Drinking Water Guidelines are not referenced in this EIS. There is a general lack of detail respecting longer term monitoring program. Water quality parameters such as arsenic, lead, cadmium, all associated with deep well drilling, have not been assessed for longer term monitoring. Similarly, nutrient loading from sewage discharge and septic tank pumping have not been included into an monitoring program going forward.

Recommendation 56: Patterson Lake forms a partial headwater to downstream waterbodies including rivers, lakes and wetlands. To help address many of the aforementioned concerns around surface and groundwater condition, a source water protection (SWP) planning approach is recommended. The EIS has not taken a proactive, preventative approach to water quality protection. A threats analysis followed by a risk assessment would be a beneficial addition to the EIS.

Source Water Protection

The following section will outline the purpose, and practice, of source water protection and how this approach will benefit this proposal.

What is Source Water?

Source water is untreated water from groundwater or surface water sources that supplies potable water for human consumption or contact. Source water is also water available for ecosystem services.

Source water protection, an important component of water management in Canada and elsewhere, is about preventing contaminants from reaching water sources by using a variety of management actions. Protecting water at the source is an important means of preventing human illnesses. In addition, protecting water at the source helps to protect ecosystems and local economies. It is many times less expensive to protect a water source from contamination than it is to remediate it after contamination.

The Multi-Barrier Approach to Safe Drinking Water

Source water protection, represents a vital barrier in the protection of water supplies. The multi-barrier approach is really a system of redundancies that allows a drinking water system to avoid failure should a single barrier fail. The Canadian Council of Ministers of the Environment (CCME) defines the multi-barrier approach as an integrated system of procedures, processes and tools that collectively prevent or reduce the contamination of drinking water from "source-to-tap" in order to reduce risks to public health. In the absence of source water protection, the potential for contamination of the drinking water supply will certainly increase. The development and implementation of a source water protection plan should be the critical first step in any overarching environmental impact statement.

What is a Source Water Protection Plan?

A source water protection plan (SWPP) is a document aimed at protecting source water quality and quantity. A SWPP is a systematic and organized assessment of contamination sources and pathways linked to human activity and natural processes that occur in a watershed. Based on this inventory, the SWPP identifies and prioritizes management actions to mitigate or reduce water contamination risks to an acceptable level.

Types of water sources

Source water is the natural, untreated raw water found in aquifers and surface waters that are the source of drinking water. Source water contained in surface water supplies includes water found in lakes, rivers and other water streams. Groundwater is another source of raw water. Groundwater is water found beneath the earth's surface. The term "groundwater under the direct influence of surface water", or "GUDI" is often used to refer to a groundwater source that is located near enough to surface waters to receive direct surface water recharge. Everything is connected!

Water contamination from natural factors

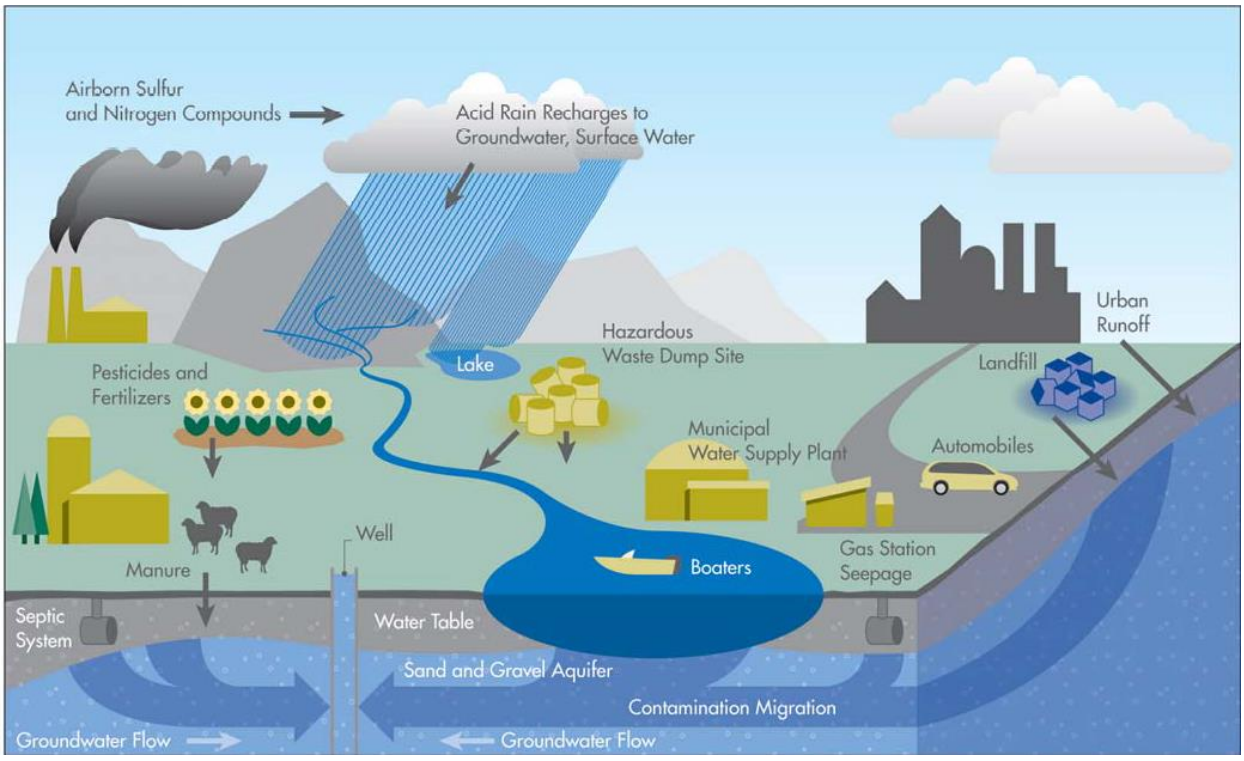
Natural factors may contribute to drinking water contamination if left unchecked. Wildlife, for example, contains micro-organisms such as bacteria, parasites and viruses that may cause diseases in humans. Ongoing changes to the natural environment such as wildfire, storm events, flooding and erosion can also introduce risk to source waters. These "natural" conditions are expected to accelerate under climate change. Natural factors affecting water quality are often unpredictable and may occur very suddenly. For example, a severe rain storm may cause stream bank erosion and introduce sediments into source water, raising turbidity (cloudiness). Naturally occurring overland flow into an aquatic environment may also impact water quality by adding surface

contaminants, organic debris and soil in the water material causing high turbidity. Human activity, such as forestry, urbanization, mining, and agriculture may exacerbate these natural conditions.

Water contamination from human activities

The quality of a source water may be negatively impacted by past and present land use activities that introduce a risk to human and environmental health. Land use activities including agriculture may introduce pesticides and nutrient into water sources. Many residential activities also introduce potential risk to source water such as domestic animals, sewage disposal systems, landfills, lawn care, road networks, road salts, personal care products, pharmaceuticals and abandoned residential wells. Commercial and industrial activities add additional risks in the form of waste products, hazardous goods transportation, toxic by-products, dry cleaning wastes, car wash wastewater, fuel storage leaks, etc. Past and present industrial activity such as railroad routes, aging oil tanks, mine tailings, and other industry may also contribute to water quality degradation. **Figure 1** illustrates contamination pathways from human activity.

Figure 1: Human Activities Affecting Source Water



Source: Pollution Probe – The Source Water Protection Primer 2004

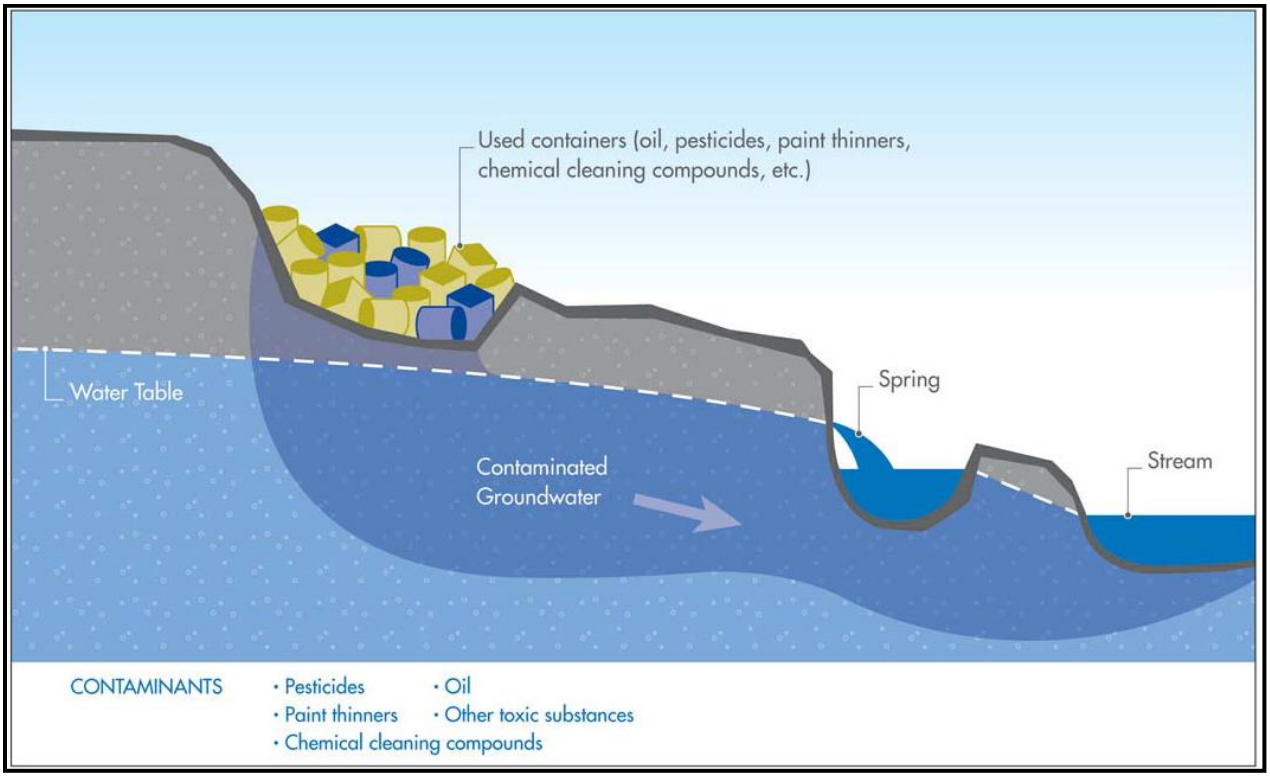
In the context of developing a SWPP, water contamination that results from human activities is of greater interest because this type of contamination is the one over which society has control.

Point source pollution

Point source pollution is pollution that can be traced to a fixed point such as an effluent pipe, a smoke stack, or a leaking fuel tank. Point source pollution enters the environment at a specific place from an identifiable source. A point source of pollution is something that you can "point" your finger toward, such as a sewage outfall pipe and surface drainage culvert (stormwater). **Figure 2** below illustrates point source pollution originating from a landfill or industrial mine site, where leachate contaminates groundwater which then feeds downstream source water. Other examples of point source pollution that should be considered in a SWPP include, but are not restricted to:

- Industrial point discharges, as well as spills and leaks of industrial chemicals
- Municipal wastewater effluents
- Landfill site leachate
- Wastes from existing and abandoned mining sites
- On-site septic systems
- Leaking oil and gas storage tanks
- Mine tailings leachate

Figure 2: Point Source Pollution: Contaminants from Landfill/Industrial Site



Source: Pollution Probe – The Source Water Protection Primer 2004

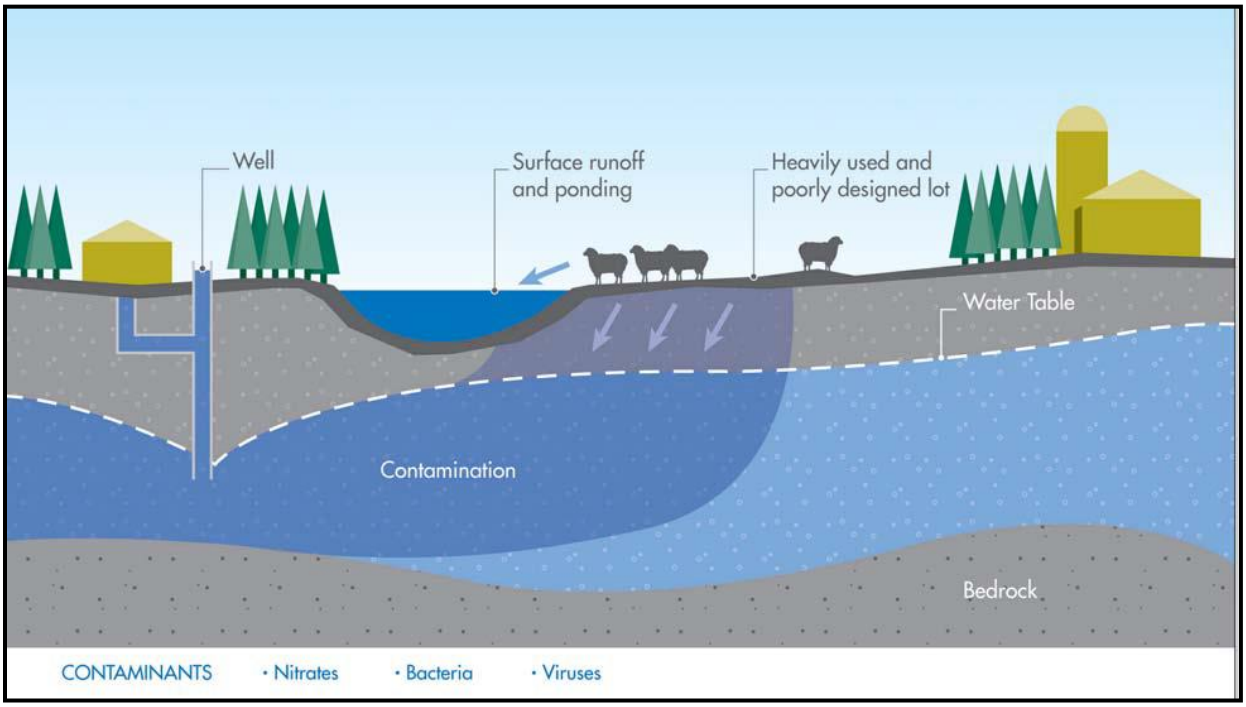
Non-point source pollution

Non-point source pollution is pollution that cannot be traced to a fixed point such as an industrial site, roadways, and urban runoff. Non-point source pollution is more difficult to identify and a much trickier problem to address in terms of land management practices to reduce contamination of source waters. Non-point sources of pollution come from multiple areas. These are sources you cannot exactly point your finger towards. Non-point sources are generally the result of water running over land that picks up natural and human-made pollutants and deposits these pollutants into surface waters, or into groundwater through infiltration. **Figure 3** illustrates non-point source pollution originating from agricultural runoff, which contaminates groundwater. Agricultural runoff can contain oil, grease, fertilizers, pesticides, bacteria and nutrients from livestock and manure. Other examples of non-point source pollution that you might need to consider for your SWPP include, but are not restricted to:

- Urban runoff from buildings, streets and sidewalks that carry sediment, nutrients, bacteria, oil, metals, chemicals, pesticides, road salts, pet droppings and litter;
- Bacterial and petroleum products from industrial facilities;
- Mine site drainage;
- Acid precipitation and other forms of air pollution that fall into surface waters and onto the land.

In **Figure 3**, non-point source pollution from a large agricultural area is disbursed over the landscape. Eventually, the contaminants from this agricultural activity, or other industrial scale activity, may enter source water at multiple points. These contaminants may reduce the quality of source water, possibly to dangerous levels.

Figure 3: Non-Point Source Pollution: Agricultural Runoff



Source: Pollution Probe – The Source Water Protection Primer 2004

Types of drinking water contaminants

The following provides basic information on the types of contaminants that originate from source contamination and are commonly found in source water. This section also describes typical contamination pathways, which can be useful when it comes to planning source protection efforts aimed at preventing contaminants from entering water sources.
There are five main types of drinking water contaminants: physical, microbiological, inorganic, organic and radioactive.

1. **Physical Contaminants:** Turbidity, or cloudiness, in water is caused by the presence of suspended particles such as clay, silt or microscopic organisms. Cloudy water is a problem because the particles in the water are a source of food for bacteria. Cloudy water can also interfere with the effectiveness of chlorination at eliminating pathogens in the water.
2. **Microbial Contaminants:** Human and animal wastes are the main sources of microorganisms, or microbial contaminants, which can cause diseases in water supplies. Improperly treated sewage, bird droppings, and runoff from farms and city streets are a source of microorganisms in drinking water. The following briefly describes the main microbial contaminants affecting drinking water:

Bacteria: While bacteria are present virtually everywhere, certain types which exist in untreated water may be pathogenic.

Campylobacter: Certain types of *campylobacter* may cause gastroenteritis (inflammation of the stomach and intestines). They are typically found in human and animal wastes, including bird droppings, and they often end up in water after a heavy rainfall.

Escherichia coli: *E. coli* is naturally present in human intestines and plays an important role in digestion. However, some forms of *E. coli* can cause gastrointestinal diseases, including a severe form of diarrhea that can lead to kidney failure and death. One way that *E. coli* ends up in water is from untreated sewage and agricultural land uses.

Giardia: In Canada, Giardia is the most common protozoa found in water. It causes a gastrointestinal disease known as giardiasis or "beaver fever," which can last for a long time. Symptoms of Giardia infection may include watery diarrhea, loss of appetite, dehydration, cramps and vomiting. Wilderness campers and others who drink untreated water are most susceptible to Giardia exposure.

Cryptosporidium: Another common protozoan, Cryptosporidium is very resistant to chlorination, but can be killed by boiling water. In humans it causes cryptosporidiosis, a disease with symptoms that may include diarrhea, stomach cramps and a mild fever. For people with a weakened immune system, cryptosporidiosis can be fatal.

3. **Inorganic Contaminants:** Inorganic, or non-living, water contaminants include various metals, arsenic and nitrates.

Metals: Metals may be naturally present in water from weathering and erosion or they may be present as a result of human activities, such as mining and manufacturing.

Arsenic: Arsenic may enter water bodies from smelting operations, the burning of coal and waste, and dumping of industrial wastewater. It may be in particles in the air, which then land in the water. It may also be present as a result of natural processes, such as weathering and erosion. Deep wells may be susceptible to naturally occurring arsenic contamination.

Nitrates: Nitrates occur naturally in water, resulting from decaying plant matter. Nitrates are also a main ingredient in commercial fertilizers and can end up in water via runoff from farmers' fields, septic systems and landfills. When homeowners apply fertilizers to their lawns and gardens, up to 50% of the nitrogen in the product ends up in nearby water sources (Pollution Probe 2002).

4. **Organic Contaminants**

Pesticides: Pesticides are chemical and biological agents that are used to control pests such as weeds, insects, rodents, fungi, bacteria and viruses. Pesticides are sprayed on crops, lawns and gardens, and golf courses. These chemicals can easily end up in drinking water sources.

Volatile organic compounds. Volatile organic compounds (VOCs) are among the most frequently detected organic contaminants in groundwater. VOCs are chemicals that readily evaporate and include such substances as trichloroethylene and tetrachloroethylene. These two chemicals are found in household products and are also used as solvents by the metal-degreasing and dry-cleaning industries.

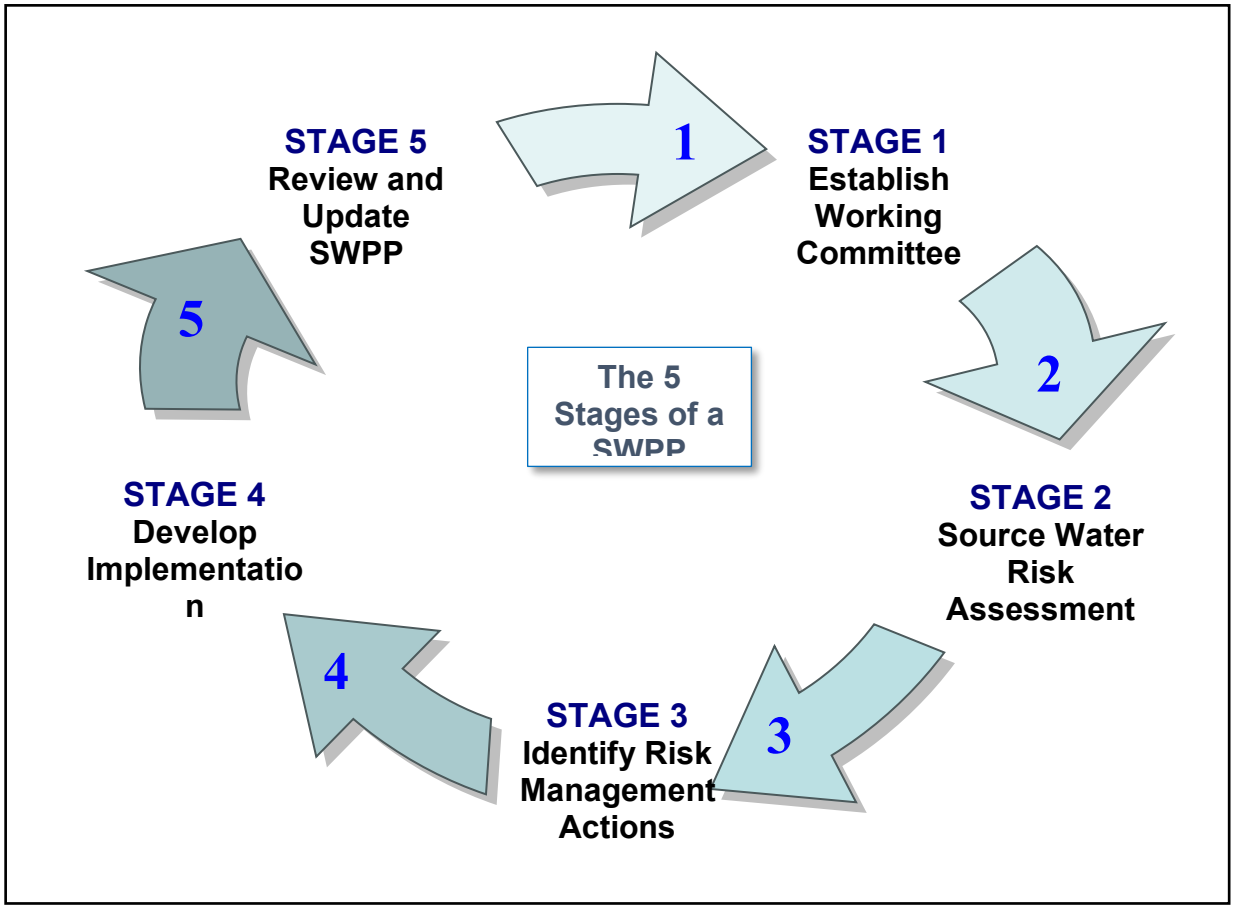
5. **Radioactive Contamination:** Water may become contaminated with radioactive atoms (called radionuclides) from both natural and human sources. Exposure to such radionuclides is associated with an increased risk of cancer and genetic disorders (Pollution Probe 2002).

Overview and scope of the procedure

SWPP follows a five stage process with the goal of producing a watershed assessment which includes the ranking of risks to the source water, identifying management actions to reduce those risks, and an implementation strategy to deliver on those management actions. It is recommended that the ROOK 1 project consider undertaking a SWPP process prior to any onsite development activity. The five stages are illustrated in **Figure 4**. In summary, the stages are:

Stage 1: Establish a SWPP Working Committee
Stage 2: Complete a source water assessment
Stage 3: Identify management actions to address potential risks to your source water
Stage 4: Develop an implementation strategy
Stage 5: Review and update your SWPP approximately every 5 years

Figure 4: Source Water Protection Plan Process



It is recommended that a watershed approach be undertaken to better protect water resources at the time of mine site industrial development activity. This includes the development proposed at ROOK 1, Saskatchewan, by NexGen. A source water protection plan would provide a more comprehensive and detailed assessment of all threats, and risks, to drinking water and the natural aquatic environment posed by this development.

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VII. CONCLUSION

CELA has sought to identify the gaps in the existing draft EIS, its consideration of international guidance and alignment with the purposes of *CEAA 2012*, and the project's impacts on the environment and human health.

As detailed in Sections IV – VI above, CELA submits that due to deficiencies within the Draft EIS, the requisite statutory and regulatory requirements of *CEAA 2012* have not been fulfilled. Additional information pertaining to NexGen's assessment of the precautionary principle, climate change and sustainability, cumulative effects, environmental effects, accidents and malfunctions, and alternative means, must be remedied before NexGen's Draft EIS can be deemed sufficient.

As explained within Luc Lance's expert report, it was found to be disappointing that in all aspects of the mining project proposed, the proponent only has a moderate degree of confidence in their predictions. Generally, there was a lack of specific details on critical worker and environmental health and safety matters, including management plans, monitoring schedules, personnel who will conduct the testing and carry-out the analysis of the water samples etc. More accurate and defined detail is necessary to determine that the predictions contained in the Draft EIS will be met. The establishment of a rigorous equality control and quality assurance program within the Draft EIS can there be confidence in NexGen's predictions.

CELA further submits that before the Draft EIS can be deemed sufficient, a source water protection plan should be developed, as outlined within Dr. Robert Patrick's expert report. The geographic and hydrological location of the Rook I Project, in conjunction with the proposed mining activities, calls for protection of water resources at the time of mine site industrial development activity. A source water protection plan would provide a more comprehensive and detailed assessment of all threats, and risks, to drinking water and the natural aquatic environment posed by this development.

CELA requests that all recommendations enclosed at Appendix A and information requests enclosed at Appendix B be responded to before the EA of the Rook I Project proceeds for further review.

Sincerely,

CANADIAN ENVIRONMENTAL LAW ASSOCIATION

Sara Libman

Sara Libman
Legal Counsel

APPENDIX A – SUMMARY OF RECOMMENDATIONS

Recommendation 1: The Draft EIS should be updated to include a timeline of various far-future scenarios, which would provide a visual of the potentially adverse environmental effects that future generations would be burdened with should this Project be approved.

Recommendation 2: To ensure adherence to the purposes set out in sections 4(1)(b) and 4(2) of CEAA 2012, greater attention must be paid to the precautionary principle, and the far-future scenarios need to be re-assessed to align with any further data provided for VCs and boundary scoping.

Recommendation 3: In order to fulfill CEAA 2012's purpose promoting sustainable development and upholding international climate commitments, NexGen must incorporate climate change *within* sustainability, specifically applying a presumption of harm approach towards the projects that would depend on the uranium produced by the proposed Rook I Project.

Recommendation 4: The Purpose of this Project needs to be re-assessed to ensure that the information before the CNSC is grounded in sustainability, and does not contribute to irreversible environmental effects at a local or global scale.

Recommendation 5: the EIS should be updated to include management plans, monitoring and follow-up programs, or decommissioning and reclamation plans to allow the CNSC to consider the sustainability of the project and the measures that would be implemented to protect future generations from environmental harm.

Recommendation 6: NexGen needs to rectify the deficiencies in the cumulative effects assessment by reconducting the scoping phase in accordance with CELA's VC and boundary recommendations.

Recommendation 7: The EIS be updated to clearly identify all the types of cumulative effects that were assessed for each VC.

Recommendation 8: The EIS should include a matrix or table which would present information regarding rationale for including each physical activity identified and the VCs that they may effect.

Recommendation 9: The components identified as "intermediate components" need to be assessed in the same manner as "valued components" and must undergo the full 5-step framework for conducting a cumulative effects assessment.

Recommendation 10: "Avoiding redundancy" is not an acceptable reason for excluding fish species from VC scoping, and when selecting fish VCs, rationale come from a balancing of the recommended lines of reasoning: primary data collection, computer modelling, literature references, public consultation, expert input or professional judgement. As a result, the scoping of fish species VCs needs to be restarted to ensure that the cumulative effects assessment accurately captures the potentially adverse environmental effects that would require mitigation and monitoring.

Recommendation 11: The EIS should provide an updated cumulative effects assessment for fish and fish habitats to reflect proper selection of fish VCs.

Recommendation 12: The proponent should re-evaluate its confidence level of moderate to high in assessing cumulative effects on vegetation VCs, as this determination likely arose from a faulty conclusion based on uncertain climate change assumptions.

Recommendation 13: Any vegetation species disqualified from being included as a VC on the grounds of redundancy should be re-evaluated to ensure the cumulative effects assessment of vegetation accurately captures any potential environmental effects requiring mitigation and monitoring.

Recommendation 14: Any wildlife species disqualified from being included as a VC on the grounds of redundancy should be re-evaluated to ensure the cumulative effects assessment of wildlife and wildlife habitat accurately captures any potential environmental effects requiring mitigation and monitoring.

Recommendation 15: Federally listed wildlife species (northern myotis, common nighthawk, and barn swallows) should not be excluded from VCs on the grounds of "appropriate representation" by other species.

Recommendation 16: The EIS should be updated with cumulative effects assessment scoping for potential insect VCs.

Recommendation 17: The Caribou Mitigation and Offsetting Plan needs to accompany the EIS in order to determine mitigation measures will effectively reduce residual effects on woodland caribou.

Recommendation 19: The scoping of spatial boundaries for VCs associated with water should encompass the Lake Athabasca Basin.

Recommendation 20: Certain VCs would benefit from spatial boundaries being refined ecologically (e.g., utilizing watershed boundaries), and the proponent should assess whether certain ecological boundaries need to be utilized to provide a more fulsome scope of potential physical activities that may interact cumulatively with the proposed project.

Recommendation 21: The EA process for this Project should be paused until a more accurate cumulative effects assessment is conducted for the vegetation VC, following the revised baseline study within the vegetation RSA.

Recommendation 22: The cumulative effects assessment for the EIS should revisit the temporal boundaries of different VCs, and apply more VC-centric or ecosystem-centric modelling for temporal boundaries. The application of an activity-centric temporal boundary arises in too many issues due to the complex timeline of a uranium mine's potential environmental effects which exceed the 43-year operation timeline.

Recommendation 23: The 92 mineral dispositions located in close proximity to the Rook I Project site should be considered reasonably foreseeable physical activities (future mines), and should therefore be included in the cumulative effects assessment for the Rook I Project.

Recommendation 24: The EIS be updated to provide include source, quantity, mechanism, pathway, rate, form and characteristics of contaminants and other materials (physical and chemical) likely to be released to the surrounding environment during the 93 postulated malfunctions and accidents, pursuant to REGDOC-2.9.1.

Recommendation 25: The sheer volume of hazards identified by NexGen indicate that a bounding scenario approach is not appropriate for assessing the accidents and malfunctions associated with this project. The EIS should not use a bounding approach, and should be revised to use a different approach for assessing accidents and malfunctions to ensure all identified accident/malfunction scenarios are adequately reviewed.

Recommendation 26: The 4-Step process identified by the CEA Agency for considering the alternative means for this project should be used in the EIS.

Recommendation 27: The vague and inconsistent references to VCs within the alternative means assessments fail to develop a sufficient understanding of potential environmental effects of the alternative means under consideration, and therefore the alternative means assessment within the EIS carefully assess potential effects on VCs.

Recommendation 28: the EIS document should be uploaded into multiple PDFs, broken down by section (in addition to uploading the EIS as one whole document).

Recommendation 29: Upload a "Master Index" so that interested parties can have an overview of where certain topics are covered throughout the EIS.

Recommendation 30: Upload a document that provides hyperlinks to the various Technical Study Documents referenced throughout the EIS. This simplifies the process of locating these documents on the EA registry for the Rook I Project.

Recommendation 31: PDFs uploaded by the proponent should not be "locked," prohibiting the copying and pasting of text.

Recommendation 32: The CNSC must refrain from delaying the assessment of issues to the post-regulatory phase; the fundamental scoping and planning processes must be carefully considered before making an EA decision on this project.

Recommendation 33: The CNSC must carefully consider the critiques and recommendations within this submission to ensure the Draft EIS and its future iteration accurately reflect the necessary factors that must be assessed to protect the environment and human health from significant adverse environmental effects that may arise from the proposed Rook I Project.

Recommendation 34: A gamma radiation monitoring program should be in place to determine the gamma radiation levels close to the ore and waste rock stock piles. The monitoring program must specify the frequency of monitoring, how data will be made available to workers, and thresholds which will be put in place to ensure radiation doses remain As Low As Reasonably Achievable. Critical to the health and safety of all workers at the site is radiation protection. This issue is given little attention in the draft EIS and must be remedied.

Recommendation 35: All employees who frequent the area must wear a gamma radiation dosimeter badge. The gamma radiation dosimetry badges worn by employees must be replaced on a quarterly basis. Workers' written consent must be obtained for a position where exposure to radiation above the allowable annual dose to the public may occur.

Recommendation 36: Proper signage should be place in the area indicating that gamma radiation exposure is in effect. This area should be delineated with a barrier such as a fence or berm.

Recommendation 37: A program should be in place for wetting the ore and special waste stockpiles to reduce air born radioactive dust. The special waste rock may contain insufficient grade but still has some uranium content. This is especially necessary as radioactive dust could be blown towards buildings, such as the bunk houses and as a result radon levels could increase within the buildings.

Recommendation 38: A radon progeny and gamma radiation program must be implemented for all underground and surface employees. The gamma radiation dosimetry badges worn by employees must be replaced on a quarterly basis. Radon progeny testing must be completed at all underground workplaces and designated surface locations on a monthly basis.

Recommendation 39: The Working Level results and hours worked at each workplace must be documented to determine the radiation dose for each employee. The accumulated yearly radiation dose from radon progeny should not exceed 4WLM/year (Working Level Month). More information on radiation protection is found in Section 4 of the CNSC Radiation Protection Program. All licensees are required to implement a radiation protection program and this ought to be profiled and detailed in the draft EIS.

Recommendation 40: The Environmental Protection Program, Industrial Air Source Environmental Protection Plan and baseline monitoring program would continue through all phases of the project. Radon gas and dust monitoring from mining activities not clearly defined.

Recommendation 41: An Environmental Surveillance Program should include ambient air monitoring stations for control measures. The types of air monitoring equipment must include dust fall jars, high-volume air sampling units, meteorological stations, and radon detector monitoring stations. Air monitoring stations for radon should installed in buildings on the mine sites. This would include bunk houses and other enclosed areas where radon could accumulate to elevated levels. Radon detectors should be located at the mine exhaust and downstream to determine radon concentrations. Dust fall jars must also be installed downstream of the mine exhaust to determine the distance the mine dust could potentially travel and accumulation of airborne radionuclides.

Recommendation 42: Ground water monitoring boreholes should be installed at several locations around the perimeter of the ore, special waste and acid generating stockpiles. Testing of the ground water on a semi-annual schedule would ensure that the ground water surrounding the stock-plies does not become contaminated and to ensure the integrity of the polyethylene liner has not failed.

Recommendation 43: The contingency pond should be kept full of water as to not allow the polyethylene liner to dry out and crack and to allow frost build-up in the ground under the liner and potentially cracking it.

Recommendation 44: The potentially acid generating stockpile should be dual-lined. Acid generated from this pile could potentially cause deterioration of the liners and contaminate the ground water.

Recommendation 45: There is no mention of which water disinfection treatment would be used for the potable water treatment system. Disinfection kills or removes pathogens from drinking water, reducing health risks. You can disinfect water by adding chemicals, ultraviolet (UV) radiation, filtration, or a combination of these methods.

Recommendation 46: The sludge generated by the operation of the sewage wastewater treatment plant should be disposed in a designated land fill location within the mine area. The location should be signed, fenced, and gated as such.

Recommendation 47: The heavy metal sludge which was generated from the chemical treatment in the treatment plant and settled in the pond must be properly disposed. In the uranium milling process radium is removed by chemical treatment. In most cases barium chloride is added at the treatment plant. This allows the radium to precipitate out into the settling ponds producing a radium sludge. It is important that the radium is removed from the water as to not affect the water quality at the final water sampling location which must meet provincial water quality and CNSC standards. Iron precipitated by lime addition to regulate pH levels from the mine wastewater forms a sludge in the settling ponds and must be removed as to not allow the ponds to fill up with sludge. The more sludge the less retention time for treated mine water to remain in the ponds.

Recommendation 48: Water sampling boreholes should be installed in the West Berm. This is the final overflow of the water collected around the mine site. It is essential that the ground water at this point meet all water quality standards. This would include suspended solids. The berm is designed as a filter, however the sludge accumulating against the berm may affect the ground water as well as overflow water quality.

Recommendation 49: A silica dust monitoring program for underground workers must be implemented. Silica dust particles become trapped in lung tissue causing inflammation and scarring. The particles also reduce the lungs' ability to take in oxygen. When silica dust particles are less than 10 μm, they will stay airborne for up to several hours until gravity and electrostatic forces help them settle onto surfaces. Of greater importance, at this size, they can easily enter the lungs, where they are even more toxic than coal dust. The monitoring program should include monthly testing at all underground workplaces and the dust monitors must be worm by the mine employee.

Recommendation 50 The global and regional importance of this wetland environment ought to be described.

Recommendation 51: Impacts to groundwater must be sufficiently assessed in the Draft EIS report. Overall, methods and processes to protect both surface water and groundwater are not considered nor addressed adequately.

Recommendation 52: Cumulative impacts monitoring and assessment should be detailed and described within Section 3. This could be better addressed by inclusion of a source water protection planning process.

Recommendation 53: Noise and visual impacts should be detailed over the timing of site development and mine site operation. Impacts should be provided for time of day, and time of year. These impacts should be assessed against bird migration patterns and wildlife movement.

Recommendation 54: Groundwater recovery after mine closure ought to be detailed as well as wetland impacts from groundwater depletion.

Recommendation 55: Baseline data on local water quality, groundwater recharge rates, and water quantity ought to be described in detail.

Recommendation 56: Patterson Lake forms a partial headwater to downstream waterbodies including rivers, lakes and wetlands. To help address many of the aforementioned concerns around surface and groundwater condition, a source water protection (SWP) planning approach is recommended. The EIS has not taken a proactive, preventative approach to water quality protection. A threats analysis followed by a risk assessment would be a beneficial addition to the EIS.

APPENDIX B – SUMMARY OF INFORMATION REQUESTS

Information Request 1: NexGen to provide plans for monitoring and follow-up programs and management plans specific to the various far-future scenarios to be assessed within the context of the EIS.

Information Request 2: NexGen provide details about the expected lifespan of the PAG WRSA liners, as well as recommended management systems for the far-future generations that would be burdened with the COPC metal concentrations expected to flow from the site.

Information Request 3: NexGen should an estimate of the costs required to adequately close, as well as monitor the mine site post-closure, in order to adhere with the polluter-pays principle.

Information Request 4: NexGen should provide estimates for the GHG emissions associated with flights and off-site transportation, as well as estimates on the number of anticipated flights annually during the project's operations.

Information Request 5: There should be a re-assessment of potential pathways from the proposed Fission Patterson Lake South Property on the terrain and soils cumulative effects assessment, to ensure the precautionary principle is being adhered to.

Information Request 6: The EIS should include the habitat requirements for tracked bryophytes—despite the lack of data available.

Information Request 7: The proponent should conduct studies of bryophyte habitat requirements to assist in filling in the gaps in knowledge.

Information Request 8: The EIS should re-assess the wildlife VCs and include the following species as VCs:

(a) Northern myotis;
(b) Common nighthawk;
(c) Barn swallow; and
(d) River otter.

This is not an exhaustive list of species to reconsider as VCs; the EIS should provide an updated assessment for selecting wildlife VCs that aligns with cumulative effects assessment scoping guidelines.

Information Request 9: NexGen should provide clarification on whether insects were as wildlife VCs, and whether any federally-listed arthropods were located within the RSA.

Information Request 10: NexGen should provide details about offsetting through a financial mechanism, and how that will protect both existing and far-future woodland caribou from the environmental effects of this proposed uranium mine.

Information Request 11: Seeking clarification on how NexGen intends to balance the mitigation measures required for different VCs (e.g., woodland caribou sensory disturbance reduction vs. detracting wildlife from contact water ponds via cannons or sonic guns).

Information Request 12: A revised baseline study for the vegetation VC should be conducted to accurately reflect the established RSA

Information Request 13: To gain a better understanding of the on-site hybrid system alternative and the economic considerations set out in the Draft EIS, the following feasibility studies should be made available for the public to review:

- SLR Consulting (Canada) Ltd. 2021. Renewable Energy Scoping Study for Mining Operations. Prepared for NexGen Energy, Arrow Development – Rook I Project.
- Stantec Consulting Ltd. 2019. Alternative Energy Assessment, Arrow Deposit, Rook I Project. Prepared for NexGen Energy Ltd.

Information Request 14: Where will the fans be located, at the production shaft or at the fresh air intake? The size of fans and volume of air circulated must be specified.

Information Request 15: The proponent must detail all plans for all wastes, both non-radioactive and radioactive, including but not limited to their storage and handling, environmental monitoring, worker health and safety programs, and their oversight throughout the project's lifecycle.

Information Request 16: Provide information regarding safe transport of materials offsite, including definitions for low grade or and hazard levels, impacts to road safety and roadway condition due to large trucks, and impacts borne to Indigenous communities.

Information Request 17: In reference to onsite wastewater (section 5.4.55) the following gaps remain: is this secondary or tertiary wastewater treatment? How will septic tank solids be removed? Where will these solids be disposed of, and how frequently? What constitutes domestic and industrial hazard waste? In what way will it be safely stored on site?

Information Request 18: What are the identified ecosystems that are valued in this proposed mine site development?

Information Request 19: What are the noise and visual impacts detailed over the timing of site development and mine site operation? Can a corridor of transit be implemented for wildlife in this area to facilitate access to and between waterbodies?

Information Request 20: There is no mention of how this project will adapt to the very real impacts of climate change such as increased incidence of drought and wildfire or violent weather creating floods and other sudden weather events. How will resiliency be built into this project in the face of continued regional impacts of climate change?

APPENDIX C – CV OF EXPERT LUC LANCE

LUC G. LANCE
50 Westview Crescent
Elliot Lake, ON
P5A 2B2

Email: Algoma.radon@gmail.com

OBJECTIVE:

To obtain employment in the following fields:
> Environmental Technician
> Environmental Health and Safety

EDUCATION:

>Elliot Lake Secondary School, Science, Technology and Trades
>Water Resources Field Technician, Loyalist College of Applied Arts & Technology

QUALIFYING CERTIFICATION and COURSES:

> Basic Water Treatment Plant Operation - Ministry of Environment
> Basic Wastewater Treatment Plant Operation - Ministry of Environment
> Water Treatment Plant Operation (Vol. 1) Correspondence Course, California State University
> Water Distribution System O&M Operation Correspondence Course, California State University (August 2002)
> Wastewater Treatment Plants Operation (Vol.1) Correspondence Course, California State University (October 2002)
> Water Treatment Plant Operation (Vol. 11) Correspondence Course, California State University (November 2002)

Ministry of Environment Certificates:
Operator-In-Training:
Water Treatment Plant Operation
Wastewater Treatment Plant Operation

Ministry of Environment License:
Water Treatment Plant Operator License - Level I (expired)
Wastewater Plant Operator License - Level I (expired)

Training Courses

> Ministry of Environment Municipal Industrial Strategy for Abatement Monitoring Program
> Transportation of Dangerous Goods
> St.John's Ambulance Standard First Aid (Advanced Level) (expired)
> C.P.R. Training
> Radiation Health and Safety

> WHIMIS (updated July 2017 at Musselwhite Mine))
> Confined Space Entry
> Respiratory Protection Program
> Industrial Hygiene
> Safety and Loss Control
> Environmental Responsibility

Ministry of Labour
> Basic Mine Rescue Certificate
> Standard Mine Rescue Certificate
> Advanced Mine Rescue Gold Seal
> Supervisory Mine Rescue Training

Computer Skills:
> Microsoft Suite (Word and Excel)
> Microsoft Power Point
> ENVISTA Environmental Data Monitoring Program
> SCADA (Supervisory Control & Data Acquisition) Environmental Remote Monitoring System
> Ministry of Environment MISA Monitoring Computer Program

Working Experience

Small business owner: **Present**
Algoma Radon Testing
Elliot Lake, ON

Responsibilities:
>Testing for radon gas in homes and buildings
>Testing for radon progeny in mining facilities
>Consulting on Radon Mitigation Reduction Systems
>Liaison with government agencies (Health Canada, Canadian Nuclear Safety Commission)
>Member of Canadian Association of Radon Scientist and Technologists (5 years)

City of Elliot Lake
Elliot Lake, ON

Water and Wastewater Treatment Plant Operator **3 years**

Responsibilities:
>Daily operation of Water and Waste Water Treatment plants
>Collecting required water sample as per MOE Certificate of Approval
>Analyzing water samples as required for operation

Mine Waste Management Inc., **3.5 Years**
Elliot Lake, ON

Environmental Control Technician
Wastewater Treatment Plant Operator

Responsibilities:
Include all aspects of environmental control monitoring some of which are as follows:
>monitoring of several waste water treatment plants, including remote monitoring for uranium decommissioned tailing sites
>surface water sampling
>ground water sampling
>bacteriological sampling
>dam instrumentation monitoring (piezometers)
-air quality monitoring (dust fall, rain gauges, Hi-volume sampling, Meteorological Stations)
-flow metering from lake out flows and rivers
-custodian for PCB Storage Facility
-liaison with regulatory agencies during quarterly and annual site inspections
-responsible for coordinating data for annual reports as required by MOE Certificate of Approvals and Canadian Nuclear Safety Commission Operating Licenses

Rio Algom Limited, **17 years**
Elliot Lake, ON

Environmental Control Technician

Responsibilities:
Some additional responsibilities similar to the above descriptions included:

Responsible for various types of radiation monitoring; gamma radiation scans (soil, waste material), ambient air radon gas testing and radon daughter monitoring (around mine sites, waste management areas and within the City of Elliot Lake), Rio Algom housing units

Rio Algom Stanleigh Uranium Mine, **3 years**
Elliot Lake, ON

Mine Ventilation Officer
Responsibilities:

-regular workplace radon progeny testing, management and control of ventilation systems in the underground mine facility
-development and performance with respect to the presence and potential hazardous substances and other occupational health hazards (silica dust sampling, noise levels)
-development and presentation of hazard awareness and control program training related to radon and hazardous materials to mine employees

REFERENCES:

Available on request

APPENDIX D – CV OF EXPERT DR. ROBERT PATRICK

CURRICULUM VITAE

FOR

ROBERT J PATRICK

Department of Geography and Planning
University of Saskatchewan
Saskatoon, Canada

June 2020

1. PERSONAL:

Date of Birth October 23, 1956

2. ACADEMIC CREDENTIALS:

Ph.D., University of Guelph, 2007, Department of Geography, Water Resources Management
M.A., Simon Fraser University, 2002, Department of Geography, Indicators for Sustainable Communities
B.Ed., Dalhousie University, 1984, School of Education, Secondary School Education
B.A., University of British Columbia, 1980, Department of Geography, Human Geography

3. OTHER CREDENTIALS:

Canadian Institute of Planners, 1990
Canadian Association of Geographers, 1995
Canadian Water Resources Association, 2002
Saskatchewan Professional Planning Institute 2008

4. APPOINTMENT(S) AND PROMOTIONS (U OF S):

Awarded Tenure and Promotion to Associate Professor (July 1, 2013)

5. ASSOCIATE MEMBERSHIPS:

5.1 In Other Departments or Colleges at the U of S

Global Water Futures, 2017 to present
Global Institute for Water Security, 2011 to present
School of Environment and Sustainability, 2009 to present
Centre for Hydrology, 2008 to present

6. LEAVES:

Sabbatical Leave: January 1, 2019 – July 1, 2019
Sabbatical Leave: January 1, 2015 – July 1, 2015

7. HONOURS (MEDALS, FELLOWSHIPS, PRIZES):

U of S College of Arts and Science Teaching Award Social Sciences, Spring 2014
U of S Student's Union Teaching Excellence Award nomination, 2012
U of S Student's Union Teaching Excellence Award nomination, 2009
U of S New Faculty Graduate Student Support Program, 2008
Canadian Association of Geographers Travel Award, University of Guelph, 2004
Latornell Graduate Travel Scholarship, University of Guelph, 2004
Arthur D. Latornell Graduate Scholarship, University of Guelph, 2003
Canadian Association of Geographers Travel Award, University of Guelph, 2003
Canadian Association of Geographers (Ontario Division) Best Paper Award, 2002
Ontario Graduate Scholarship in Science and Technology, University of Guelph, 2002
Graduate Student Fellowship Award, Simon Fraser University, 2000

8. PREVIOUS POSITIONS RELEVANT TO U OF S EMPLOYMENT:

Faculty Lecturer, Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton, Alberta, 2006-2008
Sessional Instructor, Department of Geography, Simon Fraser University, Burnaby BC, May 2006 to September 2006
Instructor, Department of Geography, Capilano College, North Vancouver, BC, September 2005 to April 2006
Instructor, Department of Geography, Lakehead University, ON, January 2005 to April 2006
Sessional Instructor, Department of Geography, University of Guelph, ON, January to December 2004
Water Management Planner, Sunshine Coast Regional District (SCRD), Sechelt, BC,
Land-use Planner (SCRD), Sechelt, BC, January 1991 to May 2000 May 2000 to September 2002
Planning Assistant (SCRD), Sechelt, BC, January 1988 to January 1991
Secondary School Teacher (Sunshine Coast School District), Sechelt, BC, September 1983 to January 1988

PATRICK, Robert J.

9. TEACHING RECORD:

9.1 SCHEDULED INSTRUCTIONAL ACTIVITY

YEAR	COURSE	INST. TYPE	ENROL	YIH	YCSH
2019-20	GEOG 240	LEC	105	39	4095
	PLAN 442	LEC	30	39	1170
2018-19	GEOG 240	LEC	60	39	2340
	PLAN 442	LEC	21	39	1092
	GEOG 240	LEC	100	39	3315
2017-18	GEOG 130	LEC	150	39	4173
	GEOG 130	LEC	107	39	4173
	PLAN 490	LEC	24	39	936
	GEOG 240	LEC	85	39	3315
2016-17	PLAN 442	LEC	28	39	1092
	GEOG 130	LEC	121	39	4719
	PLAN 442	LEC	32	39	1248
2015-16	GEOG 240	LEC	119	39	4641
	PLAN 442 Regional Planning	LEC	30	39	1170
2014-15	GEOG 240 Sustainable Cities	LEC	101	39	3939
	PLAN 442, Regional Planning	LEC	20	39	780
2013-14	PLAN 329, Watershed Planning	LEC	15	39	585
	GEOG 898, Advanced Planning	SEM	4	39	156
	RUP 490, Planning Project	LEC	30	39	1170
	GEOG 442, Regional Planning	LEC	30	39	1170
	GEOG 240, Sustainable Cities	SEM	101	39	3939
2012-13	GEOG 990, Colloquium	SEM	40	4	160
	GEOG 240, Sustainable Cities and Regions	LEC	73	39	2847
	GEOG 329, Watershed Planning	LEC	19	30	741
2011-12	GEOG 442, Regional Planning	LEC	19	39	741
	RUP 490, Applied Planning Project	LEC	23	39	897
	GEOG 442, Regional Planning	LEC	30	39	1170
	GEOG 240, Sustainable Cities & Regions	LEC	52	39	2028
2010-11	RUP 490, Applied Planning Project	LEC	23	39	897
	RUP 398, Models of Indigenous Planning & Development	SEM	9	39	351
	GEOG 442, Regional Planning	LEC	23	39	897
	GEOG 329, Watershed Planning & Mgmt	LEC	23	39	897
	GEOG 130, Space, Place & Society	LEC	180	39	7020
2009-10	RUP 490, Applied Planning Project	LEC	5	39	195
	GEOG 898, Integrated Water Resource Mgmt	LEC	3	39	117
	GEOG 442, Regional Planning	LEC	36	39	1404
	GEOG 329, Watershed Planning & Mgmt	LEC	22	39	792
	GEOG 490, Special Topics in Physical Geog.	LEC	1	39	39
2008-09	GEOG 208, World Regional Development	LEC	78	39	2925
	GEOG 130, Space, Place & Society	LEC	125	39	4875

PATRICK, Robert J.

9.2 UNSCHEDULED INSTRUCTIONAL ACTIVITY:

Guest Lecturer:

2017-18	Guest lecture: PUBH 815 (for Lalita Bharadwaj), March 15, 2018. Guest Lecture on source water protection
2018	Guest Lecture. GEOG 803. February 5, 2018. Doing Research with First Nations.
2017	Guest Lecture: NSERC Create for Water Security. October 4, 2017. Source Water Protection Planning.
2016-17	PUBH 815: Guest lecture: "Protecting Water Sources on First Nations". Dr Lalita Bharadwaj, School of Public Health. March 9, 2017, 3 hours
2014-15	GEOG 130, Space Place & Society, 150 students, 2 hours
2013-14	NS 265, Aboriginal Peoples and Development, 30 students, 1 hour.
2011-12	GEOG 130, Space Place & Society, 150 students, 2 hours GEOG 280, Environmental Geography, 40 students, 1 hour
2009-10	ENVS 821, Sustainable Water Resources, 30 students, 1 hour
2008-09	GEOG 280, Environmental Geography, 50 students, 1 hour GEOG 351, Northern Environments, 30 students, 1 hour GEOG 280, Environmental Geography, 50 students, 1 hour

9.3 POSTGRADUATE STUDENTS SUPERVISED OR ON THEIR COMMITTEE

	Name	Degree	Department	Thesis Subject Area	Time Frame
Supervised:	A. Akobundu	MA	GEPL	Climate Change	In Progress 2020
	J. Schultz	MA	GEPL	Indig Planning	In Progress 2020
	W. Baijius	PhD	GEPL	Indigenous Water	In progress 2020
	O. Awume	MA	GEPL	Water Security	Completed 2018
	D. Iuliano	MWS	SENS	First Nations water	Completed 2017
	H. Carriere	MNGD	SPP	Dam licensing	Completed 2017
	V Mauel	MSEM	SENS	Urban Habitat	Completed 2017
	R Smith	MNGD	SPP	Northern School	Completed 2017
	C Coccola	MWS	SENS	Source Protection	Completed 2017
	T McKay	MNGD	SPP	Water Access	Completed 2017
	J. Daigneault	MNGD	ICNGD	Source Water	Completed 2016
	B. Cowan	MNGD	ICNGD	Source Water	Completed 2016
	M. Dawe	MA	GEPL	Road Access	Completed 2016
	J. Dejarlais	MNGD	ICNGD	Watershed Planning	Completed 2016
	A. Carlson	MNGD	ICNGD	Source Water	Completed 2015
	W. Baijius	MNGD	ICNGD	Lakeshore planning	Completed 2016
	K. Grant	MA	GEPL	Aboriginal Planning	Completed 2016
	K. Richardson	MSEM	SENS	Urban biodiversity	Completed 2015
	K. Young	MSEM	SENS	Watershed Planning	Completed 2014
	F. Goulet	MNGD	ICNGD	Water Perspectives	Completed 2015
	A. Al Abrahim	MA	GEPL	Water Management	Completed 2015
	J. Miller	MA	GEPL	Indigenous Water	Withdrew
	K. Trefry	MSEM	SENS	Housing	Completed 2014

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F. Younes	MSEM	SENS	Water Regulations	Completed 2013
H. Wang	MA	GEPL	Water Policy	Completed 2013
N. Lemoine	MA	GEPL	Water Policy	Completed 2012
J. Skwaruk	MA	GEPL	Cumulative Effects	Completed 2011
B. Morgan	MSEM	SENS	Water Policy	Completed 2011
J. Misfeld	MSEM	SENS	Water Policy	Completed 2012
F. Rawlyk	MA	GEPL	Source Protection	Completed 2012

Co-Supervised:

W. Baijius	PhD	GEPL	Water Planning	2015-
D. Johns	MNGD	ICNGD	Northern Planning	Completed 2012
E. Heffring	MSEM	SENS	Green Roofs	Completed 2010

Committee Member:

B. Field	PhD	GEPL	Spatial An	2018-
G. Apatinga	MSc	GEPL	Water/Health	2019-
F. Quader Nijhum	MSc	GEPL	EIA	2018-
V. Santafe	MES	SENS	Food Security	2016-
L Wong	MSc	GEPL	EIA	2016-
S. Striech	MSc	GEPL	Gndwater	2016-Completed
J Cronmiller	MSc	GEPL	EIA	2016-
B. Fawcett	PhD	GEPL	Housing	2015-
M. Tootoosis	PhD	INDST	Water rights	2015-
Zhibang Lv	PhD	GEPL	Hydrology	2013-Completed
Sarem Nejad	PhD	GEPL	Housing	2013-Completed
Sisi Zhang	MSc	GEPL	GIS	2013-Completed
Phillip Harder	MSc	GEPL	Hydrology	2013-Completed
Kabir Rasouli	PhD	GEPL	Hydrology	2013-Completed
D. Beveridge	PhD	GEPL	Groundwater	2012-Completed
J. Chilma	PhD	SENS	Water Quality	2012-Completed
A. Sizo		GEPL	SEA	2011-Completed
C. Finnigan	MSc	GEPL	Remote Sensing	2011-Completed
P. Basnet	MSc	GEPL	Cumulative Effects	2011-Completed
A. Petrenko	MSc	GEPL	GIS	2011-Completed
L. Chen	MA	GEPL	Urban GIS	2011-Completed
N. Rahimova	PhD	SENS	Tradable water rights	2011- Complete
T. Czerniak	MA	GEPL	Pedestrianization, SK	2011- Complete
G. Hagblom	MA	GEPL	Aboriginal Housing	2011- Complete
B. Sikorski	MA	GEPL	Cumulative Effects	2010-Completed
S. Kristensen	MA	GEPL	Cumulative Effects	2010-Completed
J. Chilma	MA	SENS	Cumulative Effects	2009-Completed
M. Ball	MSc	GEPL	Watershed Assess.	2009-Completed
A. Mahaffey	MSc	GEPL	Water Contaminants	2009-Completed
R. Lepage	MA	JSGS	Sustainability Assess.	2009-Completed
Y. Prusak	MA	GEPL	Indigenous Housing	2009-Completed
L. White	PhD	SENS	Energy, Sustainability	2009-Completed

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M. Tubbsum	PhD	GEPL	Indigenous land title	2009-Withdrew
N. Seitz	MSc	GEPL	Cumulative Effects	2009-Completed
P. Sheelanere	MSc	SENS	Cumulative Effects	2008-Completed
N. Fraser	MA	GEPL	Aboriginal Housing	2008-

External Examiner:

C. Steele	MSc	USASK	Engineering	April 2020
A. Khalafzai	PhD	UAlberta	Water policy	April 2020
S. Perry	MA	PolSt	Water policy	Completed 2015
D. Potter	MA	English	Novel	Completed 2014
J. Hardy	MA	Sociology	Renewable Energy	2009- Complete
A. Buonocore	MES	Geography	Lakehead University	May 2014
D. Carrier	MNGD	ICNGD	U of S	Sept 2014
J. Wasacase-Merasty	NORD 990	Second Reader		Sept 2014

9.4 NEW OR REVISED TEACHING MATERIALS DEVELOPED OR AUTHORED

2014-15, PLANNING 329 Integrated Water Resource Planning: Online Distance Education course development

9.5 SUBSTANTIALLY REVISED OR NEW COURSES DEVELOPED AND APPROVED

2015 PLAN 329 On-Line version course and module development

2010 GEOG 442 Revised course outline, new cource content – Course title change from Sustainable Land Use Planning to Regional Planning
2008 GEOG 329 New course develop for January 2009: Watershed Planning and Management

9.6 PUBLICATIONS IN JOUNALS OR BOOKS RELATED TO TEACHING METHODS

9.7 ATTENDANCE AT TEACHING IMPROVEMENT WORKSHOPS

2014 Gwena Moss Centre for Teaching Effectiveness "Preparing and Personalizing the Course Syllabus Using the New U of S Template". June 4, 2014
2013 Gwena Moss Centre for Teaching Effectiveness. *Teaching Large Classes: The More the Merrier*. September 16, 2013.
2011 Gwena Moss Centre for Teaching Effectiveness. *Graduate Supervision: Effective Strategies for Mentoring Graduate Students*. Spring Workshop with Brad Wuetherick and Jim Thornhill. May 5 2011.

9.8 TEACHING AWARDS OR RECOGNITIONS RECEIVED

2014 Teaching Excellence Award. College of Arts and Science
2012 Nominated for USSU Teaching Award (Geography 442)
2010 Nominated for USSU Teaching Award (Geography 329)

PATRICK, Robert J.

10. THESES SUPERVISED

	Name	Degree	Department	Thesis Subject Area	Time Frame
Supervised:					
	O. Awume	MA	GEPL	Water Security	Completed 2018
	R. Smith	MNGD	ICNGD	Education	Completed 2017
	C. Coccola	MWS	SENS	Source protection	Completed 2017
	V. Mauel	MSEN	SENS	NE Swale	Completed 2017
	M. Dawe	MSEM	SENS	Source protection	Completed 2016
	J. Daigneault	MNGD	ICNGD	Water planning	Completed 2016
	B. Cowan	MNGD	ICNGD	Water planning	Completed 2016
	K. Grant	MA	GEPL	Water Planning	Completed 2016
	A. Carlson	MNGD	ICNGD	Source Protection	Completed 2016
	F. Goulet	MNGD	ICNGD	Water Policy	Completed 2015
	W. Baijius	MA	GEPL	Lake Planning	Completed 2015
	K. Richardson	MSEM	SENS	Biodiversity	Completed 2015
	A. Al Ibrahim	MA	GEPL	Urban Water	Completed 2015
	K. Young	MSEM	SENS	Watershed Planning	09/2013-09/2014
	H. Wang	MA	GEPL	Water Policy	01/2011-09/2013
	K. Trefry	MSEM	SENS	Sustain. Housing	09/2012-08/2013
	N. Lemoine	MA	GEPL	Northern water	09.2010-09/2012
	F. Younes	MSEM	SENS	First Nations water	09/2011-09/2012
	J. Skwaruk	MA	GEPL	Cumulative Effect	05/2010-11/2011
	J. Misfeld	MSEM	SENS	Water Policy	09/2010-04/2012
	B. Morgan	MSEM	SENS	Water Policy	09/2010-08/2011
	F. Rawlyk	MA	GEPL	Source Protection	09/2008-04/2012
Co-Supervised:					
	D. Johns	MNGD	ICNGD	Northern Planning	01/2011-04/2013
	E. Heffring	MSEM	SENS	Green Roofs	09/2009-08/2010

11. BOOKS, CHAPTERS IN BOOKS, EXPOSITORY AND REVIEW ARTICLES:

BOOKS:

Patrick, R.J. 2020. *Sustainable Cities and Regions*. Kendall Hunt Publishing Company, Dubuque, IA, USA. [eBook for use in Geography 240]

Patrick, R.J. 2020. *Protecting Sources of Drinking Water: A Resource Guidebook for Indigenous Communities, Watershed Associations, Local Governments and Non-Governmental Associations*. Kendall Hunt Publishing Company, Dubuque, IA, USA. ISBN 978-1-7924-0877-9. [eBook for use in Geography 130]

PATRICK, Robert J.

CHAPTERS IN BOOKS

PUBLISHED:

Patrick, R. J. 2016 "Indigenizing Source Water Protection" in Indigenous Peoples and Resource Development in Canada by Robert Bone and Robert Anderson. Captus Press. Toronto, pp 307-316.

Patrick, R. 2013. Indigenous Planning and Source Water Protection in Ian Skelton and Octavio Ixtacuy Lopez (eds) Models of Indigenous Development. Common Ground Publishers.

Patrick, R. 2013. Indigenous Source Water Protection: Lessons for Watershed Planning in Canada in Ryan Walker, David Natcher, Ted Jojola and Tanira Kingi (eds) Walking Backwards into the Future. McGill Queens University Press.

EXPOSITORY AND REVIEW ARTICLES

PUBLISHED:

Patrick, R. 2013. Invited guest statement (vignette). Source Water protection for safe drinking water in Norton, B. Human Geography, Eighth Edition. Oxford University Press.

12. PAPERS IN REFEREED JOURNALS:
ACCEPTED:
PUBLISHED:

Obadiah Awume, **Robert Patrick** * and Warrick Baijius (2020). Indigenous Perspectives on Water Security in Saskatchewan, Canada. *Water*, 12, 810; doi:10.3390/w12030810

Baijius W., & **Patrick, R. J**.(2019). Planning around reserves: Probing the inclusion of First Nations in Saskatchewan's watershed planning framework. *The International Indigenous Policy Journal*, 10 (5). doi: https://10.18584/iipj.2019.10.5.8502

Patrick R.J. (2019). Building Water Security through Drinking Water Protection Planning with First Nations in Canada. Invited paper in: *Global Water Security Issues - Case Studies: Water Security and the Sustainable Development Goals*. Invited special collection of papers on water security. UNESCO International Centre for Water Security and Sustainable Management (i-WSSM). Republic of Korea. Global Water Security Issues. UNESCO i-WSSM website:
http://unesco-iwssm.org/board/select?bbsNo=0000000064&nttSn=35

Baijius, Warrick and **Robert Patrick** (2019). "We Don't Drink the Water Here": The Reproduction of Undrinkable Water for First Nations in Canada. *Water* 11, 1079. (Special Issue).

Patrick, Robert; Kellie Grant and Lalita Bharadwaj (2019). Reclaiming Indigenous Planning as a Pathway to Local Water Security. Water 11(5) 936. (Special Issue)

Patrick, R. J. (2018). Adapting to Climate Change Through Source Water Protection: Case Studies from Alberta and Saskatchewan, Canada. *The International Indigenous Policy Journal*, 9(3). DOI: 10.18584/iipj.2018.9.3.1

PATRICK, Robert J.

Patrick, Robert; Graham Strickert; Tim Jardine and Warrick Baijius (2018). A Watershed for Collaboration: A Multi-Jurisdictional Approach to Indigenous Water Stewardship. *Plan Canada* Vol 58(3).

Al Ibrahim, A.; **Patrick, RJ.** 2017. Source Water Protection Planning and Management in Metropolitan Canada: A Preliminary Assessment. *Water*, 9(7), 497.

Patrick, R. 2017. Social and cultural impacts of the 2013 Bow River flood at Siksika Nation, Alberta, Canada. *Indigenous Policy Journal* 28(3) Research Notes.

C Kleinschmidt, **RJ Patrick** and M Mayer, 2017. "It's not just the food we produce, it's the community we are building": Growing Healthy Communities in Saskatoon, Canada. *Prairie Perspectives*. Volume 19 (Melfort Papers).

Robert J Patrick, Laura Machial, Lenny Quinney, Kendra Quinney. 2017. Lessons Learned Through Community-Engaged Planning. *International Indigenous Policy Journal* (April 2017 Special Issue. Reconciling Research: Perspectives on Research Involving Indigenous Peoples - Part 1) Volume 8, Issue 2.

Jania S. Chilima, Jill A.E. Blakely, Bram F. Noble & **Robert J. Patrick**. 2017. *Canadian Water Resources Journal*. Institutional arrangements for assessing and managing cumulative effects on watersheds: Lessons from the Grand River watershed, Ontario, Canada. http://dx.doi.org/10.1080/07011784.2017.1292151

R. Patrick & L. Bharadwaj 2016. Mining and campesino engagement: an opportunity for integrated water resources management in Ancash, Peru, *Water International*, 41:3, 468-482, DOI: 10.1080/02508060.2016.1160311

Young, K. and **R. Patrick** 2015**.** A Planning Framework for Community-Based Lakeshore Management Planning: A Case Study. Saskatchewan Professional Planners Institute. *Planning Journal*. pp. 4-7.

Wang, H. and **R. Patrick** 2014. Implementing source water protection plans in Saskatchewan: Local watershed perceptions. *Prairie Perspectives*. Vol 17: 1-10.

Morgan, B., **R. Patrick**, and M-A. Bowden 2014. Water Governance in the Saskatchewan River Basin: A Preliminary Study. *Journal of Rural and Community Development*. Vol. 9(4). pp 34-48.

Lemoine N. and **R. Patrick** 2014. Water Governance in Northern Saskatchewan: Opportunities and Challenges. *Canadian Journal of Urban Research* 23:1 Supplement 2014. pp. 46-60.

Patrick, R. 2014. Source water protection planning: A role for planners. *Alberta Professional Planners Institute Journal* 13:12-15.

Patrick, R. and D. Espeseth. 2014. A Planning Tool for the Protection of Drinking Water Sources in Canada. *Plan Canada* 54 (4): 28-33.

Noble B., Skwaruk, J. and **R. Patrick.** 2013. Toward cumulative effects assessment and management in the Athabasca watershed, Alberta, Canada. *The Canadian Geographer*. DOI. 10.1111/cag.12063

Rawlyk, F. and **R. Patrick.** 2013. Capacity Needs for source water protection plan implementation: Lessons from the South Saskatchewan River. *Canadian Journal of Urban Research* 22(1): 19-45.

Kevinson J., **Patrick R.** and L. Bharadwaj. 2014. A framework for assessing effective urban water management: lessons from the Canadian prairie. *Water International* 39(1): 113-127.

PATRICK, Robert J.

Rizvi, Z., Adamowski, J. and **Patrick, R.J.** 2013 'First Nation capacity in Quebec to practice integrated water resource management' *International Journal of Water* 7(3), 161-190.

Sheelanere, P., Noble, B.F., **Patrick, R.J.** 2013. Institutional requirements for watershed cumulative effects assessment and management: Lessons from a Canadian trans-boundary watershed. *Land Use Policy* 30: 67– 75.

Kristensen, S.; Noble, B.F. **Patrick, R.J.** 2013. 'Capacity for Watershed Cumulative Effects Assessment and Management: Lessons from the Lower Fraser River Basin, Canada. *Environmental Management*. DOI 10.1007/s00267-013-0075-z.

Chilma, J.S., Gunn, J., Noble, B.F., **Patrick, R.J.** 2013. 'Institutional considerations in watershed cumulative effects assessment and management' *Impact Assessment and project Appraisal* 31(1), 74-84.

Patrick, R. and A. MacDonald. 2012. Symbolism and the city: From towers of power to 'Ground Zero'. *Prairie Perspectives*. 15: 14-18.

Patrick, R.J. and Cheesborough, D. 2012 'Revisiting Food Deserts in the Canadian Prairie'. *Plan Canada* 52(3).

Patrick, R.J. 2011. Enhancing water security in Saskatchewan, Canada: an opportunity for a water soft path. *Water International* 36 (6). 748-763.

Smith, B. and **Patrick, R.J**. 2011. Xeriscape for Urban Water Security: A Preliminary Study from Saskatoon, Saskatchewan. *Canadian Journal of Urban Research*, Volume 20 Issue 2, pages 56-70.

Noble, B. F., Poornima S. and **Patrick, R.J.** 2011. Advancing watershed cumulative effects assessment and management: Lessons from the South Saskatchewan River Watershed, Canada. *Journal of Environmental Assessment Policy and Management* 13 (4): 567-590.

Patrick, R. 2011. Uneven access to safe drinking water for First Nations in Canada: Connecting health and place through source water protection. *Health & Place* (17). 386-389.

Patrick, R. 2009. A political ecology of source water protection. *Prairie Perspectives* 12: 43-61.

Patrick, R. 2009. Source water protection in a landscape of 'New Era' deregulation. *The Canadian Geographer* 53 (2): 208-221

Patrick, R. 2008. Planning for Source Water Protection. *Plan Canada* 48 (4):19-22.

Patrick, R. 2008. Source Water Protection for Nonmetropolitan Drinking Water Operators in British Columbia, Canada. *Journal of Rural and Community Development* 3(2):64-78.

Patrick, R., R. Kreutzwiser and R. de Loë. 2008. Factors facilitating and constraining source water protection. *Canadian Water Resources Journal* 33(1): 39-54.

Patrick, R. 2005. Protecting Drinking Water Sources and Public Health. *Healthcare Quarterly* 3(3): 2-7.

Patrick, R. and M. Roseland. 2005. Using sustainability indicators to improve access to public transit in rural residential areas: Alternatives for the Georgia Basin, BC. *Journal of Rural and Community Development* 1:1-18. www.jrcd.ca

Patrick, R. J. 2004. [Re-]Designing rural residential areas with public transit in mind: developing indicators for a more sustainable future. *Western Geography,* 13/14: 109-131. http://office.geog.uvic.ca/dept/wcag/patrick.pdf

PATRICK, Robert J.

Patrick, R.J. 2003. Public transit and the Kyoto Protocol: How local government in Canada can promote greenhouse gas emission reductions. *The Great Lakes Geographer*, 9(2): 94-101. [student paper prize winner PhD category, CAGONT 2002] http://geography.ssc.uwo.ca/great_lakes_geographer/GLG_volume9/patrick.pdf

13. PAPERS IN NON-REFEREED JOURNALS:
PUBLISHED:

Patrick, Robert. 2018. Solution Source: First Nation communities in Saskatchewan are adapting to climate change impacts through source water protection planning. WATER CANADA. May/June 2018 issue.

Patrick, R.J. , Millward, W. and B. Noble. 2013. Source Water Protection Policy in Canada. Municipal World 123(11): 9-13.

Patrick, R.J. 2013. First Nations and Source Water Protection. Safe Drinking Water Foundation (Saskatoon, SK) Editorials. (http://www.safewater.org/resources/sdwf-editorials.html)

Patrick, R. 2005. Planning for safe drinking water: A role for planners. *Planning West* 47 (3): 7-9. Planning Institute of British Columbia.

Patrick, R. 2005. A political ecology of drinking water source protection. *Rhizome*, 14(2): 11-12.

Brooks, D., de Loë, R.C., **Patrick, R.,** and Rose, G. 2004. *Water Soft Path for Ontario: Feasibility Study*. Final Report, July, 2004. Prepared for the Walter and Duncan Gordon Foundation. Ottawa, ON: Friends of the Earth Canada. 87 pp.

Patrick, R. 2002. Public transit and Kyoto: Developing indicators for sustainable development. *Planning Institute of British Columbia News* 44(4): 13-16.

14. INVITED PAPERS IN PUBLISHED CONFERENCE PROCEEDINGS AND ABSTRACTS:

Noble B. and **Patrick R.** 2013. Requisites for regional cumulative effects assessment and management. Invited presentation, Theme Forum on Regional and Ecosystem-based Approaches to Cumulative Effects Assessment. 33rd Annual Conference of the International Association for Impact Assessment, 'Impact Assessment: The Next Generation.' 13-16 May, Calgary, AB.

Patrick, R., June 2012. Uneven access to safe drinking water for Indigenous Peoples in Canada Presented at: Indigenous Planning Exchange Program (IPEX) conference "Conferencia En Modelos De Desarrollo Indigena". Hosted by: Universidad Autónoma de Chiapas San Cristobol, Mexico, Feb. 23-25, 2011.

15. CONTRIBUTED PAPERS IN PUBLISHED CONFERENCE PROCEEDINGS AND ABSTRACTS:

Patrick, R. and Kreutzwiser, R.D. 2006. *A political ecological perspective on source water protection: Case studies from the Okanagan Valley, British Columbia*. In Working from the Source: Towards Sustainable Management. Proceedings of the CWRA 59th Annual Conference, Toronto, June, 2006. Cambridge, ON: Canadian Water Resources Association (reviewed by a selection committee).

PATRICK, Robert J.

16. TECHNICAL REPORTS RELEVANT TO ACADEMIC FIELD:

Patrick, R. 2019. Position Paper. Building Indigenous Research Capacity and Reconciliation Through Source Water Protection. Presented to Social Sciences and Humanities Research Council of Canada. Indigenous Research Capacity and Reconciliation – Connection Grants. File No. 612-2018-0155.

Patrick, R. 2013. Aboriginal and Northern Development Canada. Source Water Protection Template and Guidance Document. AANDC. Gatineau, QC. Sole author.

Patrick, R. Canada Mortgage and Housing Corporation 2001. Your Next Move: Choosing A Neighbourhood with Sustainable Features. CMHC Publication No. NH15-377/2001E

Patrick, R. Halfmoon Bay Liquid Waste Management Plan - Stage 2. Prepared for Sunshine Coast Regional District Board: Sechelt, BC.

Patrick, R. 2001. Future Water Capacity and Alternatives. (Reports 1-4). Prepared for the Sunshine Coast Regional District Board: Sechelt, BC.

Patrick, R. 1998. Egmont/Pender Harbour Official Community Plan. Prepared for the Sunshine Coast Regional District Board: Sechelt, BC.

Patrick, R. 1994. Roberts Creek Official Community Plan, Prepared for the Sunshine Coast Regional District Board: Sechelt, BC.

Patrick, R. (1991). Inland Centres of New South Wales: Trends and Opportunities. Prepared for the New South Wales Department of Planning: Sydney, Australia.

17. BOOK REVIEWS:

Sproule-Jones, M.C. Johns, and B.T. Heinmiller (eds). 2008. Canadian Water Policy. McGill-Queens University Press, 390 pages. Reviewed for Journal Environments.

18. INVITED LECTURES OUTSIDE U OF S AND INVITED CONFERENCE PRESENTATIONS:

Patrick, R. 2020	Assembly of First Nations. Climate Gathering. Whitehorse, Yukon. March 2-5, 2020. Invited Workshop Presentation: *"Climate Change Impacts and Adaptation Planning: Stories from Saskatchewan"*.
Patrick, R. 2020	Fraser Basin Council. Adaptation Canada 2020. Vancouver, BC. Feb 19-21, 2020. Invited Presentation: *"Kikawinaw Askiy: Reconciling with Indigenous Sacred Ecology"*.
Patrick, R. 2019	Household Water Insecurity Experiences (HWISE). UBC/Texas A&M Workshop. Invited Participation. Vancouver, BC. November 17-19, 2019.
Patrick, R. 2019	Partners for the Saskatchewan River Basin. Annual Conference "Where Waters Meet". Indigenizing Water Security. Gimli MB. Sept. 30-Oct 2.
Patrick, R. 2019	*Kikawinaw Askiy: Reconciling with Indigenous Sacred Ecology*. Global Water Futures Second Annual Science meeting held in Saskatoon, SK. May 12-17, 2019. Co-Presented.
Patrick, R. 2019	*First Nations (Canada) and Water Security*. Presentation at: American Association of Geographers (AAG). Washington, DC. USA. April 3-7, 2019. Presented by R. Patrick

PATRICK, Robert J.

Patrick, R. 2019	Participant at SSHRC Workshop (Recipients of Connectins Grant - Indigenous Research Capacity and Reconciliation). Workshop held in Ottawa, ON. March 12-13, 2019.
Patrick, R. 2019	*Kikawinaw Askiy: Reconciling with Indigenous Sacred Ecology*. Presentation at Assembly of First Nations (AFN) second annual National Water Symposium and Tradeshow at Niagara, ON. Feb 25-27, 2019.
Patrick, R. 2019	Participant at Technical Services Advisory Group (TSAG - Alberta First Nations) Workshop. (Indigenous Research Capacity and Reconciliation – SSHRC Connections Grant awarded to TSAG). Banff, AB. Workshop January 21-23, 2019.
Patrick, R. 2018	University of California Santa Barbara. Water Realities in Canada. Guest lecture presented to graduate students of Prof. Robert Wilkinson, UCSB Bren School of the Environment. 14 Nov 2018.
Patrick, R. 2018	University of California Santa Barbara. Source Water Protection Planning with First Nations in Canada. Guest lecture presented to graduate students of Prof. Robert Wilkinson, UCSB Bren School of the Environment. 15 Nov 2018.
Patrick, R. 2018	*Indigenous Perspectives on Water Security*. Presentation at: Prairie Division, Canadian Association of Geographers. Annual General Meeting. Held at Hecla, MB. September 28-30, 2018. Presented by R. Patrick.
Patrick, R. 2018	Toward water security and climate change adaptation through source water protection planning: Stories from the Canadian Prairie. Alberta Watershed Planning Advisory Committee (WPAC) 2018 Summit held in Peace River, AB. June 19-22, 2018.
Patrick, R. 2018	Source Water Protection Planning. Global Water Futures Inaugural Annual Science meeting held in Hamilton, ON. June 3-6, 2018.
Patrick, R. 2018	Yorkton Tribal Council (April 24, 2018). Housing Workshop for Touchwood Agency, Qu'Appelle and Yorkton Tribal Councils. Presentation title: Source water protection planning in your community.
Patrick, R. 2018	American Association of Geographers (AAG) New Orleans April 9-14, 2018. Lessons learned from community-based participatory research: Cumberland House Water Stewardship Plan.
Patrick, R. 2018	File Hills Qu'Appelle (March 22, 2018) Water Operators Workshop. Advancing source water protection in your community.
Patrick, R. 2017	Partners for the Saskatchewan River Basin. Leduc, AB. Annual Conference October 17-19, 2017.Presentation Topic: Frog Lake Source Water Protection Plan (with Len Quinney).
Patrick, R. 2017	FSIN Health and Social development Climate change Adaptation Workshop. Sept 21-22, 2017. Presentation: Adapting to Climate Change: University Research in your Community.
Patrick, R. 2017	Community Navigators Workshop (First Nations). Presentation title: "Planning 101" Saskatoon. Hosted by Indigenous and Northern Affairs Canada. March 14, 2017.

PATRICK, Robert J.

Patrick, R. 2017	Partners for the Saskatchewan River Basin. Annual Conference. Presentation title: "Source Water Protection Planning with Siksika Nation, Treaty 7, Alberta" Saskatoon, Oct 19, 2017.
Patrick, R. 2016	North American Lake Management Society. Science to Stewardship: Balancing Economic Growth with Lake Sustainability. First Nations and Water special session. "Saskatchewan River Delta: Water Stewardship Planning Initiative". November 1-4, 2016. Banff, Alberta.
Patrick, R. 2015	Prince Albert Model Forest. Workshop. Presentation title: "Cumberland House Water Stewardship Plan". Prince Albert, SK. December 2015.
Patrick, R. 2015	Partners for the Saskatchewan River Basin. Annual Conference. Presentation title: "Cumberland House Water Stewardship Plan". Winnipeg, MB. Nov 2/3, 2015.
Patrick, R. 2015	Technical Services Advisory Group. Annual Conference. Presentation title: "Source Water Protection at Muskowekwan First Nation, SK." Edmonton, AB. October 28, 2015 (with J. Manitopyes)
Patrick, R. 2015	Canadian Institute of Planners. Annual Conference. Presentation title: Planning for source water protection with First Nations on the Canadian Prairie". Saskatoon, SK. July 2015.
Patrick, R. 2015	Canadian Association of Geographers. Annual Conference. Presentation title: "First Nations and Source Water Protection Planning on the Canadian Prairie". Vancouver, BC. June 2015.
Patrick, R. 2015	Canadian Water Resources Association. Annual Conference. Presentation title: "Source water protection with First Nations". Winnipeg, MB. June 2015.
Patrick, R. 2014	Partners for the Saskatchewan River Basin. Annual Conference. Presentation title: "Muskowekwan First Nation Source Water Protection Planning". Saskatoon, SK. October 27, 2014 (with J. Manitopyes).
Patrick, R. 2014	Technical Services Alberta Group Environmental Management Trade Show and Conference. Presentation Title: 'Source Water Protection'. October 17, 2014. Edmonton, AB.
Patrick, R. 2014	Saskatchewan Aboriginal Land Technicians. Annual Conference. Presentation Title: A Planning Template for Source Water Protection with First Nations. Saskatoon, August 14, 2014.
Patrick, R. 2014	Saskatchewan Association of Watersheds Annual Conference. Presentation Title: Taking a Soft Path to Water Management. Saskatoon, March 19-21, 2014.
Patrick, R. 2014	Ontario First Nations Technical Services Corporation – Water Symposium. Presentation Title: "Source water protection planning in your community". Niagara Falls, ON. March 3-5, 2014.
Patrick, R. 2014	Government of the Northwest Territories. Presentation Title: Capacity building for source water protection: Yellowknife, MWT. February 20, 2014.

PATRICK, Robert J.

Patrick, R. 2014	Saskatoon Sustainability Networking Conference. Title: Transportation Planning and Design. Presentation Title: Urban Transportation and Design: Getting to Where we Need to Go". Saskatoon, SK. Jan 24, 2014.
Patrick, R. 2013	Partners for the Saskatchewan River Basin. Annual Conference. Presentation Title: "How to develop a source water protection plan in a community near you!" . Medicine Hat, Alberta. October 23, 2013.
Patrick, R. 2012	Saskatoon Cycles Annual General Meeting. Presentation title: 'Economics of Cycling'. Oct 11, 2012. Saskatoon, SK.
Patrick, R. 2012	Provincial Association of Resort Communities of Saskatchewan, Annual Conference. Presentation Title: 'Source water protection in your community'. Oct 13, 2012 PARCS, Manitou Beach, SK.
Patrick, R. 2012	Touchwood Agency Tribal Council, The Gift of Life. Annual Saskatoon Conference. Presentation Title: 'First Nations source water protection planning: Getting started!' October 17, 2012. Saskatoon Inn, Saskatoon.
Patrick, R. 2012	Technical Services Alberta Group Environmental Management Trade Show and Conference. Presentation Title: 'Source Water Protection: Getting Started!'. Nov 6, 2012. Edmonton, AB.
Patrick, R. 2013	Planning for Environmental Change Workshop. Technical Services Advisory Group. Presentation Title: 'A Template for Source Water Protection in Your Community'. Feb 12, 2013 Edmonton, AB.
Patrick, R. 2013	Water Security Agency. Old Wives Lake Source Water Protection Plan workshop. Presentation Title: 'Source Water protection: Getting Started'. Jan 31, 2013. Gravelbourg, SK.
Patrick, R. 2012	Watershed Planning and Management for Safe Drinking Water, College of Agriculture and Bioresources, Land Management Workshops. June 2012, English River First Nation, SK.
Patrick, R. 2012	Watershed cumulative effects assessment and management in Canada: Institutional arrangements, capacity and scale. Canadian Water Resources Association annual conference, June, Banff, AB. (with B. Noble)
Patrick, R. 2012	State of the Saskatchewan River Basin Report. Treaty 7 water sub-table, June, Calgary, AB.
Patrick, R. 2012	2012 Nonpoint Source Pollution/Low Impact Development. 2012 Canon Envirothon Current Issue Topic. Hosted by Meewasin Valley Authority, held May 4 at U of S. Annual event for high school students in Saskatchewan.
Patrick, R. 2012	Northwest Territories Source Water Assessment and Protection planning workshop for southern communities, March, Yellowknife, NWT.
Patrick, R. 2012	First Nations source water protection planning: Getting started! Assembly of First Nations. National Water Conference, March, Edmonton, AB.
Patrick, R. 2012	Northwest Territories Source Water Assessment and Protection planning workshop for northern communities, February, Inuvik, NWT.
Patrick, R. 2012	Source Water Protection in a Nutshell (invited workshop). Canadian Association of Planning Students conference "Planning Horizons: The Edge, Future, and Potential of Planning, February, Simon Fraser University, Vancouver, BC.

PATRICK, Robert J.

Patrick, R. 2012	Source Water Protection and Public Health. Department of community Health Services, Faculty of Medicine, January, University of Calgary, Calgary, AB.
Patrick, R. 2012	Source Water Protection in a Nutshell. A presentation to the Fort Chipewyan Research Team. Department of Community Health Services, Faculty of Medicine, January, University of Calgary, Calgary, AB.
Patrick, R. 2012	Source Water Protection (In a Nutshell). Indigenous Peoples Land Management Program module III, January, Presentation at Wanuskewin Heritage Park, SK.
Patrick, R. 2011	Resident Mentor. Water and Agriculture: A Workshop for Saskatchewan's Future Leaders, hosted by Waterlution, November, Craik Eco-Village, SK.
Patrick, R. 2011	"What about Source Water Protection?". Moving Towards Safe Drinking Water to First Nations. Touchwood Agency Tribal Council. Water: The Gift of Life conference, September, Saskatoon, SK.
Patrick, R. 2011	Water Security in Northern Saskatchewan. Presented at Keepers of the Water V, August, Lac Brochet, MB.(hosted by Northlands First Nation).
Patrick, R. 2011	Protecćion de la fuente de agua. Presented at Urpichallay farm community workshop, April, Marcara, Peru. CIDA funded research exchange.
Patrick, R.2011	Building Water Security through source water protection. Presented at Universidad Nacional "Santiago Antunez De Mayolo" Facultad De Ciencias Del Ambiente. EXPOSITOR en el Ciclo de Conferencias Magistrales "Calidad y Gestion del Agua". April, Huaraz, Peru. CIDA funded research exchange.
Patrick, R. 2011	Water in Canada and the Prairies: An uncertain future. Presented at Universidad Nacional "Santiago Antunez De Mayolo" Facultad De Ciencias Del Ambiente. EXPOSITOR en el Ciclo de Conferencias Magistrales "Calidad y Gestion del Agua", April, Huaraz, Peru. CIDA funded research exchange.
Patrick, R. 2011	Access to Safe Water for Indigenous Pepoles' in Canada. Indigenous Peoples' Health Research Centre. First Annual Indigenous Health Conference, March, Saskatoon, SK.
Patrick, R. 2011	Watershed Planning in Indigenous communities in Saskatchewan, Canada. Presented at: Indigenous Planning Exchange Program conference "Conferencia En Modelos De Desarrollo Indigena". February, Hosted by: Universidad Autónoma de Chiapas San Cristobol, Mexico. IPEX involves USASK and 5 other universities.
Patrick, R. 2011	Watershed Planning in Indigenous communities in Saskatchewan, Canada. February, Classroom lecture presented at: Indigenous Planning Exchange Program at: Universidad Autónoma de Chiapas San Cristobol, Mexico.
Patrick, R. 2011	IPRM 200.3: Water Rights. Indigenous Peoples Resource Management Program (Module III). Invited guest, January, University of Saskatchewan, Saskatoon, SK.
Patrick, R. 2010	Water Demands for Nuclear Power on the Northern Saskatchewan River. Presented at Keepers of the Water IV: Wollaston Lake August, hosted by Hatchet Lake Denesuline First Nation, SK.

PATRICK, Robert J.

Patrick, R. 2009 Water and Nuclear Energy. Presented at Sustainable Water and Sustainable Energy Conference. Sponsored by Canadian Water Resources Association and Partners FOR the Saskatchewan River Basin held at Saskatoon Inn, Saskatoon, November 3-5, 2009.

Patrick, R. 2009 Climate Change Impacts on Water Resources. Presented at USSU Green Yourself Week, Campus Sustainability Day. October 23, 2009. Arts 146 Public Lecture.

Patrick, R. 2009 Implementing Source Water Protection. Presented at the Association of Professional Community Planners of Saskatchewan Annual Conference, Regina, SK. October 7, 2009.

Patrick, R. 2008 Connecting Land Use and Public Transit: How local government in Canada can promote greener, healthier communities. Presented at the Association of Professional Community Planners of Saskatchewan Annual Conference, Saskatoon, SK. October 15-17, 2008.

Patrick, R. 2007 Factors Facilitating and Constraining Source Water Protection in the Okanagan Valley: a Perspective from Political Ecology. Presented at the Water Supply Association of BC 13th Annual General Meeting, Penticton, BC. October 26, 2007.

19. PRESENTATIONS AT CONFERENCES (Non-Invited):

Patrick, R. 2017. Prairie CAG Morris Manitoba Sept 30-Oct 1, 2017. Paper: Cumberland House Water Stewardship Plan

Patrick, R. 2014. Source Water Protection with First Nations. 37th Annual Meeting of the Prairie Division of the Canadian Association of Geographers. Sept 26-28, 2014. Riding Mountain, MB.

Patrick, R., P. Sheelanere and B. Noble. 2011. Requisites for watershed-scale cumulative effects assessment and management. 35th Annual Meeting of the Prairie Division of the Canadian Association of Geographers. Sept 16-18, 2011. Devils Lake, North Dakota, USA.

Morgan, B., **R. Patrick** and M.A. Bowden. 2011. Exploring Watershed Governance: Opportunities for the Saskatchewan River Basin. 35th Annual Meeting of the Prairie Division of the Canadian Association of Geographers. Sept 16-18, 2011. Devils Lake, North Dakota, USA.

Patrick, R. 2011. Institutional requirements to support watershed cumulative effects assessment and monitoring in the South Saskatchewan Watershed Special Session Chair. Presented at Canadian Association of Geographers, Calgary, AB. June 1.

Patrick, R. 2008. Canadian Water Resources Association – Saskatchewan Branch. TOPIC: Eight reasons for the world to act on water and sanitation. October 23, 2008.

Patrick, R. 2008. Colloquium Series. Department of Geography and Planning. University of Saskatchewan. October 3, 2008.

Patrick, R. 2008. Factors Constraining Source Water Protection in the Okanagan Valley. Presented to the Prairie Division of the Association of Canadian Geographers. Boissevain, Manitoba. September 26/27, 2008.

Patrick, R. 2007. Evaluating Alberta's 'Water for Life' Program. Presentation at the Canadian Association of Geographers (Western Division). Abbotsford, BC March 9-11.

PATRICK, Robert J.

Patrick, R. 2006. Source Water Protection from a Political Ecological Perspective: Case Studies from the Okanagan Valley, BC. Atlas Speaker Series. Department of Earth and Atmospheric Sciences. University of Alberta. October 27, 2006

Patrick, R. and R. Kreutzwiser. 2006. Source water protection in the era of neo-liberalism: Tales from the Okanagan Valley, BC. For presentation at Western Division Canadian Association of Geographers, Kamloops, BC March 10-12.

Patrick, R. and R. Kreutzwiser. 2004. Drinking Water Source Protection in BC: A Perspective from Political Ecology. Presented at Canadian Association of Geographers, Moncton, NB May 25-29.

Patrick, R. and R. Kreutzwiser. 2003. Who's Guarding the Well? The status of drinking water source protection in British Columbia. Presented at Canadian Association of Geographers, Victoria, BC May 27-31.

Patrick, R. 2002. Public transit and the Kyoto Protocol: How local government in Canada can promote greenhouse gas emission reductions. Presented at Canadian Association of Geographers (Ontario Division), London, ON October 26. [Student paper prize winner (PhD category)].

Patrick, R. 2000. Developing indicators for sustainable development based on access to public transit. Presented at Canadian Association of Geographers (Western Division), Calgary, Alberta.

Patrick, R. 1998. Urbanization or suburbanization? A time for growth management on the Sunshine Coast. Presented at annual conference: Canadian Association of Geographers (Western Division), Kelowna, BC.

21. RESEARCH GRANT AND CONTRACT INFORMATION:

2019/20 New Grants Received

Sask First Nations and Metis Health and Wellness Research, Training and Knowledge Mobilization Network. Healthy Land-Healthy People, First Nation of Na-Cho Nyak Dun, Yukon Territory. Community Partnership Grant. $6800. May 2020.

Department of Fisheries and Oceans. Indigenous Habitat Partnership Program, April 2020. Assisted Tla'amin Nation (Powell River, BC). Funding for a Watershed Assessment project with Tla'amin Nation. $60,000.

Prince Albert Grand Council, March 2020. Student stipend for MA research. Climate Change impacts in selected Indigenous communities in Saskatchewan. $10,000.

Completed/in-progress Grants

Patrick, R. 2019. Collaborator. NSERC New Frontiers in Research Fund. tems swiya: túlákw'útl'kwu ʔe s-ts'ukw' / Our World: from Sea to Sky. This is a community-based, interdisciplinary research partnership between the shíshálh Nation (BC), the University of Saskatchewan, Memorial University, and Simon Fraser University. $247,850. Dr Terence Clark, PI.

PATRICK, Robert J.

Patrick, R. 2019. Principal Investigator. Crown-Indigenous Relations and Northern Affairs Canada. Climate Change Monitoring Stations for six First Nation communities. $34,000. Funds awarded to R. Patrick.

Patrick, R. 2018. SSHRC Connections Grant. Project title: "Building Indigenous Research Capacity and Reconciliation through Source Water Protection Planning". Awarded October 2018. File No. 612-2018-0155. $28,000

Patrick, R. 2018. Co-Principal Investigator. We need more than just water: Assessing sediment limitation in a large freshwater delta. Global Water Futures. Special Projects fund. $200,000. Dr. Tim Jardine, PI.

Patrick, RJ. 2018. Global Water Futures (Awarded $25,000 in the Capacity Building Competition – Seed Funding April 2018). *Project Title: Challenges and Opportunities for Source Water Protection Plan Implementation in First Nation Communities: A Pan-Canada Assessment.*

Patrick. RJ. 2018. SSHRC Explore (Awarded June 2018, $7,000). Project title: Integrating community-based participatory research into source water protection planning: A case study at Onion Lake Cree Nation, SK

Patrick, RJ. 2018. SSHRC Exchange (Awarded June 2018, $3,000). Project title: Saskatchewan River Delta Water Stewardship Plan.

Patrick, R. Global Institute for Water Security (Awarded $19,960 in the Capacity Building Competition – Seed Funding March 2015). Title: Delta Stewardship Planning for Water Security. Completed May 2018.

Patrick, R. Canadian Pacific Railway Partnership Program in Aboriginal Development, $100,000, full amount available to RP.

Patrick, R. $7000. President's SSHRC Award (Nov 2011 call). Source Water Protection and First Nations, full amount available to RP.

Waldner, C., Bharadwaj, L., Dupont, D., Epp T., Koster, W., **Patrick, R**., Petrucka, P.: $147,900. Canadian Institutes of Health Research. Operating Grant Population Health Intervention Research. Water Regulations: Impact of Health Equity Promotion.2011, none available to RP.

Clark, D., Reed, M., Gober, P., Wheater, H., **Patrick, R**., Noble, B., McKenzie, M., Bharadwaj,L., Pomeroy, J. $30,000. Science in Society Award. USASK Office of Vice President Research. A Collaborative Approach to Defining Water Security in the Saskatchewan River Basin. 2011, none available to RP.

Patrick, R. $1,000. University of Saskatchewan (Proposal Development Award). 2010, full amount available to RP.

Patrick, R., $6,000 SSHRC Bridge Fund. 2010, full amount available to RP.

Noble, B. and **R. Patrick** $210,797 SSHRC (Canadian Environmental Issues, 2008-2011), $50,000 available to RP.

Bharadwaj, L. and **R. Patrick** $13,450. Association of Universities and Colleges of Canada. LACREG (Canada-Latin American and the Caribbean research Exchange Grants) "Building capacity for integrated water resource management in the Ancash Region, Peru". Funded through International Development Research Centre (IDRC). 2010-2011, $6725 available to RP.

Patrick, R. $1,000. University of Saskatchewan (Proposal Development Award). 2009, full amount available to RP.

PATRICK, Robert J.

Patrick, R. $5,000 Presidents' SSHRC. 2008, full amount available to RP.

23. PROFESSIONAL PRACTICE:

2019 Source Water Protection 101. Webinar. Canadian Water Resources Association. Invited presentation for CWRA Webinar Series, January 8, 2019.
2019 Special Editor. Water (academic journal). Special Issue: Water Security.
2019 Editorial Board. The International Indigenous Policy Journal
2019 Editorial Board. Indigenous Policy Journal
2019 Secretary Treasurer. Prairie Division Canadian Association of Geographers
2018 Federation of Saskatchewan Indigenous Nations (FSIN). 2017/18. Healthy Water Working Group (HWWG). A sub-committee of FSIN to develop drinking water standards and protocol for water and wastewater for all First Nations in Saskatchewan. Monthly meetings June 2017–April 2018.
2018 Professional Standards Board Re-Accreditation 2018. Review for University of Toronto Planning Program. Canadian Institute of Planners. January 29-30, 2018.
2017 Editor, Prairie Perspectives (Academic journal), Volume 19 (Melfort Papers).
2017 Source Water Protection 101. Webinar. CWRA Webinar Series. January 18.
2017 Editor. Water (Academic journal). Special Issue: Source Water Protection papers.
2017 Professional Standards Board Re-Accreditation Review for University of Northern British Columbia. Canadian Institute of Planners. March, 2017.

2000–2002 *Water Management Planner* (SCRD) responsible for water conservation programs, liquid waste management planning, and watershed management.

1992–2000 *Land-use Planner* (SCRD) duties included preparation of Official Community Plans, technical report writing, bylaw preparation, development control activities including subdivision processing and development permit processing.

1991–1992 *Town Planner*, New South Wales Department of Planning, Australia responsible for preparation of State, Regional, and Local Environmental Plans and bylaw submission reviews from local government.

1988–1991 *Planning Assistant* (SCRD) duties included automated mapping with geographic information system, technical research and writing.

24. CONSULTING WORK UNDERTAKEN:

2018 First Nations Technical Services Advisory Group (Edmonton, Alberta). First Nations. January 2018. Project Title: Assessing Land Use and Infrastructure Planning in First Nation Communities. Ongoing. Fee for service.
2018 Okanese First Nation (Saskatchewan). Climate Monitoring Project Facilitator. Grant submission to Indigenous Community-Based Climate Monitoring Program. Project title: Kikawinaw Askiy: Reconciling with Indigenous Sacred Ecology. Crown-Indigenous Relations and Northern Affairs Canada. $97,570 Funded.

PATRICK, Robert J.

2017	Submission to Climate Change and Health Adaptation Program for First Nations South of 60N. Hatchett Lake Denesuline First Nation. $58,400. Funded. Gratis.
2017	Submission to Climate Change and Health Adaptation Program for First Nations South of 60N. Cumberland House Cree Nation. $100,000. Funded. Gratis.
2017	Submission to Climate Change and Health Adaptation Program for First Nations South of 60N. James Smith Cree Nation. $75,000. Funded. Gratis.
2017	Submission to Climate Change and Health Adaptation Program for First Nations South of 60N. Red Earth Cree Nation. $51,000. Funded. Gratis
2017	Submission to Climate Change and Health Adaptation Program for First Nations South of 60N.Shoal Lake Cree Nation. $62,020. Funded. Gratis.
2014	Partners for the Saskatchewan River Basin. Frog Lake First Nation, Source Water Protection Plan. Completed. Gratis.
2015	Public Interest Law Centre of Legal Aid Manitoba. Lake Winnipeg Water Levels Regulation. Research, review, writing. Completed. Fee for service.
2015	O2 Design (Calgary). Saskatoon North Partnership for Growth. Regional Plan. Technical review. Completed. Fee for service.
2014	Partners for the Saskatchewan River Basin. First Nations Water Initiative. Survey of First Nations water issues in Saskatchewan. Completed. Fee for service.
2013	Government of Canada. Aboriginal and Northern Development Canada (AANDC). Produced and field tested a Source Water Protection Guidance document for use by First Nation communities in Canada. Completed. Fee for service.
2012	First Nations Alberta. Technical Services Advisory Group. Development of a Source Water Protection Guidance document for use by First Nation communities. Completed. Fee for service.
2011	Government of the Northwest Territories. Source Water Assessment and Protection Guidance document. Preparation of a document to guide source water protection planning. Completed.
2004	Friends of the Earth Canada (July 2004). Research toward preparation of report entitled: Water Soft Path for Ontario: Feasibility Study. Final Report, July, 2004. Prepared for the Walter and Duncan Gordon Foundation. Ottawa, ON. 87 pp.

25. DEPARTMENTAL AND COLLEGE COMMITTEES:

2008-present	U of S Faculty Association Representative (Department of Geography and Planning)
2008-present	RUP Committee Member
2017/18	Departmental Hiring Sub-Committee (Planning Program)
2016	Graduate Chair, Centre for Northern Governance and Development, UofS
2015-16	Chair, Regional and Urban Planning program, GEPL
2016/17	Departmental Salary Review Committee, GEPL
2013/14	Departmental Salary Review Committee, GEPL
2011-2014	Chair, Regional and Urban Planning program, GEPL

PATRICK, Robert J.

26. UNIVERSITY COMMITTEES:

2013-present U of S Faculty Association Representative (GEPL)

27. PROFESSIONAL AND ASSOCIATION OFFICES AND COMMITTEE ACTIVITY OUTSIDE UNIVERSITY:

2010-present:	Canadian Water Resources Association (Saskatchewan Branch) Board of Directors
2009-present	Prairie Division of Canadian Association of Geographers. Secretary Treasurer,
2009-present	Safe Water for Health Research Team (University of Saskatchewan), Member.

28. PUBLIC AND COMMUNITY CONTRIBUTIONS: UNIVERSITY RELATED:

2018/19	Federation of Saskatchewan Indigenous Nations (FSIN). Healthy Water Working Group (HWWG). A sub-committee of FSIN to develp drinking water standards and protocol for water and wastewater for all First Nations in Saskatchewan. Adhoc meetings.
2018	Global Water Futures. Indigenous Partners Workshop. Wanuskewin Park. April 17-18.
2018	University-Meewasin-City partnership. Northeast Swale Stewardship Committee. Committee Member. Ongoing.
2016	Organizing Committee for Prairie Division of Canadian Association of Geographers Conference in Melfort, SK. Sept 23-25.
2013	Saskatoon Regional Growth Summit. Workshop facilitator at Saskatoon Regional Growth Summit held in Saskatoon. November 20-22.
2013	City of Melfort. Invitation from City of Melfort to tour the city and provide recommendations to city council and community service groups. No cost to the city. This was a free public engagement. May.
2013	Planner in Residence, Dr Larry Beasley. Coordination of this event with scheduling of guest lectures and public lectures in Saskatoon March 18-22. RUP Program initiative
2012	Global Institute for Water Security. A Panel Discussion: 'Attack of the Blue-Green Algae' Oct 31. Guest presentation
2010	Organizing Committee for Prairie Division of Canadian Association of Geographers Conference in North Battleford, SK. Sept 24-26.
2010	Geography Challenge (sponsored by Royal Canadian Geographical Society). Volunteer on Committee to host 2010 Geography Challenge held at U of S, Saturday April 10th.
2009	Geography Challenge (sponsored by Royal Canadian Geographical Society). Volunteer on Committee to host 2009 Geography Challenge held at USASK. March.

PATRICK, Robert J.

NOT UNIVERSITY RELATED:

2011 Member of Organizing Committee, Design Council of Saskatchewan. Design Week held in Saskatoon, SK, 2011.

2009 Member of Organizing Committee, Design Council of Saskatchewan. Design Week held in Saskatoon, SK, 2009

29. EXTENSION PUBLICATIONS AND ACTIVITIES

EXTENSION ACTIVITIES (Community Engagement)

2019 Onion Lake Cree Nation. Source Water Protection Plan. In partnership with North Saskatchewan River Basin Council. (Nov 2018-August 2019). Community-engaged research, site visits and community meetings. SSHRC Connections Grant funded. Indigenous Research Capacity and Reconciliation.

2019 Okanese First Nation. Climate Change Adaptation Planning and Source Water Protection Planning. Installation of climate monitoring station. (Oct 2018-August 2019). Community-engaged research, site visits and ongoing community meetings. Funded by First Nations Adapt (Indigenous Services Canada -ISC).

2019 James Smth Cree Nation. Source Water Protection Planning. Installation of climate monitoring station. (March-August 2019). Community-engaged research, site visits and community meetings. Funded by First Nations Adapt (ISC).

2019 Hatchet Lake Dene Nation. Climate Change Adaptation Planning. Training community interviewers. In collaboration with Prince Albert Grand Council. Installation of climate monitoring station. (March-August 2019). Community-engaged research, site visits and community meetings. Funded by First Nations Adapt (ISC).

2018 Sturgeon Lake Source Water Protection Plan (Nov 2017-August 2018). Community-engaged research, site visits and community meetings.

2016 Mistawasis First Nation source water protection plan. Facilitated meetings. Completed July 2016.

2016 Cumberland House source water protection plan. Facilitated meetings. Completion March 2016.

2016 La Ronge source water protection plan. Facilitated meetings. Completed July 2016.

2016 Cumberland House Water Stewardship Plan. Facilitated meetings. Completed July 2016.

2015 Beardy's & Okemasis First Nation source water protection plan. Facilitated meetings. Start Up October 2015.

2015 Muskowekwan First Nation source water protection plan. Facilitated meetings. Completion July 2015.

2014 Frog Lake First Nation (Alberta). Source Water Protection Planning process. Facilitated meeting with Frog Lake First Nation Working Committee, May 22/23 and June 5/6, 2014.

2014 Pike Lake Stakeholders Meeting and Pike Lake Environmental Planning Process. Presentation and workshop facilitation. Nov. 2013 to June 2014.

PATRICK, Robert J.

EXTENSION PUBLICATIONS

Patrick, R. Star Phoenix. Mobility Choices for Good Urbanism. Letter to the Editor. Dec 2, 2017.

Patrick, R. Opinion Editorial: We need to protect our drinking water, not just treat it. Edmonton Journal. June 13, 2017.

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Patrick, R. Saskatoon Star Phoenix. Downtown design rules overdue. Opinion Editorial. March 25, 2012.

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Patrick, R. Star Phoenix. Letter to the Editor. P3 A Slippery Slope. May 10, 2014.

Patrick, R. Star Phoenix. Letter to the Editor. Bridge Madness. April 2, 2014.

Patrick, R. Star Phoenix. Letter to Editor. Corman Park and Crossmount Senior's Village. March 2014.

Patrick, R. Star Phoenix. Letter to Editor. Not Only For Cars. January 2014.

Patrick, R. Star Phoenix. Letter to Editor. Regional Planning Framework Needed. October 31, 2013.

Patrick, R. Star Phoenix. Letter to the Editor. Traffic Calming Makes Sense. September 2013.

PATRICK, Robert J.

BUFFALO RIVER
DENE NATION

Buffalo River Dene Nation
Band No 398
Box 40
Dillon, Sask S0M 0S0

October 4, 2022

To Nicole Frigault,

The following is a letter of support from the Buffalo River Dene Nation (BRDN) to be included in the formal federal draft Environmental Impact Statement (EIS) public review for NexGen's Rook I Project.

BRDN and NexGen have a long history of engagement and collaboration together, with relationships being developed with BRDN community and leadership as far back as 2016. From engagement during exploration, through the Study Agreement (SA), and most recently the implementation of the Impact Benefit Agreement (IBA) for the Rook I Project, NexGen has been diligent in their engagement activities. They have ensured that all programs were well defined and well communicated, and consistently demonstrate their commitment to working in partnership with BRDN to continue to develop and support community programs and initiatives that focus on culture, education, career training, and building economic capacity for long term community benefits.

Study Agreement

Among the many engagement initiatives that NexGen has undertaken, the establishment of the SA between NexGen and BRDN commenced in September of 2019, and serves as an impactful demonstration of NexGen's commitment to engaging with the local Indigenous communities. The SA, fully funded by NexGen, defined a collaborative approach to identifying potential impacts of the proposed development and operations of the mine, as well as identifying potential avoidance and accommodation measures in relation to the Rook I Project. As part of the SA, a Joint Working Group (JWG) was established to support the inclusion of BRDN's traditional knowledge throughout the EA process. These meetings created a balanced and transparent approach to engaging on technical aspects as well as providing the opportunity for our people to educate NexGen on our ways of life and how important our culture and the lands are to us. This was never more apparent early on than when NexGen accepted an invitation to have a JWG meeting at our Elders lodge in Vermette Lake in January of 2020. Having the elders and our engagement team meet with NexGen in a special place like Vermette lake truly showed how committed both NexGen and BRDN are to environmental assurances and the cultural and traditional practies of our people. In addtition to the JWG, the SA provided capacity support for our community to undertake an independent Traditional Land Use Study (TLU), that was used to support BRDN's traditional knowledge throughout the EA process, in addition to becoming a much needed asset for the Nation to capture and document the history of our people and our traditional lands.

BUFFALO RIVER
DENE NATION

Impact Benefit Agreement

The important work that was done through the SA led the the signing of an Impact Benefit Agreement (IBA) between NexGen and BRDN on December 14, 2020.This agreement reflects trust, respect, and confidence between NexGen and BRDN, and is a major opportunity for our community now and for future generations. The IBA sets out how BRDN and NexGen will continue to work together to continue NexGen's proven commitment to the highest standards of environmental and social stewardship, including education, career training, and economic capacity building. Included among the IBA benefits to BRDN are mechanisms to maximize local employment, local contracts, and continued community investment in culture, education, and health and wellness, to ensure long-term positive developments to our community. From a broader perspective, this IBA acknowledges the importance of environmental protection – a fundamental principle to BRDN upon which the most diligent consideration is taken by BRDN leaders, council, and community members.

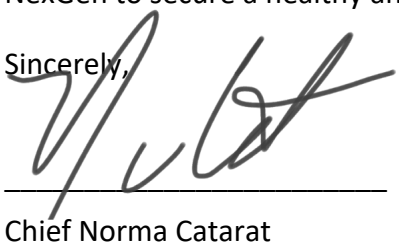
Rook I EIS

With regard to the Rook I Project draft EIS, BRDN would like to formally acknowledge NexGen's collaborative and transparent approach to the EA process. Through established community meetings, working groups (including JWGs) and capacity support for technical consultants, BRDN was given the opportunity to provide feedback and recommendations in the drafting stages of the EIS, and this feedback is reflected in the Rook I Project EIS that was released by the CNSC for public review on July 13, 2022.

We are pleased with the strong collaboration and meaningful relationship that has been established between NexGen and BRDN. It is a relationship founded on our shared values of honesty, respect, and accountability, and we are confident that the foundational work that has been done since 2016 has resulted in a strong partnership that will set the stage for the responsible development of the Rook I Project, and generational benefits for our community. This approach not only addresses reconciliation but we have now have seen companies working in our traditional territory following this lead, creating more and more trust that the mining industry is genuinely wanting to listen to, and work with, Indigenous communities.

BRDN fully supports the Rook I EIS. It provides the confidence to BRDN that NexGen's commitment to environmental stewardship, community advancement, and the health and safety of our community, is genuine and already proven. We look forward to working in partnership with NexGen to secure a healthy and propserous future for our community for generations to come.

Sincerely,



_____

Chief Norma Catarat

cc. NexGen

NexGen Rook I Uranium Mine – Environmental Impact Statement

Technical Review

October 12, 2022

Submitted by:

Birch Narrows Dene Nation

Contents

1.0 Introduction

NexGen Energy Ltd (NexGen; the Proponent) has proposed a new uranium mining and milling operation called the Rook 1 Project (the Project). The Project is located next to Patterson Lake, about 137 km as the crow flies north of Turnor Lake, and about 80 km south of the former Cluff Lake mine (Figure 1). The Project is located within the Traditional Territory of Birch Narrows Dene Nation (BNDN).

The Project is currently undergoing a joint Federal and Provincial environmental assessment under the *Canadian Environmental Assessment Act* 2012 (CEAA 2012) legislation. Through the CEAA 2012 process, NexGen must prepare an Environmental Impact Statement (EIS) which documents the expected environmental, social and cultural impacts of the Project. BNDN has been provided funding by the Canadian Nuclear Safety Commission (CNSC) to review the draft EIS to assess the potential impacts of the Project on BNDN Treaty and Aboriginal rights and interests. The BNDN review team evaluated the Project to identify deficiencies, concerns, and risks on behalf of BNDN. This included reviewing the Project from a general perspective but also with a specific focus on some topics including:

- cultural heritage, Indigenous Knowledge, and land use
- economy and community wellbeing
- water resources
- aquatic resources
- wildlife and terrestrial ecology
- human and ecological risk assessment
- air quality and emissions
- mine infrastructure and engineering.

In this report, BNDN has prepared comments on the draft EIS. Each comment includes recommendations to the CNSC and NexGen on how to avoid, mitigate, accommodate or compensate for potential adverse impacts to BNDN Treaty and Aboriginal rights and interests.

1.1 Birch Narrows Dene Nation

BNDN is a Denesųłiné First Nation band within the meaning of the Indian Act (Canada) and an Aboriginal people within the meaning of Section 35(1) of the Constitution Act, 1982 (Canada). BNDN members have occupied the lands of Dene Nene or “Land of the People” in northern Saskatchewan since time immemorial according to our own laws and system of government. Today, BNDN is a diverse and vibrant community of Dene, Cree and Métis citizens with 812 registered members. BNDN has 3 reserves, one at Turnor Lake (IR 193B) adjoins the village of Turnor Lake Saskatchewan and is the main reserve for BNDN. Churchill Lake (IR 193A) is at the junction of Churchill Lake and Frobisher Lake, and Turnor Lake (IR 194) is on Peter Pond Lake east of Dillon, SK. BNDN’s vision is a healthy, self-reliant, educated, and united

community. BNDN mission is to provide good governance and create opportunities for the wellbeing of all members.

As a signatory of Treaty 10, BNDN asserts that Treaty 10 was not an agreement to surrender lands and resources. As such BNDN laws, customs and jurisdiction still apply to our Traditional Territory. There are cultural sites and artifacts left throughout the region that are significant for our members. Our community members continue to hunt, fish, gather and trap on the lands throughout our Traditional Territory. Any direct or cumulative impacts from development could negatively affect our ability to exercise Aboriginal and Treaty rights, including the livelihoods of those who live off the land. The lands, waters and resources throughout our Territory are essential to the well-being and survival of our First Nation.

The BNDN Traditional Use Study Specific to NexGen's Proposed Rook 1 Project (Firelight Research Inc., 2019) reports the following BNDN historical context:

> *Chief Raphael Bedshidekkge signed Treaty 10 on behalf of the Clear Lake Band on August 28, 1906. Treaty 10 was based on other numbered treaties, and included the following standard hunting, trapping, and fishing rights clause:*
>
> > *And His Majesty the King hereby agrees with the said Indians that they shall have the right to pursue their usual vocations of hunting, trapping and fishing throughout the territory surrendered as heretofore described, subject to such regulations as may from time to time be made by the government of the country acting under the authority of His Majesty and saving and excepting such tracts as may be required or as may be taken up from time to time for settlement, mining, lumbering, trading or other purposes.* (Indian Claims Commission 1995, p.56)
>
> *The Clear Lake Band later came to be known as the Peter Pond Band. This Band was separated in 1972 into the Buffalo River Band and Turnor Lake Band; today, they are known as the Buffalo River Dene Nation and the Birch Narrows Dene Nation* (Indian Claims Commission 1995).

BNDN members continue to exercise our Treaty and Aboriginal rights including hunting, trapping, fishing, plant gathering and cultural/spiritual practices in the immediate area of the Rook 1 Project and throughout our Traditional Territory. BNDN members have observed decreasing furbearer and caribou populations throughout our Traditional Territory which the members expect to be further impacted by the proposed Rook 1 Project.

BNDN has constitutionally protected Treaty rights, inherent Aboriginal rights, Aboriginal title and interests in and to Dene Nene. BNDN must be consulted and accommodated by the Crown with respect to potential impacts on our rights.

BNDN has ratified a Consultation Protocol which serves as a guide for the Crown and project proponents for how to engage in meaningful consultation with BNDN. This Protocol applies to all projects,

undertakings, decisions, and other activities that necessitate consultation on BNDN Treaty lands and Traditional Territory. BNDN's Consultation Protocol can be used to guide all consultations and reinforce our nation-to-nation relationship with the Crown. It can also help provide confidence to all parties that all the requirements of Canadian, International and BNDN laws are satisfied. The implementation of BNDN's Consultation Protocol is overseen by BNDN's Nuh Nene Department. The Consultation Protocol is attached to the end of this document as Appendix A.

2.0 NexGen Rook I Project

NexGen plans for the Rook 1 Project to be an underground mine processing about 1,400 tonnes of ore per day over 24 years of operations. Including the construction and closure of the mine, NexGen expects the Project to run for 42 years. Similar to other uranium mines in the Athabasca Basin, the Project has very high concentrations of uranium in the rock. NexGen plans to process the uranium ore using the same methods as at other uranium mines in the Athabasca Basin, which involves using acids to dissolve the uranium and then other chemicals to turn the uranium into a solid yellowcake (the final uranium product) that they will transport to market in sealed barrels. NexGen plans to store all of the mine tailings (the crushed rock that is left over as waste after the uranium is removed) underground in the mined-out areas and in a specially created underground tailings management facility (UGTMF). The waste rock (rock that they have to remove but does not have uranium in it) will be stored in a waste rock pile above ground (Figure 2).

NexGen will need to build two water treatment plants that will remove contaminants from the water before it is released to Patterson Lake. The sewage treatment plant (STP) will clean wastewater that is used in the camp, similar to the sewage treatment plant of any city or town. The effluent treatment plant (ETP) will treat all of the water that has been contaminated by the mining operations. This includes water that is used to process the uranium ore and water that becomes contaminated from the waste rock stockpile. The ETP will be required to meet water quality objectives so that it does not contaminate Patterson Lake and the Clearwater River system.

NexGen is required to complete both a Provincial and Federal environmental assessment to be allowed to build the mine. The Federal and Provincial environmental assessments are being conducted cooperatively between the CNSC who are the lead agency for the Federal assessment, and the Saskatchewan Ministry of Environment, who are the lead agency for the Provincial assessment. The Environmental Assessment is following the CEAA 2012 requirements for new uranium mines in Canada.

NexGen has completed baseline studies around the Project to assess the current conditions of the natural environment around the Project. They have used their baseline data along with their predictions for how the Project will impact the environment to assess the level of impact that the Project will have on the environment and on BNDN's Treaty and Aboriginal rights and interests.

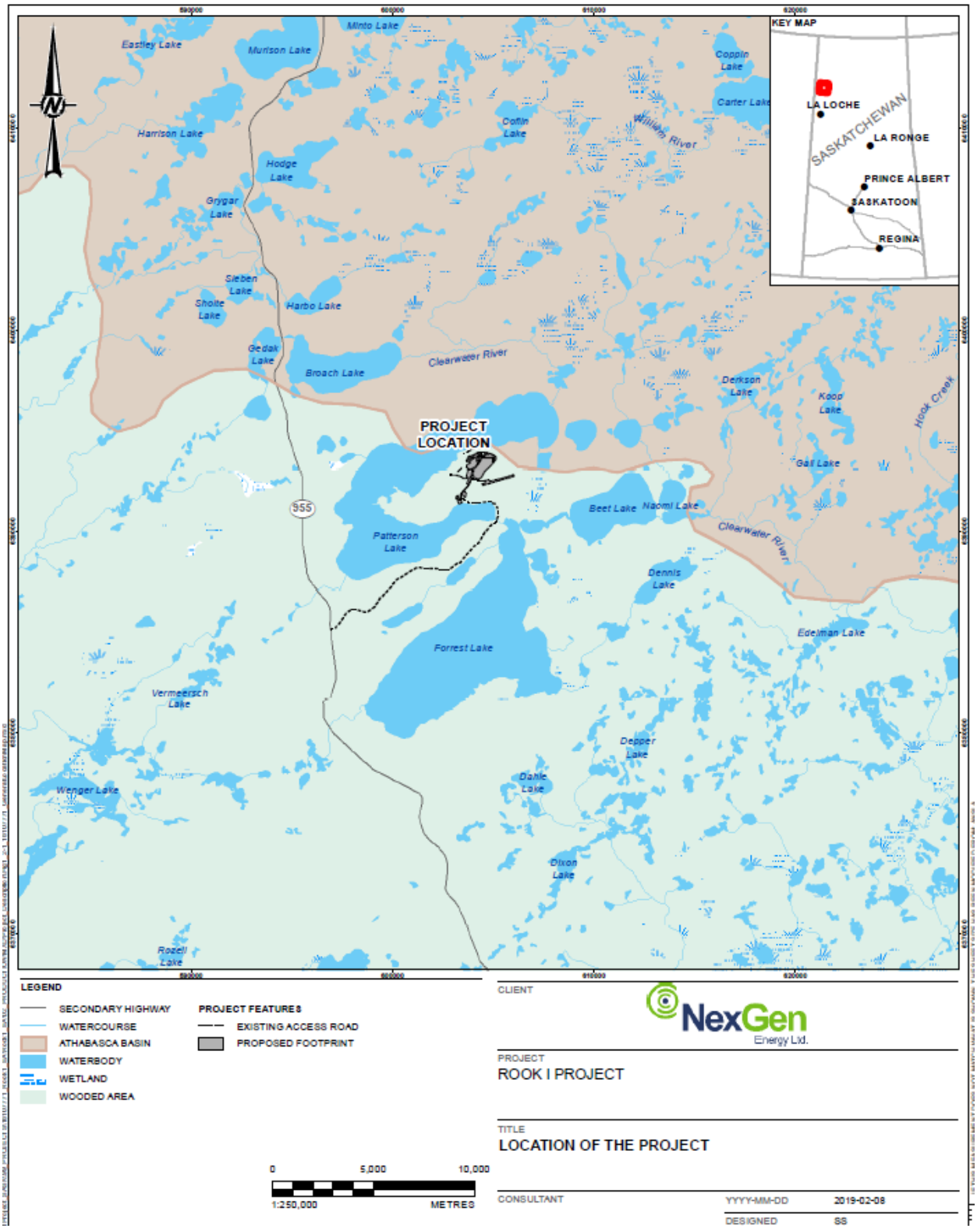


Figure 1: Location of the Rook 1 Project, from EIS Figure 1.2-1 (NexGen, 2022)

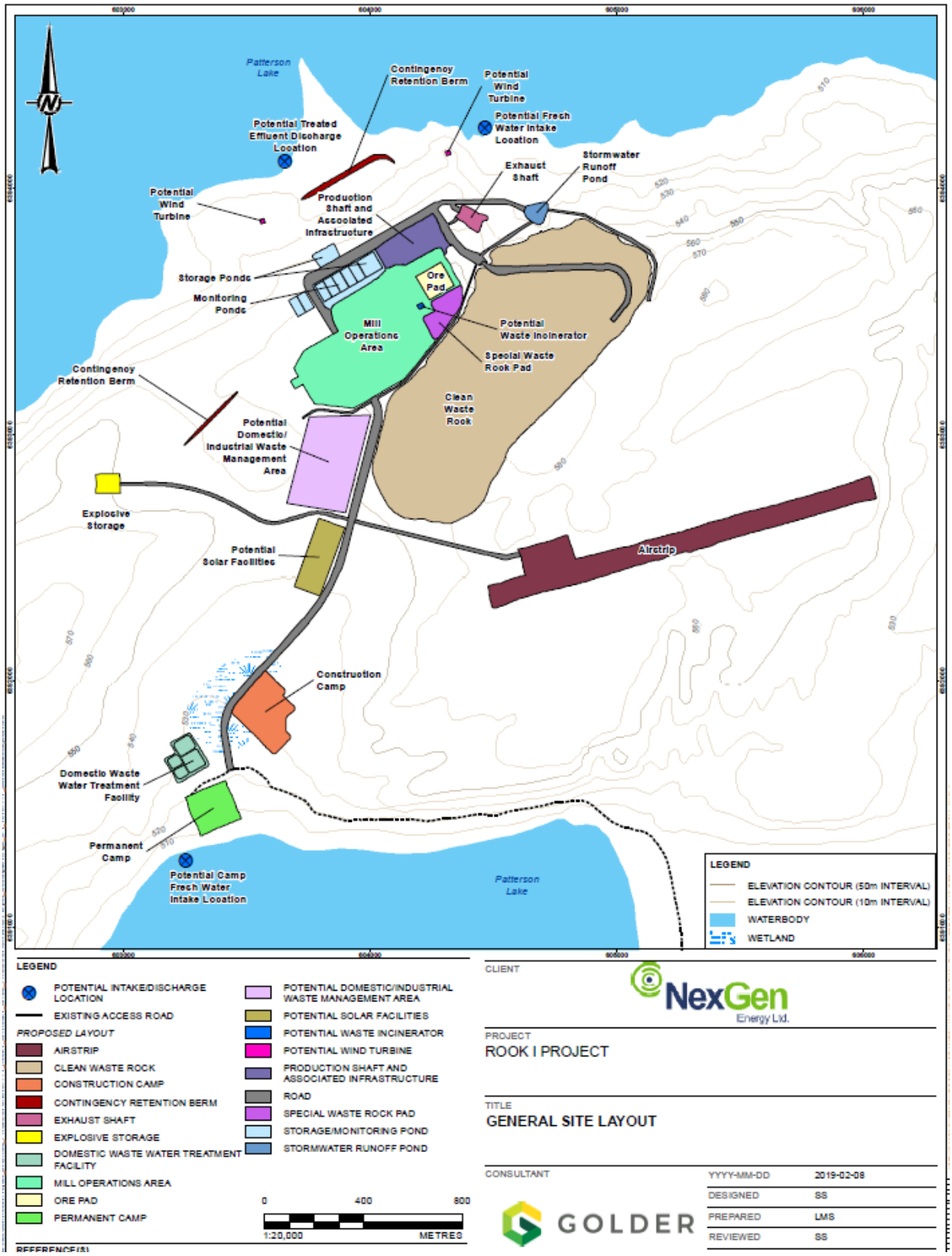


Figure 2: Site Layout of the Rook 1 Project, from EIS Figure 2.3-1 (NexGen, 2022)

3.0 Community Input

BNDN has a signed Mutual Benefits Agreement (MBA) with NexGen for the Rook 1 Project. Through the MBA, BNDN has provided consent for the Project and NexGen is legally bound to provide benefits to BNDN from the Project. The MBA includes a range of environmental and socio-economic benefits to BNDN. The MBA provides funding for BNDN to hire several staff that will work at the mine and will be employed by BNDN, including an environmental monitor and a coordinator to implement the MBA. BNDN also completed an Indigenous Knowledge and Traditional Land Use (IKTLU) study for the Project in 2019 (Firelight Research Inc., 2019). The IKTLU study found extensive hunting and fishing use by BNDN members in and around Patterson Lake. The study also documented several cultural sites immediately around Patterson Lake. BNDN members rely on a variety of fish species including lake trout, whitefish, northern pike, walleye, and suckers.

NexGen has done some community engagement with BNDN, though participation has often been limited due to restrictions related to the COVID-19 pandemic. Most recently BNDN members attended a community meeting where BNDN's consultants from Tamarack Environmental Associates presented on the Project and gathered input from the community. BNDN and NexGen are coordinating a community meeting to discuss the findings from the EIS review for November 2022.

Some of the comments on the Project from community members at the September 20, 2022, community meeting on the Project included:

- I'm very concerned with uranium and am very concerned with the potential impacts to the environment and our way of life from uranium mining
- I'm very concerned that this will make it impossible for us to practice our way of life and use the land
- The mining method and their plans to refill the mined-out areas with concrete is concerning and we need more information on how they are going to protect groundwater and the environment with this mining method
- We also need more information on what the chemical and physical composition of the tailings/concrete mix will be to know that it is safe
- Where else has underground tailings management been done and is it safe?
- Where will contamination from the underground tailings enter the environment, how will water move and how much will it contaminate the environment?
- How will contaminants from the tailings and waste rock be managed?
- There will be major changes to water quality downstream from the mining of the rock, including far into the future from the effects on groundwater.
- The changes to the earth from the mining will cause permanent changes to our way of life and to the land itself which affects us as people.
- Other mines in the area have left a mess and we need to be confident that NexGen will not do the same

- Radon gas sounds dangerous and concerning, we need more information on mine ventilation, how will air get in and out to prevent health concerns for miners underground and for people above ground too
- In the early days on site the drillers did not know that they were drilling through high grade uranium and the drilling water and cuttings were not properly disposed of, some even went into Patterson Lake. NexGen eventually fixed this once they found out they had hit uranium. How will NexGen mitigate or accommodate the impacts from that contamination?
- NexGen should undertake a baseline study of Turnor Lake
- NexGen should give more presentations to the community, including to students.
- BNDN needs to have an organized approach to dealing with NexGen, and Nuh Nene could work well for this.
- The environmental assessment should be a community led process, not a company or government led process.

4.0 Review of Rook I

BNDN has undertaken a technical review of the draft EIS for the Project, including the baseline documents and technical appendices. This technical review is divided by discipline in Sections 4.1 through 4.8 and is focused on information gaps, deficiencies in data, underrepresentation of potential effects, inadequate monitoring, and lack of involvement of BNDN. All of these priorities for BNDN comments are discussed through the lens of potential impacts of the Project on BNDN Treaty and Aboriginal rights, interests and claims.

4.1 Cultural Heritage, Indigenous Knowledge and Land Use

NexGen provided primary impacted Indigenous Groups, including BNDN with funding to complete IKTLU Studies related to the Project. In total, five IKTLU Studies were conducted for the proposed Project. Each Study was developed, self-directed, owned and controlled by the respective participating community. Within the EA, NexGen considered both Indigenous Knowledge and Local Knowledge. According to NexGen, “Indigenous Knowledge” is defined as “information sanctioned (i.e., authoritative permission or approval given) by an Indigenous Group as an official statement, document or position,” while “Local Knowledge” is defined as “information from a local citizen or community representative, but without Indigenous Group or Elder sanction” (NexGen, 2022: 78).

Indigenous Knowledge was shared through the IKTLU Studies, Joint Working Group (JWG) sessions and community engagement sessions and has informed the Project design and EA. NexGen evaluated the impact of the Project on Indigenous land and resource use based on access and available land for land use; availability and quality of fish, plants and wildlife for harvesting; and quality of land use experience. Impacted communities use the land throughout the study areas; BNDN uses the land both throughout the RSA and LSA of the Project. Every phase of the Project, excluding far-future scenario was deemed to have the potential to impact Indigenous land and resource use.

Some of the ways in which the results of the IKTLU Studies informed the Project, include the design of the "underground storage of tailings, minimization of the Project footprint, and reduction of surface infrastructure, which are all consistent with the expressed preferences heard through engagement with local Indigenous Groups and communities" (NexGen, 2022: 80). Within the EA, IKTLU information informed VCs and intermediate components, assessment methods, existing conditions, scoping and pathways analysis, mitigation measures, monitoring, follow-up and adaptive management. Some of the measures identified to help mitigate and accommodate against residual impacts include:

- Impact Benefit Agreements;
- Environmental Committees with full-time independent Indigenous monitors;
- Environmental Management processes;
- Designing facilities and infrastructure to minimize sensory disturbance;
- Implementing progressive and final reclamation; and
- Developing a Decommissioning and Reclamation Plan, Security Program, and Indigenous and Public Engagement Program.

NexGen notes that the consideration of Indigenous Knowledge is of ongoing importance throughout the lifecycle of the Project, including through the Indigenous and Public Engagement Program and the independent Indigenous monitoring program and Environmental Committees.

It is unclear within the EIS how some of BNDN's specific concerns were considered, and what communities' involvement was in the incorporation of their results into the EA. Within BNDN's Traditional Knowledge Study, BNDN notes that community members use the Study Area for activities including but not limited to:

- Hunting and trapping;
- Fishing;
- Cultural continuity;
- Ceremonial, cultural or spiritual activities;
- Gathering;
- Access trails;
- Water usage; and
- Other activities.

This Project will cause irreparable damage and loss to BNDN's cultural identity and ability to use the lands and waters for traditional purposes; community members raised concern related to the Project's impacts on hunting and trapping, fishing and ongoing cultural continuity. It is integral that BNDN work

closely with NexGen for the life of the Project to ensure BNDN's social and environmental concerns and identified impacts are mitigated and accommodated for.

Summary of Cultural Heritage

NexGen retained Canada North Environmental Services to conduct a Heritage Resources Impact Assessment (HRIA) of the proposed Project footprint, representing the area of direct disturbance. Any land clearing or disturbance activities have the potential to impact heritage resources. The property was assessed using both pedestrian surveys and the excavation of 239 test pits. No heritage resources were identified and no further archaeological investigation was recommended following the completion of the study. The Heritage Conservation Branch (HCB) of Saskatchewan accepted the assessment and its conclusions in the fall of 2018.

Following the 2018 HRIA, NexGen revised the orientation of a proposed airstrip and site roads; Saskatchewan's HCB considered the revised location but determined that given the airstrip's distance from the lake (further than 250 m, which is a marker for where most heritage sites are located), no further assessment of this area was required.

In addition, following further proposed changes to the Project design in 2021, resulting in potential additional impact to areas not previously assessed, Saskatchewan's HCB again reviewed the project changes to determine if additional heritage assessment work would be required. The HCB once again concluded that no additional assessments were required, noting that the proposed construction would occur in areas previously assessed for heritage or in areas regarded as having low heritage potential.

NexGen is proposing to implement a chance find procedure during land clearing activities in the event that any unanticipated heritage resources are found. NexGen has concluded that the effects of the Project on heritage resources are therefore not significant.

Several gaps exist within the archaeological assessment for the Project, including related to the methodology, how Indigenous Knowledge was considered, and some management measures.

Table 1. Comments and recommendations for the Rook I Project related to cultural heritage, Indigenous knowledge and land use

#	Document Reference	Comment	Request/Recommendation
1.	N/A	The Project will cause permanent irreparable loss of access and use of the land for BNDN. This includes impacts to cultural identity and Aboriginal and Treaty rights-protected activities and sites.	NexGen must negotiate mitigation and accommodation measures with BNDN that are commensurate with the impacts to land use and cultural sites.

2.	N/A	BNDN members utilize the Study Area for traditional land use activities. BNDN members mapped and described using the local study area for hunting and trapping, fishing, cultural continuity purposes, access trails, ceremonial/cultural/spiritual activities, gathering, water usage, and other activities. Participants also described concerns related to impacts to hunting and trapping, fishing, and cultural continuity. Once the Project commences this area will no longer be accessible to members who rely on this area for harvesting wild foods, proper nutrition and food cost savings. Members will be forced to travel further to carry out the same activities, spend more on food and lose the nutrition provided by wild foods.	NexGen must provide details on how local harvesters who rely on the Project Study Area for traditional land and resource use, food cost savings and nutrition will be compensated. Programs to offset this loss must be developed so that BNDN members can continue to exercise the rights and have access to wild foods.
3.	N/A	BNDN members described how the Project will disrupt a sense of cultural continuity, including loss of access to cabins/campsites/travel routes, disruption of a sense of place, disruption to BNDN beliefs and disruption to the transmission of culture to future generations.	a) NexGen must develop specific accommodation measures to compensate BNDN for the loss of cultural continuity. b) NexGen must consider providing funding to support traditional educational activities for youth.
4.	EIS Master Executive Summary, section 5.5	It is unclear whether the study areas communities used for the IKTLU Studies matched that of NexGen's LSA and RSA, or whether NexGen imposed its study area on the results of the IKTLU Studies. Defining a study area is at times political; it is important that the potentially unique study areas defined by Indigenous communities in their respective IKTLU Studies be	BNDN requests that NexGen clarify how they considered the study areas defined by the communities in their IKTLU studies, if they differed from those proposed by NexGen.

		considered in the Project's assessment.	
5.	N/A	It is unclear whether Indigenous communities were given the opportunity to participate in the incorporation of IKTLU results into the EA, including in the development of management and mitigation measures for potentially impacted sites identified in the IKTLU Studies. The co-development of mitigation and management measures was a direct request from BNDN's IKTLU study.	a) BNDN requests that NexGen specify the process used to incorporate the IKTLU study results into the EA. b) BNDN requests that NexGen indicate the opportunities Indigenous communities were given to incorporate and review how IKTLU results informed the Project. c) BNDN requests that NexGen work with BNDN to incorporate BNDN IKTLU into the final EIS. This method to incorporate BNDN input is to be determined but could be in the form of a community meeting or workshop with BNDN members or a meeting with BNDN staff and must include a round of revisions by BNDN to the final EIS prior to submission to the CNSC. d) BNDN requests that NexGen describe the process used to determine appropriate management and mitigation measures for potentially impacted sites identified in the IKTLU Studies.
6.	N/A	The chance find procedure for unanticipated heritage resources is not present or easily found in the material to review.	a) BNDN requests that NexGen provide the chance find procedure for review. b) BNDN requests that the chance find procedure includes the required and timely notification of BNDN upon the discovery of any unanticipated heritage resources
7.	Annex IX: Heritage Resources Impact Assessment and Cover Letter	It is unclear how Indigenous Knowledge was considered in the assessment of heritage resources. Indeed, the HRIA indicates that in addition to fieldwork undertaken for the study, only the HCB's	BNDN requests that NexGen provide a description how Indigenous Knowledge informed the assessment of heritage resources, including: I. the location of areas assessed;

		archaeological site database and prior assessments were consulted as part of the background research for the assessment.	II. whether members of the communities participated in fieldwork; and III. how community mapped values were considered. Should BNDN be aware of any additional heritage resources in the study area or locations that may contain them, these areas must be further assessed archaeologically.
8.	Annex IX: Heritage Resources Impact Assessment and Cover Letter	N/A	Should any additional archaeological fieldwork be required for this Project, monitors from BNDN must be invited to participate. NexGen must commit to providing capacity funding to facilitate BNDN monitor participation.
9.	EIS Master Executive Summary, section 5.5.2	There is no recommendation that a training course be required for workers to: a) Identify unanticipated heritage resources, including common artifacts, ecofacts and features of the region; and b) understand cultural sensitivity around such resources while conducting work.	NexGen must implement a training course for workers regarding possible heritage resources in the area to be aware of. The training course must also contain a cultural sensitivity component. BNDN monitors must be invited to attend this course and capacity funding must be provided.
10.	Annex IX: Heritage Resources Impact Assessment and Cover Letter: 1.1	Although presence of historic strandlines is an indicator for archaeological potential in northern Saskatchewan, it is unclear whether strandlines exist in the Project area and whether these were assessed effectively.	NexGen must provide a description of the presence of strandlines in the Project area and a description of how they were assessed.
11.	Annex IX: Heritage Resources Impact	N/A	As per the description of bias in archaeological investigation based on accessibility, were some areas in the Project area deemed to retain high potential not

	Assessment and Cover Letter: 4.1		assessed because they were inaccessible? Please describe. Should BNDN regard these unassessed areas as retaining potential based off of knowledge of the area, these areas must be further assessed.
12.	Annex IX: Heritage Resources Impact Assessment and Cover Letter: 3.2	N/A	In general, post-impact assessments are not considered an appropriate form of archaeological assessment by BNDN – archaeological assessments should always occur *prior* to any ground-disturbing activities. While it is understood that the requirement of archaeological assessments is relatively new within legislation, the post-assessment of work completed at the Project area in the 2010s is recent and should have been assessed prior to being disturbed.

4.2 Economy and Community Wellbeing

This section provides the outcome of a review completed in collaboration with BNDN pertaining to NexGen's assessment of the Project's impacts on the Economy (Section 18) and Community Well-Being (Section 19) in the EIS. A summary of EIS content and key issues follows, with comments and recommendations set out in more detail in Table 2 below.

Despite these sections being separate in the EIS, it is appropriate that they have been considered together in this review given the interconnectedness of their impacts and their interconnectedness in BNDN's objectives related to the Project. Given the impacts and risks BNDN will experience during the life of the Project, it is necessary in the context of the Duty to Consult and Accommodate that corresponding economic benefits are also experienced, including financial compensation, the provision of jobs for BNDN members, contracts for BNDN businesses, and training and capacity building to support BNDN's participation in all aspects of the Project. However, it is also essential that these benefits are realized in a culturally appropriate way, and in a way that holistically upholds community well-being, by protecting traditional land use and cultural practices and preventing potential negative impacts such as exacerbating mental health and substance abuse issues, or the issues associated with a transient workforce. The area described as the "Local Study Area" and "Regional Study Area" in the EIS is BNDN's home, and BNDN will remain living here long after the Project's life cycle is complete. It is therefore of utmost importance that the long-term well-being and way of life of the community is considered together in a holistic way with the Project's potential economic benefits.

A significant assumption of the Project that NexGen has used to assess the effects of the Project on the local economy and on community well-being is an "aspirational target" of 75% for hiring workers from LSA communities. Employment projections for onsite workers set out in the EIS for each phase of the Project include:

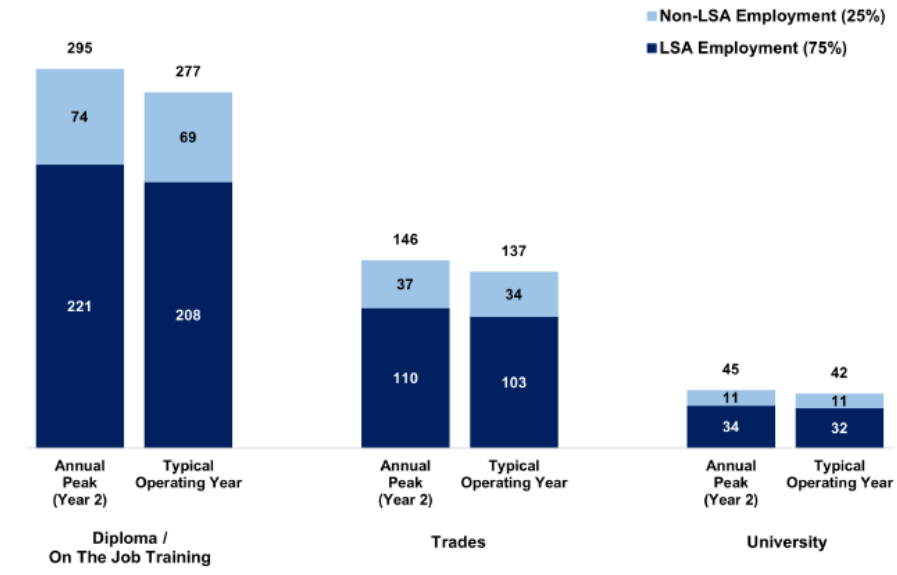
- Construction
    - Year -4: 216 annual peak
    - Year -3: 243 annual peak
    - Year -2: 348 annual peak
    - Year -1: 248 annual peak
- Operations:
    - 486 positions on payroll, with 260 on site at any one time *at peak employment* (see Table 18.4-2 below)
    - 425 direct jobs *during a typical year of operations* (see Figure 18.4-4 below for distribution of jobs by education level)

Table 18.4-2: Peak Positions (On Site and Payroll) During Operations

Labour Category	On-Site Positions	Payroll Positions
Mine labour	167	332
Process plant / paste plant labour	64	125
General and administration labour	29	29
Total	260	486

Source: NexGen 2021c.

Figure 18.4-4: Operations Peak (Year 2) and Estimated Typical Operations Labour Requirements 75% Local Study Area Employment Scenario



Source: Number of positions is based on the data provided by NexGen Energy Ltd. Rook I Project Feasibility Study Workbook (Oakes 2021). Labour positions in payroll allocated into three groups and average operations peak calculated by InterGroup Consultants Ltd.
Note: Typical operations phase estimated based on Statistics Canada I/O modelling. Education requirement for typical operations phase calculated based on the proportion from the Year 2 annual peak allocation.
LSA = local study area; I/O = input/output.

However, NexGen concedes that meeting targets of 75% of these employment projections during construction and operation may not actually be realistic given the demographics and current qualifications of the available workforce in the LSA, and the possibility of projects like the Fission Patterson Project proceeding simultaneously with the Rook 1 Project, which would create an unknown additional demand on the workforce. Recommendations have been provided that require these targets be substantiated with research and clear commitments and the verification of Indigenous groups in the LSA that these commitments have corresponding terms in Benefit Agreements, or that these targets are modified if they are not realistic so that the true benefits and impacts of the Project can be understood.

In parallel to the issue above, another primary characteristic of the Project that NexGen has used to assess the effects of the Project on the local economy and community well-being include aspirational targets for external spending awarded to LSA and RSA business of 30%. NexGen's projections of total expenditures include:

- an estimated capital expenditure of $1.3 billion over the four years of construction
- typical annual operating spending of $167 million

However, NexGen also concedes in this section in the EIS that meeting these targets might not be realistic given the lack of established Indigenous businesses in the LSA. Similar recommendations to the above have been provided that require these targets be substantiated with research and clear commitments to how they will be realized, co-developed with the verification of Indigenous groups in the LSA. If the targets cannot be met, they should be modified so that the true benefits and impacts of the Project can be understood, and alternative offsetting benefits should be identified.

In addition to the participation of LSA communities in the wage and market economy, this review has also considered the importance of BNDN's traditional land use and resource harvesting related to potential socio-economic impacts and impacts to Community Well-Being. While NexGen does acknowledge the estimates of Indigenous groups like BNDN that at least 80% of members participate in some kind of traditional economic activity (e.g. hunting, trapping, fishing, etc.), NexGen's assessment of economic effects doesn't sufficiently address any of the negative economic impacts of the Project related to the decrease of BNDN's ability to participate in the traditional economy caused by environmental impacts and limited access to harvesting areas, or the adverse economic effects on traditional land use to BNDN members who are hired to work in the mining sector. This is a key issue in this section of the EIS, and recommendations have been set out to ensure these effects are assessed and characterized properly so the impacts on this aspect of the Project's economic activities can be understood by BNDN and regulators.

Another significant issue in NexGen's assessment of the impacts of the Project to Community Well-Being is that the indicators NexGen has used to characterize and evaluate impacts to Community Well-Being do not incorporate Indigenous indicators of well-being, despite estimates that 95.2% of the population in the LSA are Indigenous. It's been recommended that NexGen develop more holistic indicators of Community Well-Being that reflect an Indigenous worldview in collaboration with Indigenous groups in the LSA and revise their assessment accordingly.

Finally, while NexGen has considered some of the effects of population changes and increased income caused by the Project and its transient workforce, such as an increased demand for services and housing, the full range of impacts associated with these dynamics of a remote mining Project on Community Well-Being have not been considered and proposed mitigation measures are also not sufficient. It's been recommended that the EIS be revised to include an assessment of all potential effects of a transient workforce and changes to population dynamics, including those disproportionately experienced by women and other segments of the population, and that NexGen make commitments to investments in social services and wellness programs located in, led and implemented by each of the Indigenous groups in the LSA.

Table 2. Comments and recommendations for the Rook I Project related to socioeconomics, employment, and contracting

#	Document Reference	Comment	Request/Recommendation
13.	Section 18.3 Existing Conditions Section 18.4 Project Interactions, Mitigations and Benefit Enhancements Socio-Economic Baseline Report	Despite acknowledging in Section 18.3.6 and in the Socio-Economic Baseline Report that income within the LSA and RSA come from both the wage or market economy and the traditional economy, and that the traditional economy forms an important part of the LSA and RSA economies that isn't captured in Statistics Canada labour force and income statistics, NexGen's pathways analysis and subsequent effects assessment in Section 18.4 does not include the impacts of the Project to BNDN's participation in the traditional economy as a primary or secondary pathway. What is lacking is an analysis and assessment of how impacts to income and participation in the traditional economy will be experienced by BNDN as a result of effects of the Project on BNDN's exercise of rights and pursuit of traditional land and resource use activities. This is significant issue to BNDN given estimates, cited in the	Section 18.4 and Section 19.4 must include an assessment of the impacts of the Project on BNDN's income as it relates to participation in the traditional economy as a primary pathway, resulting from the adverse impacts of the Project on BNDN's traditional land and resource use. This assessment must include consideration of the cumulative effects of industrial development on participation in the traditional economy.

		Socio-Economic Baseline Report, that "80% or more of the people in the community participate in some form of traditional economic activity" (6.5.2.3). BNDN does not agree with NexGen's assessment in Table 18.4-1 that a general commitment to "support and promote Indigenous community participation and employment in the traditional economy" warrants only considering the beneficial impacts of the Project on BNDN's participation and employment in the traditional economy. Further, while NexGen acknowledges that "participation in the traditional economy often occurs sequentially and simultaneously with activities related to Other Land and Resource Use (Section 17) and Cultural and Heritage Resources and Indigenous Land and Resource Use (Section 16)" and that the effects related to those components are addressed in those sections of the EIS (p. 18-85), it is BNDN's position that the implications of the impacts of the Project to those components must be assessed as they relate to income and BNDN's participation in the traditional economy in order for this section of the EIS to be considered complete.	
14.	Section 18.4 Project Interactions, Mitigations and Benefit Enhancements	In the EIS's characterization of the Project's interactions with Indigenous group's participation in the traditional economy, NexGen states that "while wage employment may reduce activity in the traditional economy for some participants, the effects of increased wage income on the ability to	a) Section 18.4 must consider the impacts of the Project to participation in the traditional economy by members of Indigenous groups not employed by the Project, in addition to those employed by the Project.

		purchase equipment and supplies, combined with employment policies that facilitate participation in the traditional economy is expected to result in a positive benefit to the ability to participate in the traditional economy" (p. 18-85). However, BNDN notes that while this considers those who may be employed by the mine and experience increased wage income, this does not account for impacts to participation in the traditional economy by those not employed by the mine whose experience of the impacts of the Project are not offset by an increase to wage income. In addition, as the "employment policies" cited by NexGen have not been developed or included in the EIS documentation, there is no way to verify that these policies will fulfill this stated purpose. Further, no contextualized evidence or verification of Indigenous groups in the LSA is provided to support that the 2005 study cited to support the sentiment that participation in a fly-in/fly-out commuter rotation system would enhance the ability of Indigenous people in the LSA to spend more time on the land, or that this applies to all Indigenous groups in the LSA.	b) Further, to support the conclusions of Section 18.4 of the EIS that being employed by the Project will not adversely impact participation in the traditional economy: ● *Further commitments and clarity to the process for the development of employment policies and their contents must be included in the EIS* The Proponent must provide more contextualized research and/or the verification of Indigenous groups in the LSA must be provided to support NexGen's assessment of the negligible effects of participating in a fly-in/fly-out commuter system
15.	Section 18.4 Project Interactions, Mitigations and Benefit Enhancements	Throughout Section 18.4 and in Section 19.4, NexGen identifies that a key project characteristic that will contribute to potential effects on the economy includes an aspirational long-term target of 75% of the Project's workforce being composed of LSA residents. However, as the	a) To justify these targets being cited in Section 18.4 and used to characterize the potential benefits of the Project in the EIS's analysis of the effects of the Project on the Economy in Section 18.8, much more substantiated evidence is required in the EIS to support the

	Section 19.4 Project Interactions and Mitigation	section goes on, the EIS makes the following statements that call into question if this "aspirational" target is in fact realistic: ● "NextGen would make best efforts to recruit LSA residents, however, due to the specialized nature of some of the construction work and the associated technical employment qualification requirements, *a substantial portion of the Construction workforce is anticipated to be sourced from outside the LSA*" (18-73) ● "It is likely that the long-term target of 75% of the workforce being residents of the LSA *would not be achieved in the early stages of Project Operations*" (18-76) ● "The opportunity to employ residents of the LSA on the Project *may be reduced in the event the Fission Patterson Lake South Property proceeded* due to competition for workers and the limited number of qualified personnel from which to draw on" (18-30). Additionally, NexGen concludes, based on Figure 18.4-3 which provides an illustration of the potential typical operations year labour requirements, that filling 75% of the illustrative average peak operating jobs in each	feasibility of these targets and much more specific commitments are required than the generalized measures currently set out on p. 18-81. b) It must also be a condition of the EIS's approval that the mutually agreed upon terms of an LSA workforce recruitment and retention strategy are established prior to EA approval, and Indigenous groups in the LSA provide confirmation that appropriate features of Benefit Agreements have been established to meet these targets prior to final EA approval or the commencement of construction. c) If substantial evidence cannot be provided to meet this "aspirational" target, NexGen must also provide a more realistic and concrete target based on the evidence that is available so that the effects of the Project on the Economy and Community Well-Being can be accurately assessed and understood by regulators and Indigenous groups. Commitments must also be set out in the EIS for measures that will be taken if NexGen's targets for employment are not met.

		education category "may require hiring 38% of the 2016 LSA population over the age of 15 with a high school, college, or university certificate who were unemployed or not in the labor force in 2016 and 45% of the LSA population over the age of 15 with an apprenticeship or trades certificate or diploma who were unemployed or not in the labor force in 2016" (18-76). However, BNDN notes that no research or engagement has been completed to date to verify if hiring this proportion of the population for jobs in the mining sector is possible or desirable to members of the LSA's workforce.	
16.	Section 18.4 Project Interactions, Mitigations and Benefit Enhancements Section 19.4 Project Interactions and Mitigations	Throughout Section 18.4 and in Section 19.4, NexGen identifies that a key project characteristic that will contribute to potential effects on the economy and community well-being includes an aspirational long-term target of 30% of the Project's external spend being awarded to LSA and RSA businesses. However, given that "local study area residents have noted that there are a limited number of locally owned businesses" (p. 18-84) it is not clear that the measures NexGen proposes in this section of the EIS (e.g. maintaining a local business registry, providing advance notice of business opportunities, pre-qualifying Indigenous businesses, etc.) will be sufficient to meet this aspirational target.	a) To justify these targets being cited in Section 18.4 and 19.4 and used to characterize the potential benefits of the Project in the EIS's analysis of the effects of the Project on the Economy and Community Well-Being, much more substantiated evidence is required to confirm how these aspirational targets will be met, including: ● Commitments to funding and supporting the establishment of Indigenous businesses, Limited Partnerships and Development Corporations to facilitate access to procurement opportunities ● Clear and specific commitments to criteria and processes for RFP tendering that will give preference to Indigenous businesses

			● Offsetting benefits that will be provided if targets of 30% are not met b) It must be a condition of the EIS's approval that Indigenous groups in the LSA provide confirmation that commitments in the EIS and measures established in Benefit Agreements are appropriate to meet procurement targets cited in the EIS. Commitments must also be set out in the EIS for measures that will be taken if NexGen's targets for procurement are not met. c) If substantial evidence cannot be provided to meet this "aspirational" target, NexGen must also provide a more realistic and concrete target based on the evidence that is available so that the effects of the Project on the Economy and Community Well-Being can be accurately assessed and understood by regulators and Indigenous groups.
17.	Section 18.7 Monitoring, Follow-Up and Adaptive Management	BNDN notes that no specific management or monitoring plan has been included in the EIS documentation related to the verification of residual socio-economic impacts, both positive and negative, for the local economy.	a) NexGen must develop a Socio-Economic Monitoring Plan for the life of the Project to verify the effects assessment included in the EIS and to be included in the Project's approach to adaptive management. This Plan would include an approach, co-developed with Indigenous groups in the LSA, to monitoring the realization of the benefits and impacts of the Project (e.g., employment and procurement targets, training and capacity building, community investments, etc.) as mitigation and enhancement measures are implemented. Monitoring and subsequent regular evaluation would

			allow for the real-time adjustment of targets and/or an approach to adjusting enhancement measures or identifying offsetting benefits where targets are not met. b) The Crown must include the development of a Socio-Economic Monitoring Plan as a condition of approval for the Project.
18.	Section 19.2.2 Valued Components, Measurement Indicators, and Assessment Endpoints Socio-Economic Baseline Report	Section 19.2.2.2 sets out the measurement indicators used by NexGen in the assessment of effects on Community Well-Being, including: ● Societal and Cultural Well-Being ● Economic Well-Being ● Educational Well-Being ● Neighborhood and Physical Environment Well-Being ● Health Well-Being However, BNDN notes that these measurement indicators and the subsequent supporting indicators and factors considered set out in Table 19.2-1 do not adequately consider Indigenous indicators of well-being, such as spiritual well-being, connection to the land, intergenerational connectedness, well-being of future generations, etc. This is significant given that the Socio-Economic Baseline Report acknowledges that "the RSA is predominantly Indigenous, with 87.4% identifying as such" and "within the	NexGen must co-develop the measurement indicators and supporting indicators must be co-developed with Indigenous communities in the LSA including BNDN to include a greater focus on Indigenous indicators of well-being. BNDN expects that this will result in corresponding changes to Section 19.4 in the final EIS.

		LSA 95.2% are Indigenous" (Executive Summary, iii).	
19.	Section 19.4 Project Interactions and Mitigations	In Section 19.4.3, a secondary pathway considered by NexGen is how involvement in Project-related employment may reduce opportunities for resource harvesting. However, BNDN notes that the impacts of the Project on traditional land use and resource harvesting and subsequent effects on community well-being have not otherwise been considered as a primary pathway.	Section 19.4 must include an assessment of the impacts of the Project on BNDN's community well-being as it relates to traditional land use and resource harvesting as a primary pathway, resulting from the adverse impacts of the Project on BNDN's traditional land and resource use. This assessment must include a consideration of the cumulative effects of industrial development.
20.	Section 19.4 Project Interactions and Mitigations	While Section 19.4.3 does consider the effects of population changes related to the Project on social adaptability, demand for services and housing, it doesn't address the full range of potential impacts associated with a transient workforce.	Section 19.4 must include an assessment of all potential effects of a transient workforce and changes to population dynamics, including those disproportionately experienced by women and other segments of the population. This must incorporate findings of research like the 2017 study completed by Lake Babine Nation and Nak'azdli Whut'en (Indigenous Communities and Industrial Camps), and/or related research in the context of the LSA.
21.	Section 19.4 Project Interactions and Mitigations	While Section 19.4 of the EIS does consider the effects of increased income on existing community issues such as substance abuse, domestic violence, as a corresponding mitigation measure, NexGen has only committed to establishing on site health and wellness programming on site as a proposed mitigation measure which is not sufficient to address this potential impact and should not be considered sufficient to prevent residual impacts.	Section 19.4 must also set out NexGen's commitments to support the establishment and improvement of social services and wellness programs located in, led and implemented by each of the Indigenous communities in the LSA through the provision of funding and other resources. NexGen must make formal commitments to supporting such investments for the benefit of the Project and the benefit of Indigenous communities in the LSA.

4.3 Water Resources

Like all mining operations, the construction, operation and closure of the Rook 1 Project will require careful management of surface water and groundwater to prevent negative impacts to the surrounding and downstream natural environment. The Rook 1 project has the potential to have negative impacts on both the quality and the quantity of surface water resources in the Project area. In the EIS, NexGen has provided their predictions of the impacts that the Project will have on surface water and groundwater quality and quantity. NexGen developed their predictions using the baseline data that they have collected to create computer models that predict how water quality and quantity will be impacted by the project.

Groundwater Quantity

As an underground mining operation, NexGen will need to pump groundwater out of the mine workings to keep the mine dry. By pumping out the groundwater, the groundwater levels around the mine will be lower. This has the potential to reduce the amount of water flowing into nearby lakes and rivers, as they get some of their flow from groundwater. Overall, NexGen argues that the drawdown of groundwater will have very little impact on groundwater during operations of the mine and in the long term. Once the mine closes, the underground mine workings will refill with water and the groundwater levels will return to what they were prior to mining.

Groundwater Quality

In general, natural groundwater has higher concentrations of minerals and other elements in it than clean surface water. This is the case at the Rook 1 Project, where NexGen will need to sample and treat the groundwater that they pump out of the mine before it is released to Patterson Lake. NexGen has also modelled groundwater quality in the mine post-closure, when then mine has been backfilled with paste tailings and waste rock. The groundwater quality in the closed mine is expected to have higher concentrations of some contaminants such as cobalt, copper, and uranium. NexGen plans to address this by sealing the mine so that the groundwater in the mine has very limited interaction with surface water. NexGen expects the time for contaminated groundwater in the mine to reach Patterson Lake to be about 1000 years. NexGen expects negative impacts to Patterson Lake water quality to be permanent from the long-term loading of cobalt and copper from mine waste seepage and the stored tailings groundwater migration into Patterson Lake.

Surface Water Quantity

Activities at the Rook 1 Project will take water from Patterson Lake for use on the mine site and discharge treated water to Patterson Lake. NexGen will take water from Patterson Lake to use in their processing facility as well as for other uses on site such as in the camp. NexGen will also capture and store water on site, as water which interacts with the mine site could become contaminated and NexGen needs to make sure that contaminated water does not enter Patterson Lake. The capture and storage of water through a system of ditches and storage ponds is intended to prevent contaminated

water from flowing into Patterson Lake. NexGen has completed calculations of the total water they expect to remove from and add to Patterson Lake to develop a water balance model for the Clearwater River system. Based on NexGen's water balance model, they expect the mine to slightly increase the total amount of water in Patterson Lake on average during mining, though they expect the effects to be so small that they would be less than the natural variation from year to year. In their environmental impact statement, they have argued that the impacts to surface water will be quite minor overall, and that the changes will not be permanent, meaning that water levels in Patterson Lake and the Clearwater River system will revert back to natural conditions not long after closure of the mine.

Surface Water Quality

All groundwater and surface water that comes into contact with any of the infrastructure on the mine may become contaminated. To manage this, NexGen must capture and store all water on site to prevent potentially contaminated water from entering Patterson Lake. The stockpiled waste rock from the mine and the mine tailings has the highest risk of causing contamination if water that contacts them is not prevented from entering Patterson Lake. Several metals could contaminate the environment from the tailings and waste rock such as arsenic, cadmium, cobalt, mercury, antimony, selenium and uranium. Camp wastewater will have high concentrations of phosphorous and other nutrients that could impact Patterson Lake as well.

To prevent contamination of Patterson Lake from mine contact water and camp wastewater, NexGen plans to capture and treat all water to acceptable standards before it is released to Patterson Lake. NexGen will regularly sample water before and after treatment to ensure that it is meeting Provincial and Federal requirements. NexGen plans to discharge water from both the Effluent Treatment Plant (ETP) and Sewage Treatment Plant (STP) into the North Arm West Basin of Patterson Lake.

NexGen does expect water from the mine to have moderate levels of contamination during operations, closure and post closure of the mine. In the EIS they predict that cobalt and copper are the most likely to be elevated above water quality objectives long term. NexGen has presented these changes to the environment as a significant impact of the Project to the environment.

Primary concerns identified in the review

- NexGen expects cobalt and copper to remain elevated above water quality guidelines for many hundreds or perhaps thousands of years. NexGen and the Crown must demonstrate that this significant impact will be minimized to the maximum extent and properly accommodated
- Available data indicates that waste rock from the Project is much more likely to cause acid rock drainage and metal leaching than what BNDN previously understood.
- NexGen has underestimated how sensitive Patterson Lake is to the addition of metals and acidity from the Project, and has not considered how acid rain caused by oil sands emissions may cause cumulative effects on Patterson Lake that may negatively affect water quality far downstream

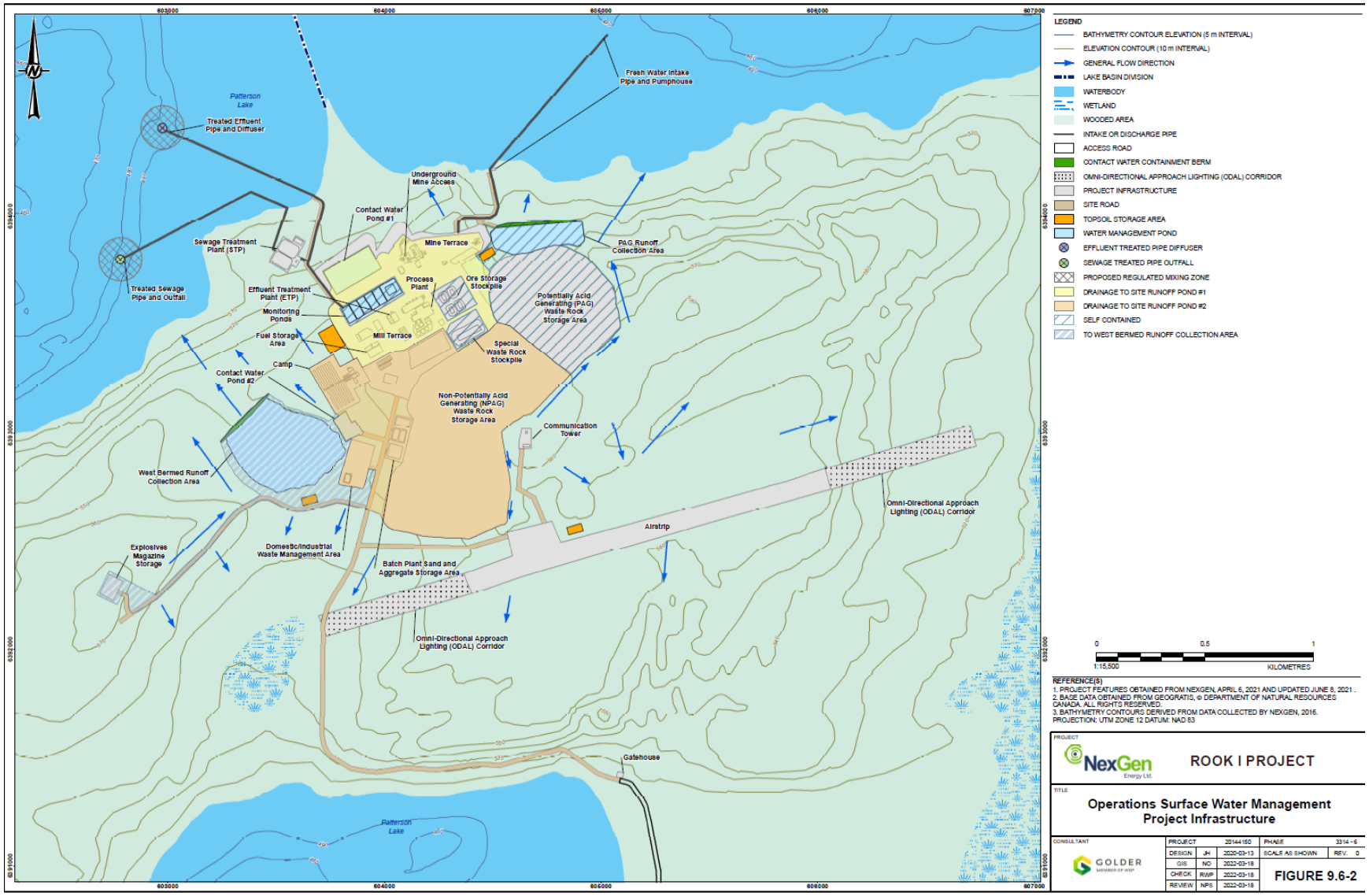


Figure 3: Map of site infrastructure, surface water flows around the mine (solid blue lines) and location of water intake from and effluent discharge into Patterson Lake (NexGen, 2022)

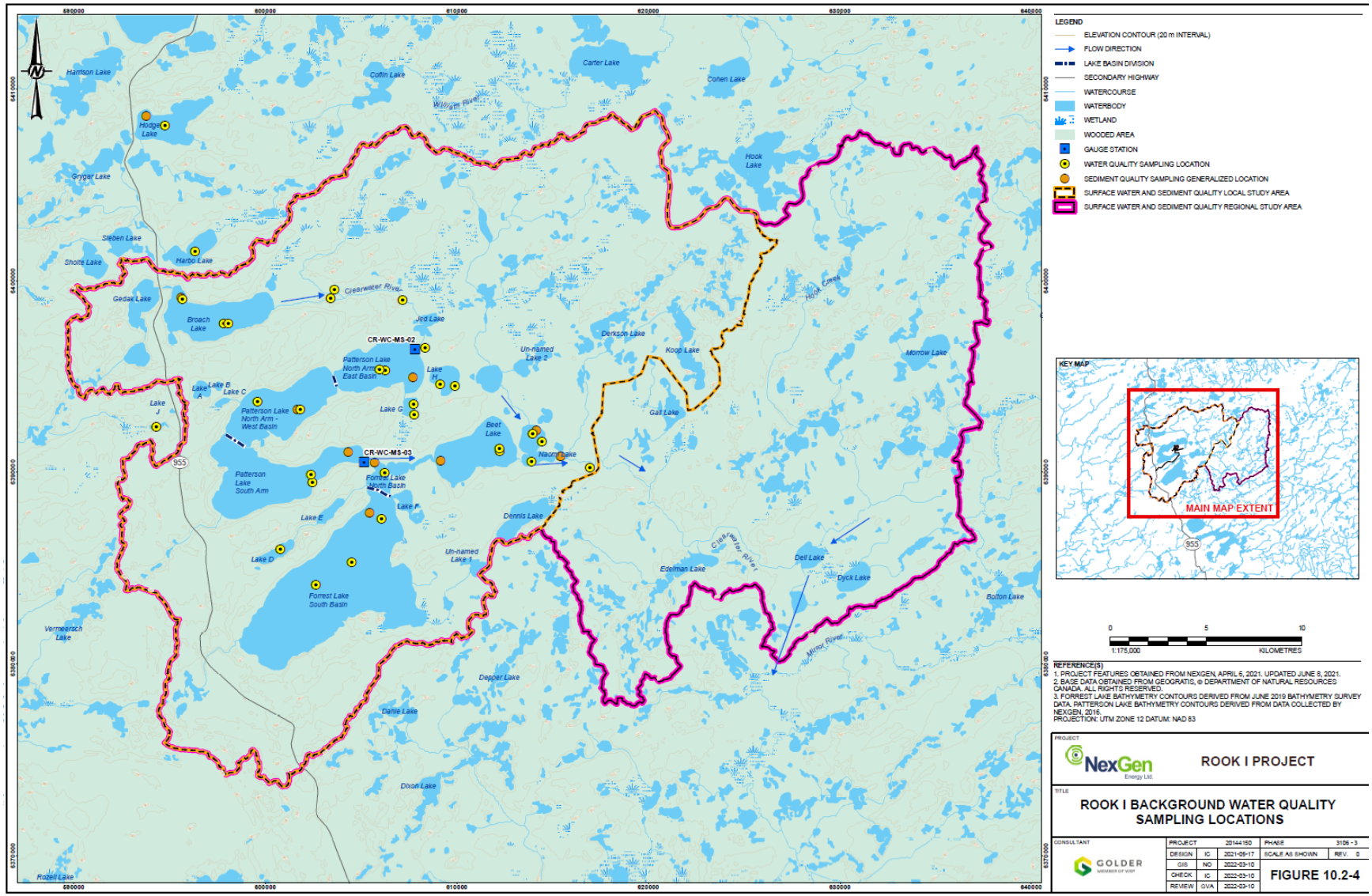


Figure 4: Location of baseline surface water (yellow dot) and sediment (orange dot) sampling, and the local and regional study areas for surface water and sediment quality for the EIS (NexGen, 2022)

Table 3. Comments and recommendations for the Rook I Project related to water resources

#	Document Reference	Comment	Request/Recommendation
22.	General Comment	General Comment. In our review of the surface water and groundwater components of the EIS we found many of the assumptions, interpretations and conclusions to be inadequate. Amongst other concerns, we found that: i. Waste rock permanently stored on surface is far more likely to be acid generating than NexGen previously indicated to BNDN ii. Patterson Lake itself has limited buffering capacity and is very sensitive to acid rock drainage from the project iii. Sulphur dioxide emissions from the Alberta oil sands will continue to cause acidic precipitation at the Rook 1 project site. This is a cumulative effect that has not been considered in the EIS iv. NexGen water quality modelling assumptions overlook a number of important considerations that result in an overly optimistic assessment of Project impacts to surface water quality Despite these inadequacies in the current assessment, NexGen still expects water quality to be	a) BNDN requests that CNSC and SMOE establish regular meetings with our Nation to discuss these concerns and the findings of regulators and other Indigenous groups in detail. These meetings will be used to identify meaningful measures that the Crown can take to avoid, mitigate, accommodate or compensate for the significant adverse impacts to our constitutionally protected Treaty and Aboriginal rights and interests. b) BNDN requests that NexGen work collaboratively with our Nation to resolve the concerns raised prior to submission of the Final EIS.

		permanently and irreversibly impaired in Patterson Lake. In light of these factors, we believe that NexGen has significantly understated the potential impacts of the Project on the environment and on BNDN Treaty and Aboriginal rights and interests. If the Crown intends to approve this Project, the Crown must work with BNDN to ensure that the identified potential impacts are avoided, mitigated and/or accommodated.	
23.	EIS Table 10.5-8 and EIS Table 8.5-3	In Table 10.5-8 (Classification of Residual Effects on Surface Water Quality Indicators for the Application Case and Reasonably Foreseeable Development Case in the Far Future; p. 10-119), NexGen provides their assessment that water quality in Patterson Lake will be negatively impacted by the project for hundreds of years from waste rock seepage and for thousands of years from groundwater (effectively permanently) through the continued loading of elevated concentrations of copper and cobalt to Patterson Lake. BNDN is very concerned with this impact of the Project, which will result in permanent, continuous adverse impacts to our ability to exercise our Treaty and Aboriginal rights. As documented in our IKTLU study, our members frequently fish in Patterson Lake, Forrest Lake and in the Clearwater River system. The Clearwater River system is an extremely important waterway to	a) BNDN requests that NexGen undertake an assessment of alternatives to address the long-term loading of cobalt and copper into Patterson Lake from the Project. This assessment must be done collaboratively with BNDN, or preferably led by BNDN with capacity support provided by NexGen. b) BNDN requests that NexGen and the Crown work with BNDN to develop a mitigation or accommodation measure that effectively addresses this impact to BNDN Aboriginal and Treaty rights. c) BNDN requests that NexGen commit to developing a trust fund with the purpose of covering the costs of ongoing monitoring of water and fish quality in Patterson Lake in perpetuity. d) BNDN requests that the Proponent obtain consent from BNDN for the surface water quality monitoring programs at the Project for all phases of the Project, including post closure. e) BNDN requests that the Crown require NexGen to obtain BNDN approval and

		BNDN that our members have traveled since time immemorial. The fact that Patterson Lake will be permanently impaired is a serious impact on our members who may never be able to trust the water quality and fish health in Patterson Lake for many generations into the future (long after NexGen has left our Territory). The fact that our members will need to rely on fish and water testing and analyses in perpetuity to have confidence (from a western science perspective) that we can consume fish from Patterson Lake is a significant adverse impact to our Treaty and Aboriginal rights. In the EIS, the Proponent has provided very vague and general measures to monitor these serious permanent impacts to Patterson Lake and the downstream environment which are wholly inadequate to address the magnitude of impact on BNDN. If the Crown intends to approve of the project as described, the Crown and NexGen must avoid, mitigate and/or accommodate this impact to BNDN Treaty and Aboriginal rights.	written consent for the surface water and groundwater quality monitoring plans as a condition of approval for the Project.
24.	TSD XVII: Waste Rock and Underground Wall Rock Source Term Predictions Figures 3-1 and 3-2.	In the Waste Rock subsection of EIS Section 5.3.3.5 (Geochemical Conditions), the Proponent notes that mine waste rock that will be stored on the surface of the mine site will have both non-acid generating (NAG) and potentially acid generating (PAG) rock. The Proponent has provided limited information on the expected relative proportions of NAG to PAG, the magnitude of acid generation	a) BNDN requests that NexGen make all of their baseline geochemical data publicly available to facilitate BNDN review. b) The Crown must not make a decision on the Project prior to a thorough and rigorous review and analysis of the geochemical baseline data and the modeling results developed from the geochemical baseline data.

		potential from the PAG rock and the buffering capacity of the NAG rock. Figures 3-1 and 3-2 of TSD XVII display analytical results of the acid generation potential of waste rock from the underground tailings management facility (UGTMF) and mine workings. Both Figure 3-1 and 3-2 indicate that that a relatively high proportion of mine workings and UGTMF samples analyzed are PAG rock, a significant proportion of which has a very low neutralization potential ratio indicating a very high potential for acid generation. While very limited baseline information is provided in the EIS and in the supporting documents, Table 3-3 of TSD XVII shows that approximately 40% of waste rock expected to be permanently stored on surface is expected to be PAG. This is quite a high proportion and indicates a very significant risk of acid generation from the waste rock, especially considering that the NAG waste rock generally has low buffering capacity to neutralize acid rock drainage from the PAG waste rock. Considering the obvious potential for acid generation from the limited information provided by NexGen upon which their assumptions and interpretations are based, BNDN is very concerned that NexGen is significantly underestimating the risk of acid rock drainage from the waste rock. BNDN notes that the available information indicates that the waste rock at Rook 1 has a relatively high	c) Given the high and permanent risk to the environment, the Crown must work with BNDN to develop conditions of approval for the Project that give BNDN confidence that NexGen will be held to stringent environmental protection measures. This must at a minimum include a requirement for NexGen to obtain explicit consent from BNDN for their relevant management and monitoring plans. d) The Crown must work with BNDN to develop measures to mitigate and accommodate impacts to BNDN Treaty and Aboriginal rights from the permanent, irreversible risk that our Nation is assuming by the waste rock stockpile being built. e) NexGen must commit to developing and funding an independent third-party waste rock management review board (similar in format and conception to an independent tailings review board) for the life of mine. BNDN recommends that this independent third-party waste rock management review board be a Crown condition of approval for the Project.

		likelihood of generating acid rock drainage. It is not acceptable for BNDN to have to take NexGen's modelled interpretations of their data on faith. By constructing the Project, NexGen is permanently altering BNDN's Traditional Territory and is asking BNDN to assume the risks to our Treaty and Aboriginal rights associated with this permanent change. The generation of acid in the waste rock would dramatically increase the loading of metals to Patterson Lake and the Clearwater River system and would be a truly disastrous outcome. BNDN must have an exceptional level of confidence that the waste rock will not generate acid rock drainage in the short term or in the far future, and both the Proponent and the Crown must develop conditions and commitments during the EA phase of the Project to give BNDN certainty that this outcome will be avoided.	
25.	EIS Section 10 Appendix 10A Table 6 (Summary Parameters for Sampled Lakes)	In EIS Section 10 Appendix 10A Table 6 (Summary Parameters for Sampled Lakes), NexGen reports the pH range of many of the lakes within the Project LSA and RSA, including Patterson Lake. While the lakes are generally circumneutral, NexGen has occasionally measured pH values as low as 5.8, including in Patterson Lake. These relatively low pH measurements are often gathered at the same sampling events where elevated metal concentrations (such as arsenic and nickel) have been observed. These occasional low pH measurements and coincident elevated metals	a) NexGen must include the impacts of sulphur dioxide emissions from the Alberta oil sands operations in their cumulative effects assessment for the project. b) NexGen must revise their waste rock seepage and overall water quality model to consider the potential contribution of acidity from rainfall and snowfall in the region. c) NexGen must undertake an assessment of the buffering capacity of lakes and rivers impacted by the Project. The study design must be approved by BNDN and

		concentrations reflect the fact that Lakes in and around the Project area have a low buffering capacity against acid generation (Cathcart, Aherne, Jefferies, & Scott, December 2016). In fact, according to modelling by Cathcart et al (2016), the Project is within an area of Saskatchewan where lakes are particularly sensitive to acidity and Patterson Lake may already be above its critical load of acidity. The Cathcart study was written in the context of the potential for emissions from the oil sands operations in Alberta causing acidic deposition from sulphur dioxide deposition through rainfall and snowfall. Impacts of the estimated 116,000 kT annual sulphur dioxide emissions from the oil sands are expected to most acutely impact lakes within 100 km east and north of the oil sands operations. The Rook 1 Project is less than 110 km as the crow flies east-northeast of the Kearns oil sands operations. The ongoing emissions from the oil sands operations are likely already contributing acidity to the Rook 1 Project area. This, coupled with the very limited natural buffering capacity of Patterson Lake, must be considered cumulatively along with the potential contribution of acidity to Patterson Lake from the Rook 1 Project. NexGen and the Crown have not considered the potential cumulative impacts from sulphur dioxide emissions in the oil sands region on Patterson Lake and on the Rook 1	must be completed in collaboration with BNDN. d) Based on the findings of the assessment of buffering capacity in lakes and rivers impacted by the Project and the impacts of acidic precipitation, NexGen must revise their surface water assessments of impacts of the project. e) NexGen must develop mitigation and monitoring measures to prevent acidification of Patterson Lake, and the Crown must add a condition of approval to the project that includes protecting lakes impacted by the Project from acidification by the project.

		Project in general. Considering the proposed expansions to existing oil sands operations, it is conceivable that this further negatively impacts the already limited buffering capacity of the waste rock in the Rook 1 Project area and accelerates the onset of acid generation from the waste rock stockpiles.	
26.	EIS TSD XVII Waste Rock and Underground Wall Rock Source Term Predictions Section 3.2.1 (Method Overview)	In the equilibration modelling subsection of EIS TSD XVII Waste Rock and Underground Wall Rock Source Term Predictions Section 3.2.1, NexGen reports that geochemical speciation and mass transfer was modelled using PHREEQC, and that water quality was equilibrated using the MinteqV4 thermodynamic database file (TDF). Lu et al (2022) reported that the TDF that is selected for equilibration modelling can have very significant effects on the outcomes of the model (Lu, Zhang, Apps, & Zhu, February 2022). While MinteqV4 is a frequently used TDF for modelling in the mining industry, the Proponent has provided no rationale for why this database was selected, and what results would be obtained by substituting different TDF files. While the selection of TDF is an important primary consideration of the water quality modeling, other assumptions in the equilibration modelling can also have a dramatic effect on the modelled outcomes, such as oxidation reduction potential (ORP) and pH. NexGen has interpreted their water quality model results with static pH and ORP values that they	a) BNDN requests that NexGen provide a rationale for their chosen TDF and re-run their modelling results with at least 3 other TDFs. The Proponent must provide the modeled results from all 4 TDFs and provide a rationale for the TDF upon which their surface water quality impact assessment for the project is based upon. b) BNDN requests that NexGen clarify the types and sequences of calculations used in PHREEQC to simulate modeled outcomes. c) BNDN requests that NexGen re-run their 4 TDF modelled results through at least 3 different types and sequences of calculations. NexGen must provide a rationale and assumptions within the selected sequences. Note that these assumptions must consider the possibilities discussed in previous comments that precipitation at the project site often has elevated acidity due to sulphur dioxide emissions from oil sands operations in Alberta. d) The Crown must require the closure bonding for the project to include the costs to remediate acid rock drainage from the project. BNDN must be collaboratively involved in determining

		have somewhat arbitrarily selected and have not modeled their results in a way in which the pH and ORP evolve with the seepage chemistry over time. The Proponent also has provided limited information on the types of calculations that they utilized to calculate their modeled results. Highly differing outcomes can be reasonably expected depending on whether NexGen utilized an initial speciation calculation or one of the more complex batch-reaction calculations. Considering the limited buffering capacity available in the waste rock, opting for pH to remain fixed for the modelling is a questionable assumption that may have very serious implications in that they dramatically underestimate the potential for acid rock generation from the waste rock stockpiles. As previously mentioned, NexGen has not provided their baseline geochemical data upon which their modelling assumptions were based. BNDN is being asked to take many modeled assumptions for granted without any rationale to justify the assumptions. NexGen has also not provided any alternative reasonably conceivable modelled results based on different real-world assumptions (pH or ORP) or different modelling input variables (TDF or modelling calculations). It is entirely conceivable that NexGen is dramatically understating the	the assumptions used to inform the closure bonding estimates.

		potential for acid rock generation and metal leaching from the project, and thus understating the potential impacts from the Project in general. This has major implications for the potential impacts to BNDN Treaty and Aboriginal rights and interests which will already be adversely impacted within NexGen's assumptions. Acid rock drainage is widely understood to be self-perpetuating once initiated, and it is very difficult and costly to remediate. BNDN expects that both the Proponent and the Crown will take appropriate risk management and avoidance measures to prevent acid rock drainage. BNDN also expects that the CNSC will require the project closure bonding to include the costs associated with potential acid rock drainage and the consequent downstream consequences to the already very sensitive receiving environment.	
27.	EIS Table 10.5-7	BNDN members have noted an increased frequency of algae blooms and diseased fish in lakes in BNDN Traditional Territory. At this time the reason for the increased frequency of algae blooms is poorly understood. Increased phosphorous and nutrient loading to Patterson Lake from Project effluent discharge has the potential to exacerbate the existing increased frequency of algae blooms in the region. NexGen has selected effluent discharge criteria for phosphorous and other nutrients that are in line with standards in other jurisdictions in	a) BNDN requests that NexGen undertake a literature review on algae blooms, diseased fish and eutrophication in and around the Project area to inform their assessment of potential impacts on productivity status from the Project b) NexGen must work with BNDN to more fully understand the reasons for increased algae blooms in and around the Project area. This could be best discussed at the BNDN – NexGen environmental monitoring committee (EMC). BNDN requests that NexGen discuss providing capacity to BNDN for pursuing a study which is scoped at the

		Canada. In Table 10.5-7 NexGen has suggested that the discharge of effluent with elevated phosphorous to Patterson will result in no change to Patterson Lake. Given the fact that changes to lakes in the region have occurred with no anthropogenic inputs of nutrients and the lakes in the region are understood to already be sensitive ecological environments, the continual addition of nutrients over a number of decades may increase the likelihood of toxic algae blooms to a greater extent than assumed using National standards. The degree to which effluent discharge into Patterson Lake may increase that likelihood is not adequately assessed in the EIS and would benefit from meaningful incorporation of BNDN IKTLU to inform a more comprehensive assessment.	EMC to better understand eutrophication in the region. c) BNDN requests that during future community consultation with BNDN, NexGen discusses algae blooms in the region with membership to better understand from BNDN members where they are occurring, and to better inform NexGen's assessment of potential impacts in the final EIS. d) BNDN requests that NexGen commits to revising the assessment of potential impacts of the Project on productivity status in Patterson Lake depending on the findings from meetings with community members and any studies undertaken to understand algae blooms and eutrophication in the region.
28.	EIS Section 5.4.3.3 (Underground Tailings Storage)	In Section 5.4.3.3 of the EIS (Underground Tailings Storage), NexGen describes the storage of tailings underground at the Rook 1 Project. While BNDN generally prefers of this method of tailings disposal to the alternatives, there are some questions related to project sequencing and temporary tailings storage that raise the risks and potential environmental liabilities from the Project. Specifically, BNDN is unclear on the maximum volume of tailings that will be stored on surface on an interim basis at any given time, and how it will be stored. The sequencing of the project may have significant implications on the volume of tailings stored on surface at any	a) The CNSC must require NexGen to provide sufficient closure bonding to properly dispose of tailings stored on surface with inadequate storage. The calculation must be based on the moment of the mine life when there is expected to be the most unfavourable ratio of tailings disposed of on the surface and storage capacity for tailings underground. b) BNDN requests that NexGen clarify the maximum volume of tailings that could be stored on surface on an interim basis, and how it will be handled and stored to ensure that it does not negatively impact the environment, including during a temporary shutdown of the mine.

		given time, which may vary widely throughout the life of mine. BNDN requires a detailed understanding of how tailings will be managed on surface to minimize risk to the environment. BNDN also recognizes the possibility that the Project could temporarily cease operations throughout the life of mine, and that this could potentially leave some tailings materials on surface with inadequate storage capacity underground and no appropriate facility for storage on the surface. If project sequencing resulted in excess tailings on surface requiring disposal when the mine owner declares bankruptcy, it is possible that it could be prohibitively expensive to dispose of tailings on site within the funds available in the closure bonding for the Project.	
29.	EIS Section 5.4.3 (Tailings Management)	BNDN members have expressed concern with the suitability of utilizing cemented paste backfill and cemented paste tailings in the underground operations. In particular, members have expressed concerns about the safety and structural stability of the backfill for miners working underground, and the potential long-term implications for surface water and groundwater quality. BNDN expects that some of our members will be working underground at the mine. The safety of our members in the underground will be essential for our members maintaining support and	a) BNDN requests that NexGen provide further information on the structural stability of utilizing cemented paste backfill during operations, and the potential safety implications for our members working underground. While we request that NexGen provide a written response, this concern is best suited to be addressed at a future community meeting with our members. b) BNDN requests that NexGen provide a written and in person community presentation on the risks to groundwater and surface water quality from the proposed cemented paste backfill and cemented paste tailings.

		positive engagement in the Project long-term.	A presentation to BNDN members on recommendations a and b must include examples from other operations that have used the same mining and backfill methods. The examples from other projects must describe what has worked well about the proposed methods and any potential risks from NexGen's mining and backfill plans.
30.	EIS Section 8.2.1	In Section 8.2.1 of the EIS (Incorporation of Indigenous and Local Knowledge - Hydrogeology) the Proponent discusses the importance of groundwater to Indigenous Nations and references the importance of groundwater to BNDN in particular. BNDN wishes to note that the Project will change groundwater quality and surface water quality permanently. While some of these changes may not be considered harmful from a western science perspective, the permanent changes to the environment (especially the water) affects our Nation's relationship to the land. Considering the significant permanent change to the earth where the mine workings will be and the consequent permanent changes to groundwater, our relationship with the land will forever be altered. BNDN wishes to remind NexGen and the Crown that our Aboriginal rights are defined by BNDN alone. These changes, regardless of the extent to which they are assessed in the EIS as adverse from an environmental perspective, will have adverse impacts on our rights and interests that must be accommodated by the Crown and avoided and mitigated by the	a) BNDN requests that the Proponent provide a presentation to the community on how groundwater will change from baseline conditions from a western science perspective. At the meeting, the Proponent must work with the community to better understand BNDN's experience of the impacts of the Project on our Nation, especially as it pertains to groundwater and surface water. b) BNDN requests that the Crown work with BNDN to accommodate the impacts on our rights imposed by the permanent changes to surface water and groundwater induced by the mine.

		Proponent to the maximum extent possible.	
31.	EIS Section 10.2.8.3.1	In Section 10.2.8.3.1 of the EIS (Water Quality Thresholds), NexGen discusses their Project-specific thresholds for contaminants of potential concern for water quality. In most cases, NexGen selected the most conservative available water quality guideline available with the exception of molybdenum. The Canadian Council for Ministers of the Environment (CCME) chronic guideline for molybdenum is 0.073 mg/L, but NexGen has opted to use the Saskatchewan Water Security Agency (WSA) guideline of 31 mg/L. BNDN notes that the WSA guideline is 424 times greater than the CCME guideline. The selection of a guideline that is so much less stringent concerns BNDN, given the very limited rationale for the determination that NexGen has provided. The selection of the less stringent requirement implies that NexGen assumes that they cannot achieve the more stringent guideline and thus are avoiding assessing the impacts of increased molybdenum concentrations in Patterson Lake. Academic literature indicates that some animals are very sensitive to molybdenum toxicity, notably cattle and sheep (Novotny & Peterson, May 2018). While limited research has been conducted on caribou to assess their sensitivity to molybdenum toxicity, BNDN expects the Proponent to exercise reasonable caution to	a) BNDN notes that our Nation strongly prefers that NexGen utilize the more stringent CCME guideline for all parameters, including molybdenum. b) BNDN requests that the Proponent provides a detailed rationale for their choice of the WSA guideline for molybdenum as opposed to the CCME guideline. c) BNDN requests that the Proponent revise their assessment of impacts based on the revised water quality objective for molybdenum to provide context to our Nation on the degree to which the selected guideline changes the assessment of impacts. d) BNDN requests that the reassessment of molybdenum loading to the environment from the Project considers the proposed revisions to water quality modelling from the Project proposed in comments above.

		protect highly sensitive and culturally important species to BNDN. BNDN is very concerned with the fact that NexGen has opted for a more relaxed molybdenum water quality objective. BNDN notes that Table 8 in TSD XIX indicates that NexGen expects to achieve the CCME guideline within the regulated effluent mixing zone, so the reason for selecting the less stringent requirement is unclear.	
32.	TSD XIX Table 7 and TSD XVIII Appendix H Table 7	Table 7 of EIS TSD XIX (Treated Effluent Source Term Data of Rook 1) and Appendix H Table 7 of EIS TSD XVIII (preliminary Effluent Discharge Concentration Limits Calculation Results) shows NexGen's anticipated effluent quality to be discharged to Patterson Lake. While the numbers differ somewhat between the two tables, both tables show that NexGen expects the final effluent to exceed water quality objectives for a number of parameters and thus will require a mixing zone to achieve water quality objectives. BNDN notes that a number of metals expected to be elevated in the final effluent may be discharged at the threshold for acute toxicity, including uranium and zinc. Furthermore, many of the final effluent objectives that NexGen has proposed are lower than what has been found to be achievable and cost effective elsewhere in Canada. BNDN has a number of concerns with NexGen's proposed effluent treatment objectives, including:	a) BNDN requests that the Crown impose a condition of approval on the Project that NexGen must obtain explicit written consent from BNDN for the final permitted effluent quality objectives for the Project b) BNDN requests that the Proponent undertake a study of water quality objectives at other mining operations in Canada to assess what is both economically and technically achievable at this time c) BNDN requests that NexGen commit to revising their effluent quality objectives on a regular basis (for example every 5 years) to assess any improvements in water treatment technology that could improve effluent quality at the project. d) BNDN requests that effluent discharge permits issued for the Project by the Federal Government and Saskatchewan expire in 5 years to require NexGen to reassess their effluent quality objectives.

		• Acute toxicity of some elements presenting a risk to fish and aquatic life in the immediate presence of the effluent discharge point • The potentially synergistic effects between the numerous metals elevated in final effluent • The fact that the proposed effluent guidelines are not as stringent as found to be achievable elsewhere in Canada Given that BNDN members frequently harvest fish in Patterson Lake, the relatively relaxed standards and unnecessary risks created through the proposed effluent quality objectives is a serious impact to the exercise of our Treaty and Aboriginal rights. The proposed water quality objectives fall short of what is reasonably achievable and would constitute minimizing adverse impacts to BNDN Treaty and Aboriginal rights. To minimize risk to the receiving environment, BNDN would strongly prefer that all contaminants achieve water quality objectives at the point of discharge with no mixing zone required, especially for mercury, cadmium, cobalt, uranium selenium, copper and arsenic. Note that achieving water quality objectives at the point of discharge is much less stringent than achieving background conditions at the point of discharge, which would be BNDN's preference.	

33.	EIS Figure 10.5-18 and 10.5-19	As BNDN has previously noted, NexGen expects water quality in Patterson Lake to be adversely impacted by the Project irreversibly and in perpetuity. While BNDN has raised a number of concerns in our review that indicate that many more elements are likely to be a concern and to a much greater extent than modeled by NexGen, NexGen has acknowledged that copper and cobalt will be elevated in Patterson Lake in perpetuity and likely will exceed CCME water quality objectives. BNDN notes that the Project will have adverse impacts to Patterson Lake and that the EIS is inadequate in addressing how water quality in Patterson Lake will be protected during the operations, closure and post closure phases of the mine. BNDN wishes to remind NexGen that our land users will be permanently impacted by this Project, long after NexGen has closed the mine and left our Territory. Our Nation needs confidence that both the Proponent and regulatory agencies will take the long-term impacts to Patterson Lake and the Clearwater Lake seriously by committing to stringent but appropriate avoidance, mitigation and accommodation measures to protect Patterson Lake, especially into the far-future.	a) BNDN requests that NexGen develop a trust fund that will fund the treatment of contaminated seepage from the project in perpetuity. b) BNDN requests that the Crown include a condition of approval for the Project that NexGen's will not be released from their license to operate the Project without explicit written consent from BNDN. c) BNDN requests that NexGen, the Crown and BNDN work together to develop a condition of approval for the Project that will ensure that effluent and seepage from the Project will minimize long-term adverse effects to Patterson Lake from the Project.
34.	EIS TSD XVIII Section 5.1.1	In Section 5.1.1 of EIS TSD XVII (Application Case for Effects Assessment), NexGen has noted that they will withdraw 4,300,000 L/day from Patterson Lake on average	BNDN requests that the Crown include a condition of approval for the project that NexGen does not significantly change water levels in Patterson Lake or in the Clearwater River system. The Crown must develop the

		during the operations phase of the mine. While NexGen does not anticipate that the water level in Patterson Lake will change significantly, any substantial project-induced increases or decreases to water levels in Patterson Lake are likely to have significant impacts to aquatic life in the downstream environment and consequently to BNDN Aboriginal and Treaty rights, which must be avoided.	details of the condition in collaboration with BNDN

4.4 Aquatic Resources

The Project is located along the edge of Patterson Lake within the upper portions of the Clearwater River system. Fish and Fish Habitat was chosen by the Proponent for evaluation of potential effects with the study areas. The Valued Components (VCs) chosen for assessment of this discipline were lake trout (*Salvelinus namaycush*), lake whitefish (*Coregonus clupeaformis*), walleye (*Sander vitreus*), and northern pike (*Esox lucius*).

The Fish and Fish Habitat LSA is 685 km^2 and includes portions of the Clearwater River watershed from its headwaters to the outlet of Naomi Lake (Figure 5). The LSA was selected to evaluate potential direct effects and local indirect effects from the Project. The RSA includes this area and all the areas draining to the Clearwater River through its confluence with the Mirror River (1,076 km^2). The RSA was selected to assess the maximum predicted direct and indirect effects of the Project, along with cumulative effects of other reasonably foreseeable projects. These study areas are the same as those used for hydrology and surface water quality.

Waterbodies in the area are typically large deep lakes with low nutrients (i.e., oligotrophic) that provide good year-round habitat for local species and smaller shallow ponds that freeze to bottom or near-bottom overwinter. Streams and rivers, such as the upper reaches of the Clearwater River are typically wide and low gradient with sandy and organic sediments. Depth and substrate size of watercourses generally both increase in the lower portions of the watershed. Baseline studies found seventeen fish species within the study areas, which are common representatives of the northern Saskatchewan fish community, including lake whitefish, yellow perch, longnose sucker, northern pike, burbot, and lake trout. This includes the capture of Arctic grayling in only one location, in the Clearwater River below Naomi Lake. Small-bodied fish included troutperch, spot tail shiner, and lake chub. Benthic invertebrate and plankton communities were also found to exhibit common characteristics of northern oligotrophic waterbodies.

Three measurement indicators were chosen to evaluate the effects of the Project on self-sustaining and ecologically effective fish populations. The Proponent's assessment of these is summarized as follows:

- **Habitat availability** – Habitat suitability in the Patterson Lake North Arm – West Basin may be altered due to increased copper after closure. The Proponent does not anticipate that the predicted copper levels will result in detectable effects on populations or communities of fish, benthic invertebrates, or plankton.
- **Habitat distribution (i.e., connectivity)** – There are no anticipated changes between habitat distribution/connectivity from the Project. Fish should therefore be able to maintain all life processes, including spawning, migration, rearing, overwintering etc.
- **Survival and reproduction** – Fish survival and reproduction may be affected by elevated levels of copper, however the risk assessment showed that this is not expected. The risk of effects is somewhat more likely for forage fish (e.g., lake whitefish) than for predators due to their reliance on benthic invertebrates, however the Proponent concludes that these effects are not likely measurable.

Based on the results of their analysis, there is only one primary pathway for potential effects (a non-negligible and measurable effect); the potential change in surface water quality from the WRSAs and UGTMF after Closure. All other Project components/activities were considered not to have secondary pathway (minor or negligible effect) or no pathway (effect is avoided or non-detectable) to effects on fish and fish habitat. As a result of their analysis, the Proponent has stated that the effects of the Project on Fish and Fish Habitat were not significant.

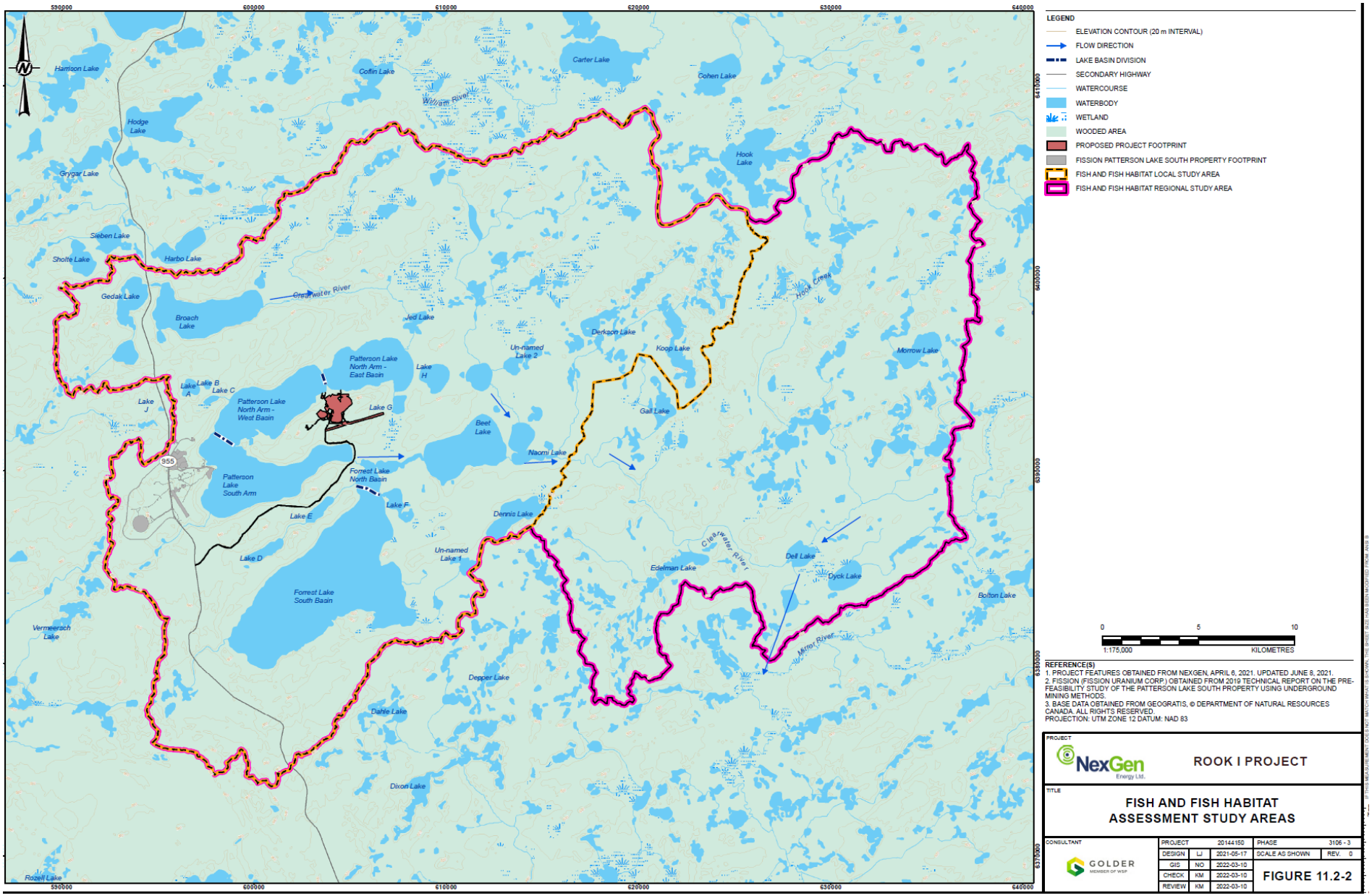


Figure 5. LSA/RSA for fish habitat (NexGen EIS, 2022)

Table 4. Comments and recommendations for the Rook I Project related to aquatic resources

#	Document Reference	Comment	Request/Recommendation
35.	EIS, Section 11 Fish and Fish Habitat	The Proponent made significant effort to incorporate Indigenous Knowledge from BNDN and other Indigenous communities into the Fish and Fish Habitat section. This is demonstrated by the information provided on how data from Indigenous Knowledge Studies were incorporated. These efforts are crucial for conducting a meaningful assessment and should be commended.	NA
36.	EIS, Section 11.2.2.1 Valued Components	The use of the four fish species as VCs (walleye, pike, lake whitefish, and lake trout) was done because they are important culturally, they occur throughout the study area in relative abundance, and they represent different ecological roles for large bodied species. Unfortunately, limiting the assessment to large-bodied species may result in an oversight with regards to potential effects. Based on table 11.2-1 it appears that no small-bodied fishes were even considered for selection as VCs. Small-bodied fish are often more susceptible to the effects of mining projects due to their feeding and movement behaviours. Because they inhabit smaller home ranges and often spend more time in association with the benthic environment, they are more likely to be negatively affected by discrete areas with elevated contamination (such as would occur in	BNDN recommends that the assessment of Fish and Fish Habitat be updated with an additional VC of a small-bodied fish to account for their unique ecological niche and role in supporting energy transfer through the ecosystem. Table 11.2-1 must also be updated with the inclusion of small-bodied fish species and the rational for their exclusion for use as VCs.

		Patterson Lake North Arm – West Basin). To account for the different behaviours and exposures of small-bodied fishes, the Proponent must include a small-bodied fish species as one of the VCs assessed for Fish and Fish Habitat. Troutperch or spot tail shiner would both be good candidates for this assessment.	
37.	Fish and Fish Habitat: Figure 11.2-3	The section of Clearwater River between Broach Lake and Patterson Lake (including Jed Lake) was not sampled during baseline studies (Figure 11.2-3). This area is important as it provides a connection between Patterson Lake and upstream areas and is likely used for spawning runs for species including walleye and northern pike. Moreover, it is expected that this stretch of river may be quite productive, similar to the section of Clearwater River above Patterson Lake where the electrofishing CPUE of 22.11 fish/minute was recorded (Section 11.3.4.2). It is not clear why the Proponent chose not to include this area in baseline surveys.	BNDN requests that baseline surveys be completed on the section of Clearwater River between Broach Lake and Forest Lake to evaluate: • Benthic invertebrates • Sediment quality and characteristics • Water quality • Hydrological characteristics • Fish habitat • Fish community • River morphology • Barriers to fish passage
38.	EIS, Section 11 Fish and Fish Habitat: Table 11.2-4	Water quality was not collected in Patterson Lake adjacent to Project or in Patterson Creek during baseline studies (Table 11.2-4). These are important areas that may be impacted by effluent discharge and must have adequate baseline information. It is BNDN's perspective that these	BNDN requests that multi-season and multi-year water quality sampling be conducted in Patterson Lake North Arm – West Basin, adjacent to the Project area so that baseline conditions can be better understood.

		locations are the most important areas for this type of sampling because these are the areas where effluent discharge is proposed.	
39.	EIS, Section 11.4 Project Interactions and Mitigations	Patterson Lake North Arm – West Basin is the deepest part of the lake with high oxygen levels throughout the year. This represents important habitat, including a large volume of overwintering habitat, which is likely limiting for many species in the region. This is also the area where effluent discharge and wastewater discharge are planned. The nutrients from these discharges may contribute to algal growth and subsequent bacterial decay that may deplete oxygen and/or reduce the available overwintering habitat in this area. This is particularly concerning for lake trout which have a relatively narrow range of suitable thermal and oxygen conditions (Blanchfield et al., 2009; Guzzo and Blanchfield, 2017). The Proponent has not adequately described how effluent discharge of treated mine water from the ETP or treated sewage from the STP may alter or diminish the availability of well-oxygenated water in overwintering habitat (i.e., above 9.5 mg/L of DO).	BNDN requests information on how the Proponent has assessed changes in dissolved oxygen may affect overwintering populations of fish. This must include quantitative information on the overall volume of overwintering habitat available in Patterson Lake North Arm – West Basin and an assessment of whether the proposed discharge may shrink this habitat, by reducing the area of water that is sufficiently oxygenated. Furthermore, BNDN requests information on whether/how changes of DO were modelled spatially and temporally in Patterson Lake North Arm – West Basin as a result of effluent discharge from the ETP and STP.
40.	EIS Section 11, F-08 Loss or alteration of fish habitat	The Proponent undertook water quality testing to assess the DO profiles of lakes within the study area. However, no attempt was undertaken to quantify the volume of	BNDN requests that the Proponenmineake an analysis to quantify the volume of overwintering habitat available in Patterson Lake and assess the potential changes in total habitat caused by the Project

		overwintering habitat available and the potential change of overwintering habitat caused by the Project. Given the importance of overwintering habitat as a limiting factor for species within this area, this is an important analysis that should be included in the assessment.	throughout the life of the mine. This can be done for each of the fish species selected as VCs.
41.	EIS Section 11.5.3.1 Summary of Predicted Changes to Surface Water Quality	Predictive modelling of water quality indicates that the Project is expected to result in elevated levels of copper and cobalt in the downstream environment. Copper is anticipated to exceed water quality thresholds (0.0020 mg/L) in the North Arm – West Basin of Patterson Lake, while cobalt is anticipated to exceed guidelines (hardness dependent but typical 0.0006) as far downstream as Beet Lake. In both cases, these exceedances are expected to persist long into the future, such that they are functionally permanent (Figure 11.5-4). These exceedances will be a result of runoff from WRSA and groundwater migration from the UGTMF during post-closure. NexGen has concluded that due to the low-level of these concentrations and the local scale at which they occur, there will not be any significant effect on fish populations or biodiversity, and therefore no long-term mitigation or treatment is planned by NexGen. Water quality within Patterson Lake is a major concern of BNDN regarding the Project. It is BNDN's perspective that the Project should not result in any long-term impacts on the environment. Furthermore, as a food	a) Given the timeframe during which the impacts of elevated concentrations of copper and cobalt are expected to occur, it is very difficult to ensure adequate planning, monitoring and mitigation occurs. However, the permanent increases in concentrations of these contaminants are unacceptable and treatment or other mitigation measures must occur. For this reason, BNDN requests that NexGen include funding for the permanent monitoring (i.e., into the far-future) of water quality within Patterson Lake. If at any point in the future, water quality exceedances of any kind occur, there must be sufficient funding in place to allow collection and treatment of water or other alternative mitigation measures. b) Fish tissue monitoring as part of follow-up and compliance monitoring (e.g., MDMER Environmental Effects Monitoring) is expected to occur during operations of the Project but will not continue into closure, post-closure, or the far-future. BNDN request information on how the Proponent plans to

		source for BNDN, it is imperative that concentrations of copper and cobalt in fish tissue be kept as low as possible.	monitor and mitigate contamination of fish tissues in the far future.
42.	EIS Section 11.5.2.2 Summary of Ecological Risk Assessment Results	Cobalt was not included in the Aquatic Health Assessment because the Ecological Risk Assessment showed the Project Hazard Quotient (HQ) was below the threshold of 1. This is despite the large geographic area over which the cobalt threshold exceedance occurs (from Patterson Lake, Forrest Lake, to Beet Lake). Cobalt is a known toxin that can negatively affect fish health at long levels and accumulate in fish tissues (Stubblefield et al., 2020). For this reason, it must be included as part of the Aquatic Health Assessment conducted for this Project.	Due to the importance of fish as a food source for BNDN community members and the use of the lakes in this area for fishing, BNDN requests that the Aquatic Health Assessment include cobalt. This information must be included in an updated version of the EIS.
43.	EIS, Table 10.2-5	NexGen has developed Project-Specific Water Quality thresholds based on CCME, Saskatchewan provincial standards, and other publicly available guidelines (Table 10.2-5). However, there is no commitment to meet these standards as part of mitigation measures. Instead, the Proponent has indicated that they will develop a site-specific ETP to treat contaminants of concern to "*appropriate release limits in accordance with provincial standards and license/permit conditions*" (EIS, table 10.4-1). Given the importance of maintaining a healthy aquatic ecosystem and reducing contamination in effluent, it is necessary at this stage of planning for the Proponent to commit to meeting	BNDN requests that the Proponent commit to meeting the proposed water quality thresholds throughout all phases of the Project. Furthermore, BNDN requests greater clarity around the expected concentrations of contaminants at the point of discharge for both the ETP and the STP (i.e., end-of-pipe).

		maximum concentrations of contaminants in effluent.	
44.	EIS, Section 11.4.2 Secondary Pathways: F-14 Nutrient changes from Project activities	The Proponent expects an increase of approximately 0.005 mg/L of Total Phosphorous (TP) concentration in downstream water bodies due to discharge of nutrients from the STP and ETP. The peak concentrations in Patterson Lake North Arm – West Basin are predicted to be 0.009 mg/L. These calculations show that the trophic status of Patterson Lake will remain unchanged. However, this change in nutrients would be very near to the 0.01 mg/L TP threshold between oligotrophic and mesotrophic that is commonly applied under the Canadian Environmental Quality Guidelines (CCME, 2004). However, even though the official nutrient classification has not changed, it does not preclude any ecological changes occurring within the lake. Furthermore, should there be any errors in the calculation, unforeseen inputs of phosphorus, or other ecological/chemical processes that contribute to increased phosphorus, it is possible that a shift in the trophic structure of the lake may be observed.	BNDN requests that nutrient monitoring and assessment of lake trophic status be included as part of the Environmental Monitoring Plan. BNDN requests that NexGen provide regular opportunities to review this plan and ensure adaptive management is in place, in the event that changes to nutrient status and/or trophic structure are observed in Patterson Lake.
45.	EIS, Section 11.4	The Proponent plans to cross the Clearwater River using the existing bridge on the access road off Highway 955 (the Clearwater River bridge). This bridge is rated for “light duty” and will be sufficient for most currently planned activities. However, for some heavy equipment and large loads, it is anticipated that a crane will be	BNDN recommends that an upgraded clear span bridge be constructed to cross the Clearwater River. This would simplify the logistics of construction, operation, and closure. Furthermore, it would remove the risks associated with inappropriate crossings on the existing undersized bridge.

		required. At this time, information on the expected design specifications and operation schedule of the crane is not provided. The partial reliance of the Project on construction and operation of a crane for crossing the Clearwater River is of questionable merit. It adds a layer of complexity and risk to operations. This will require active coordination to ensure that the crane is readily available for all large loads to prevent delays/disruptions. Furthermore, it may incentivize inappropriate use of the bridge by employees and contractors who are motivated to deliver large loads during periods when the crane is not available. There are many scenarios during which this may occur, such as if the crane is damaged, an operator is not available, or if weather conditions prevent its use (e.g., high winds). The end result is that the bridge may be compromised, potentially resulting in damage to the fish habitat, spills, or other problems. It is also possible that through the course of operations, the Proponent may change their plans or expand operations, such that a bridge becomes necessary. For these reasons, it seems that the most practical and protective course of action is to construct an adequately sized bridge during the construction phase of the Project.	Plans and mitigation measures for construction of the bridge must be shared with BNDN for review and comment.
46.	EIS, Section 11.4.2, Figure 11.4-1	NexGen has indicated that installation of effluent discharge pipes from the STP and ETP will occur above ground which may result in minor and	a) BNDN suggests that the Proponent consider burying the pipelines prior to reaching the lake. The pipelines could

		localized sediment release. To reduce the area of effect, it may be preferable to construct both pipelines so that they have an overlapping footprint onshore, at the lake edge, and in the nearshore, then diverging to their separate discharge locations. Secondly, there does not appear to be any discussion of how pipes will be protected from freezing and shifting ice (i.e., ice shove) which may cause damage or impairment to the operation of these pipelines.	emerge directly from the lake bottom below the maximum ice depth. This may result in increased impacts from sedimentation but would reduce the risk of pipeline damage and/or failure. To be clear, BNDN isn't advocating that this approach is preferred but rather that it must be considered as an alternative. b) To minimize disturbed areas on-shore and within Patterson Lake, it is recommended that the pipelines for treated effluent and treated sewage be constructed along the same route for the sections on-shore, lake-edge, and near shore. The route could then diverge in the lake and the proposed in-lake discharge locations can be maintained.

4.5 Wildlife and Terrestrial Ecology

The Project will require clearing, roads, waste rock piles and a variety of other surface infrastructure that will remove wildlife habitat. Furthermore, many activities on and off-site may negatively impact wildlife by causing avoidance, health effects, and even direct mortality. It is BNDN's perspective that the EIS underestimates the proposed Project's negative impacts to the embattled and federally Threatened woodland caribou (*Rangifer tarandus caribou*). The primary impact pathway of concern is through sensory disturbances and direct/indirect habitat loss.

BNDN knowledge and scientific research presented throughout the EIS describes significant caribou disturbance and avoidance from mining activities and roads. Research cited in the EIS shows this avoidance often occurs at distances of 5 km or greater from industrial sites.

Therefore, the 500 m buffer used in the EIS to define the extent of effective habitat loss is insufficient. We believe that this small (10 times less than observed in various literature) sensory disturbance buffer distance underestimates the total extent of effective habitat loss. The EIS also acknowledges uncertainty concerning caribou response to proposed project activities.

We request that the extent of caribou habitat loss from the proposed project (including effective and indirect) is presented within a range of uncertainty using the avoidance distances described by BNDN and scientific research as referred to in the EIS. Specifically, the percent loss of high, medium, and low suitability habitats, for the LSA, RSA and Caribou SA must be presented using a 500 m (low end) up to a 5,000 m (high end) buffer. We believe this analysis will provide a more accurate range of outcomes with

respect to potential project impacts to caribou. This analysis must be considered in the context of each of the SK2 and SK1 ecozones, and in the context of the RFD case.

We believe that this extent of sensory disturbance will provide a more appropriate representation of the significant loss of caribou habitat. We also believe that the proposed development may effectively exclude caribou from the entire southern and western shores of Patterson Lake (in the RFD case).

The Wildlife Baseline 1 report claims that the SK2 portion of the RSA and Caribou SA is very similar to the SK1 section and could potentially be treated as per the regulatory requirements of SK1. However, this claim is not justified in the associated report text, contradicts official Ecozone mapping, and is counter to all mapping presented in the EIS. Therefore, all mentions of lumping SK2 regions within the SK1 Ecozone must be removed from all baseline, EIS and all other reports.

Table 14.4-1 presents a wide array of general wildlife impact mitigations, which generally demonstrate thorough consideration for industry best-practices. However, we believe the proposed mitigations relating to sensory disturbances to caribou are insufficient. Pathway W-03 in table 14.4-1 must include a commitment to modifying operations in response to proximity of caribou, up to and including full suspension of all operations as required to minimize impacts during specific contexts (such as proximity of females with calves). All details of the caribou mitigation and offsetting plan must be completed through consultation with BNDN. Furthermore, all the proposed mitigations to wildlife impacts are only described at a very generalized and high level in the EIS. It is not possible to comment about whether these proposed mitigations will meaningfully diminish impacts without BNDN's ongoing and direct involvement in the refinement of all mitigation planning.

Increased predator access is of concern within the context of linear features as a factor in disturbance-mediated apparent competition. The EIS states that the project will not increase predator access, as existing roadways will be used. However, the EIS also describes roadway improvements (such as snow-clearance or hard-packing by snowmobile) as potentially related factors for increased use by wolves. We request that the EIS mitigations commit to monitoring for changes in predator access and density. And, that this predator monitoring extends to general densities in the RSA. Adaptive management might be required should increasing ungulate densities (moose and white-tailed) begin to support higher wolf densities and imperil caribou survival.

BNDN members have voiced concerns about increased traffic, increased recreational use by non-Indigenous users and decreased opportunities for indigenous harvesters due to the proposed project. The EIS states (Section 14, W-09) that the project "would not increase access". However, we believe that this is not adequately justified in the text and that additional consideration of these concerns is required. This may involve an enhanced commitment to monitor certain road uses along the improved roadways associated with the project.

Adaptive management to reduce wildlife impacts from the proposed project would require thorough monitoring coupled with clearly defined and robust mitigation response. This is applicable for all VCs including but not limited to: i) work stoppages in specific contexts such as presence of caribou in calving,

post-calving or other sensitive periods; ii) establishment of a standardized Breeding Bird Survey route along the site access road, which should be surveyed prior to, throughout and after all construction, operations and decommissioning; iii) wildlife culverts and fencing to prevent road mortality of Canadian toad; iv) wildlife mortality monitoring and deterrents on powerlines, windows, vehicles, buildings, wind turbines etc.; v) installation of compensation habitat structures from tree removals, such as properly designed and installed bat maternity roost boxes; vi) annual waterfowl density monitoring; vii) SAR bird targeted annual monitoring; and others.

Table 5. Comments and recommendations for the Rook I Project related to wildlife and terrestrial ecology

#	Document Reference	Comment	Request/Recommendation
47.	EIS Section 14 Pg 14-53 to 55	The EIS uses a 500 m buffer around existing and proposed anthropogenic disturbances to define effective habitat loss from sensory disturbance. However, the EIS acknowledges that BNDN knowledge and scientific research expects up to 5 km (or greater) of caribou avoidance around mining projects, and that related semi-permeable barriers, such as roads, likely exacerbate this effective habitat loss. Furthermore, the EIS acknowledges uncertainty concerning local woodland caribou response to the proposed project. Without considering a larger avoidance buffer (as demonstrated in various research) around proposed anthropogenic disturbances, we believe that the EIS underestimates the potential extent of caribou habitat loss.	BNDN requests that NexGen present the extent of caribou habitat loss from the proposed project (including effective and indirect) within a range of uncertainty using the BNDN knowledge and research presented in the EIS. Specifically, the percent loss of high, medium, and low suitability habitats, for the LSA, RSA and Caribou SA must be presented using a 500 m (low end) up to a 5,000 m (high end) buffer. We believe this analysis will provide a more accurate range of outcomes with respect to potential project impacts to caribou. This analysis must be considered in the context of each of the SK2 and SK1 ecozones, and in the context of the RFD case.
48.	EIS Figure 14.2-4	The Project EIS acknowledges that for SK2, Base Case conditions create	BNDN requests that NexGen more clearly acknowledges the proposed project's

	Section 14.5	disturbance levels that result in "not likely to be self-sustaining" woodland caribou populations. The EIS also states that a loss of "less than 1%" habitat within SK2 is expected for woodland caribou under the RFD case (i.e., when Fission Uranium Corp's Patterson Lake project is considered). ~1% represents a significant loss of habitat (~1/35 of available disturbance within SK2). The positioning of these two projects, combined with extensive - and potentially overlapping, effective habitat loss (from sensory disturbances), may remove woodland caribou from the entire southern and western sections of Patterson Lake.	specific percent of direct and effective caribou habitat removal within SK2 (i.e., clarifies the statement: "less than 1%"). One percent of SK2 constitutes a very significant loss of available habitat.
49.	Wildlife Baseline 1 Section 13.3	We disagree with the Wildlife Baseline 1 statement (section 13.3) that the Boreal Plain (SK2) areas of the Caribou SA and RSA could be treated as Boreal Shield (SK1). These Study Areas overlap two distinct, albeit adjacent, Ecozones. All official description of these Ecozones (as well as all figures in the EIS) define the border between Plain and Shield to the east of the Project and Patterson Lake.	BNDN requests that NexGen remove all descriptions and references to redesignation of Ecozones, or the lumping of associated policy requirements from all EIS, Baseline and all other reports.
50.	EIS Section 14.5	The EIS states that there are currently relatively low densities of white-tailed deer, moose and wolves in the RSA and SK1 Ecozone.	We request that the EIS describes a commitment to monitoring ungulate and predator densities within the RSA generally, as well as associated mitigations and

		With the habitat losses and alterations expected from the proposed project, relative ungulate and predator densities may be affected (through alterations to vegetation communities, and increased access along improved linear corridors). These shifts in ungulate and predator densities may exacerbate disturbance-mediated apparent competition, which is known to negatively impact caribou survival.	adaptive management responses as required to minimize impacts to caribou.
51.	EIS Table 14.4-1	Increased Predator Access: We agree with the mitigations proposed in response to the potential for increased predator access. In addition to those listed, we would like to see a commitment to long-term monitoring of predator movement along linear features in the vicinity of the proposed project.	We request that monitoring of potential increased predator access due to site activities and linear feature enhancement. Furthermore, it is important that specific thresholds are defined, through consultation with BNDN during development of the caribou mitigation and offsetting plan.
52.	EIS Table 14.4-1 & W-09	Increased Public Access: The EIS states that despite BNDN concerns, the Project "would not increase" public access, recreational access to non-Indigenous users or decrease opportunities for indigenous harvesters. We believe that this claim ("would not increase") is not sufficiently justified or explained in the text. We recognize the mitigations described in 14.4-1 but would also like to see follow-up monitoring of these access levels.	We request a commitment to long-term monitoring of public access through the study area to ensure the scenarios of concern (described in section 14 W-09) are not occurring. This monitoring must be completed through ongoing consultation with BNDN and must be associated with management responses up to and including limiting certain types of road use.

53.	EIS Table 14.4-1 W-03	We acknowledge the preliminary list of potential sensory disturbance and effective habitat loss mitigations described in section W-03. However, we believe that more robust mitigations are required to protect caribou from the extensive effective habitat loss that is expected.	We request that the sensory disturbance mitigations include a commitment to modifying operations as required up to, and including, complete suspension of all construction, operations or decommissioning activities. A full work stoppage and site shutdown must be required in the event caribou proximity during specific, sensitive contexts (e.g. calving, post-calving). The details of this mitigation must be developed in consultation with BNDN.
54.	EIS Table 14.4-1	Table 14.4-1 presents a wide array of general wildlife impact mitigations, which generally demonstrate thorough consideration for industry best-practices. All the proposed mitigations to wildlife impacts are only described at a very generalized and high level in the EIS. It is not possible to comment about whether these proposed mitigations will meaningfully diminish impacts without BNDN's ongoing and direct involvement in the refinement of all mitigation planning.	BNDN must be meaningfully involved in the development of mitigation and offsetting plans to ensure that proposed impacts are sufficiently reduced. BNDN must also be directly involved in carrying out the proposed project's wildlife monitoring and mitigations. Numerous specific mitigations may be required to achieve this, such as, but not limited to: i) work stoppages in specific contexts such as the proximity of caribou in calving, post-calving or other sensitive periods; ii) establishment of a standardized Breeding Bird Survey route along the site access road, which must be surveyed prior to, throughout and after all construction, operations and decommissioning; iii) wildlife crossings, culverts, and fencing to prevent road mortality of Canadian toad;

			iv)	wildlife mortality monitoring and deterrents on powerlines, windows, vehicles, buildings, etc.;
			v)	installation of compensation habitat structures from tree removals, such as properly designed and installed bat maternity roost boxes;
			vi)	annual waterfowl density monitoring;
			vii)	SAR bird targeted annual monitoring

4.6 Human and Ecological Risk Assessment

An environmental risk assessment (human and ecological health) was completed in support of the EA process for the Project. The non-radiological human health risk assessment (HHRA), which is the focus of this review, followed Health Canada's guidance on Preliminary Quantitative Risk Assessment (PQRA) and included a problem formulation, exposure assessment, toxicity assessment and risk characterization.

Chemicals of Potential Concern (COPCs) were identified by comparing predicted concentrations in air and water due to atmospheric and aqueous releases from the Project. No COPCs in air or soil (from atmospheric deposition) were carried forward for quantitative assessment in the risk assessment. However, several COPCs in water were further considered, namely:

- Arsenic
- Cobalt
- Copper
- Molybdenum
- Uranium
- Sulphate
- Chloride
- Radionuclides (due to public concern)

The risk assessment considered three Project phases: Construction (4 years), Operations (24 years), and Decommissioning and Reclamation (i.e., Closure for 15 years). Additionally, the risk assessment considered the far-future phase, which refers to the period after the closure performance criteria have been fully demonstrated.

Three assessment cases were evaluated, namely:

- Base Case
- Application Case
- Reasonably Foreseeable Development (RFD) Case

Within the HHRA, the following human receptors were considered:

- Camp worker at Patterson Lake camp residence (adult)
- Subsistence harvesters (adult and one-year old)
- Seasonal residents/lodge operators (adult and one-year old)
- Future Permanent Resident (adult and one-year old)

Nuclear energy workers were considered to be outside the scope of the risk assessment as their health risks would be managed under the Radiation Protection Program.

The primary routes of chemical exposure for humans included:

- Ingestion of food such as fish, vegetation, game and store-bought foods (using literature data and information obtained from Joint Working Group (JWG) sessions).
- Incidental ingestion of soil or sediment
- Ingestion of surface water as drinking water
- Dermal contact with surface water and sediment during recreational activities
- Dermal contact with soil while gardening or harvesting
- Inhalation of air (vapour and particulates)
- External exposure to radiation from air, water, soil and sediment.

The risk assessment considered the following three areas when identifying human receptors and calculating exposures:

- Site Study Area (Project footprint) – includes the camp where workers live while at work.
- Local Study Area (LSA) -area where direct changes to the quality of air, sediment, water and soils from the Project would be expected to occur.
- Regional Study Area (RSA) – area where there is potential for spatial overlap or interactions with Project effects and other previous and existing developments, and reasonably foreseeable developments.

The review focused on impacts to human health from exposures to non-radiological COPCs, which were quantified using Health Canada's guidance on human health preliminary quantitative risk assessment (PQRA). The report states that no unacceptable adverse effects on any of the human receptors considered in the assessment, for any of the Project phases, were found from exposure to non-carcinogenic COPCs (cobalt, copper, molybdenum and uranium). With respect to carcinogenic COPCs (arsenic), the incremental lifetime cancer risk was found to be above the risk acceptability level of 1 in 100,000 for the subsistence harvester at Patterson Lake South Arm just outside the Project footprint.

A detailed review of the health impacts due to exposure to radiological COPCs was not completed as part of this assessment. However, the incremental radiation dose to all receptors considered in the HHRA and for all Project phases were stated to be below the regulatory public dose limit of 1 millisieverts per year. Similarly, exposure to radon reportedly did not result in unacceptable risks at the camp worker location (i.e., below the regulatory limit of 60 becquerels per cubic meter).

The following comments are based on a review of *Chapter 15 – Human Health* of the Environmental Impact Statement and *TSD XXI - Environmental Risk Assessment* (human health components).

Table 6. Comments and recommendations for the Rook I Project related to human health (non-radionuclide and radon)

#	Document Reference	Comment	Request/Recommendation
55.	TSD, pg. iv.	It is stated that monitoring would be implemented to verify risk assessment model predictions and to update (and improve) model predictions when the Project begins. This would reduce uncertainty in risk assessment predictions and support an adaptive management framework.	It is important to ensure that BNDN members are actively involved in the monitoring program, and should unacceptable risks be found to occur with updated environmental data and modelling, the Nation must be notified in a timely manner through the Joint Working Group, Indigenous Environmental Committee, Leadership and Indigenous Monitors.
56.	TSD Section 4.2.1, page 4.3	Mine-affected groundwater is assumed to reach Patterson Lake North Arm – West Basin, from the upper horizon, in 1000 years. Groundwater originating beneath the waste rock area is predicted to reach Patterson Lake in 43 years (north) and 77 years (south).	Will groundwater monitoring be carried out to assess whether these timeframes are accurate? Should groundwater reach Patterson Lake earlier than expected, this must be accounted for in the exposure and risk calculations.
57.	TSD Section 4.2.3.1, page 4.4	For molybdenum, concentrations were screened using the Saskatchewan Water Security Agency guideline of 31 mg/L rather than the CCME guideline of 0.073 mg/L. There is a significant difference between the two values (i.e., orders of magnitude),	Additional discussion is warranted on the difference in scientific basis between both guideline values. Rationale for choosing a less conservative value is required. What impact, if any, is there on the risk assessment assumptions and conclusions?

		with the less conservative value used in the screening process.	
58.	TSD Section 4.2.3.1, page 4.4	Phosphorous was not considered a COPC in the risk assessment. The rationale provided for this in the report is that it is a nutrient rather than a toxicant.	Given the use of surrounding waters by Indigenous community members, elevated phosphorous concentrations could impact nuisance algae growth and disturb the overall healthy functioning of the aquatic system. Further discussion of phosphorous impacts to the aquatic system is warranted.
59.	TSD Section 4.2.3.1, page 4.5 and EIS Section 15.2.8.2, p. 15-30	In the selection of COPCs to further consider in the risk assessment, it is stated that if upper bound concentrations of COPCs in runoff exceeded guidelines but did not exceed in the treated effluent, they were not considered COPCs in the risk assessment. This was true for cadmium, iron and manganese. However, Section 15.4.3, page 15-48 states that runoff from the Project footprint may cause changes to surface water and sediment quality and adversely affect human health.	Chemical concentrations exceeding guidelines in runoff alone must still be considered as COPCs in the risk assessment. The human health risk assessment process is designed to be conservative in nature and capture all potential risks to human health.
60.	TSD, Table 4.2	Arsenic was carried forward in the risk assessment as the concentration at the edge of the mixing zone was found to be only ***marginally*** below the guideline. It is unclear why this same rationale was not used to carry forward mercury in the risk assessment. This is especially important given that sulphate was also carried forward for further assessment.	Mercury must be carried forward as a COPC in the risk assessment given it is only marginally below the screening value. Mercury concentrations, coupled with input of sulphate, could result in the production of methylmercury, which is of major concern to human health. Methylmercury can bioaccumulate in aquatic biota including fish and affect the health of those consuming impacted fish as part of their diet.

61.	TSD Figure 5-5 and Figure 15.2-5, p. 15-35	Dermal contact with surface water is missing from the Human Health Conceptual Model. In addition, groundwater should be added in given discharge to surface water and subsequent exposure to humans is a complete pathway.	The CSM must be revised to include all applicable exposure pathways in the HHRA.
62.	TSD, Section 5.2.3.1, p. 5.22	It is stated that the N288.1-20 Human Diet was selected over the Health Canada diet for humans, resulting in an assumed diet of 706 kg/yr versus 808 kg/yr.	A rationale for using the less conservative value is required. How will this impact the conclusions of the HHRA?
63.	TSD, Table 5-6	It is stated that Northern pike was used as a Representative Ecological Receptor for predator fish species.	Please provide additional rationale for using Northern Pike over Walleye. Would this be considered more conservative given differences in their feeding behavior and activity patterns?
64.	TSD Tables 5-7, 5-9 and 5-10.	Dose calculations for sediment pathways do not appear to have been calculated. Incidental ingestion and dermal contact with sediment were identified as complete exposure pathways in the HHRA (i.e., Section 15.8.2.1 states that contact with sediment could occur). Sediment pathways are also listed in Table 15.2-5, p. 15-34.	Exposures and associated health risks should be quantified for all complete human health exposure pathways, including sediment.
65.	TSD – Section 5.4.1.1.1, page 5.81	The molybdenum hazard quotient (HQ) for the base case exceeded the hazard acceptability benchmark of 0.2 for terrestrial animal ingestion for the one-year-old subsistence harvester (Patterson Lake South Arm and Beet Lake Lloyd Lake) and one year old seasonal resident (Paterson Lake South Arm, Lloyd Lake). Although the Project is stated as not significantly changing the existing base case hazard	Calculated HQs for both molybdenum and uranium warrant further discussion in the HHRA. Even though the Project may not contribute significantly to the health hazards for these chemicals (over existing conditions), the health impacts for both chemicals must be fully discussed. Consumption of traditional foods is of importance to many community members.

		estimate and therefore only contributing minimally to existing risk from consuming traditional foods impacted with molybdenum, further discussion around health hazards associated with molybdenum are warranted. In addition, further discussion is warranted around the uranium HQs calculated for this same receptor given concern expressed by Indigenous community members. The uranium HQ for terrestrial animal consumption was only marginally below the hazard acceptability benchmark (i.e., 0.17 vs. 0.2). The total uranium HQ for all pathways considered is 0.256, which is driven by two pathways, namely ingestion of terrestrial plants and animals.	
66.	EIS Section 5.4.1, Page 5.79	It is stated that, to be protective, a benchmark HQ of 0.2 per medium (e.g., water, soil, food and air) would be acceptable. It is unclear what the total HQ (sum of pathways) was compared to?	Was the total HQ calculated also compared to a benchmark of 0.2? This requires further discussion in the risk assessment (especially for uranium).
67.	TSD Table 5-18 and EIS Section 15.5.1.1.	Table 15.5-1 indicates that molybdenum exposure for the one-year-old subsistence harvester at the Patterson Lake South Arm and the one-year-old seasonal resident at Patterson Lake Southern Arm were above the hazard acceptability benchmark of 0.2 for the terrestrial animal exposure pathway (base case). However, Section 15.5.1.1 only discusses uranium HQs as being of concern.	Both uranium and molybdenum HQs must be discussed.

68.	TSD – Section 5.4.1.1.2	The incremental lifetime cancer risk from arsenic exposure for the subsistence harvester at Patterson Lake South Arm was predicted to be 4/100,000 in both the Application Case and the reasonable upper bound sensitivity scenario. The risk acceptability benchmark is 1/100,000. The baseline cancer risk from arsenic for this same receptor was predicted to be 69/100,000. Although the additional risk associated with the Project might seem small in comparison to the baseline case, an increase of 4 per 100,000 is still 4 times the acceptability benchmark and warrants further consideration in the assessment. Discounting the Project-associated risk based on the current risk level is concerning for those who consume traditional foods in the area. Additionally, it is stated that the assumed ingestion rates of moose and moose organs were likely conservative and were based on the rates provided in the FNFNES study. Was the assumed ingestion rate discussed with members of the JWG to determine if that value is indeed conservative or is it actually representative of those community members who rely on moose as a food source in the area?	Further details and context are required around the calculated risk associated with exposure to arsenic in the HHRA. More specifically, discussion around what the factor of four exceedance of the risk acceptability benchmark means for those consuming country foods is required. Additional rationale for why the assumed ingestion rate for moose and moose organs is considered conservative is also warranted. How was this determined?
69.	EIS Section 15, Appendix A, Section 3.3, p. 316.	It is stated that concentrations in sediment were modelled based on concentrations in water. No baseline sediment data was collected.	It is unclear why sediment data were not collected as part of the baseline assessment given assumed discharge to the aquatic environment will occur as part of the Project. Not having sediment data adds a level of uncertainty to the risk assessment.

70.	EIS Section 15.5.1.2, page 15-58.	Information is provided on various risk acceptability benchmarks and what each is interpreted to mean (low risk, very low risk, range of medical procedures etc.). It is also important to note, here, that the risk acceptability level of 1 in 100,000 prescribed by Health Canada could be considered less conservative than those used in other jurisdictions (i.e., it is 1 in 1 million in Ontario). Therefore, exceeding the benchmark put forward by Health Canada (i.e., 4 per 100,000) does indicate that potentially unacceptable risks are predicted. This should not be dismissed in the risk assessment. Even though it is stated that risks from arsenic from the Project are small in comparison to the baseline risks, addition of arsenic to the system will increase risks to human health.	The HHRA report must be updated to clearly state what an exceedance of the risk acceptability benchmark means for those exposed to arsenic.
71.	EIS Section 15.8, page 15-76.	The proposed Country foods monitoring program could include a voluntary program whereby hunters submit samples of moose (including organs) to help verify model assumptions and predictions. This should be developed with communities, and the JWG, and implemented by Indigenous Environmental Committees and Indigenous Monitors (to be established). Fish sampling should include walleye to determine if Northern Pike is a representative surrogate species in the risk assessment calculations.	The Indigenous-led Country Foods Monitoring Program must consider sample submission from hunters (moose and moose organs) and fishers (Northern pike and walleye).

4.7 Air Quality and Emissions

Section 7.0 of the Rook 1 Project EIS discusses the impact of the Project on air quality, noise and climate change. It includes a detailed description of baseline conditions, predicted project-related impacts and proposed mitigation measures. A review was completed in collaboration with BNDN to comment, identify potential concerns/deficiencies, and provide recommendations to minimize the impact of the Project on BNDN rights and interests. Comments and recommendations related to noise impacts are included in the wildlife, fish and land use sections.

NexGen incorporated BNDN Indigenous Knowledge into their assessment through:

- Indigenous Knowledge and Land Use Study
- Joint Working Group Meetings
- Community Information Sessions
- Site Tours
- Meetings
- Workshops
- Baseline Date Collection

Air Quality

Air Quality is predominantly assessed using air dispersion models. The Project's predicted air emissions from various sources (diesel generators, process plant emissions, vehicle emissions, etc.) are combined with exiting air quality data (baseline conditions) in a model to understand the change in air emissions caused by the Project. The AERMOD dispersion model was used by NexGen, it was developed by the United States Environmental Protection Agency (USEPA) regulatory modelling programs. AERMOD has been adopted by the Saskatchewan Ministry of the Environmental as the preferred air dispersion model for air quality studies in Saskatchewan.

Air quality is regulated by the Saskatchewan Ministry of Environment through the Saskatchewan Ambient Air Quality Standards (SAAQS). For certain contaminants which do not have provincial regulatory standards, the Canadian Council of Ministers of the Environment (CCME) have agreed to implement a national Air Quality Management System. The framework resulted in the development of the Canadian Ambient Air Quality Standards (CAAQS) for particulate matter less than 2.5 microns (PM2.5), ozone, nitrogen dioxide, and sulphur dioxide.

The baseline air quality in the Study area is considered very high and well below provincial and federal regulations. Concentrations of criteria air contaminants are typical of remote settings with limited industrial activity. The only exceedances of SAAQS or CAAQS that have occurred in the last 5 years were occasional PM 2.5 and PM 10 exceedances caused by wildfire smoke (NexGen, 2022).

Project activities that would have the potential to affect air quality during the Project lifespan include:

- Combustion of fossil fuels in stationary, mobile, and heavy equipment
- Handling and stockpiling of waste rock, special waste rock, and ore
- Gypsum storage in waste rock storage areas
- Underground drilling and blasting
- Waste incineration

NexGen completed a residual effects analysis for seven air contaminants:

- Nitrogen oxides reported as nitrogen dioxide (NO2/NOx)
- Sulphur dioxide (SO2)
- Sulphuric acid
- Carbon monoxide (CO)
- Particulate matter less than 2.5 microns (PM2.5)
- Particulate matter less than 10 microns (PM10)
- Total suspended particulate (TSP)

NexGen included additional compounds that were specific to uranium mining and milling operations, in air dispersion modeling including:

- Radionuclides including Radon: emitted from mining and milling of uranium ores.
- Dioxins and furans (D&F): emitted from a domestic waste incinerator and a low-level radioactive waste (LLRW) incinerator
- Metals: emitted as a fraction of particulate matter from either fugitive sources of mineral dust, or PM associated with combustion emissions including:
    - Uranium (U)
    - Vanadium (V)
    - Zinc (Zn)
    - Cesium (Cs)
    - Bismuth (Bi)
    - Calcium (Ca)
    - Iron (Fe)
    - Magnesium (Mg)
    - Manganese (Mn)
    - Sodium (Na)
    - Silver (Ag)
    - Arsenic (As)
    - Barium (Ba)
    - Beryllium (Be)
    - Cadmium (Cd)
    - Cobalt (Co)
    - Chromium (Cr)
    - Copper (Cu)
    - Mercury (Hg)
    - Molybdenum (Mo)
    - Nickel (Ni)
    - Lead (Pb)
    - Antimony (Sb)
    - Selenium (Se)
    - Tin (Sn)
    - Thorium (Th)

There are two main types of emission sources from the Project:

- Stack emissions: air emissions released through a stack, chimney, vent, or other functionally equivalent opening
- Fugitive emissions: emissions do not pass through a stack, chimney, vent, or other functionally equivalent opening (e.g., road dust, waste rock dust, blasting dust, etc.) (NexGen, 2022)

Air concentrations were calculated, and effects were assessed for the Project (i.e., Application Case) and for the Project in combination with the Reasonably Foreseeable Development (RFD) which includes the Fission Uranium Patterson Lake South Property (i.e., RFD Case).

The following table outlines the main emission sources and activities related to the Rook 1 Project.

Project Phase	**Emission Source**
Construction	Power plant – diesel fired
	Frost fighters
	Aggregate crushing
	General construction emissions (e.g., construction equipment emissions, fugitive dust, blasting)
Construction and Operations	Concrete batch plant
	Dozing (i.e., material placement and contouring) operations at the waste rock storage areas and ore
	Storage stockpile pad
	Grading of roads on the surface and underground
	Material handling (i.e., ore, waste, and aggregate; loading and drops) on the surface and underground
	Drilling and blasting underground
	Waste incinerator for domestic and industrial waste (non-low level radioactive waste)
	Mine fleet exhaust for both surface and underground fleet

	Mine heaters and small heaters
	Road dust from vehicles travelling on surface and underground roads
	Wind erosion of the ore storage pad, waste rock storage areas
	Waste Rock Storage Areas (including potentially acid generating and non-potentially acid generating waste rock storage piles) and Aggregate Storage Pile
Operation Only	Acid plant
	Triuranium octoxide and uranium concentrate handling
	Power plant, fired by liquified natural gas (LNG)
	Low-level radioactive waste incinerator
	Crushing/Grinding in process plant
	Calciner stacks including a natural gas burner stack, a calciner exhaust stack, and the calciner bin baghouse exhaust stack;
	Calciner bin baghouse exhaust stack
	Lime silo baghouse

(NexGen, 2022)

The atmospheric environment acts as a pathway that can impact other valued ecosystem components which impacts BNDN rights, interests, and health, including:

- First Nation land and resource use including but not limited to hunting, fishing, trapping, gathering, cultural sites
- Human health
- Surface water quality and sediment quality
- Fish and fish habitat
- Terrain and soil
- Vegetation including medicinal, spiritual, edible, or culturally significant plants
- Wildlife and wildlife habitat (NexGen, 2022)

NexGen acknowledges that changes in air quality will influence other valued component that will impact BNDN rights and interests.

BNDN and other Indigenous groups expressed concerns related to air pollution from Project activities including impacts to human health, traditional land use activities, wild food safety, climate change, and aquatic and terrestrial environmental health. BNDN raised specific concerns about the effects of dust in general from Project activities on vegetation, including berry patches and wild rice.

NexGen's effects assessment has predicted that air quality will produce detectable changes to the region's existing air quality. However, most of the air contaminant emissions (e.g., nitrogen dioxide, sulphur dioxide, sulphuric acid, carbon monoxide, and PM2.5) are predicted to remain compliant with the SAAQS throughout all phases of the Project. There are some predicted exceedances including hourly Nitrogen Dioxide exceedance of CAAQS during construction with a maximum concentration of 230 $\mu g/m^3$ (CAAQS NO2 Standard = 79.2 $\mu g/m^3$). 24-hour exceedances of SAAQS and CAAQS for PM10 and TSP occur during construction. Short-term concentrations of 24-hour PM10 and 24-hour TSP are predicted to be above the SAAQS but the exceedance frequencies are less than 10 days per year and occur during construction.

BNDN members expressed concern related to radon released to the environment from uranium ore mining and processing and the potential radiation exposure to members who work, live, or use the land near the Project. Potential sources of radon emissions at this project include underground operations through mine shafts, ore storage areas, hazardous waste dumps, and treatment plants. NexGen models show radon level below regulatory compliance limits, with the highest exposure in the mine shaft.

NexGen has committed to monitoring air quality during all phases of the Project to verify EA predictions, evaluate the effectiveness of mitigation actions, and modify or enhance mitigation measures as necessary. NexGen will continue the current baseline monitoring program that measures meteorological parameters, nitrogen dioxide, sulphur dioxide, TSP, and PM2.5 through all Project phases, and the program would consider modifications identified through the licensing, permitting and in consultation with Indigenous groups. NexGen will implement an Environmental Protection Program would be implemented, which would include the Environmental Monitoring Plan, Effluent Monitoring Plan, and Industrial Air Source Environmental Protection Plan (NexGen, 2022).

BNDN has requested the implementation of robust and long-term environmental monitoring to verify protection of the environment, including community-led monitoring during Construction and Operations of the Rook 1 Project. NexGen is working with local Indigenous Groups including BNDN to implement independent environmental monitoring. This includes an Independent Monitor from BNDN (and other Indigenous groups) to verify Project performance, assess mitigation/control effectiveness, suggest changes and report any air quality issues (or other environmental issues) to BNDN Chief and Council and members. The BNDN Monitor would also provide regular reports to the Environmental Committee and work to improve environmental performance and implement adaptive management measures where necessary.

Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods (IPCC, 2014). For the purposes of the EA, climate change represents the change in global or regional climate patterns primarily attributed to increased atmospheric concentrations of greenhouse gases (GHGs) (NexGen, 2022).

Climate change was selected as a valued component for the EA based on the following factors:

- Socio-economic and cultural importance of climate change
- Federal and provincial commitments to decrease GHG emissions
- Potential for Project GHG emissions to contribute to climate change

The baseline GHG emissions for Saskatchewan and Canada are provided below in megatons (one million tons) of carbon dioxide equivalent (Mt CO2e). These emissions levels include the cumulative effects of existing projects and activities in Saskatchewan and Canada:

- Saskatchewan (all sectors), 75 Mt CO2e
- Canada (all sectors), 730 Mt CO2e

Canada is a signatory to the UN Paris Agreement, an international agreement signed in 2015 to strengthen the global response to climate change, primarily through GHG emissions reduction. The Paris Agreement established a goal to hold the increase in the global average temperature to below 2°C above pre-industrialized levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrialized levels (United Nations 2015).

NexGen's residual effects analysis considered three measurement indicators, which are the most common GHGs:

- Project emissions of carbon dioxide (CO2)
- Project emissions of methane (CH4)
- Project emissions of nitrous oxide (N2O)

NexGen estimated the GHG emissions for project infrastructure using established emissions inventories that estimate typical emissions for various sources using standard operating conditions. These inputs were modelled to predict the Project-related GHG emissions. The models showed that the Project would result in increased GHG emissions during all phases of the Project.

The project is anticipated to release 2,542,440 tons of carbon dioxide equivalent (CO_2e) over the construction, operations and closure phases. Maximum annual greenhouse gas emissions will occur during Year 1 of the construction phase with 170,800 tons of CO_2e emissions. The operations phase is expected to emit between 78,000 and 81,600 tons of CO_2e annually for 24 years (NexGen, 2022).

The main sources of GHG emissions would occur from Project-related equipment and activities during Construction and Operations, including:

- Electricity generation (natural gas and diesel combustion)
- On-site mobile equipment (diesel and other fuel combustion)
- Heating
- Land use change (due to lost carbon storage from removed vegetation or wetlands)
- Stationary combustion (from industrial furnace in mine processing)
- Waste incineration
- Industrial processes (sulphuric acid production and acid generation in ore/waste rock)
- Explosives

The breakdown of GHG emissions by project activity is included below:

Project Emissions Source	**% Of Project GHG Emissions**
Electricity generation (natural gas and diesel combustion)	59.3
On-site mobile equipment (diesel combustion)	14.7
Heating	13.4
Land use change (due to lost carbon storage from removed vegetation or wetlands)	8.3
Stationary combustion (from industrial furnace in mine processing)	2.4
Waste incineration	1.5
Industrial processes (sulphuric acid production and acid generation in ore/waste rock)	0.3
Explosives	0.1

(NexGen, 2022)

The effects of climate change reflect both ecological and cultural importance for BNDN. Many BNDN land users have experienced the impacts of climate change already and have been adapting to its effects for decades. BNDN expressed concerns related to climate change including:

For example, caribou is considered the lifeblood of the Athabasca Denesųłiné, and they follow the annual migration patterns of the barren-ground caribou throughout their range, which "fluctuates due to natural cycles, and effects due to climate changes, forest fires, development, and other reasons"

- Increased frequency and intensity of wildfires (and subsequent habitat destruction)
- Warmer temperatures changing wildlife and vegetation abundance, availability and natural cycles (e.g., caribou migration patterns, fish spawning locations, wild rice harvesting)
- Warmer temperatures impacting the ability to practice traditional and cultural practices or creating safety issues (e.g., unsafe ice conditions for ice fishing or access to trapping areas)
- BNDN land users have experienced shifts in ecology, weather, and natural cycles which has affected the ability of BNDN members to practice traditional and cultural activities in preferred times and in preferred locations
- Warmer water temperatures impact abundance and availability of fish
- Warmer water temperatures increase algae growth in water bodies

Project GHG emissions were compared to the provincial and federal GHG levels to identify the significance of the Project on the federal and provincial emission reduction targets. NexGen concluded that the Project will not have a significant impact on Canada's or Saskatchewan's ability to meet emissions reduction targets. The Project will contribute approximately 0.5% of the provincial annual total emissions and less than 0.1% of the federal annual total emissions. Regardless, a measurable release of GHGs will occur during all Project phases that will ultimately contribute to climate change (NexGen, 2022).

NexGen will be required to report all GHGs under the federal GHG reporting program as it will emit over the 10 kt threshold. NexGen will also report GHG emissions to Environmental Committees to monitor the emissions of the Project and verify compliance and continuous improvement. BNDN has recommended community-led long-term environmental testing and monitoring during construction and operation of the Project which includes annual GHG reporting.

Mitigation Measures Proposed for Air Quality and Climate

NexGen will utilize the following mitigation measures to avoid or limit the impacts to air quality and climate change:

- Optimize haul routes to reduce fuel consumption and emissions from equipment.
- Recover heat from the LNG power plant exhaust and use it to heat other processes and ancillary buildings, to the extent practical.

- Use pollution control technology on process plant exhaust stacks with preventative maintenance and stack testing, as well as adaptive management, if necessary.
- Use Tier 4 diesel mobile equipment for underground operations, whenever practical, with applicable mine ventilation airflow rates specified by Canada Centre for Mineral and Energy Technology, when available.
- Apply water and/or suppressants to site roads, access road, and airstrip, as necessary. Use dust suppressants that minimize environmental risk and are government-approved for use.
- Limit idling of vehicles and equipment to the extent practical.
- Limit vehicle speed on unpaved site roads to reduce fugitive dust during Construction and Operations.
- Use and maintain emissions control devices on combustion-based equipment.
- Maintain mobile mining equipment and vehicles and operate the equipment within parameters for engine exhaust system design.
- Identify and implement procurement criteria to confirm stationary and mobile engines meet applicable performance standards.
- Implement a Project-specific Environmental Protection Program.
- Implement a Project-specific Environmental Monitoring Plan that includes ambient air monitoring.
- Primarily use LNG, which generates lower emissions per unit of energy produced than diesel, for on-site power generation.
- Implement energy management strategy for measuring and evaluating thermal and electrical energy use.
- Implement GHG management strategy to reduce emissions to the extent practical
- Implement a Project-specific Waste Management Program and a Project-specific Conventional Waste Management Plan.
- Evaluate opportunities to reduce fuel combustion requirements of infrastructure and equipment, to the extent practical, during detailed design.
- Primarily use LNG for power generation
- Recover heat from the LNG powerplant and use it to heat other processes and ancillary buildings, to the extent practical
- Use excess steam generated from the acid plant to heat other process buildings, to the extent practical
- Use energy efficient LED lighting and other similar efficiencies to reduce electrical demand, where practical.

Table 7. Comments and recommendations for the Rook I Project related to air quality and emissions

#	Document Reference	Comment	Request/Recommendation
72.	EIS Section 7.0	Project-related particulate emissions for PM10 and TSP are predicted to exceed SAAQS and CAAQS during construction based on NexGen air dispersion modeling. Baseline data shows previously observed exceedances of PM2.5, PM10 and TSP during wildfire events. Particulate exceedances have negative impacts on human health (especially for elderly people or those with respiratory conditions) and increase particulate deposition on vegetation and waterbodies. The potential for significant exceedances exists if construction particulate emissions are combined with wildfire related particulates.	Project construction or operations must be halted or modified during exceedance conditions for PM2.5, PM10, and TSP During wildfire events which cause particulate exceedances, NexGen must halt or modify construction/operations to reduce cumulative particulate emissions in the region.
73.	EIS Section 7.0	Diesel power generators contribute to the majority of construction related air emissions including the majority of NO2, CO, PM 2.5 and GHGs. Diesel combustion has a significant contribution to the Project's overall carbon footprint and local air quality that could be easily avoided using better technology.	NexGen must abandon plans to utilize diesel for power generation during construction. Diesel power generators are not considered Best Available Technology Economically Achievable (BATEA) for power generation. The GHG emissions and air pollutant emissions would be drastically decreased if alternative technology was implemented. The use of LNG or renewables during construction must be explored further and implemented into the final Project design.
74.	EIS Section 7.0	Diesel emissions associated with mining equipment, pickup trucks and other equipment are a major source of Project-related NO2, CO, PM 2.5	NexGen must look to decrease the Project's reliance on diesel fuel and utilize Best Available Technology Economically Achievable (BATEA) for mining equipment

		and GHGs. Diesel combustion has a significant contribution to the Project's overall carbon footprint and local air quality that could be easily avoided using better technology.	and other infrastructure. The GHG emissions and air pollutant emissions would be drastically decreased if alternative technology was implemented. The use of LNG or electric mining equipment must be further explored and implemented into the final Project design.
75.	EIS Section 7.0	NexGen's residual effects assessment for air quality does not include Dioxins and Furans compound (D&F) emissions despite acknowledging waste incineration and other activities will produce D&F emissions. There is no commentary on the results of air dispersion modeling for D&F or the potential effects on air quality/human health.	Dioxins and Furans compound (D&F) emissions must be included in the residual effects assessment for air quality. The results of air dispersion modeling for D&F emissions must be discussed in the EA and compared against relevant or equivalent regulatory standards. This will allow BNDN to better assess the fulsome Project-related air quality effects.
76.	EIS Section 7.0	NexGen's residual effects assessment for air quality does not include radon or other radionuclides despite the air dispersion model confirming radionuclide emissions. There is no commentary on the results of air dispersion modeling for radon or other radionuclides or the potential effects on air quality/human health.	Radon and other radionuclides must be included in the residual effects assessment for air quality. The results of air dispersion modeling for radon and radionuclides must be discussed in the EA and compared against relevant or equivalent regulatory standards. This will allow BNDN to better assess the fulsome Project-related air quality effects.
77.	EIS Section 7.0	NexGen's residual effects assessment for air quality does not include metals, despite acknowledging that Project related dust will include metals. There is no commentary on the results of air dispersion modeling for metals or the potential effects on air quality. The following metal compounds should be carried forward to the residual effects assessment: o Uranium (U) o Vanadium (V) o Zinc (Zn)	Metals contained in Project-related dust must be included in the residual effects assessment for air quality. The results of air dispersion modeling for metals were discussed in the EA and compared against relevant or equivalent regulatory standards. In this case, since the SAAQS do not include standards for metals, the Ontario Ambient Air Quality Criteria (AAQCs) must be used as a substitute for comparison and discussion purposes (similar to the use of the Alberta

		o Cesium (Cs) o Bismuth (Bi) o Calcium (Ca) o Iron (Fe) o Magnesium (Mg) o Manganese (Mn) o Sodium (Na) o Silver (Ag) o Arsenic (As) o Barium (Ba) o Beryllium (Be) o Cadmium (Cd) o Cobalt (Co) o Chromium (Cr) o Copper (Cu) o Mercury (Hg) o Molybdenum (Mo) o Nickel (Ni) o Lead (Pb) o Antimony (Sb) o Selenium (Se) o Tin (Sn) o Thorium (Th)	standard for sulphuric acid in the absence of a SAAQS in Section 7.1). The following metals must be included in the revised residual effects assessment. This will allow BNDN to better assess the fulsome Project-related air quality effects. o Uranium (U) o Vanadium (V) o Zinc (Zn) o Cesium (Cs) o Bismuth (Bi) o Calcium (Ca) o Iron (Fe) o Magnesium (Mg) o Manganese (Mn) o Sodium (Na) o Silver (Ag) o Arsenic (As) o Barium (Ba) o Beryllium (Be) o Cadmium (Cd) o Cobalt (Co) o Chromium (Cr) o Copper (Cu) o Mercury (Hg) o Molybdenum (Mo) o Nickel (Ni) o Lead (Pb) o Antimony (Sb) o Selenium (Se) o Tin (Sn) o Thorium (Th)
78.	EIS Section 7.0	NexGen acknowledges that Project-related dust (PM10, PM2.5 and TSP) contains numerous trace metal compounds. However, NexGen does not specify how trace metals will be monitored during the Project. It is important for BNDN members to understand the composition of the Project-related dust they will be inhaling. Further, Project-related dust will also deposit on traditionally	NexGen must monitor Project-related dust for trace metal concentrations to determine which trace metals are contained in Project-related dust and at what concentration. This will help BNDN members to understand potential risks with the inhalation or deposition of Project-related dust.

		important vegetation communities and surface water resources.	
79.	EIS Section 7.0	NexGen acknowledges that Project-related waste incineration will produce Dioxins and Furans (D&F) compounds emitted from a domestic waste incinerator and a low-level radioactive waste incinerator compounds. However, NexGen does not specify how D&F will be monitored during the Project.	NexGen must monitor Project-related D&F to determine actual concentrations near the Project site. This will help BNDN members to understand potential risks with associated the D&F emissions from the Project.
80.	EIS Section 7.0	NexGen acknowledges that the Project will release radionuclides including radon emissions. However, NexGen does not specify how radionuclides including radon will be monitored during the Project.	NexGen must monitor Project-related radionuclides including radon to determine actual concentrations near the Project site and work exposure. This will help BNDN members to understand potential risks associated with the radionuclides and radon emissions from the Project.
81.	EIS Section 7.0	NexGen does not specify how it will monitor air contaminant concentrations during all phases of the Project. Continuous on-site ambient air monitoring for all contaminants of concern (including particulates, metals, D&F and radon) is the only way to truly assess the Project's impact on air quality and compliance with government standards. Without proper on-site monitoring tracking Project-related air contaminant exceedances will be impossible.	NexGen must conduct continuous on-site monitoring for all contaminants of concern (including particulates, metals, D&F and radon) in order to assure regulatory compliance and verify the accuracy of air dispersion models and EA predictions.
82.	EIS Section 7.0	It is unclear what type of waste will be incinerated in the Low-level radioactive waste incinerator	Please specify the type of waste, approximate volumes and radiation levels of

			the waste that will be incinerated in the Low-level radioactive waste incinerator.
83.	EIS Section 7.0	NexGen acknowledges the Project's contribution to climate change through GHG emissions but does not outline any plan to offset GHG emissions. Another major mine in Canada, the Canadian Malartic Mine in Quebec (joint venture between Yamana Gold Inc. and Agnico Eagle Mines Limited) has a climate change offset plan in which carbon emissions are tracked and offsetting plans are developed (Canadian Malartic, 2014).	NexGen must develop a GHG/Carbon offsetting plan in order to mitigate some of the potential impacts of the Project to climate change. NexGen could work with BNDN on initiatives that help to offset the Project's GHG emissions (e.g., tree planting, wetland restoration, carbon offsets). This would demonstrate corporate social responsibility and climate stewardship on NexGen's behalf.
84.	EIS Section 7.0	The GHG emissions model does not include emissions related to fuel hauling or other freight for the Project.	NexGen must include the GHG emissions related to fuel hauling and freight in their GHG emissions model.
85.	EIS Section 7.0	The Project is reliant on burning fossil fuels for power generation, mine processing activities and equipment. The GHG intensive nature of the Project's construction and operation phases are a concern for BNDN and not in line with federal or provincial directives to reduce GHGs. Cleaner technology and fuel sources are available to reduce the Project's GHG emissions. For a project that is based around supplying fuel for the energy transition, a more progressive approach that utilizes Best Available Technology is required in order to reduce GHG emissions.	Where feasible NexGen must implement the use of low carbon technology and fuels in the final Project design to reduce GHG emissions. Specifically, NexGen should redesign the Project to: • Use renewable energy sources for electricity generation (e.g., wind, solar) as early in the project lifecycle as possible • Replace all diesel electricity generation with LNG generators (and add in renewables where feasible) for construction phase • Replace all mine equipment and vehicles with electric or LNG models Use renewable energy to power mine heaters
86.	EIS Section 7.0	NexGen acknowledges that mining and milling uranium ore releases radionuclides into the environment.	a) NexGen must develop a wild foods monitoring program to monitor

		This occurs through the crushing and grinding of the ore, wind erosion of the tailings, and the release of radon gas. The most persistent radionuclides have the longest half-lives; thus, U in ore dusts, 226Ra and 210Pb in tailings dusts, and 210Pb and 210Po aerosols from radon gas decay are of greatest concern (Thomas & Gates, 1999). The lichen-caribou-human food chain is the most sensitive and effective food chain on earth for concentrating airborne radionuclides (Thomas & Gates, 1999). Lichens are better at accumulating atmospheric radionuclides than other vegetation because they have no roots, a large surface area, and a long-life span (Thomas & Gates, 1999). Lichens are the main food source for woodland caribou, which is a dietary staple for BNDN members and a sacred animal in Dene culture. Airborne radionuclides, particularly cesium- 137 (137Cs), lead-210 (210Pb), and polonium210 (210Po), are transferred efficiently through this simple food chain to people, elevating their radiological dose (Thomas & Gates, 1999). The increased deposition of these radioactive particles on lichens in the mining area could increase radiation doses in both caribou and people who eat the caribou. BNDN members are concerned about the potential health impacts (e.g., cancers) associated with airborne radionuclides and consuming woodland caribou with elevated radiation doses as a result of	radionuclides levels in culturally significant species such as woodland caribou, moose, blueberries, and other species identified by BNDN and other Indigenous groups. This must be done in collaboration with BNDN and other Indigenous groups. The program must include a component by which harvesters can submit wild food samples for analysis if they have concerns. b) NexGen must also develop a follow-up monitoring program to monitor the deposition of radionuclides in the environment, specifically on lichen and other sensitive vegetation communities. c) NexGen must revise the air quality residual effects assessment to include radionuclides.

		consuming lichen that has bioaccumulated radionuclides associated with uranium mining.	

4.8 Mine Infrastructure and Engineering

Table 8. Comments and recommendations for the Rook I Project related to mine infrastructure and engineering

#	Document Reference	Comment	Request/Recommendation
87.	EIS Executive Summary Section 2.3.1, P36	It is noted that the stockpiles for PAG and NPAG are connected together based on the general layout shown in Figure 2.3-7. The design measures to prevent the contact water flow from the PAG to NPAG through the contact boundary is not clear in the report.	Please clarify the design measures to prevent the contact water flow from the PAG to NPAG through the contact boundary between the two stockpiles.
88.	EIS Executive Summary Section 2.3.1, P36	During development of the potentially acid generating WRSA, potentially acid generating rock would be placed in alternating lifts of waste rock and borrow material to provide engineered source control to reduce the advective air flux through the placed material, thereby reducing potential effects to the environment. Due to a large demand quantity of the borrow materials, the source of the potential borrow pits should be described.	The potential borrow areas for acid WRSA construction should be described as part of the EA study.
89.	EIS Executive Summary Section 2.3.2, P38-39	The flood design criteria for all Water Management Ponds (WMP) are not described in this Section, which are considered as the critical design parameters.	The flood design criteria for all WMPs must be documented in the Master Executive Summary Report. It is noted all ponds and collection areas would be designed to accommodate a PMP 24-hours event of 489.2mm in EIS Report (NexGen 2022).

90.	EIS Executive Summary Section 2.3.2, P44	In Section of Project Design Features for Long-Term Environmental Protection, HDPE geomembrane lined stockpiles (Ore Storage Stockpile, Special Waste Rock Stockpile, Potential Acid Generating WRSA) and WMPs are the important design features for long-term environmental protection, which should be included in this Section.	We recommend adding HDPE geomembrane lined stockpiles and WMPs are the one of important design features for long-term environmental protection.
91.	EIS Executive Summary Section 2.3.3, P46	In construction sequence: "Strip topsoil layers, subsoil material and organic materials and stockpile for future reclamation". The proposed locations for the stockpiles for the striped in-situ materials are not shown in the general layout drawing in Figure 2.3-1 (P26).	The proposed locations for the stockpiles for the stripped in-situ materials must be planned in the general layout drawing.
92.	EIS Executive Summary Section 5.3.1, P119	Groundwater elevation: During operation, seepage to the mine would result in a depressurization of the surrounding bedrock, which would be observed as a reduction in ground water elevation (i.e., Drawdown). Based on our prior experience, the dewatering (drawdown) process will cause the ground settlement, which should be assessed prior to dewatering activity at the mine site.	Ground settlement for the project site induced by the dewatering during mine operation must be assessed.
93.	EIS Executive Summary Section 7 Reference, P199	Three references which may be related to the dam and tailings/water management facilities, missed, including: • MNR, 2011. Ontario Ministry of Natural Resources (MNR) and Forestry 2011 Lakes and Rivers Improvement Act (LRIA), Dam Safety Guidelines • CDA, 2013. Canadian Dam Association (CDA) Guidelines for Public Safety around Dams	We recommend adding the three references to the list, which will be followed in the embankment and WMPs design.

		MAC, 2011. Mining Association of Canada Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities	
94.	EIS Section 5.4.4.1, P5-63	It is noted that the stockpiles for PAG and NPAG are connected together based on Figure 5.4-11. The design measures to prevent the contact water flow from the PAG to NPAG through the contact boundary is not clear in the report.	Please clarify the design measures to prevent the contact water flow from PAG to NPAG through the contact boundary between the two stockpiles.
95.	EIS Section 5.4.4, P5-62 to 5-64	Design Criteria for the slope stability (Safety Factor) for the stockpiles under various loading conditions are not described.	Design Criteria for the slope stability (Safety Factor) for the stockpiles must be defined in the report.
96.	EIS Section 5.4.5.2, P5-68	The design criteria (flood and earthquake) for the proposed perimeter embankments for WMPs are not documented in the report. CDA guideline (2013) should be followed to determine the design criteria for the perimeter embankments.	Design criteria for the pond perimeter embankments must be defined based on CDA guidelines.
97.	EIS Section 5.5.1, P5-83	Strip topsoil layers, subsoil material and organic materials and stockpile for future reclamation". The proposed locations for the stockpiles for the striped in-situ materials are not shown in the general layout drawing	The proposed location of the stockpiles for strip in-situ soil must be shown in the site layout drawing.
98.	EIS Section 8.5.1.1.1, P8-54	The groundwater elevation will draw down about 5 m and extend approximately 2km to the north, 4 km to the south, and 3.5 km in both east and west directions. Based on our prior experience, the dewatering (drawdown) process will cause ground settlement, which should be assessed prior to dewatering.	Ground settlement for the project site induced by the dewatering during mine operation must be assessed.
99.	N/A	BNDN members have noted that drill cuttings were released to the environment in an uncontrolled way before NexGen was aware that there was high grade ore in the Arrow deposit. BNDN is unclear if NexGen remediated the high-grade drill	BNDN requests that NexGen clarify what, if anything has been done to remediate the drill cuttings during early exploration. If NexGen has not remediated the sites, NexGen must work with BNDN to identify a suitable mitigation, accommodation and/or

		cuttings that were released to the environment. BNDN wishes to better understand whether NexGen has remediated the impacted sites given the impacts on BNDN Treaty and Aboriginal rights.	remediation measure to address the contamination caused from drilling prior to the discovery of the Arrow deposit.

5.0 Conclusion

Birch Narrows Dene Nation has prepared this report based on a review of the NexGen Rook I EIS and associated documents. It includes 99 specific comments and associated recommendations that are directed to the Proponent and CNSC. These comments have been prepared based on the information and resources available to BNDN at the time of the review. It is anticipated that given additional time and capacity, BNDN would identify additional comments and recommendations and thus these comments should not be considered an exhaustive list of potential BNDN concerns. BNDN expects that NexGen Energy will provide written responses to all of the comments above, including a description of how additional information or specific actions address the concerns described. We expect that identified issues will be resolved through ongoing engagement with the CNSC, SMOE and NexGen throughout the Environmental Assessment for the Project.

6.0 References

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Technical Review of NexGen Rook 1 Uranium Mine Application

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Appendix A:

Aqua Environmental Associates (AEA)

Hydrology technical review of NexGen Rook 1 Uranium Mine Application

Appendix A: Aqua Environmental Associates (AEA)

Hydrology technical review of NexGen Rook 1 Uranium Mine Application

By: Martin Carver (AEA)

Overarching Comments / General Concerns

The EIS hydrology and climate-change components contain data and assessment gaps and methodological deficiencies that likely mean EIS effects assessments are unreliable and may underestimate potential effects. Shortcomings in methods involve model validation, characterization of future climates in effects assessments and temporal scope for change in future climates. Inadequate baseline data, particularly at Project-specific monitoring stations undermines the reliability of outputs from hydrologic simulation modelling, particularly for smaller streams. A predevelopment baseline is not provided. The absence of systematic documentation of Indigenous navigability and its requirements is of concern given the importance of water-based access for carrying out Traditional-use activities. Multiple deficiencies are present in some EIS effects assessments leading to serious concerns for the reliability of EIS findings. This finding contrasts with the claims of "high confidence" put forth in the EIS hydrology section regarding its outputs used in effects assessments.

A1	**Topic – Inadequate Baseline Information to Support Effects Assessments**
EIS Section(s)	Section 9.2.6.1
Subsection, page no.	Pages 9-19 to 9-21, 9-53 to 9-54
Terms of reference	

Rationale / Review Comments:

Baseline data are a cornerstone in a project environmental assessment. Baseline data provide pre-impact information that informs effects assessments. Through simulation modelling, baseline data make it possible to predict project effects using simulation modelling. In the case of the environmental assessment of the NexGen Rook One Project (Project), characterization of the present conditions (Base Case) is established from simulation modelling which relies on the same baseline data.

The LSA and RSA lack suitable long-term hydrologic and climate monitoring stations. The Project has implemented monitoring at various locations within the RSA to provide baseline data for the Project environmental assessment (Table 9.2.2, p9-20). It appears that two years of this monitoring has informed the findings of the EIS, however, the EIS provides various accounts of the duration of this monitoring:

- "the initial baseline period is represented by more than two years of hydrology data" (p9-97)
- "The model was calibrated (i.e., trained) using three years of site-specific hydrometric measurements collected within the RSA." (section 9A5, p68)
- "a period of two years from August 2018 to August 2020" (p9-96)
- "baseline monitoring programs were completed over the period of August 2018 to September 2020" (p9-19)

Although the duration of the monitoring remains somewhat unclear from the information provided in the EIS, it is evident that the extent of available baseline data is insufficient to meet the needs of the environmental assessment. A minimum of five years of hydroclimatic data are needed from affected sites, depending on the nature of the years monitored. The two years of data available provide only one complete open-water season. The other year of data is taken from two different hydrologic years. The EIS claims that 2018 was a dry year and 2020 was a wet year (p9-25) yet, in both these years, the monitoring program was only partial (between 4 and 8 months in duration). Despite the short-term and fragmented limitations of the site-specific monitoring data available within this environmental assessment, curiously, the EIS refers to its baseline monitoring programs as "extensive" (p9-19; p9-96).

In addition to the inadequate baseline data, the EIS also does not provide a pre-development baseline against which to compare the assessment cases. The (simulated) Base Case represents existing conditions which include "the combined effects from previous and existing human disturbances" (p9-16). It is an impacted case. It is important when evaluating impacts to Traditional-use activities that a pre-development baseline be available to effects assessments to enable full characterization of the incremental losses that may have occurred

within the system of Traditional-use activities. Preparation of a pre-development baseline may also provide the opportunity to better validate the simulated Base Case (Tables 9.3-6 through 9.3-9) against Traditional Ecological Knowledge. It appears that this effort to better verify the Base Case simulation has not been carried out within the EIS.

Information Requests:

a) In the absence of a pre-development baseline, explain how cumulative effects on Traditional-use activities can be fully and appropriately determined.

A2	**Topic – Inadequate Scope of Calibration and Validation of Hydrologic Model**
EIS section	Section 9.2.6.2.6; Section 9.8; Section 9A5
Subsection, page no.	Pages 9-24 & 9-25; Pages 9-96 to 9-98; Page 68 (section 9A5)
Terms of reference	

Rationale / Review Comments:

The EIS relies on simulation modelling to determine expected Project impacts. Hydrologic models require adequate calibration and validation data to provide reliable outputs suitable for EIS effects assessments. In discussing the application of its GoldSim modelling platform, the EIS states (p9-25):

> "A key modelling assumption was that parameters and processes inferred from the calibration at several hydrometric station locations for a short period of record (i.e., two years) could be effectively and accurately applied to a longer period (i.e., 43 years) at the same locations, as well as other ungauged (i.e., unmeasured) locations. As meteorological and hydrological conditions were variable during the calibration period, with both low and high flow periods, and as ungauged locations are in a similar terrain as the gauged sub-watersheds, this assumption is reasonable."

This "key modelling assumption" is invalid. Elsewhere (item A1), it is shown that the two years' baseline data available in the EIS are inadequate for characterizing hydrologic units within the RSA. The above passage asserts that hydrologic variability during the monitored period justifies this assumption. All natural hydrologic measurements are variable and have highs and lows thus this characteristic is ubiquitous in hydrologic data and does not signal adequacy. What is significant in this situation is that the period of the monitoring is short and is thus challenged - without a compelling quantitative rationale based in the data – to provide a sufficient range of conditions to appropriately calibrate models that will then be applied over a timescale more than 20 times longer than the duration of the monitoring data.

After calibration using the two years of site-specific data (including data for the RSA's smaller hydrologic systems), the EIS indicates (section 9A5, p68) that the model "was then validated using regional data at regional scales from long-term monitoring stations." This reference to "regional scales" indicates that the model was not validated using data from smaller streams

which are not of regional scale. This compromises further the validity of the modelled outputs for the smaller watercourses assessed in the EIS because it would imply, effectively, that the simulation model has not been validated for application to these systems.

Despite these limitations in the baseline data (item A1) and in the validation of the GoldSim model, the EIS claims that "predictions based on the methods adopted carry a high degree of confidence." (p9-96). This rating is unjustified as discussed elsewhere (item A6).

Rationale / Review Comments:

a) Confirm whether the hydrologic model was validated at non-regional scales. If it wasn't validated, also explain why it was subsequently applied in the EIS effects assessments at these non-regional scales.

A3	**Topic – Underestimation of Climate Change in Effects Assessments through Application of Mean Values**
EIS section	Appendix 22A5.1; Section 9.4
Subsection, page no.	Pages 36 & 37 (Appendix 22A5.1); Pages 9-60 to 9-65
Terms of reference	

Rationale / Review Comments:

Climate is changing rapidly around the world and particularly in northern regions such as in the Project LSA and RSA. Climate plays an important role in numerous aspects of the environmental assessment and in shaping the findings of the EIS. The EIS recognizes this by assembling a detailed climate change assessment (Appendix 22A and Attachment 22A-1) that includes an ensemble of model outputs representing potential climate futures.

Although the EIS brings together many appropriate data and methods from the Intergovernmental Panel on Climate Change (IPCC), the EIS applies the ensembles of climate projections incorrectly within the EIS effects assessments, leading to underestimates within effects assessments and potentially mistaken interpretations of effect significance.

EIS Appendix 22A appropriately creates ensembles of outputs from climate models, providing distributions of projected future temperature and precipitation within the RSA for the 2050s and 2080s. Rather than carrying forward the range of potential future climates, the EIS determines a mean of the projected climates and carries this through the effects assessments rather than the full range of the model outputs. Further, the EIS mistakenly claims (p9-60) that this provides "the most probable of the climate change scenarios." This suggests a critical gap in EIS understanding of how to apply GCM outputs in resource assessments.

Ouranos is a leading Canadian hub for advancing scientific understanding of climate change and its appropriate application in adaptation and resource development. In its *Guidebook on Climate Scenarios* (Charron 2016), Ouranos states: "It is important to understand that none of these future climates should be considered a prediction: all the future climates projected

by different climate models with different GHG forcing scenarios ***should be considered equally plausible***." (Emphasis added). It is incorrect for the EIS to create a mean from the GCM outputs. Instead, the range of outputs should be carried through the effects assessments and appropriately interpreted in the outputs of the respective effects assessments.

A second major problem with the EIS' application of the GCM ensembles is its equal consideration and averaging of all three emissions scenarios. Representative Concentration Pathways (RCPs) have been developed by the IPCC to represent contrasting global greenhouse gas (GHG) emissions scenarios. In simple terms, RCP 4.5 corresponds approximately to an emissions trajectory that would occur if all of the commitments under the Paris Accord were met. Currently, humanity is far from reaching this ambition of 1.5C temperature rise and is instead much closer to a 3C rise. RCP2.6 would come about under a future with drastic cuts in carbon emissions that are not happening and show little sign of coming about. RCP8.5 is generally referred to as the Business-as-Usual scenario and refers to the continuation of the historic pattern of high growth in GHG emissions. The global population is following an emissions scenario that is between RCP4.5 and RCP8.5. Current peer-reviewed science involved in projecting climate change typically provides outputs for RCP4.5 and RCP8.5 and typically provides these two results separately. RCP2.6 is often set aside because there is no evidence emerging that this will come about. However, the EIS includes RCP2.6 in its ensemble of GCM outputs. This would not be a problem if the EIS didn't also collapse all its ensemble data (from Appendix 22A) into a mean for use in the effects assessments. The combined effect is to understate the extent of climate change that should be considered in the effects assessments.

Appendix 22A appears to agree with this revised methodology when it states in its introduction (p1):

- "Recognizing the inherent uncertainty with projections, the results in this report are based on projections from multiple climate models and scenarios, or a multi-model ensemble as recommended by IPCC (2013)."
- "Golder and Associates Ltd. (Golder) has developed this detailed climate change dataset based on recent best guidance found in literature, including best guidance accepted by the Intergovernmental Panel on Climate Change (IPCC). The approach used is consistent with the guidance developed by the Mining Association of Canada (MAC 2021) by providing the necessary information for performing climate risk assessments. ***This dataset is intended to be used across disciplines as part of the Project Environmental Impact Statement where climate variables in current and future periods play a role.***" (Emphasis added – the document makes no mention of using only the mean)

In addition, Golder and Associates, the author of the EIS, has produced a methods manual for the Mining Association of Canada (MAC 2021) which also confirms this practice:

> "Application of the multi-model ensemble approach to the variables described above produces a range of results. To help address uncertainty, it is necessary to calculate statistics that describe the range in projected relative change across the ensemble members as a whole (minimum, maximum, mean, median, and percentiles)."

Golder & Associates does not recommend using one mean value as a surrogate for the entire ensemble.

This concern in how future climates are portrayed in the EIS is a cross-cutting problem that affects all EIS assessments using future climates as an input variable. The scope for potential change in climate will continue to be underrepresented if this mistake remains unaddressed. For example, Tables 9.4-1 through 9.4-4 do not appropriately indicate the range of possible futures associated with the assessed stream reaches.

To correct this error in the EIS, the full range of future climates should be characterized based on the ensemble compilations. Results for each emissions scenario should continue to be distinguished as they are currently in Figure 22A-26. Given that emissions are tracking between RCP4.5 and RCP8.5, it is sensible for these two to be the focus of the GCM outputs, though the RCP2.6 can be included (and contextualized) if desired. The expanded outputs can then be brought back to all climate-related effects assessments for revision.

References

Charron I 2016. *A Guidebook on Climate Scenarios: Using Climate Information to Guide Adaptation Research and Decisions*, 2016 Edition. Ouranos, Montreal PQ, 94p.

Intergovernmental Panel on Climate Change (IPCC) 2013. *Climate Change 2013 The Physical Science Basis Summary for Policymakers*. Working Group 1 Contribution to the Fifth Assessment Report, October 2013, 27 p.

Mining Association of Canada (MAC) 2021. *Guide on Climate Change Adaptation for the Mining Sector*, prepared by Golder and Associates, 148 p.

Information Requests:

a) Revise EIS section 9 (hydrology) to include the range of future climates, carrying forward this range through to the end of the effects assessments.

A4	**Topic – Disregard in Assessment Cases for Changes in Climate during Final Twelve Years of Project Lifespan**
EIS section	Section 9.2.7; Section 6.10; Appendix 22A
Subsection, page no.	Page 9-27; Page 6-34
Terms of reference	

Rationale / Review Comments:

In considering future climates in the hydrology effects assessments, the EIS focuses exclusively on outputs for the 2050s, setting aside altogether the outputs for them being available in the EIS Appendix A22 alongside the projections for the 2050s. In section 9.2.7, a simple statement is provided as rationale that maintains that the 2050s "represent a reasonable upper bound in terms of climate change during the Project lifespan." (p9-27). Under current scheduling, the Project is expected to have a lifespan that continues to (at least) 2067. The implied rationale in the EIS is that because the year 2067 is within the 30-year period (2041-2070) that "the 2050s" generally represents, that the 2050s outputs

therefore represent the full temporal range of the project lifespan. However, this reasoning is obviously flawed.

Climate change does not jump from one projection in the 2050s (and during each year of 2041-2070) then in 2071 to the next projection associated with the 2080s (and during each year of 2071 to 2100). Although its actual pattern of annual advance is unknown, under the modelled inputs it will advance in a somewhat distributed manner between the two benchmark periods. The year 2055 is the centre of the 2041-2070 grouping. The year 2085 is the centre of the subsequent 2071-2100 grouping. If one is interested in a year beyond 2055, then account should be made for the passage of time between the two projection periods. An approach based on linear interpolation would determine an average of 1/30th of the difference between the 2050s and 2080s and then allocate that amount to each year in the beginning of the next 30-year period. In the present case, and following this methodology, with a project lifespan to 2067, then at least 12/30 of the change between 2050s and 2080s should be added to the outputs for the 2050s. Alternatively, if the EIS truly wishes to be conservative (see below), then it could simply use the outputs for the 2080s exactly as already provided in Appendix A22.

It is also increasingly recognized that the GCM projections themselves are underestimating the climate changes that are most likely to occur. There is a significant body of authoritative scientific evidence in this regard - see, for example, Brown and Caldeira (2018) and Steffen et al. (2018) and many other peer-reviewed publications. Given the rapid advance of climate disruption, it is suggested that it would be more reasonable to simply use the outputs for the 2080s. This would also accommodate delays in eventual site reclamation which could take longer than the projected 2067 date.

The EIS repeatedly claims that it is aligned with the precautionary principle and its effects assessments are conservative because they overestimate effects. For example, the EIS states (p6-3): "To align with the precautionary principle a conservative approach is applied in EAs when information is limited so that effects are typically overestimated." Again, on p6-34, the EIS states: "The assessment applied a precautionary approach to address uncertainty by using the largest magnitude, duration, and geographic extent of potential adverse effects when a range of possible outcomes could be possible." In addition, it is repeated in effects assessments and specifically in the hydrology section (see section 9.2.11). Given its approach to dealing with the change in climate associated with the years after 2055, and given the increments in change associated with those additional years, the EIS is evidently not as conservative as it believes.

References

Anthony KW, W Anthony, T Schneider von Deimling, I Nitze, S Frolking, A Emond, R Daanen, P Anthony, P Lindgren, B Jones and G Grosse 2018. 21st-century modeled permafrost carbon emissions accelerated by abrupt thaw beneath lakes. *Nature Communications*. 3262:9 p.

Brown PT and K Caldeira 2018. Greater future global warming inferred from Earth's recent energy budget. *Nature* 552:45-50.

Steffen W *et al*. 2018. Trajectories of the Earth system in the Anthropocene. *Proceedings of the National Academy of Sciences of the USA*, doi/10.1073/pnas.1810141115.

Information requests:

a) Revise the future projected climate to include the full extent of climate change expected during Project lifespan – ie, to 2067 rather than to 2055.

b) Revise EIS section 9 (hydrology) to include the full temporal range of projected climates (to 2067) carrying forward this range through to the end of the effects assessments.

A5	**Topic – Unassessed Navigation Requirements of Traditional-Use Activities**
EIS section	Section 6.3.1 (p6-12), Section 6.3.2 (p6-12); Section 9 Executive Summary (pi-iii); Section 9.3.2.1 (p9-39 & 9-40); Section 9.3.2.2 (p9-48 to 9-51); Section 9.3.6 (p9-58); Section 9.6.3 (p9-85 to 9-91); Section 16.2.2.3 (p16-15); Section 16.2.7 (p16-26); Section 16-5
Subsection, page no.	See line directly above
Terms of reference	

Rationale / Review Comments:

The practice of Traditional-use activities within the RSA depends in part on water-based travel. The Project will both withdraw water from and return water to Patterson Lake for mining, fire-protection and domestic-use purposes. Stream diversions and erosion may result in sedimentation that can affect navigability. In addition, water levels and flow rates will adjust through time to climate change with significant seasonal changes (both positive and negative – see section 9.6.3) during Project lifespan. As a result, there is the potential for changes in navigability during Project lifespan in locations downstream of the Project site, particularly in nearby shallow lakes and river reaches.

The EIS recognizes that there are navigability requirements in the LSA and RSA (section 9, Executive Summary, p i): "The waterbodies in ***the LSA and RSA are used by humans for navigation***, recreation, and fishing and the river is an important aspect of culture and heritage. Upstream of Patterson Lake, the channel is wide but relatively shallow, and it has a lower gradient downstream of Patterson Lake. In general, boat navigation upstream of Patterson Lake is ***more difficult than navigation downstream***." (emphasis added). Later in the Executive Summary (section 9, p.iii), it concludes that because the changes are "within the range of natural seasonal and annual variability", they are "not expected to affect navigation". This interpretation is repeated with respect to changes in channel morphology whereby the EIS (p.iii) states "these changes are within the range of natural variation and are not expected to be large enough in magnitude to change how the watercourses are used by humans for navigation."

Despite recognizing the Traditional-use value associated with navigation, the EIS does not establish navigation as a Valued Component. Instead, it defines "Indigenous land and resource use" as a Valued Component because "access to traditional land and resource areas would be affected by Project activities." (Table 6.3-1, p6-12). The EIS recognizes the

potential for impact to this essential characteristic of downstream waterbodies when, in relation to this Valued Component, it identifies a measurement indicator as "Changes to access to and area available for Indigenous land and resource use".

The EIS states that "Clearwater River below Forrest Lake is a broad channel with two constriction points" yet does not provide an assessment on these points that may be seasonally limiting to navigability. In addition, because of backwater effects from Beet Lake, this section of the Clearwater River was not hydrometrically monitored under even the short period of the baseline program.

Section 9.3.2 describes the hydrographic setting of the project within the RSA and including some areas potentially sensitive to Indigenous navigation. For example, the East Basin of the Patterson Lake North Arm is described as "relatively shallow and has a lower volume than the other two basins." Just downstream and with documented Traditional-use activities, the North Basin of Forrest Lake is smaller and shallow, located along the Clearwater River. "North Basin is separated from the South Basin by a sand bar consisting of sandy material. Water depths over the sand bar are typically less than 1.0 m." (p9-39).

EIS pages 9-48 through 9-51 describe the progress of Clearwater River as it travels downstream in the RSA. The description indicates a highly variable system including components that are sensitive to disruption and loss of water. Section 9.3.6 (p9-58) provides additional, somewhat randomly presented, navigability information about these reaches of the Clearwater River and including speculation of its navigability. Again, although this section clearly recognizes the importance of navigability of this river, there is no authoritative reference to an appropriate assessment, to a Traditional-use study, or to Transport Canada. Instead, a collection of stream channel parameters is provided in Table 9.3-10 to "help to support interpretation of navigability by boat." (p9-58).

Water-based access and navigation should be a Valued Component. Instead, "changes to access to and area available for Indigenous land and resource use" is an aggregated measurement indicator that connects "Indigenous land and resource use" (a Valued Component) with its assessment endpoint "continued ability to participate in Indigenous land and resource use activities". (Table 16.2-1, p16-15). Water-based access and navigation is not assessed as a Valued Component and, instead, a few elements of this aspect of the Indigenous land-use system are spoken to here and there in the EIS (e.g., in section 9) but without a coherent framework of effects assessment. In its residual effects analysis for the Indigenous land and resource use Valued Components relative to existing conditions (p16-27), the residual effects focus on LSA/footprint impacts and do mention water-based implications of changing water quantity.

In section 4 of *ACFN Advice to Alberta Regarding LARP* (ACFN 2010), it is stated: "Critical waterway zones are identified within 5km of major streams and waterways that are important hunting, transportation, and access zones and/or drinking water sources. These critical waterways include the Athabasca, Firebag, Maybelle, Old Fort Richardson, and Clearwater rivers." (LARP = Lower Athabasca Regional Plan). It also states: "ACFN recommends that within these zones, water quality and quantity should be carefully monitored and managed to maintain opportunities for the use of rivers in the practice of ACFN rights." (p18)

The ACFN is not considered a "primary" Indigenous Group under the EIS (Table 1.2-2, p1-26) but is considered an "Other Indigenous Group" who are identified for information sharing due

to having a "potential overlap with traditional territory but no access link or known residency/land use" (Table 2.4-4, p2-20).

References

Athabasca Chipewyan First Nation (ACFN) 2010. *ACFN Advice to Alberta Regarding LARP*. Submission to Alberta Land-Use Secretariat, November 22, 2010, 37 p.

Information Requests:

a) Provide an Indigenous navigation effects assessment including a thorough and systematic description of the navigation requirements of Traditional-use activities

A6	**Topic – Unjustified High Prediction Confidence in Hydrology Component**
EIS section	Section 9.8; Section 9.2.11
Subsection, page no.	Page 9-96; Page 9-32;
Terms of reference	

Rationale / Review Comments:

Section 9.8, *Prediction Confidence and Uncertainty*, opens with the following statement (p9-96):

> "The methods adopted for this assessment included extensive baseline studies as well as quantitative modelling and resulted in an understanding of the hydrological system, provided context for natural variability and responses to climate, and allowed for the quantitative assessment of Project effects. Therefore, predictions based on the methods adopted carry a high degree of confidence."

It is unclear how the high degree of confidence results from the listing given in the sentence. Also, with respect to residual uncertainty, section 9.2.11 further claims (and repeated elsewhere in the EIS, *e.g.*, p6-34):

> "The assessment applied a precautionary approach to address uncertainty by identifying the greatest magnitude, duration, and geographic extent of potential adverse effects when a range of possible outcomes was possible. Consequently, uncertainty was addressed in a manner that increased the level of confidence that residual effects were conservatively estimated."

It is not clear that this has been carried out in the EIS as outlined. For example, as explained in items A3 and A4, this approach to uncertainty was not applied in relation to incorporating climate change into the effects assessments.

Given the EIS shortcomings in methods, data, and assessments, it is inappropriate for the EIS to claim to be "precautionary" and to be "conservative" by overestimating project effects.

Overall, the EIS lacks a compelling rationale to assert a high degree of confidence in its hydrology effects assessments.
Information Requests: a) Given the short duration of the Project-specific baseline data, the inappropriate consideration of projected climates within the effects assessments, and the lack of RSA model validation at non-regional scales, explain how the EIS can justify claiming a high confidence for its hydrology predictions.

Appendix B:

Thompson Aquatic

Surface Water and Sediment Quality review of NexGen Rook 1 Uranium Mine Application

Appendix B Thompson Aquatic

Surface Water and Sediment Quality review of NexGen Rook 1 Uranium Mine Application

By Megan Thompson (Thompson Aquatic)

Overarching Comments / General Concerns

Surface Water and Sediment Quality are classified as intermediate components and not valued components (VCs) in the EIS. The findings of this assessment are carried forward to other VC assessments, including VCs for fish and fish habitat, vegetation, wildlife, human health, and Indigenous land and resource use.

The Project is likely to primarily influence water and sediment quality via direct discharges of treated domestic sewage and mine water effluent to Patterson Lake during the life of the Project, and via seepage from underground waste rock storage facilities into the far future. Certain constituents, especially cobalt and copper, were predicted to increase in concentration in Patterson Lake basins and downstream areas for decades and even centuries into the future.

The Project base case/existing condition was developed in the assessment using a reasonable baseline data set for lakes and rivers in the Project area, although wetlands don't seem to have been included in the surface water and sediment quality assessment. Summaries and characterizations of baseline data included some poor data analysis practices and require justification or correction.

Certain potential Project-related impacts were not adequately considered (e.g., acidification of water bodies, changes to water temperature as a result of climate change, far future effects on sediment quality). In addition, summaries of predicted effects, especially as part of residual effect classification, were confusing and appeared to contradict earlier descriptions of effects.

B1)	**Threshold for total phosphorus**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.2.8.3.3 Productivity Status Thresholds, p. 10-48 to 10-49 Table 10.2-8 10.3.1.3 Productivity Status Constituent Concentration, p. 10-62 to 10-64 Table 10.3-7
Terms of Reference	-

Rationale / Review Comments:

NexGen has defined thresholds values for its use in the water and sediment quality impact assessments. This included a threshold for total phosphorus, which was designated as a constituent of potential concern (COPC) due to role as a "fertilizer" for algae, potentially leading to unusual or undesirable algal blooms, and generally to productivity enrichment or eutrophication effects.

Most existing government guidelines for total phosphorus are narrative statements or frameworks, because whether a given concentration will lead to eutrophication effects is dependent on multiple factors, including the corresponding concentrations of nitrogen, water temperature and light regimes, the physical characteristics of a waterbody and the structure and function of its food web. The threshold adopted by NexGen was 20 µg/L, based on Ontario government guidance that reads as follows:

> "*Current scientific evidence is insufficient to develop a firm Objective at this time. Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:*
> *- To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 µg/L;*
> *- A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 µg/L or less. <u>This should apply to all lakes naturally below this value</u>;*
> *- Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 µg/L.*" (MOEE, updated 2021) (emphasis added)

The threshold of 10 µg/L total phosphorus is also used as a transition value between the oligotrophic and mesotrophic status of water bodies as defined by the CCME and presented in Table 10.2-8 of the Project EIS.

Given that NexGen has described base case mean total phosphorus concentrations in all sampled water bodies in the Project area as at or below 10 µg/L, the relevant threshold according to the MOEE guidance would be 10 µg/L, and not 20 µg/L. According to the base case data summarised on Table 10.3-7, only one lake (Lake G) had a concentration of 20 µg/L, and that was the maximum measured value. While the lake was classified as mesotrophic by NexGen on the basis of this maximum value, the mean value would support a classification of oligotrophic, a more appropriate trophic status for this lake. Importantly, Patterson Lake data indicated all concentrations were less than or equal to 10 µg/L, and this is the focal location of expected effects on total phosphorus concentrations, where domestic sewage and treated effluent from the Project will be released.

For these reasons, NexGen should modify its Project-specific threshold for total phosphorus to 10 µg/L. Total phosphorus loading and eutrophication effects can have long-lasting impacts on aquatic ecosystems, including fish and aquatic invertebrates, as well as influencing redox conditions that influence the availability of metals and trace elements in water and sediments. This is especially relevant given the descriptions of existing effects and

recent change to water quality in Patterson Lake and other water bodies provided by Indigenous community members in Section 10.3.1 (p. 10-53 to 10-54). Climate change will also increase the likelihood of eutrophication effects occurring if water temperature increases, even where total phosphorus concentrations remain constant. The Project effects assessment and ongoing monitoring and management activities in the Project area should therefore adopt the more conservative and appropriate threshold of 10 µg/L.

Information Requests:

a) Please revise the total phosphorous water quality Project Threshold to 10 µg/L, from 20 µg/L.

B2)	**Sediment quality Project Thresholds missing**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.2.8.3.4 Sediment Quality Thresholds Table 10.2-9
Terms of Reference	-

Rationale / Review Comments:

The selected sediment quality Project Thresholds shown in Table 10.2-9 seem to be incomplete. The text preceding the table indicated that sediment thresholds would be selected from one of three guidance sources, however for several constituents no threshold was selected from the available options (e.g., cadmium, lead, nickel, selenium, vanadium). It isn't clear why no threshold was adopted in these cases.

Information Requests:

a) Please explain why sediment quality Project Thresholds were not selected for constituents with existing guidance thresholds available.

B3)	**Treatment of censored data**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.3.1.2 Water Quality (Risk to Aquatic Life and Terrestrial Life) and Drinking Water Quality Constituent Concentrations, p. 10-57 10.3.1.3 Productivity Status Constituent Concentration, p. 10-62
Terms of Reference	-

Rationale / Review Comments:

In the EIS section dealing with base case water and sediment quality, the described treatment of below detection limit analytical values (or censored data) is not appropriate. Substitution of non-detect values with the detection limits value or half of the detection limits value generally introduces an upward bias to water and sediment quality data. A common approach is to impute the values of non-detect observations, or to use rank-based analyses (as discussed for example in Helsel 2012, and Helsel et al 2020, and implemented, for example, in the NADA R package by L. Lee).

Preferred summary statistics are therefore percentiles, including the median as a measure of central tendency, instead of a mean. Where a large proportion of the data set for a particular parameter are made up of censored data, it is usually not acceptable to report any summary statistics or to use the data in further analyses.

In the context of the Project impact assessment, introducing an upward bias in water and sediment quality parameter data sets would lead to an inflated base case and would increase the risk of not detecting real change in the environment through follow-up monitoring programs. This should be avoided by NexGen.
In addition, for certain parameters, such as total phosphorus, which are commonly measured and important indicators of aquatic ecosystem health as well as of potential adverse impacts on those ecosystems, NexGen is encouraged to seek out a laboratory capable of low-level analyses for analytical services. Detection limits for measured parameters should not be close or equivalent to applicable guidelines or thresholds for those parameters, wherever possible.

Information Requests:
a) Please revise the water and sediment quality data compilations and related analyses, so that censored data points are not substituted at all. Please instead use the above-mentioned newer and more robust approaches for the water and sediment quality data used in this study.
b) For any future monitoring, please plan analytical sample analyses accordingly, so that whenever possible detection limits are not near to or above the applicable thresholds. In interpreting data, please note that there is a large degree of uncertainty inherent in values near the detection limit, including when detection limits are below but close to thresholds.

B4)	**Standardization – sediment quality data**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.3.2 Sediment Quality
Terms of Reference	-

Rationale / Review Comments:
For sediment quality analyses, including QA/QC samples, the effect of particle size should be accounted for in summarizing and analyzing constituent concentration data. Especially where data are pooled or compared between sites or between years, observations should be corrected for a value like % sand or % silt. Standardizing does not make sense when comparing against toxicity-based thresholds, however.
Particle size can be a dominant influence on most constituent concentrations, especially trace elements, and organic contaminants. Sediment % organic matter or total organic carbon can also be an important influence on concentrations, but also tend to negatively correlate with larger particle sizes.

Information Requests:
a) Please clarify – were sediment concentration data standardized to particle size for the purposes of sediment quality QA/QC and comparisons or summaries between sites and years?

B5)	**Pooling of data for summaries**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.3.1.2 Water Quality (Risk to Aquatic Life and Terrestrial Life) and Drinking Water Quality Constituent Concentrations Tables 10.3-3 through 10.3-6, p. 10-58 to 10-61
Terms of Reference	-

Rationale / Review Comments:
Base case data for water quality were summarised as means and percentiles, and % observations above thresholds, for groups of lake and river sites in several tables. The groups for each of the four tables were as follows:

- Broach Lake, Lake H, and Lake G
- Patterson Lake (all basins)
- Forrest Lake and Beet Lake
- Naomi Lake, Clearwater River below Beet Lake and, Reference Lake

No explanation as to why these sampling sites were combined and data pooled in this way, and the assessment that follows does not use these groupings. Generally speaking, it is not a good idea to summarize data across lakes and rivers, or even across more than one lake, unless such a grouping is based on a scientific or technical reason. As it stands, the specific condition of each of these water bodies is obscured and confusingly mixed with those of other water bodies. In addition, it is generally not recommended to combine data from multiple sites along a river system, unless it can be shown that the data for each constituent from each site are not statistically different.

Information Requests:
a) Please justify the pooling of the site data in calculating and presenting base case summary statistics, including as a base case for further impacts assessment steps.
b) If this pooling cannot be justified, please recalculate and present summary statistics for each lake, lake basin (in the case of Patterson Lake), and each river sampling site separately.

B6)	**Natural**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	Executive summary and throughout, p. ii
Terms of Reference	-

Rationale / Review Comments:
In summarizing existing conditions, NexGen states that ion and metal concentrations that occur in the base case (existing conditions) at concentrations exceeding guidelines reflect "*naturally occurring elevated concentrations of these waterbodies and watercourses in the LSA*." However, in the description of the assessment methods presented in Section 6.6. (p. 6-22), existing conditions are described as representing the outcome of historical and current environmental and socio-economic pressures that have shaped the observed condition of each VC and intermediate component. It is poor practice to refer to existing or base case conditions as "naturally occurring" or "natural" without supporting evidence. NexGen should refrain from doing so.

Information Requests:
a) Please refrain from refer to existing or base case conditions as "naturally occurring" or "natural" without supporting evidence. It is contrary to the stated assessment approaches and methods and is also invalid.

B7)	**Acidification not assessed**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.4 Project Interactions and Mitigations

	Table 10.4-1
Terms of Reference	-

Rationale / Review Comments:
While emission of criteria air contaminants from the Project, and their deposition on waterbodies was identified by NexGen as a primary effects pathway for surface water and sediment quality, there appears to have been no consideration or assessment of the potential for emissions to cause acidification effects in water bodies. Given the low pH measured in most of the lakes and rivers sampled for this study, and their classification as soft waters, presumably with low buffering capacity, the pathway for acidification effects is not only valid, but the effect may also be reasonably probable depending on the anticipated Project and cumulative emissions.

Information Requests:
a) Please include in the impact assessment an assessment of the potential for acidification of lakes and rivers as a result of emissions from the Project depositing to surface water systems.

B8)	**Effects on sediment quality**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	Section 10.2.5, p. 10-20
Terms of Reference	-

Rationale / Review Comments:
NexGen states that Project-specific effects on sediment quality won't occur after the life of the Project because direct effects of the Project are limited to this period. However, Project effects are expected to continue into the far future for water quality, due to seepage from various waste rock stored underground. It isn't clear why the same would not also be true for sediment quality, especially because COPCs can partition from water to sediments.

Information Requests:
a) Please explain the decision to remove consideration of Project effects on sediment quality following the life of the Project. Why would water quality effects continue, but not sediment quality effects?

B9)	**Climate change effects on water temperature are not clearly assessed, and water temperature influences on water quality may not have been considered**
EIS Section	Section 10: Surface Water Quality and Sediment Quality Appendix 6A
Subsection, Page #	Table 6A-1, p. 2 10.5.2.1.6 Climate Change Sensitivity Scenario, p. 10-110 to 10-112
Terms of Reference	

Rationale / Review Comments:
It isn't clear from the discussion of the reasonably foreseeable development (RFD) assessment case in the study, which included climate change effects, whether climate change-induced changes in water quality were simulated/predicted. The discussion of climate change scenarios indicated that higher air temperatures are predicted, which should also result in higher surface water temperatures. Higher water temperature, in turn, would influence aspects of water quality such as dissolved oxygen (warmer water holds less

oxygen) and algal growth (potentially leading to eutrophication effects). Higher water temperature would also increase the toxicity of ammonia to aquatic life, and negatively impact fish habitat suitability for cool and cold-water fish species. Warming water also has the potential to change lake-wide mixing and stratification regimes, which would influence whether and how the effluent releases impact Patterson Lake, for example. However, the main focus of the climate change model scenarios completed by NexGen in this study section seems to be changes to water quantity measures, and not water temperature.

Information Requests:

a) Please clarify, were climate change-induced effects on surface water temperatures included in climate change scenarios assessed for Project and cumulative effects?

b) If the answer to a) is no, please include climate change-induced effects on surface water temperatures in the assessment of impacts to water quality and surface water systems from the Project, other developments and climate change.

B10)	**Snow quality effects as a secondary pathway**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.4.2 Secondary Pathways, p. 10-71
Terms of Reference	-

Rationale / Review Comments:

NexGen has classified deposition of air emissions on land as a secondary pathway and asserts that concentrations of COPCs in snow would be low enough to be effectively diluted during spring thaw with runoff to lakes and rivers (freshet). However, NexGen provides no evidence for this assumption. Snow quality in the Project area must be monitored in the future to confirm that this pathway is not more significant than NexGen asserts it to be.

Information Requests:

a) Please confirm that snow quality will be monitored in future to confirm that air emissions to land and subsequently to surface water systems is unlikely to result in non-negligible residual effects on surface water and sediment quality.

B11)	**Risk of eutrophication effects not properly characterized**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.5.1.2.6 Sensitivity Analysis, p. 10-96 Figure 10.5-12
Terms of Reference	-

Rationale / Review Comments:

In assessing the potential for a shift in water body trophic status under the Application Case reasonable upper bound sensitivity scenario, the regional predictive model indicated that total phosphorus concentrations in two Patterson Lake basins would increase during the lifespan of the Project to the extent that a switch to a higher trophic status was likely (i.e., oligotrophic to mesotrophic). The model indicated that total phosphorus concentrations would return to oligotrophic in the far future, but also that "*the modeling did not account for uptake by algae, so basin-wide concentrations have a high likelihood of being overestimated by this approach – changes to trophic status are unlikely*." (p. 10-96)

This latter statement in the quotes above is incorrect for two reasons:

- The measure total phosphorus <u>includes algal phosphorus</u>. Water samples are digested before the analysis, which lyses algal and cyanobacteria cells, and means that algal

phosphorus is included in the total measure. Therefore, uptake by algae does not need to be accounted for in modeling in order to accurately predict the risk of eutrophication effects posed by total phosphorus concentrations, and;

- The uptake of total phosphorus by algae is an important mechanism by which lake trophic status changes, it is part of the trophic status of a lake. It <u>is</u> the impact. It is precisely the overgrowth of algae, cyanobacteria and macrophytes that induces additional negative eutrophication effects, including reduced oxygen availability in the water column and, possibly, the release of neurotoxins to water.

The inclusion of the statement in question in this report indicates a lack of familiarity with aquatic ecosystem function, and eutrophication specifically, and is simply wrong. It also points out the problems that arise when total phosphorus is used as the sole indicator of trophic status and the potential for eutrophication in surface waters. Other measures such as other nutrient concentrations, water temperature, light, as well indicators and direct measures of phytoplankton and macrophyte biomass and community composition, and even productivity estimates obtained by measures of light and dark respiration and photosynthesis can be incorporated into models that better predict trophic status in lakes. Models that simulate biological productivity, oxygen consumption and trophic status in lakes are available. As it stands, the reliance on total phosphorus as an indicator of trophic status under the Project base case and assessment scenarios limits the accuracy of trophic status predictions. However, since total phosphorus was the selected productivity status indicator for the Project assessment, then predicted shifts in trophic status according to that indicator should not be explained away, especially using an invalid understanding of aquatic ecology. NexGen must assess the predicted trophic status shift in the Patterson Lake basins for residual effects.

Information Requests:

a) Please remove the final sentence in the paragraph proceeding Figure 10.5-12. It is scientifically invalid.

b) Please assess the predicted trophic status shift in the Patterson Lake basins for residual effects, without explaining away the likelihood of such a shift. This applies to the Application Case reasonable upper bound and the cumulative (RFD) scenarios.

c) Please note that, light of the above, the following statement in Section 10.5.3.1.1 (p. 10-114) appear to be incorrect:

> "*The Project effects on the measurement indicators during the lifespan of the Project for the reasonable upper bound sensitivity scenario would be consistent with the effects described for the Application Case, albeit with higher projected COPC concentrations.*"

This statement fails to acknowledge the predicted shift in trophic status under the reasonable upper bound scenario. Please revise it to include this predicted impact.

B12)	**Unclear whether mitigations included in predictive modeling**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.5.3 Residual Effects Classification, p. 10-112 to 10-113
Terms of Reference	-

Rationale / Review Comments:

In its introduction to residual effects classification, NexGen lists several mitigations that can influence the water quality of the Project receiving environment. However, it isn't clear

whether each of these mitigations were incorporated into the predictive models used in the previous effects assessments, especially the site-wide water balance and water quality model.

Information Requests:

a) Please clarify, of the mitigations listed in point form in section 10.5.3, where any included in the predictive models, especially the Project site wide model? If any were included in the model and subsequently the model predictions, then would any of these mitigations contribute to a further decrease when determining residual effects?

B13)	**Assessment Case characterization of residual effects**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.5.3.1.1 Application Case, p. 10-113 to 10-114
Terms of Reference	-

Rationale / Review Comments:

The summary of the Application Case water quality predictions presented in section 10.5.3.1.1 seem to contain contradictions, and may not align with previously presented modeling results. Specifically, the following excerpt is confusing:

> "*The maximum duration of Project-related changes to these measurement indicators in the Application Case would be 75 years, which includes the 43-year period of the Project (i.e., from Construction through to the end of Closure) where maximum COPC concentrations were projected, followed by a period of 32 years where COPC concentrations decrease to near Base Case concentrations. For this reason, the assessment results indicate that the Project-related changes to COPC concentrations in Patterson Lake and downstream waterbodies in the LSA are reversible because COPC concentrations would achieve near Base Case concentrations after the cessation of site discharges at the end of Operations. For the water quality constituent concentrations and drinking water quality constituent concentrations measurement indicators, residual effects from Operations would reach a pseudo-steady-state for applicable COPC concentrations in 2100; these residual effects are most obvious in Patterson Lake*." (p. 10-113 to 10-114) (emphasis added)

It isn't clear – are the changes in COPC concentrations expected to return to Base Case and are therefore reversible, or are they expected to reach a pseudo-steady-state at different concentrations and are therefore not reversible? For reference, under the Application Case, it appears that cobalt and copper concentrations in Patterson Lake will be much higher than the Base Case for centuries after the end of the Project life (i.e., Figure 10.5-8). It also appears that they will exceed the Project thresholds.

Information Requests:

a) Please clarify, are predicted changes to each COPC in water under the Application Case ad RFD scenario expected to return to base case concentrations, or reach a pseudo-steady-state? If it is the latter, will the pseudo-steady-state establish at a concentration higher than the base case or the Project threshold? A table might help to present the results for each COPC.

b) In each case, please clarify, are the effects considered reversible?

B14)	**Conservatism**
EIS Section	Section 10: Surface Water Quality and Sediment Quality
Subsection, Page #	10.6.1.4 Regional Surface Water Quality Model, p. 10-123
Terms of Reference	-

Rationale / Review Comments:

In a discussion of the regional surface water quality model, NexGen claims that the prediction of effects from the nearby Fission Project were conservative, in part because effluent concentrations from the Fission project were assumed to be equivalent to the median effluent concentrations from the Project. But, why would an assumption like that, using the median quality from another project, be considered conservative?

Information Requests:

a) Please explain, how is the approach discussed above conservative, and not just reasonable?

References

Helsel, D. R. (2011). Statistics for Censored Environmental Data Using Minitab® and R: Second Edition. John Wiley and Sons. https://doi.org/10.1002/9781118162729

Helsel, D. R., Hirsch, R. M., Ryberg, K. R., Archfield, S. A., & Gilroy, E. J. (2020). Statistical methods in water resources. https://doi.org/10.3133/tm4a3

MOEE (Ontario Ministry of the Environment and Energy). 2021. Table 2 - Table of PWQOs and Interim PWQOs. Available at : https://www.ontario.ca/page/water-management-policies-guidelines-provincial-water-quality-objectives#fn121

Appendix C:

Integrated Toxicology Solutions

Toxicology technical review of NexGen Rook 1 Uranium Mine Application

Appendix C: Integrated Toxicology Solutions

Toxicology technical review of NexGen Rook 1 Uranium Mine Application

By: Mandy Olsgard

Overarching Comments / General Concerns

Generally, the methods adopted in the Environmental Risk Assessment (ERA; TSD XXI) to support the Human Health Risk Assessment (Section 15) consider industry best practices and do not consistently reflect conservative approaches.

The least conservative approaches, that have the greatest potential to underestimate project related risks, were identified in the methods used to screen complex mixtures associated with Project activities to identify a shorter list of Constituents of Potential Concern (COPCs). These non-conservative approaches could minimize the risk assessment results related to project influences on chemical concentrations of chemicals in air, surface water, sediment, and soil.

While screening methods to identify COPCS are not recommended by Athabasca Chipewyan First Nation (ACFN), it is recognized that these approaches may be acceptable under certain instances as per Health Canada (2021) and is economically advantageous to proponents. However, the methods adopted by the proponent have not considered the following and likely underestimated the assessment of risks to human health.

Lack of consideration for the additivity of chemicals with similar target organs/ effects/ mechanism of action in complex mixtures (Health Canada 2021)

Lack of consideration for persistence and bioaccumulative substances (CEPA 1999 SOR/2000-107, and

Exclusion of published guidelines with lower screening values for surface water and air (i.e. United States Environmental Protection Agency (US EPA) and World Health Organization (WHO))

It is also concerning that the potential risks to humans related to exposure to arsenic, molybdenum, and uranium in various age groups at Patterson, Beet and Lloyd Lakes are not accurately reflected in sections discussing the conclusions and do not appear to be of concern to the proponent.

Finally, the ERA in general does not appear to reflect the full time period over which risks to human health may occur as the life of the Project was limited to 43 years but groundwater modelling indicates that chemicals released from the waste rock and underground tailings

management areas would reach Patterson Lake over longer time periods (77-> 1000 years) indicating there are potential long term influences of the project on the surface water and sediment quality in this culturally important area that could pose risks to successive generations of Indigenous people.

Based on these findings, it is recommended that the ERA (TSD XXI) and Sections 14 and 15 which rely on this study be updated to more accurately reflect the COPCs which could pose potential non-carcinogenic and carcinogenic risks to ACFN members and other Indigenous groups which rely on Patterson, Beet and Lloyd Lakes and the surrounding uplands to exercise their Rights through traditional ways of life, including the consumption of natural surface water, traditional foods and medicines.

C1	Topic: Relevant Standards, Codes and Guidelines
EIS Section(s)	1
Subsection, Page #	Section 1.3.4; 15.2.8
Terms of Reference	

Rationale / Review Comments:

Section 1.3.4 does not identify that the following federal risk assessment guidance documents were relied upon to prepare the EIS;

- Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment
- Federal contaminated site risk assessment in Canada: Guidance on human health preliminary quantitative risk assessment (PQRA), version 2.0
- Federal contaminated site risk assessment in Canada: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA) Version 3.0.
- Federal Contaminated Site Risk Assessment in Canada: Supplemental Guidance on Human Health Risk Assessment of Air Quality, Version 2.0
- Federal Contaminated Site Risk Assessment in Canada: Supplemental Guidance on Human Health Risk Assessment for Country Foods (HHRA Foods) [Health Canada, 2011]
- Federal Contaminated Site Risk Assessment in Canada: Interim Guidance on Human Health Risk Assessment for Short-Term Exposure to Carcinogens at Contaminated Sites
- Framework for addressing and managing aquatic contaminated sites under the Federal Contaminated Sites Action Plan (FCSAP) V2.1
- Federal Contaminated Sites Action Plan (FCSAP) - ecological risk assessment guidance, modules 1 to 7.
- Canadian Council of Ministers of the Environment (CCME). Ecological Risk Assessment Guidance Document (2020).

Further to this, it is unclear why the HHRA adopted methods prescribed in "CSA N288.6-12 Environmental Risk Assessments for Class I Nuclear Facilities and Uranium Mines and Mills (CSA Group 2012)" when human health risk assessment guidance is available.

Information Requests:

a) Please update section 1.3.4 to include available federal human health and ecological risk assessment guidance documents, and
b) Confirm that federal health risk assessment guidance was relied on to conduct the HHRA (Section 15) and ERA (TSD XXI), please specify where federal guidance was modified or not adopted to undertake the ERA.

C2	**Topic: Contaminants of Potential Concern (COPC) identification relied on predicted exceedances of screening values**
EIS Section(s)	Section 15; TSD XXI (ERA)
Subsection, Page #	15.2.8.2; 4.2.3; 4.3.3
Terms of Reference	

Rationale / Review Comments:

The HHRA focused on evaluating potential risks related to COPCs that were identified as only those contaminants that exceeded screening values for predicted atmospheric and aqueous releases. This approach is limited and may lead to an underestimation of potential risks to human health as screening values for air, surface water, sediment and groundwater do not account for the bioaccumulation and persistence of contaminants within food webs. Using this approach, predicted concentrations of contaminants in air, surface water, sediment and groundwater that were below the proponent identified screening values were excluded from the HHRA. This approach is flawed in that concentrations of bioaccumulative and persistent substances may present risks to human health at concentrations lower than screening levels due to biomagnification in food chains. While the HHRA did predict biomagnification of COPCs to assess risks, this modelling and subsequent risk assessment was only completed for COPCs which passed the screening process and potential health risks for COPCs which were below screening values were not assessed and are unknown. This is a gap in the HHRA results as presented in the EIS.

As per the Canadian Environmental Protection Act (CEPA; 1999) Persistence and Bioaccumulation Regulations (SOR/2000-107) Persistence and Bioaccumulation should be determined using the following characteristics. This approach was not adopted by the proponent to support the HHRA in the EIS.

3 A substance is persistent when it has at least one of the following characteristics:

(a) in air,

(i) its half-life is equal to or greater than 2 days, or

(ii) it is subject to atmospheric transport from its source to a remote area;

(b) in water, its half-life is equal to or greater than 182 days;

(c) in sediments, its half-life is equal to or greater than 365 days; or

(d) in soil, its half-life is equal to or greater than 182 days.

4 A substance is bioaccumulative

(a) when its bioaccumulation factor is equal to or greater than 5 000;

(b) if its bioaccumulation factor cannot be determined in accordance with a method referred to in section 5, when its bioconcentration factor is equal to or greater than 5 000; and

(c) if neither its bioaccumulation factor nor its bioconcentration factor can be determined in accordance with a method referred to in section 5, when the logarithm of its octanol-water partition coefficient is equal to or greater than 5.

The above-described approach would also be affected by any screening methods to identify COPCs which were applied in each of the sections related to assessing atmospheric and aqueous releases. Screening within media specific assessments (i.e., surface water, air) could lead to the exclusion of COPCs (based on risks to aquatic life) that could still pose a potential risk to human health. The assumption that aquatic life is the most sensitive receptor group is not supported by toxicity data that clearly shows humans are more sensitive to carcinogenic substances as well as other non-carcinogenic substances (i.e., cadmium, chromium). The sensitivity of various receptor groups can quickly be established by comparing published guidelines for the protection of aquatic life to drinking water quality guidelines which are derived for the protection of human health.

- United States Environmental Protection Agency (US EPA). 2015 (updated 2021). National Recommended Water Quality Criteria - Human Health Criteria Table.
- World Health Organization (WHO). 2017 (updated 2022). Guidelines for drinking-water quality, 4th edition, incorporating the 1st addendum.

Information Requests:

a) It is requested that the proponent re-evaluate the predictive modelling data for air, surface water (end of pipe), sediment and soils in the ERA to first identify bioaccumulative and persistent substances as per CEPA Persistence and Bioaccumulation Regulations (SOR/2000-107) and include these as COPCs, without the application of any additional screening criteria.
b) If the proponent chooses to identify COPCs by comparing predicted concentrations of COPCs to screening values, it is requested that additional criteria from the US EPA and WHO be included.

C3	**Topic: HHRA relies on spatial and temporal boundaries defined in the EIS Sections related to COPC modelling for air, water, and soil quality.**
EIS Section(s)	Section 15
Subsection, Page #	15.2.3 (Table 15.2-2; Figure 15.2-1); 14.2.4
Terms of Reference	

Rationale / Review Comments:

As stated by the proponent "spatial boundaries were largely influenced by the study areas for the aquatic and terrestrial environments", therefore, any topics and information requests identified by ACFN on Sections 6,7,8,9,10,11, 12, 13, and 14 must be considered and, reflected in the ERA (TSD XXI), wildlife assessment (Section 14)) and finally the HHRA (Section 15). Any issues related to the spatial boundaries (LSA and RSA) and predicted concentrations of COPCs from the modelling exercises which resulted in modifications to Sections 6,7,8,9,10,11, 12, 13, and 14 can affect the risk predictions in the ERA (TSD XXI) and HHRA (Section 15) and must be considered in all modelling predictions, spatial and temporal boundaries, and COPCs relied on to undertake the HHRA.

Information Requests:

a) It is requested that the proponent provide a summary of ACFN identified issues related to the spatial and temporal boundaries and predicted concentrations of COPCs in air, soil, and water modelling (Sections 6,7,8,9,10,11, 12, 13, and 14).
b) Based on the summary of issues, it is requested that the proponent update the ERA (TSD XXI) and the HHRA (Section 15) accordingly and,
c) Provide a summary of how updates based on ACFN comments affected the predicted risks (i.e. HQs, ILCRs, Radiation Dose) in the HHRA.

C4	**Topic: Pre-development assessment case not included**
EIS Section(s)	Section 15
Subsection, Page #	15.2.5
Terms of Reference	

Rationale / Review Comments:

As stated by the proponent, industrial development (i.e., Cluff Lake Uranium Mine, linear disturbance) in the LSA and RSA has impacted the condition of the environment. ACFN does not consider the impacts from previous development acceptably mitigated and has provided comments on issues related to the long-term monitoring and management of this contaminated site.

As such, ACFN does not accept the impacted condition of the area in which the project development is proposed and would like to understand how the proposed Project would further alter their traditional territory compared to pre-development conditions. This information is required to evaluate future risk-based monitoring, mitigation, and management plans (if the project were to receive approval) and ensure remediation and reclamation criteria which are applied to the Project support address cumulative effects in the LSA and RSA and return the environment (land, water, biota, people) to conditions that would have been present prior to industrial development.

Information Requests:

a) It is requested that the proponent provide an additional assessment case "pre-development", and
b) results from this additional assessment case are used to develop risk-based adaptive monitoring, management and mitigation plans that address cumulative effects and support collaboration between industrial stakeholders to reclaim the environment to pre-disturbance condition.

C5	**Topic: Project life (43 years) is shorter than predicted timeframe for project effects on groundwater and surface water (77 – > 1000 years)**
EIS Section(s)	TSD XXI (ERA); Section 15
Subsection, Page #	Section 4.2.1 pg 4.3
Terms of Reference	

Rationale / Review Comments:

Predictive modelling indicates that chemical constituents from the UGTMF will influence groundwater and discharge into Patterson Lake in ~1000 years, similarly chemicals associated with the waste rock piles which seep to groundwater were predicted to discharge

to Patterson Lake in shorter timeframes, 43 years at the North end and 77 years in the South end. The modelling indicates that the Project life, which includes decommissioning and reclamation is. much longer than the 43 years identified by the proponent and relied on in the ERA (including HHRA and EcoRA). By adopting a shorter Project life (43 years) the ERA components which rely on this temporal scale could underestimate project related risks which could limit the efficacy and protective nature of risk-based project monitoring, mitigation, and management activities.

Information Requests:

a) It is recommended that the proponent adjust the Project life to align with outputs from the predictive modelling which indicate project related contaminants released from the UGTMF and waste rock seepage to groundwater may intercept Patterson Lake and affect surface water quality and risks to human health from contamination of traditional foods from 77 to > 1000 years. At a minimum, the ERA should extend to 77 years when groundwater influences from the waste rock pile are predicted to discharge to the south end of Patterson Lake and would overlap with the predicted future development case.

C6	**Topic: Baseline condition was not reflected in estimates of risk**
EIS Section(s)	TSD XXI (ERA); Section 15
Subsection, Page #	Executive Summary, pg ii
Terms of Reference	

Rationale / Review Comments:

It is unclear why project Hazard Quotients (HQs) were evaluated against a threshold of 0.2 when the proponent states that the site is well characterized, and baseline condition has been established. As per Health Canada (2021), it is acceptable to compare predicted exposures to 20% of the tolerable daily intake (TDI) but that this is recommended in cases where baseline or reference conditions have not been established. Health Canada (2021) guidance recognizes the importance of considering total exposures which consider the contribution from exiting conditions and incremental risks from project development to provide the most accurate representation of potential risks to human health. The proponent appears to have relied on the potential risks to human health from exposure to baseline conditions as justification for why the proposed project is acceptable.

Information Requests:

a) Please provide a comparison of the predicted risks from exposure to the project only scenario to the scenario which accounts for exposure to baseline conditions and the project related effects by comparing to the HQ of 1.0 (for all exposure pathways) to indicate if the adopted methods are a representative measure of the predicted risks to human health.

C7	**Topic: Screening methods to identify COPCS and assessment of risks does not reflect Health Canada guidance for complex mixtures and lacks conservatism**
EIS Section(s)	TSD XXI (ERA); Section 15
Subsection, Page #	4.2.3; 4.3.3
Terms of Reference	

Rationale / Review Comments:

As per Health Canada Human Health Risk Assessment guidance (2021), unless there is compelling science of other factors for additivity, for simultaneous exposure to multiple

COPCs, non-cancer HQs should be assumed to be additive and summed for those chemicals which have similar target organs/effects/mechanisms of action. Similarly, carcinogens with the same target organ and form of cancer, the risks should be assumed to be additive and summed.

The ERA does not consider the potential for additive risks from exposure to multiple substances with similar target organs/ effects/ mechanism of action and likely underestimates the potential non-carcinogenic and carcinogenic risks associated with the project.

Further, the screening methods used to identify COPCs associated with surface water and air emissions from the project did not consider additivity and contaminants associated with the project that would likely contribute to health risks have been excluded from the HHRA and EcoRA.

Information Requests:

a) It is recommended that the screening process to identify COPCs associated with surface water, sediment, air ,and soil be re-evaluated to consider complex mixtures as per Health Canada guidance and identify individual COPCs and mixture based COPC classes that reflect similar target organs/ effects/ mechanism of action and that these new COPCs be reflected in an updated HHRA and EcoRA.

C8	**Topic: Screening to identify COPCs associated with aqueous sources includes mixing zones and does not reflect conservative approach**
EIS Section(s)	TSD XXI (ERA); Section 15
Subsection, Page #	4.2.3.2
Terms of Reference	

Rationale / Review Comments:

The proponent indicates that COPCs associated with surface water for evaluation in the HHRA were identified by comparing predicted concentrations of chemicals at the end of pipe, boundary of the mixing zone and in surface run off to the identified water quality objective (WQO). But it is unclear if COPCs were identified using each of the criteria or if they were applied as a hierarchy and that COPCs were identified only if the exceedances at the end of pipe were also identified at the boundary of the mixing zone. Identifying COPCS using screening processes is an inherently non-conservative approach as it constrains the number of contaminants associated with the project which are assessed for potential health risks. To ensure screening does not underestimate project related risks to health, conservative assumptions such as screening using the maximum predicted concentrations, such as those at the end of pipe, are recommended.

Information Requests:

a) Please clarify if the screening process identified COPCS which exceeded screening values at each of the identified areas (end of pipe, boundary of mixing zone, runoff) or if a COPC was only identified if predicted concentrations exceeded at each of the areas.
b) If the response indicates that COPCs were identified only if predicted concentrations exceeded screening values at the end of pipe and boundary of the chronic mixing zone, please re-screen the predicted concentrations and identify COPCS as those project related contaminants which exceeded screening values at the end of pipe.

C9	Topic: Air quality screening values to identify COPCs do not consider lowest published values by the World Health Organization (WHO)
EIS Section(s)	TSD XXI (ERA)
Subsection, Page #	Section 4.3.3
Terms of Reference	

Rationale / Review Comments:

The World Health Organization (WHO) conducted a systematic review of the accumulated evidence for air contaminants and published revised air quality guidelines (AQGs) for sulphur dioxide, nitrogen dioxide and particulate matter (2.5 and 10) based on clearer insights about sources of emissions and the contribution of air pollutants to the global burden of disease. Several of the WHO AQG are lower than those identified in Table 4-6 and used by the proponent to identify COPCS related to air emissions (as shown in the table from WHO 2021 below).

Pollutant	Averaging time	2005 AQGs	2021 AQG level
$PM_{2.5}$, $\mu g/m^3$	Annual	10	5
	24-hour[a]	25	15
PM_{10}, $\mu g/m^3$	Annual	20	15
	24-hour[a]	50	45
O_3, $\mu g/m^3$	Peak season[b]	–	60
	8-hour[a]	100	100
NO_2, $\mu g/m^3$	Annual	40	10
	24-hour[a]	–	25
SO_2, $\mu g/m^3$	24-hour[a]	20	40
CO, mg/m^3	24-hour[a]	–	4

Information Requests:

a) It is recommended that the AQGs published by the WHO be added to the sources of air quality screening values and considered in the selection of final screening values to identify air related COPCs.

C10	Topic: Air modelling does not meet requirements for comparison to federal CAAQS
EIS Section(s)	TSD XXI (ERA)
Subsection, Page #	4.3.2
Terms of Reference	

Rationale / Review Comments:

As stated by the proponent, the air dispersion modelling does not meet the minimum requirements to allow for comparison to the Canadian Ambient Air Quality Standards (CAAQS), which generally require 3 years of data (modelled or measured). It is unclear why the proponent has not modelled for a longer period as the Project life was identified as 43 years and this would require comparison to federal standards.

Information Requests:

a) Please provide rationale describing how the air dispersion modeling study is representative of long-term exposures and supports the assessment of health risks.

b) It is recommended that the air dispersion modelling be updated to a 3-year period to allow for comparison to federal air quality standards (CAAQS) and that this comparison be undertaken and results reflected in the EIS.

C11	**Topic: Soil screening values to support the identification of COPCS related to air deposition do not consider bioaccumulation in traditional foods**
EIS Section(s)	TSD XXI (ERA)
Subsection, Page #	4.3.3
Terms of Reference	

Rationale / Review Comments:

Predicted concentrations of Total Suspended Particles (TSP) were predicted to exceed screening values for deposition (Section 4.3.3.1) based on this exceedance, deposition of dust to soil and potential risks of bioaccumulation of COPCs in traditional foods was evaluated by comparing the predicted concentration of metals to soil quality guidelines. This method is supported and appropriate, however, the CCEM soil quality guidelines for the protection of human health are limited and do not consider bioaccumulation of contaminants from soil to foods as stated in "A Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines" (CCME, 2006). As per the CCME derivation protocol, to evaluate potential risks to humans from consumption of traditional foods which may take up contaminants from soil, soil quality guidelines must be derived using the calculations provided in "Derivation of Soil Quality Guidelines for Soil and Food Ingestion". The proponent has not derived soil quality guidelines to consider this exposure pathway and the air associated COPCs may not reflect all metals potentially deposited to soils that could cause risks to human health (in addition to COCPS which should be included based on complex mixture additivity discussed in comment C8).

Information Requests:

a) It is recommended that the ERA be updated with soil screening values derived using the CCME (2006) guidance for metals associated with air deposition of total suspended particles,
b) the derived values be included in the screening process to identify air associated COPCs, and
c) the HHRA be updated to reflect any additional COPCs which were identified though this conservative approach.

C12	**Topic: Air quality COPCS excludes known carcinogenic substances**
EIS Section(s)	TSD XXI (ERA)
Subsection, Page #	4.3.3
Terms of Reference	

Rationale / Review Comments:

As discussed previously, there are concerns related to the lack of screening to identify COPCS which consider additivity from complex mixtures. Further to this, screening values for metals in air using the identified guidelines do not reflect Health Canada Toxicity Reference Values which identifies additional substances as carcinogenic via inhalation exposure, specifically cadmium, chromium, and nickel. Considering that the HHRA identified potential carcinogenic risks from exposure to arsenic, a conservative approach to assess carcinogenicity would be to

include all carcinogenic substances regardless of whether predicted concentrations exceeded the identified screening value.
Information Requests: a) It is recommended that the ERA be updated with all known carcinogenic substances as per Health Canada TRV guidance (2021), and b) the HHRA be updated to reflect carcinogenic substances which may act through additive mechanisms.

References

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment

Health Canada. 2021. Federal contaminated site risk assessment in Canada: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA) Version 3.0.

Canadian Council of Ministers of the Environment (CCME). 2020. Ecological Risk Assessment Guidance Document.

Federal Contaminated Sites Action Plan (FCSAP). Ecological risk assessment guidance, modules 1 to 7.

Canadian Environmental Protection Act (CEPA). 1999. Persistence and Bioaccumulation Regulations (SOR/2000-107)

United States Environmental Protection Agency (US EPA). 2015 (updated 2021). National Recommended Water Quality Criteria - Human Health Criteria Table.

World Health Organization (WHO). 2017 (updated 2022). Guidelines for drinking-water quality, 4th edition, incorporating the 1st addendum.

Canadian Council of Ministers of the Environment (CCME). 2006. A Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines.

Appendix D:

Management and Solutions in Environmental Science (MSES)

Vegetation, Wetlands, Reclamation, and Wildlife technical review of NexGen Rook 1 Uranium Mine Application

Appendix D: Management and Solutions in Environmental Science (MSES)

Vegetation, Wetlands, Reclamation technical review of NexGen Rook 1 Uranium Mine Application

By Sheri Gutsell (MSES)

Overarching Comments / General Concerns

NexGen assumes that the Project will have minimal impacts on upland, wetland, and riparian ecosystems, biodiversity, and traditional use plant species. This is primarily because they assume that the plant communities to be disturbed by the Project can be reclaimed. Indigenous communities have expressed that the land should be returned to its former condition, which means that the composition and diversity of plant species and associated plant communities present before disturbance should be present again once the Project area has been decommissioned and reclaimed. However, many of the species that are predominant (e.g., lichen, mosses) in the plant communities affected by the Project (e.g., jack pine/lichen, black spruce/Labrador tea/feathermoss) are difficult to re-establish. Given this difficulty, it seems that the impact on upland, wetland, and riparian ecosystems, biodiversity, and traditional use plant species should be considered significant.

D1)	**More detail needed on using non-native plant species in reclamation**
EIS Section	Section 13: Vegetation
Subsection, Page #	Subsection 13.4 Project Interactions and Mitigation, Table 13.4-1, pages 79 & 81
Terms of Reference	

Rationale / Review Comments:

One of the mitigations listed for the Project effects pathways, "*Terrain Alteration*" and "*Invasive Species*" is, "*use native species or non-aggressive, non-native species appropriate for the conditions for revegetation*." It is not clear under what conditions it would be appropriate to use non-native plant species instead of native plant species when revegetating during reclamation, when preventing the introduction of invasive species also is a goal. There is a concern that any non-native plant species used during reclamation would become part of the reclaimed plant community such that the species composition of the reclaimed plant community would be different from the corresponding pre-disturbance plant community.

Information Requests:

a) Please explain which non-native plant species may be used in reclamation and why that species would be used instead of a native plant species.

b) For each non-native plant species to be used, explain how that species will be prevented from becoming established within the reclaimed plant community and altering species composition relative to pre-disturbance.

D2)	**Evidence for effectiveness of mitigations for fugitive dust & constituent emissions**
EIS Section	Section 13: Vegetation
Subsection, Page #	Subsection 13.4 Project Interactions and Mitigation, Table 13.4-1, page 80 & Subsection 13.4.2 Secondary Pathways, page 88
Terms of Reference	

Rationale / Review Comments:

There are several mitigations listed for the Projects Effects pathways, "*Fugitive dust and constituent emissions*" that would result from various Project activities. NexGen states that "*mitigations in the environmental protection plan is expected to be effective at reducing the magnitude and spatial extent of fugitive dust deposition*." (Page 88). However, they provided no evidence that these mitigations are effective at preventing significant impacts on the nutritional quality, growth, or survivorship of plant species, particularly those that have been shown to be sensitive to dust and other emissions.

One of the mitigations for fugitive dust and constituent emissions is to "*limit vehicle speed on unpaved roads*." (Page 80). There will be enforcement of "*a 25 km/hr speed limit for heavy equipment involved in material movement and earthworks on the mine/mill terrace*." (Page 80). However, this speed limit will not apply to site road traffic or the haul route from the headworks to the waste rock piles. If site roads and the haul route from the headworks to the waste rock piles are unpaved, it is not clear why the speed limit will not apply.

Information Requests:
a) Please provide evidence from the scientific literature that the mitigations for fugitive dust and constituent emissions will be successful in preventing dust or other emissions from coating the leaves of plant species in the vicinity of Project construction and operations activities.
b) Please provide evidence from the scientific literature that mitigations for fugitive dust and constituent emissions are effective at preventing significant impacts on the nutritional quality, growth, and survivorship of plant species, particularly those that have been shown to be sensitive to dust and other emissions.
c) If site roads and the haul route from the headworks to the waste rock piles are unpaved, please provide justification for why the speed limit of 25 km/hr will not apply in these areas.
d) Will all other mitigations in the Project effects pathway (Table 13-4.1) be applied to site roads and the haul route from the headworks to the waste rock piles to prevent dust, radon, and other emissions from being generated and impacting nearby plant species?

D3)	**How will natural propagation and regeneration be promoted?**
EIS Section	Section 13: Vegetation
Subsection, Page #	Subsection 13.14 Project Interactions and Mitigation, Table 13.4-1, page 81
Terms of Reference	

Rationale / Review Comments:
One of the mitigations listed for the Projects Effects pathway, "*Loss from fibre optic line*" is to "*promote natural propagation and regeneration to enhance reclamation along the access road and other Project right-of-ways*." (Page 81). It is not clear what techniques will be used to *promote* propagation and regeneration.

Information Requests:
a) Please explain how NexGen will *promote* propagation and regeneration.
b) Please provide evidence from the scientific literature or data from other projects to show the effectiveness of the techniques used to promote propagation and regeneration.

D4)	**Invasive species not carried forward in the assessment of Project impacts**
EIS Section	Section 13: Vegetation
Subsection, Page #	Subsection 13.4.2 Secondary Pathways, page 91, and Subsection 13.3.1.3, page 52
Terms of Reference	

Rationale / Review Comments:
For the effects pathway, "*Invasive species,*" it was concluded that because of NexGen's implementation of best management practices and mitigation, it is "*expected to avoid and minimize the introduction and spread of weed species in the maximum disturbance area of the Project and result in minor changes to the condition of upland, wetland, and riparian ecosystems and traditional use plants*." (Page 91). Therefore, invasive species was not carried forward in the assessment of Project impacts. However, as discussed elsewhere in the application, "*human-disturbed areas are susceptible to the introduction and establishment of invasive and non-native plant species…. One nuisance species and one noxious species was*

observed in the areas associated with existing and reclaimed anthropogenic disturbances during 2018 field surveys…. Additional introduced species were observed in association with anthropogenic disturbances and areas that have been actively seeded during reclamation." (Page 52). The fact that non-native and invasive species have been found in the disturbed areas of the Project, and that it is well-known that these species successfully establish within nearly all human-disturbances, including in reclamation sites, it seems that any amount of best management practises and mitigation will not prevent the establishment and growth of these species in the Project area during Project operations and in reclamation. Their presence in reclamation will alter the species composition of reclaimed plant communities relative to pre-disturbance plant communities, potentially affecting the composition of reclaimed upland, wetland, and riparian plant communities, and the availability of traditional use plant species. Therefore, it seems appropriate that the invasive species pathway should be carried forward in the assessment of Project impacts.

Information Requests:

a) Given the prevalence of invasive species in the disturbed areas of the Project, and their prevalence in human-disturbed areas generally, including in reclamation sites, will NexGen consider carrying forward the invasive species pathway in the assessment of Project effects?

D5)	**Residual effects classification likely inaccurate for some reclaimed ELC units**
EIS Section	Section 13: Vegetation
Subsection, Page #	Subsection 13.5.1.2.1, Table 13.5-3, page 114, and Subsection 13.5.1.1.1, page 101, Subsection 13.5.3.3.1, Table 13.5-9, page 144
Terms of Reference	

Rationale / Review Comments:

In the classification of residual effects on upland and riparian ecosystems, NexGen states that the availability of upland and riparian ecosystems is *reversible* within reclaimed ELC units (Table 13.5-3 and Table 13.5-9). This relies on their assumption that the reclamation of areas disturbed by the Project (where there are non-permanent Project facilities) will result in the re-establishment of plant communities that are similar in species composition and diversity to those found before disturbance by the Project. However, as discussed elsewhere in the application, reclaimed "*upland ecosystems would likely differ in species composition from those present before disturbance*." (Page 101). In fact, many of the plant species (e.g., lichen, feathermosses) that predominate within the plant communities most affected by the Project (i.e., jack pine/lichen, black spruce/Labrador tea/feathermoss) are known to be difficult to re-establish, including many traditional use plant species. Indigenous communities have "*commented that the land should be returned to its former condition after exploration activities in general and during Project closure*.." (Page 101). This means that the species composition and diversity of plant communities present before disturbance should be present again once the Project area has been decommissioned and reclaimed. Given that this is unlikely for reasons described above, it would seem that the impacts on upland and riparian ecosystems will not be reversible.

Information Request:
a) Given that many of the predominant species (i.e., lichens, mosses) found in the plant communities to be disturbed by the Project footprint, including traditional use plant species, are difficult to re-establish in reclamation, please provide justification for the prediction that the impacts on the availability of upland and riparian ecosystems are reversible.

D6)	**Residual effects classification likely inaccurate for biodiversity**
EIS Section	Section 13: Vegetation
Subsection, Page #	Subsection 13.5.5, Effects on Biodiversity, page 166
Terms of Reference	

Rationale / Review Comments:
The residual effects classification concludes that effects of the Project on biodiversity will be low in magnitude because effects on biodiversity are "*reversible in the long term for some natural ecosystems and plant communities that can regenerate or can be reclaimed.*." (Page 166). However, given that many of the predominant plant species (e.g., lichen, feathermosses) in ELC units to be reclaimed (e.g., jack pine/lichen, black spruce/Labrador tea/feathermoss) are difficult, if not impossible, to re-establish, it is not clear how biodiversity will not be significantly reduced. If NexGen believes that effects on biodiversity are reversible, then evidence from the scientific literature showing that these species (e.g., lichen, feathermosses) can be re-established within reclamation sites must be provided.

Information Requests:
a) Please provide evidence from the scientific literature that the plant species that predominate pre-disturbance plant communities (e.g., lichen, feathermosses) can be re-established within reclamation sites in the boreal forest.

Appendix D (Continued): Management and Solutions in Environmental Science (MSES)

Wildlife technical review of NexGen Rook 1 Uranium Mine Application

By Shannon Gavin (Wildlife), MSES Inc
Abbie Stewart (Appendix 14B)

Overarching Comments / General Concerns

The wildlife assessment focused on changes in habitat availability, habitat distribution and population resilience of the following Valued Components (VCs): woodland caribou, moose, grey wolf, black bear, beaver, little brown myotis bats, olive-sided flycatcher, rusty blackbird, common goldeneye, mallard, and Canadian toad. With the exception of woodland caribou, project and cumulative effects from project activities are predicted to not significantly impact wildlife VCs and all (except caribou) were predicted to remain self-sustaining. For woodland caribou, the SK2 conservation unit is designated as not self-sustaining under current conditions and therefore the assessment predicted that the Project and Reasonably Foreseeable Development (RFD) cases (including anticipated forestry activity south of the Regional Study Area) would lead to significant impacts to the population.

The discussion on the existing conditions and factors that may be affecting wildlife and wildlife habitat was detailed and included support from research and Indigenous Knowledge (IK). For most of the wildlife VCs, it was predicted that existing anthropogenic disturbances and fire are having impacts to wildlife habitat use to some degree but that the effects were likely not enough to see measurable changes at the population level. Assessing the rate of change in habitat loss or other parameters before disturbance to existing conditions would help our understanding of local and regional changes in wildlife.

A common prediction for most of the wildlife VCs included the assumption that wildlife will access suitable habitat within the broader regional area given the predicted loss of local habitat around Patterson Lake. Quantitative information on connectivity, movement and access to these habitats was limited. The potential loss of the movement route called the Narrows used by caribou, moose and black bears and limitations posed for movement east-west between Patterson Lake and Forrest Lake are not discussed in terms of availability of other movement routes in the RSA.

Certain impact pathways that could affect wildlife were deemed to have negligible effects based on mitigation implementation and not carried forward for further assessment (e.g., exposure to contaminants). More details are needed to better understand how these potential health risk pathways and predicted impacts to wildlife and their habitat will be monitored by NexGen

D7	Topic: Baseline Case and Existing Wildlife Impacts
EIS Section(s)	Section 6.5 Assessment Cases
Subsection, Page #	Section 6.5.1, page 1-26
Terms of Reference	

Rationale / Review Comments:

The base case is defined as describing the existing environment in the Local Study Area (LSA) and Regional Study Area (RSA) including impacts from previous land alterations that may have influenced/impacted wildlife. The magnitude of those changes is qualitatively considered as part of the impact assessment evaluating impacts from the Project and in the Reasonably Foreseeable Project scenarios. Many statements in the Wildlife section refer to wildlife being affected in some way from previous land clearing or sensory disturbance yet is assumed that those impacts have been small in the broader regional context and population level. Without a comparison of some of those changes (e.g., quantitative measurement of loss) from before development to existing conditions, the degree of existing impacts on wildlife may be underestimated.

Information Requests:

a) Please quantitatively assess changes in wildlife habitat from pre-disturbance to existing conditions to understand the degree and rate of change in wildlife habitat quality and quantity. If not, please provide rationale.

D8	Topic: VC Selection
EIS Section(s)	Section 14.2.2. Valued Components, Measurement Indicators, and Assessment Endpoints
Subsection, Page #	Section 14.2.2.1.1.4 Indigenous Considerations, pg 14-14, Table 14.2-1
Terms of Reference	

Rationale / Review Comments:

Some wildlife species noted by Indigenous Groups during engagement as species that are harvested were excluded from the final list of VCs selected because they were 1) mentioned less frequently by Indigenous Groups and/or 2) were represented by other wildlife species and vegetation ecosystems. An example of this situation includes the exclusion of spruce grouse and ptarmigan as VCs The EIS states that impacts to grouse are representative of the effects on upland and wetland ecosystems (pg 14-14) and then in Table 14.2-1 also olive-sided flycatcher (pg 14-16). More details would be helpful to understand how these other VCs reflect changes to a ground nesting bird including potential impacts from increases in smaller bodied predators attracted to vegetation clearings and edge habitat.

Information Requests:

a) Please discuss further how Project Application and RFD impacts on upland and wetland ecosystems are indicative of impacts on grouse and ptarmigan.

D9	Topic: VC Selection
EIS Section(s)	Section 14.2.2. Valued Components, Measurement Indicators, and Assessment Endpoints
Subsection, Page #	Section 14.2.2.1.1.4 Indigenous Considerations, pg 14-14, Table 14.2-1
Terms of Reference	

Rationale / Review Comments:

Fisher and marten were not included as a VC because assessments for caribou, little brown myotis, and upland and riparian ecosystems VCs were determined to be representative of effects on fisher and marten. Both species frequently use late-successional coniferous and mixed forest stands with diverse structures (e.g., standing dead and live trees, etc).

Information Requests:

a) Please summarize magnitude of Project and RFD impacts to fisher and marten given the predictions and significance outcomes for caribou, little brown myotis and upland habitats assessments.

D10	Topic: Risk to Wildlife Health
EIS Section(s)	Section 14.4 Project Interaction and Mitigations
Subsection, Page #	Section 14.4.1 No Pathways pg 14-156
Terms of Reference	

Rationale / Review Comments:

The wildlife assessment focused on primary pathways of Project impacts which included changes to wildlife habitat availability, distribution, and population (i.e., via survival and reproduction). Lower-level pathways were not carried forward. One of those pathways involved changes to ice thickness that could affect wildlife travel over the frozen lake. The pathway was not assessed further because the final Effluent Treatment Plan (ETP) diffuser design would avoid changes to ice cover, The EIS does not provide any context as to how those designs would mitigate changes to ice cover.

Information Requests:

a) Please provide explanation as to how the ETP final diffuser design will mitigate changes to ice thickness.

D11	Topic: Risk to Wildlife Health
EIS Section(s)	Section 14.2.2 Valued Components, Measurement Indicators and Assessment Endpoints
Subsection, Page #	Table 14.2-1 pg 14-15
Terms of Reference	

Rationale / Review Comments:

In Table 14.2-1, rationale for whether a species was selected as a VC or not is provided including whether that species was considered as a receptor for the ecological risk assessment. Concerns regarding risks to wildlife health and to people who consume those resources was identified during engagement. Since health risks to wildlife were considered a secondary pathway, there is minimal information regarding risks within the Wildlife section of the EIS (Section 4.5). The range of species considered as receptors for the ecological risk assessment appears to cover large mammals to birds (as indicated by comments in Table 14.2-1). However, on page 14-19, Golder states that ecological health risks were examined for 16 aquatic, semi-

aquatic, and terrestrial wildlife species including amphibians. There is no indication in Table 14.2-1 for Canadian toad or Northern leopard frog as species used in the risk assessment.

Given the communities feedback on concerns about exposure of wildlife to contaminants, it is not clear what potential contaminant pathways will be monitored in NexGen's monitoring and follow up programs. In Section 23.4.1.1, the EIS states that health risks would be monitored under the Environmental Protection Program and data collected that would verify predictions made in the risk assessment but there are no details as to whether all wildlife receptors from the risk assessment will be monitored or a select few. How will wildlife be monitored to assess potential health risks to exposure?

**Please note: Technical review of the ecological risk assessment was assumed to be completed by other relevant discipline expert.

Information Requests:

a) Please clarify what species were included in the ecological risk assessment.
b) Please describe what wildlife species will be monitored and how they will be monitored to verify the predictions in the risk assessment.

D12	**Topic: Risk to Wildlife Health**
EIS Section(s)	Section 14.4. Project Interactions and Mitigations
Subsection, Page #	Section 14.4.2 Secondary Pathways, pg 14-164 and 14-167
Terms of Reference	

Rationale / Review Comments:

Air quality modelling indicated that particulate matter (PM_{10}) is predicted to exceed air quality standards within the Patterson Lake North Arm area during both construction and operations. It is stated that since the exceedances occur mostly within the Patterson Lake North Arm, there will be minimal changes to vegetation ecosystems. As well, after implementation of mitigation and environmental design features that any vegetation changes would be too small to be measurable relative to existing conditions and therefore, the Project will have a negligible residual effect on wildlife habitat availability and distribution. It is not clear if there are health risks to wildlife from ingesting aquatic or riparian vegetation in this area.

Water quality modelling indicated that cobalt and copper may exceed threshold guidelines but that the risk assessment indicated that these exceedances would not cause adverse effects on wildlife health. More context around these conclusions is needed.

Information Requests:

a) Please discuss whether the PM_{10} exceedances may pose a risk to wildlife that consume aquatic vegetation.
b) Please define what "adverse" effects represents.
c) How will NexGen monitor for potential changes in wildlife habitat availability and quality due to these predicted exceedances, particularly for woodland caribou.

D13	Topic: Wildlife Connectivity Impacts and Description of Habitat Distribution Too Simplistic
EIS Section(s)	Section 14.5 Residual Effects Analysis
Subsection, Page #	
Terms of Reference	

Rationale / Review Comments:

Habitat distribution is assessed qualitatively and discussed for each wildlife VC. Generally, some suitable habitat will be available within the RSA for wildlife VCs, and it is assumed that wildlife can and will access these other areas. However, no detailed assessment regarding movement or connectivity was completed which is important to understand how individuals and populations may adjust to a changing landscape. For example, the use of connectivity modelling that considers varying environmental conditions/factors that an individual may encounter when moving across a landscape (e.g., resistance) would provide insight into the accessibility of these other suitable habitats and the probability of wildlife actually accessing them. Or simpler metrics could be used to build more context on the discussion of habitat distribution such as distance between suitable patches and size of patches.

Furthermore, impacts to loss of suitable wildlife habitat within the LSA that causes wildlife to move away from the area will impact Indigenous hunting and harvesting. For example, IK indicated that moose populations are declining due to current exploration activities and the slow rate of vegetation regrowth following wildfires. Although input from land users was shared in the wildlife sections that indicate Indigenous members are already observing changes in wildlife, it is not clear how these changes were meaningfully incorporated into the significance determination to wildlife habitat distribution. As well as to how wildlife moving to other areas of the RSA might impact traditional use and Indigenous Peoples.

Information Requests:

a) In addition to the discussion of habitat distribution under the Application and RFD cases, please provide further details on size of the suitable habitat patches and distance between these habitat patches from the LSA for each wildlife VC.
b) Please provide connectivity analyses as part of the impact assessment. If not, provide ecologically supported rationale for not doing so.

D14	Topic: Wildlife Mortality from Wildlife Collisions Should Be Included in Assessment
EIS Section(s)	Section 14.4 Project Interactions and Mitigations
Subsection, Page #	Section 14.4.2 Secondary Pathways, pg 14-171
Terms of Reference	

Rationale / Review Comments:

Effects from vehicular collisions on wildlife were considered a secondary pathway and not carried forward in the assessment. Rationale and some support is provided that indicates the risk to larger mammals is reduced based on proposed mitigations. Although Golder indicates that it would be similar for avian species (as they can fly over vehicles), for ground-dwelling birds like spruce grouse, we feel that the concern remains given that often bird strikes are not reported or even known (e.g., grouse chicks vs large semi-trucks). Indigenous Knowledge indicated that spruce grouse are often observed on the side of the road (pg 14-171). Furthermore, amphibians would also remain at a higher risk of collisions with vehicles particularly during migratory or dispersal movements. Golder states that surveys would be

completed at possible breeding habitats near roads to identify potential high-risk areas where signs would be installed to remind drivers to reduce speed and watch for wildlife. As noted with smaller ground-dwelling birds, smaller wildlife maybe difficult to see from the larger vehicles often used in project construction and operation.

Information Requests:

a) Please discuss mortality risk for smaller wildlife VCs in the residual effects assessment.
b) How will mitigation effectiveness be assessed given that smaller species may be under reported or unknown at the time of collision?

D15	**Topic: Wildlife Connectivity Impacts**
EIS Section(s)	Section 14.2 Component Methods
Subsection, Page #	Section 14.2.1 Incorporation of Indigenous and Local Knowledge, pg 14-9
Terms of Reference	

Rationale / Review Comments:

Through engagement, members identified a wildlife movement route called the Narrows at the north arm of Patterson Lake that is used by caribou, moose, and black bear to cross the large lake. Based on the location of the Project this route will be impacted as wildlife will likely avoid crossing through the Project site to access the narrows. Furthermore, reviewing the maps of the Project footprint including a zone of influence (ZOI) around the existing gravel road and proposed project site, general east/west movement between the Patterson Lake and Forrest Lake would also likely be impacted. The predictions for the impact assessment suggest for many of the wildlife VCs that other intact suitable habitat is available within the RSA that wildlife could access. These predictions do not consider the impact the loss of these areas will have on Indigenous members, nor do they identify other existing wildlife movement areas in the RSA.

What feedback was shared from the Indigenous working groups regarding the removal of these areas and its impact to wildlife and member access/movement for traditional activities. Overall, it was not clear how Indigenous value or importance of these areas were considered in the impact assessment.

Information Requests:

a) What other movement corridors were identified in the RSA that would support wildlife movement due to the loss of the narrows, and the area between Patterson Lake and Forrest Lake? Please identify areas on a map.
b) What feedback was shared from the Indigenous working groups regarding the removal of these areas and its impact to wildlife and member access/movement for traditional activities.
c) How did the impact assessment consider Indigenous values and importance of the movement route in the impact significance determination?

D16	**Topic: Reclamation and lack of commit to monitor for wildlife use of reclaimed habitats.**
EIS Section(s)	Section 14.7 Monitoring, Follow up and Adaptive Management
Subsection, Page #	Pg 14-356
Terms of Reference	

Rationale / Review Comments:

The EIS states that monitoring would be used to "*establish a trajectory towards the successful regeneration and succession of vegetation ecosystems that are functionally similar to natural*

plant communities and wildlife habitat in the region." (pg 14-356). Often monitoring during reclamation efforts focuses on the establishment of vegetation and not necessarily whether wildlife is returning and using the habitat.
Information Requests: a) Please discuss how wildlife use of reclaimed habitat will be assessed in follow up programs.

D17	**Topic: Additional Clarify on Proposed Monitoring Efforts Needed**
EIS Section(s)	Section 14.7, Section 24, Appendix 23B
Subsection, Page #	
Terms of Reference	

Rationale / Review Comments:

Monitoring to test whether EIS predictions are accurate is inconsistent and vaguely discussed. It appears that "*surveillance monitoring*" would identify unanticipated negative effects but it is not clear what that monitoring will entail and whether this will include quantifiable data rather than wildlife incidental reporting. There is a vague statement that it may include a wildlife incident log, breeding bird follow-up studies and remote camera follow up studies (pg 24-16). Further in Appendix 23B, Table 23B-1 the monitoring objectives include:

- Evaluate the effectiveness of the environmental protection measures (e.g., construction monitoring, mitigation to avoid destruction of migratory bird nests and birds)
- Identify unanticipated negative effects, including possible accidents and malfunctions, and need for additional mitigation
- Assess the success of plant community establishment following reclamation.

To achieve these objectives, the description of the conceptual monitoring activities focuses largely on reducing human/wildlife interactions and a caribou offset plan. It is unclear how predictions regarding wildlife habitat changes will be tested.

Information Requests:

a) Provide an outline of what predicted impacts the monitoring program for wildlife will address and methods for studying those impacts.

D18	**Topic: Model Development -Moose**
EIS Section(s)	Appendix 14B
Subsection, Page #	Sections 14B2.1, 14B3.1, table 14B3-1
Terms of Reference	

Rationale / Review Comments:

In Section 14B2.1, NexGen provides information on the ecological land classification (ELC) used to understand landcover and vegetation types in the Regional and Local Study Areas (RSA and LSA, respectively). With respect to fire disturbance, NexGen assigned an ecosite modifier to indicate wildfire disturbance (BU) and another ecosite modifier to indicate early-stage (E) or late-stage (L) regeneration, as follows:

- Early-stage regeneration (6-20 years) – BU/E
- Late-stage regeneration (21-40 years) – BU/L

In Section 14B3.1, NexGen Indicates that "*functional habitat for moose is expected to become available 6 to 10 years after fire disturbance….and resulting optimal moose habitat occurs at 10 to 26 years post-fire*" (p. 7, Section 14B3.1.1).

Table 14B3-1 (Section 14B3.1.1), shows that both 'BU/E' and 'BU/L' ecosite modifiers are included for landcover types that end up with a high habitat suitability classification for moose. That is, some early-stage regeneration (6-20 years; BU/E) ends up getting classified at 'high suitability' even though optimal moose habitat only occurs at 10 – 25 years post-fire. The timelines for the presence of optimal moose habitat do not align with the timelines for the ecosite modifiers for burn and regeneration.

Later in Section 14B3.1.1, moose are noted as having a positive response to logged areas between 10 to 30 years of age, and also showing avoidance behaviour for linear features in the presence of wolves. Recent studies have noted that the interaction of roads and logged areas may be resulting in an ecological trap for moose. The forage provided by recent logging activity attracts foraging moose but also makes them susceptible to wolf predation due to the linked spatial arrangement of cut blocks and roads (Boucher et al. 2022). Likewise, it is also possible that any burned area that happens to occur near roads could also potentially function as an ecological trap for moose given the improved predator access.

Information Requests:

a) Can the classification of burns be modified to correspond with optimal moose habitat to make the moose HSI more accurate?
b) Is there any forestry activity in the area that needs to be considered in the HSI?
c) Can the HSI model be adjusted to reflect the ecological interaction of recently logged or burned areas (moose forage) with roads (predator access)?

Reference

Boucher, N.P., M. Anderson, A. Ladle, C. Procter, S. Marshall, G. Kuzyk, B.M. Starzomski and J.T. Fisher. 2022. Cumulative effects of widespread landscape change alter predator-prey dynamics. Scientific reports 12: 11692.

D19	**Topic: Model Validation**
EIS Section(s)	Appendix 14B
Subsection, Page #	Sections 14B2.4, 14B3.1.2
Terms of Reference	

Rationale / Review Comments:

In Sections 14B2.4, NexGen discusses the importance of model validation is assessing the reliability of habitat models. In Section 14B3.1.2, NexGen indicates that they were unable to validate the moose habitat model due to insufficient data from baseline track surveys, though they did solicit expert opinion on the adequacy of the moose model.

Campbell et al. (2018) report on the quantification of impacts of development within impact assessments using wildlife habitat models. They highlight that confidence in models depends on the degree to which they are validated. They found that impact assessments were "more likely to find a significant effect on wildlife if the habitat model was validated" (Campbell et al. 2020). As such, it is important that wildlife habitat models are validated quantitatively whenever possible. This will also improve the confidence that Indigenous communities and other stakeholders have in the impact assessment itself and in the likelihood of success of any associated mitigation measures.

While these comments and the questions below are made in association with validation of the moose model, they are applicable to all wildlife models that were not quantitatively validated (which is all of the wildlife Valued Components).

Information Requests:

a) Are pools of existing data and scientific consensus regarding moose populations available for the area?
b) Are other moose models available for a similar region that have been developed with validation?
c) Can additional pre-disturbance data be collected for the purpose of model validation?

Reference

Campbell, M.A., B. Kopach, P.E. Komers, and A.T. Ford. 2020. Quantifying the impacts of oil sands development on wildlife: perspectives from impact assessments. Environmental Reviews 28(2): https://doi.org/10.1139/er-2018-0118

D20	**Topic: Zones of Influence**
EIS Section(s)	Appendix 14B
Subsection, Page #	Section 14B2.3, Table 14B2-2, Table 14B2-3
Terms of Reference	

Rationale / Review Comments:

In Section 14B2.3, NexGen discussed wildlife avoidance of habitat adjacent to human development and activity (indirect impacts). Table 14B2.3 summarizes existing disturbance types and estimated zones of influence and Table 14B2-3 summarizes zones of influence applied to the Project and reasonably foreseeable developments.

In Table 14B2-2, there seems to be a lack of consistency in the application of ZOI. For instance, it is unclear why no ZOI has been applied for large mammals (moose, gray wolf, black bear) with respect to non-linear development by NexGen Energy Ltd, but a 500 m ZOI has been applied for moose with respect to historical oil and gas/mineral exploration. Likewise, no ZOI for large mammals has been applied with respect to rough roads, cutlines, seismic lines, and trails, yet a 500 m ZOI has been applied for moose with respect to the Rook 1 access road and Highway 955. In Table 14B2-3, a 500 m ZOI has been applied for moose with respect to the Rook 1 Project and Fission Patterson Lake South Property, but no ZOI is applied to the other large mammals. These are just a few comparisons. The section would benefit from the addition of a brief explanation for the application of ZOIs for all of the Valued Components.

Recent research has suggested that the availability of forage provided by recent logging activity attracts foraging moose, but also makes them susceptible to wolf predation due to the linked spatial arrangement of cut blocks and roads (Boucher et al. 2022). This ecological response of increased predator-prey encounters could also be applicable to burns that are closely associated with existing roads on the landscape. Anthropogenic disturbance appears to have an impact of wildlife behaviour that may need to be considered in the assessment of impacts on wildlife and wildlife habitat use.

Information Requests:

a) Please provide a brief justification / explanation for the application of the various ZOI distances for each Valued Component and disturbance type.

b) Can NexGen factor changes in predator-prey behaviour into the development and application of ZOI on wildlife habitat?

D21	**Topic: Wolves and Human Disturbance**
EIS Section(s)	Appendix 14B
Subsection, Page #	Section 14B3.2.1, Table 14B3-2, Table 14B3-3
Terms of Reference	

Rationale / Review Comments:

Tables 14B3-2 and 14B3-3 show habitat suitability of landcover types and ecosites for wolf during the snow-free period and winter period, respectively. Both tables identify cutlines, seismic line, and trails as high suitability habitat and identify access roads and rough roads as moderate suitability habitat.

Stewart and Komers (2017) evaluated wolf harvest density (which indexes with high wolf populations) across a gradient of landscape disturbance and suggested that intermediate linear densities (~0.75 km/km^2) are associated with peaks in wolf populations, with wolf populations decreasing on either side of this threshold. This could be interpreted to mean that wolf use of linear features is dependent on the overall amount of disturbance in each area.

Information Requests:

a) Please provide information on the overall level of linear disturbance in the RSA.
b) Consider that wolf use of linear features may change depending on the overall amount of linear disturbance in the landscape. Does this change any of the classifications of existing disturbance in the wolf habitat models?

Reference

Stewart, A. and P.E. Komers. 2017. Conservation of wildlife populations: factoring in incremental disturbance. Ecology and Evolution 2017: 1-9.

D22	**Topic: Assessing Biodiversity**
EIS Section(s)	Section 14.5.13 pg. 14-353
Subsection, Page #	
Terms of Reference	

Rationale / Review Comments:

Biodiversity was assessed via a qualitative discussion and review of landscape-level effects with respect to wildlife VCs. For example, wetlands are associated with high biodiversity but in the RFD case, there will be a loss of approximately 58 ha of wetland habitat. Golder predicts that these losses will be minor given that there are other wetlands available in the RSA. This does not give any insight into the range of diversity or richness that might change from the Project nor how current levels of biodiversity in the LSA compares to similar areas in the RSA.

Information Requests:

a) Please quantitatively assess changes in biodiversity including providing metrics on existing biodiversity in the study area compared to similar areas in the region.

Appendix D:

Internal review conducted by ACFN's Dene Lands and Resource Management (DLRM)

Indigenous content review of NexGen Rook 1 Uranium Mine Application

Appendix D: Internal review conducted by ACFN's Dene Lands and Resource Management (DLRM)

Indigenous content review of NexGen Rook 1 Uranium Mine Application

By: Dene Lands and Resource Management

Overarching Comments / General Concerns

As stated in the Statement of Concern, ACFN has not been classified as a Primary Indigenous Group. The rational that NexGen used to identify ACFN as an "Other Indigenous Group" is inaccurate and flawed, and the above implication that ACFN does not desire or require the same degree of consultation as was accorded Primary First Nations, (and even some in the "Other Indigenous Group" category) is equally incorrect.

ACFN maintains active use of in the area NexGen proposes to mine. NexGen has not undertaken to inform itself of impacts to ACFN from the proposed Project, as it has not provided capacity or opportunity to ACFN to provide this information to NexGen.

E1	Topic: Other Indigenous Groups
EIS Section(s)	Section 1.2.3, Indigenous and Community Setting
Subsection, Page #	Table 1.2-2, page 1-26
Terms of Reference	

Rationale / Review Comments:

Section 1.2.3 makes a distinction between Local, or Primary, Indigenous Groups, and Other Indigenous Groups. ACFN is identify as an "Other Indigenous Group". The Rationale for this is cited in Table 1.2-2 and includes the following statement/bullet point: "Potential overlap with traditional territory but no access link or known residency/land use."

This statement is factually incorrect, as ACFN maintains active use in the area.

Information Requests:

b) Please explain what information was used as the basis for the above statement, and provide references, if any to these sources of information.
c) Please describe what efforts were undertaken, if any, to confirm the above statement directly with ACFN.

E2	Topic: Assessment of Impacts on Indigenous Rights
EIS Section(s)	Section 1.3.2
Subsection, Page #	Page 1-43
Terms of Reference	

Rationale / Review Comments:

Section 1.3.2 states "NexGen's approach to the EA process has been focused on enabling dialogue with and seeking feedback from Indigenous Groups who could be potentially affected by the proposed Project".

On the basis of inaccurate information, NexGen categorized ACFN as an "Other Indigenous Group" and sought only to inform ACFN of the project. Through inclusion of ACFN as an "Other Indigenous Group", NexGen acknowledges that ACFN "could be potentially affected by the proposed Project". However, NexGen did not demonstrate effort or interest in enabling dialogue with ACFN, for the purpose of seeking ACFN's input."

Information Requests:

b) Please indicate whether any meetings were held, whether in person or virtual, with ACFN Leadership, Staff, or Community, to enable dialogue regarding the Project and how ACFN could be potentially affected by it.
c) Please describe what efforts were undertaken, if any, to confirm the above statement directly with ACFN prior to including it in the EIS.

E3	Topic: Assessment of Impacts on Indigenous Rights
EIS Section(s)	Section 2.4.1
Subsection, Page #	Table 2.4-2 Page 2-18
Terms of Reference	

Rationale / Review Comments:

Table 2.4-2 shows the consultation activity spectrum that NexGen used to determine whether ACFN would be considered a primary indigenous group. The table suggests a "weak claim" would mean no serious adverse effects and identified ACFN as an "Other Indigenous Group"

This section also states that "not all communities will desire or require the same degree of consultation".

The rational that NexGen used to identify ACFN as an "Other Indigenous Group" is inaccurate and flawed, and the above implication that ACFN does not desire or require the same degree of consultation as was accorded Primary First Nations, (and even some in the "Other Indigenous Group" category) is equally incorrect.
ACFN maintains an active presence and activity in the project-affected areas, and as such requires full engagement from NexGen.

Information Requests:

a) Please provide further rational for determining ACFN as a group who would not require the same level of consultation as a primary Indigenous group.
b) Please enter into a full Study Agreement with ACFN, which would commence with ACFN undertaking a TLU/IK study to further enhance NexGen's understanding of ACFN's use and ACFN's indigenous knowledge. This information, and subsequent studies as deemed relevant, must then be used to re-evaluate the EIS, including relevant impact predictions and proposed mitigations.

E4	**Topic: Assessment of Impacts on Indigenous Rights**
EIS Section(s)	Section 2.4.1
Subsection, Page #	Table 2.4-4 Page 2-20
Terms of Reference	

Rationale / Review Comments:

Table 2.4-4 shows the below:

Athabasca Chipewyan First Nation	Located in Alberta, approximately 130 km from the Project to the reserve boundary, or 620 km by road, including portion on a winter road; approximately 1,350 km by all-season road	▪ Treaty 8 signatory ▪ Previous engagement with the CNSC on the Cluff Lake Project ▪ Potential overlap with traditional territory but no access link or known residency/land use

NexGen identified ACFN as having "Weak Claim" on the basis of the statement that there is "no access link or known residency/land use", which is inaccurate and incorrect.
Even if this statement was accurate, NexGen has entered into study agreements with other communities who are classified as "Other" Indigenous Groups at an "inform" level.

Information Requests:

a) Same as E1(a)
b) Same as E3(b) Please enter into a study agreement with ACFN to provide TLU/IK Study, site visits, meetings with ACFN and ACFN leadership.

E5	**Topic: Indigenous Engagement Methods**
EIS Section(s)	Section 2.5.2
Subsection, Page #	Page 2-29
Terms of Reference	

Rationale / Review Comments:

The EIS states that "
Primary Indigenous Groups were invited to engage fully with NexGen, while other Indigenous Groups were initially informed of the Project by the CNSC and ENV and invited by NexGen to remain informed throughout the EA process (Section 2.4.1).

ACFN maintains active use of in the area NexGen proposes to mine. NexGen has not undertaken to inform itself of impacts to ACFN from the proposed Project, as it has not provided capacity or opportunity to ACFN to provide this information to NexGen.

Further, even if ACFN agreed that it should only be "informed" throughout the EA process, the amount and quality of information received to date regarding the Project, the EIS, and the information about ACFN in the EIS, has been woefully lacking.

Information Requests:

a) Same as E3(b)
b) Please include ACFN as a full participator in this process
c) Please enter into a study agreement with ACFN to provide TLU/IK Study, site visits, meetings with ACFN and ACFN leadership.

E6	**Topic: Indigenous Engagement Methods**
EIS Section(s)	Section 2.5.2
Subsection, Page #	Page 2-29
Terms of Reference	

Rationale / Review Comments:

The following is stated in the EIS as an example of collaboration and engagement: "NexGen continues to pursue opportunities and has successfully piloted a reclamation-related caribou research project that involved members of local Indigenous Groups who wished to participate."

Caribou migration does not take borders or human access into consideration and ACFN members rely on the caribou to practice their treaty rights. ACFN has a great concern for Woodland Caribou and has undertaken extensive studies and research that would have been available to the reclamation-related caribou research project, had ACFN been included in the project.

Information Requests:

a) Please provide information on the reclamation-related caribou research project
b) Please include ACFN in the research project.

E7	**Topic: Indigenous Engagement Methods**
EIS Section(s)	Section 2.5.2
Subsection, Page #	Page 2-29
Terms of Reference	

Rationale / Review Comments:

The following is stated in the EIS as an example of collaboration and engagement: "NexGen has maintained an open-door policy of informing as a minimum and continues to regularly provide groups with opportunities for enhanced engagement options that range from consult to collaborate participation levels, as appropriate."

The above statement is false as ACFN has requested funding for a study in 2019 and was denied funding.

Information Requests:

a) Same as E3(b)

b) Please include ACFN as a full participator in this process c) Please enter into a study agreement with ACFN to provide TLU/IK Study, site visits, meetings with ACFN and ACFN leadership.

E8	**Topic: Incorporation of Indigenous and Local Knowledge**
EIS Section(s)	Section 2.5.5
Subsection, Page #	Page 2-37
Terms of Reference	
Rationale / Review Comments: This section refers to the incorporation of indigenous and local knowledge: Indigenous Groups and members of communities within the LPA have shared Indigenous and Local Knowledge with NexGen through a variety of engagement activities and sources of information. As ACFN was not included within the Local Priority Area, it was not accorded the opportunity to share Indigenous Knowledge with NexGen, through any kind of engagement activity at all. Further, Indigenous Groups who also fell outside what NexGen identified as the LPA were accorded the opportunity to share their knowledge with NexGen through engagement and Study Agreements. ACFN views the EIS and application as deficient without ACFN's Use information and Indigenous Knowledge reflected in the impact predictions and proposed mitigations.	
Information Requests: a) Please explain what efforts NexGen will undertake to engage with ACFN, including providing ACFN with site visits, meetings and other project-information sharing activities, and meetings with ACFN Leadership. b) Same as E3(b).	

E9	**Topic: Incorporation of Indigenous and Local Knowledge**
EIS Section(s)	Section 2.5.5
Subsection, Page #	Page 2-37
Terms of Reference	
Rationale / Review Comments: This section refers to the incorporation of indigenous and local knowledge and states: "Indigenous and Local Knowledge for the Project was collected through the IKTLU Studies, JWGs, community information sessions, site tours with community members, other formal and informal meetings, and research conducted as part of environmental and socio-economic baseline data collection programs (Section 2.6)" ACFN was not provided capacity or opportunity to engage with NexGen, nor gather and share its Use information and Indigenous Knowledge with NexGen. As such, this section, and the entire EIS, do not include ACFN's Use, Indigenous Knowledge, nor other relevant information. knowledge, or use.	
Information Requests: a) Please include ACFN within the local priority area b) Please enter into a study agreement with ACFN to provide TLU/IK Study, site visits, meetings with ACFN and ACFN leadership.	

E10	Topic: Indigenous Engagement
EIS Section(s)	Section 2.6.1.2.2
Subsection, Page #	Page 2-51
Terms of Reference	

Rationale / Review Comments:

This section highlights the below:
"To date, no issues or concerns have been identified by the ACFN or ERFN"

This statement is inaccurate and incorrect. Further, it has not been verified with ACFN for accuracy prior to inclusion in the EIS. Had NexGen provided adequate capacity and opportunity to ACFN, NexGen would be informed of the issues and concerns of ACFN, and further, ACFN and NexGen could have undertaken to include these in the EIS and develop mitigation and strategies to address such issues and concerns. To date, no such process with ACFN has occurred.

Information Requests:

a) Please include ACFN within the local priority area
b) Please enter into a study agreement with ACFN to provide TLU/IK Study, site visits, meetings with ACFN and ACFN leadership.

E11	Topic: Indigenous Engagement
EIS Section(s)	Section 2.7.1.1
Subsection, Page #	Page 2-64
Terms of Reference	

Rationale / Review Comments:

The following activities NexGen's planned engagement with ACFN:

- Joint Working Groups
- Joint Working Group Summaries
- Joint Working Group Breakout Sessions
- Indigenous Group Leadership and Staff
- Benefit Agreements

ACFN has not been included in any of the above engagement opportunities to date.

Information Requests:

a) Please provide an invitation to join the working groups
b) Please include ACFN on any indigenous collaboration efforts as a priority Indigenous Group

E12	Topic: Inclusion of Indigenous and Local Knowledge in the Environmental Assessment- General Context
EIS Section(s)	Section 3.1.1
Subsection, Page #	Page 3-4
Terms of Reference	

Rationale / Review Comments:

NexGen states:
"The inclusion of Indigenous and Local Knowledge in the EA aligns with the Government of Canada's commitment to advancing reconciliation through a renewed relationship based on the recognition of rights, respect, cooperation and partnership".

ACFN has not provided IK/TLU information to NexGen due to lack of capacity funding.

Information Requests:

a) Please include ACFN within the local priority area.
b) Please enter into a study agreement with ACFN to provide TLU/IK Study, site visits, meetings with ACFN and ACFN leadership.
c) Please provide instances in which NexGen illustrated reconciliation with ACFN when it comes to rights, respect, cooperation, and partnership.

E13	**Topic: Indigenous Groups**
EIS Section(s)	Section 3.2.1
Subsection, Page #	Page 3-5
Terms of Reference	

Rationale / Review Comments:

The section states:
"After submission of the Project Description, one of the formative means by which Indigenous Groups were initially identified for inclusion in the EA process was through letters of notification issued by the CNSC and the Saskatchewan Ministry of Environment inviting Indigenous Groups to participate. These letters established those groups who should be considered as primary groups for engagement based on likely Project effects, and those who should be considered as other groups for engagement."

ACFN is highly active in the project area and practices our treaty rights within the territory and will be affected by the proposed Project. Though the above-mentioned regulatory bodies (CNSC, Government of Saskatchewan) have not identified ACFN as a primary Indigenous group it still does not excuse the lack of adequate consultation.

Information Requests:

a) Please provide further references to the selection of priority Indigenous Groups

E14	**Topic: Indigenous Groups- Athabasca Chipewyan First Nation**
EIS Section(s)	Section 3.2.1.6
Subsection, Page #	Page 3-7
Terms of Reference	

Rationale / Review Comments:

The ACFN's homelands are mapped along the boundary of the Firebag River south of Lake Athabasca and west of the Project.

The map referenced is not part ACFN's consultation policy. The map referenced shows ACFN priority protection area's and protecting the Woodland Caribou, barren ground Caribou, and wood bison *within* the consultation map. The map referenced is not a comprehensive area of ACFN consultation zones.

Information Requests:

a) Please provide the rationale for determining ACFN territory without adequate consultation with ACFN

E15	**Topic: An Indigenous Knowledge and Traditional Land Use (IKTLU)**
EIS Section(s)	Section 6, 7, 8, 9,10, 11, 12, 13, 14, 15, 16, 17, 18, 19
Subsection, Page #	Incorporation of Indigenous and Local Knowledge
Terms of Reference	
Rationale / Review Comments: Incorporation of Indigenous Knowledge was used in the multiple sections listed above. ACFN was not included in this process.	
Information Requests: a) Same as E1(a) b) Same as E3(b) Please enter into a study agreement with ACFN to provide TLU/IK Study, site visits, meetings with ACFN and ACFN leadership.	

ACFN
DENE LANDS AND RESOURCE MANAGEMENT (DLRM)

October 28, 2022

Nicole Frigault
Environmental Assessment Specialist
Canadian Nuclear Safety Commission (CNSC)
[via email: rook1@cnsc-ccsn.gc.ca]

Dear Ms. Frigault,

Re: Comments on the draft Environmental Impact Statement (EIS) for the Rook 1 Project, proposed by NexGen Energy Ltd

On behalf of the Athabasca Chipewyan First Nation (ACFN), the Dene Lands and Resource Management (DLRM) is writing to provide comments to the Canadian Nuclear Safety Commission (CNSC) on the draft Environmental Impact Status ("EIS") for the Rook 1 Uranium Mining Project ("the Project"), submitted by NexGen Energy Ltd. As described by the CNSC[1], the public comment period gives Indigenous nations and others "an opportunity to submit their views in writing to the CNSC on the adequacy of the information presented in the EIS", as measured against the 2012 CEAA Guidelines for Preparation of an Environmental Assessment.

Please accept this letter and the appended technical reviews as ACFN's formal submission of comments on the adequacy of information in the draft EIS.

Background on ACFN Rights and Interests

ACFN has historically used all parts of their Treaty 8 area for a range of cultural practices that have been integral to its physical and cultural survival. The use of those lands for these purposes is extremely important to ACFN. The land sustains ACFN and is at the heart of their culture, traditions, identity, spirituality, and rights.

ACFN members are very concerned with ensuring the continuation of their culture and see the land as central to their ability to do so; for example, in the following quote, R. Cardinal explains how "traditional ways" and the "land" are integral to ACFN identity and culture:

[1] *Rook I Project - Canada.ca (ceaa-acee.gc.ca)*

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"It is important for me to continue these traditional ways. It's been part of my family for hundreds and thousands of years. Hunting, fishing, camping, gathering food and medicines on our traditional lands, this is part of what it means to be ACFN… It's a connection to previous generations, and it's how we pass on and protect our traditional knowledge, culture and ways of being. I want to be able to pass it on to my children so that it can continue on.

"For my generation and past generations, traditional activities are very important. For the current generation, it's important to the ones that are interested in it. The future generations need accessible places to learn our culture."[2] *(Cardinal, 2009:9)*

This deep cultural connection with the land is at the root of the Dene culture and identity, and is maintained by going out on the land, practicing traditional activities, and both is informed by and continues to inform other cultural values. There is fear if lands are not protected and the young people are not taught these ways; the ACFN's Dene culture and language could be lost forever.

"The people today have to teach the young people about the traditional way of life and their culture… We often hear this from people, once our age group (Elders over 70 years of age) is gone, there's a chance that our culture, our language could be tone forever. That's a sad thing to think about let alone to see it happen…That's why when we talk about the land (we want) to protect and preserve it in order to help the young people learn about our way of life and to try to maintain the way of life in the future. We want to keep that culture alive…That will help reserve the way of life on the land."[3]

The land, and access to it for cultural activities, is essential for teaching cultural knowledge and language, which are necessary to sustain to "preserve and protect" livelihood.

ACFN members actively use lands within the vicinity of the Project for a variety of purposes. While carrying out their traditional harvesting activities, many older ACFN members also pass down their knowledge and skills to younger ACFN members. The importing of traditional harvesting knowledge and skills is essential to the survival of the ACFN's culture and its distinctiveness as a people. As development increases, it is becoming more difficult for ACFN to hunt, fish, trap, and gather.

The importance of land to First Nations is highlighted in the decision of Justice Smith of the Ontario Superior Court of Justice in Platinex v. Kitchenuma et al. (2006), 272 D.L.R. (4th) 727 at par. 80: It is crucial the nature of the potential loss (of Land) from an Aboriginal perspective. From that perspective, the relationship that aboriginal peoples have with the land cannot be understated. The land is the very essence of their being. It is their very heart and soul…

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[2]Cardinal R. 2009, in the Court of Queen's Bench of Alberta Judicial District of Edmonton between Athabasca Chipewyan First Nations and Minister of Energy, Canadian Coastal Resources Ltd, Standard Land Company Inc., and Shell Canada Ltd, Affidavit # of R. Cardinal sworn January 30, 2009 Action No. 0803 17419, Edmonton Registry.

[3]Focus Group PA-1, 2009 ACFN Land Use Plan-Preservation Areas Study Focus Group PA-1, Fort Chipewyan, Alberta October 15 and October 19, 2009. Transcript in procession of ACFN IRC, Fort McMurray, Alberta.

Aboriginal identity spirituality, laws, traditions, culture, and rights are connected to and arise from this relationship to the land. This is a perspective that is foreign to and often difficult to understand from a non-Aboriginal viewpoint.

It is in this context that Chief Allan Adam, in ACFN's April 28th, 2009, submission to the House of Commons Committee on Environment and Sustainable Development (Appendix A) said that:

> "*It is important for you to understand the nature and severity of the impacts of industrial activity on our rights and on our communities. We have traditionally relied on the land and water to sustain ourselves and to carry out our livelihood. This is what was promised to us in Treaty 8; that we would be able to continue to live and exist as we had before we entered into Treaty. Industry development has caused adverse impacts to our rights to our health and to the environment and ecosystem on which we rely". To name some examples, that development has taken away lands on which we rely. It has caused the fragmentation of wildlife and fish; it has blocked our access to our Traditional Lands; it has depleted water bodies; and it has largely destroyed the delta of the Peace and Athabasca Rivers. As more of our lands are taken up for development, there are fewer and fewer places where we can take our children and grand-children to teach them our culture and way of life. Without a sufficient land base to exercise our rights and pass down our culture, we slowly lose our ability to be ACFN people. While this may be hard for non-aboriginal people to understand, for us these issues are critical to our survival.*

It remains crucial that ACFN maintains active, undisrupted use of, and ties to, its traditional territory – and to specific cultural areas in the traditional territory.

ACFN has deep-rooted connections, many members came from the area of the proposed Project and there are strong ties to local First Nations in the area, as Fond du Lac First Nation was once a single band with ACFN. ACFN's reserve lands of N.22 are impacted by this project and our membership uses this area on a regular basis. They use this land to practice their traditional way of life and exercise their treaty rights.

Given ACFN's long-standing ties to, and continued use of, this part of its traditional territory, ACFN has undertaken this endeavor to better understand the Project and identify anticipated impacts on ACFN's lands, waters, and Treaty Rights. Unfortunately, ACFN was not able to conduct a thorough examination of the Project Information, a complete review of the EIS, and inform itself of the full extent of impacts, due to issues and flaws in the Consultation Process.

Issues with the Consultation Process

ACFN was prevented from fully participating in the consultation process. Several Issues include but are not limited to:

- The Proponent has made no effort to meet with ACFN (including DLRM, Leadership, and the community) to provide a project overview and other information.
- The Proponent has not provided ACFN with the opportunity/capacity funding to undertake technical reviews and supporting studies.
- The Proponent has used an inaccurate consultation map in the initial engagement report

- The Proponent, does not provide the DLRM office with capacity funding at this time

Upon reviewing the EIS for the Project please note that the proponent failed to fund a fulsome technical review. ACFN was also not provided capacity funding to undertake a full Traditional Land Use and Indigenous Knowledge study. The EIS incorporates indigenous concerns from those the Proponent declared a "Primary Indigenous Group," but did not include ACFN which has, as highlighted above, significant ties to the area in which the proposed Project will be operating.

A reasonable consultation process would have occurred as follows:

- ACFN would have reviewed earlier project and assessment information from NexGen, which would have allowed ACFN to identify anticipated impacts at a time when NexGen could have included these in the assessment and worked to address them through changes to project design and/or specific mitigation
- ACFN would have been provided capacity funding to undertake a full Traditional Land Use (TLU) and Indigenous Knowledge (IK) study, and provided this to NexGen – again, at a time when the IK information could have informed NexGen's assessment. More importantly, the IK and Use information would have formed the basis of discussions with ACFN on specific avoidance and mitigation measures

As stated above, ACFN's ideal/preferred Consultation Process did not occur. ACFN has moved forward with focused technical reviews, using funding from CNSC only. The funding provided by the CNSC was not sufficient for a full technical review to address all concerns. From this initial review of the NexGen Rook 1 Draft EIS, ACFN concludes that the project will adversely, and likely irreversibly, impact the health (quality) and abundance (quantity) of resources (incl. water, land, plants (berries and medicines), fish, birds, and animals in the area, and ACFN's use and consumption of these.

Overview of ACFN Technical Reviews of the Draft EIS

Using available funding from CNSC only, ACFN commissioned the following initial technical reviews, submitted as appendices to this letter:

- Hydrology technical review by Aqua Environmental Associates (AEA)
- Surface water and sediment quality review by Thompson Aquatic
- Toxicology technical review by Integrated Toxicology Solutions (ITS)
- Vegetation, wetlands, reclamation, and wildlife technical review by Management and Solutions in Environmental Science (MSES)
- Indigenous knowledge internal review conducted by ACFN's Dene Lands and Resource Management (DLRM)

As funding was limited, complete reviews were not undertaken, and this initial technical review is not a comprehensive overview of anticipated impacts brought with the proposed Project.

CNSC funding was not used to cover staff's time for this effort. It is to be noted that not all sections were covered due to lack of capacity funding. At the time of writing this, NexGen has not provided capacity funding to DLRM. In the same way that a TLU/IK study would bring forward vital ACFN-specific knowledge and use information for the proponent, ACFN expects that technical review of the entire application would identify additional gaps and deficiencies in NexGen's EIS.

ACFN Position/Requests

ACFN concludes that there are several gaps and deficiencies in the EIS, as documented in the appended technical reviews. These gaps and deficiencies are evidence that the required assessment of impacts has not been undertaken, and further, the impacts on ACFN's lands, waters, resources, and use of these are not understood, let alone fully assessed and addressed. This is, in part, due to flaws in the consultation process.

Only at that point can ACFN and NexGen begin to update the EIS and the project itself with ACFN's information, upon which discussions to identify effective avoidance and mitigation measures can be based.

Closure

Given that ACFN's constitutionally protected rights are at stake and given the rapidly diminishing ability of ACFN members to exercise their rights within their Traditional Lands, it is submitted that the Applications should not be approved. We also reserve the right to bring forward further concerns as they arise. Today, however, based on the inadequacies in the EIS and the anticipated and likely impacts of the project on ACFN, **ACFN wholly objects to the proposed NexGen Rook 1 Project.**

Sincerely,

Lisa Tssessaze
Executive Director, DLRM

cc. ACFN Chief and Council
Maggie Farrington, ACFN CEO
Sherelyn Caderma, Director, Aboriginal Consultation Unit, Ministry of Government Relations, Government of Saskatchewan

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Introduction

This document provides the comments of the Northern Village of Île-à-la-Crosse ("**Île-à-la-Crosse**") on the draft Environmental Impact Statement (the "**EIS**") for the proposed Rook I Project (the "**Project**") submitted by NexGen Energy Ltd. ("**NexGen**"), and as requested by the Canadian Nuclear Safety Commission ("**CNSC**").

The Rook I Project is a proposed new uranium mining and milling operation that is 100% owned by NexGen. It is located adjacent to Patterson Lake in the southern Athabasca Basin in northern Saskatchewan, approximately 320 km north of Île-à-la-Crosse, and 80 km south of the former Cluff Lake Mine site.

Île-à-la-Crosse is in the boreal forest of northwest Saskatchewan, on a peninsula on the western shore of Lac Île-à-la-Crosse. Île-à-la-Crosse is a historic and contemporary Métis community. According to the 2021 Census, the population of Île-à-la-Crosse is 1425 with 98.95% and 72.98% of the population identifying as Indigenous and Métis, respectively.

The scope of this document is specifically limited to the exclusion of Île-à-la-Crosse from the Local Priority Area as identified in the EIS in section 1.2.3 and the exclusion of our Métis People: Île-à-la-Crosse as a Metis Community for full engagement as identified in Table 1.2-1: Primary Indigenous Groups Identified in Relation to Rook I Project Engagement ("**Table 1.2-1**").

Exclusion of Île-à-la-Crosse from the Local Priority Area

Section 1.2.3 of the EIS explains that during early engagement with local Indigenous Groups and communities, NexGen undertook a process to identify a Local Priority Area (the "**LPA**"), which would consist of "the local communities closest to the Project that would experience most of the Project effects and for which NexGen would prioritize local training, employment, and business opportunities."

The EIS further states that the LPA communities are located along or accessed via Highways 155 and 955, but limits the LPA to communities located north of the intersection of Highways 155 and 925 (the "**Cut-off Point**"). As such, Île-à-la-Crosse is not listed as a community within the LPA.

Île-à-la-Crosse is not satisfied with its exclusion from the LPA. Historically, all communities in northwest Saskatchewan on the Highway 155 corridor have participated in engagement related to uranium mining projects in northwest Saskatchewan, and the EIS does not satisfactorily explain NexGen's rationale for changing and revised the Cut-off Point from the area which has

historically been used and applied. This newly established arbitrary Cut-off Point specifically excludes Île-à-la-Crosse without any logical or reasonable rational.

According to the EIS, the criteria for determining whether a community falls within the LPA is proximity to the Project and the impact of the Project on the community.

In terms of proximity, it should be noted that Île-à-la-Crosse was considered an impact community and was engaged on the Cluff Lake Mine project and that the Rook I Project is approximately 80 km closer to Île-à-la-Crosse as compared to the Cluff Lake Mine Project. Furthermore, Île-à-la-Crosse is only 52 km away from the Cut-off Point and only 64.5 km from the Northern Village of Buffalo Narrows, which has been included in the LPA.

With regards to the potential impact upon the community, the exclusion of Île-à-la-Crosse within the LPA will cause extreme and severe economic and community hardship. There is limited access to training and education and limited employment and business opportunities within or near Île-à-la-Crosse and by including communities as part of the LPA which are so close in proximity and excluding Île-à-la-Crosse, many of the residents will relocate and leave Île-à-la-Crosse in order to fall within the LPA in pursuit of educational and employment opportunities. This mass exit of community members will have both short and long term negative and lasting impacts.

Additionally, the EIS already identifies the various impacts the Project with have on Highway 155, which includes, increased volume of traffic, congestion, noise, debris, vibrations, pollution as well as the movement of dangerous goods. As Highway 155 is the only access road for Île-à-la-Crosse, clearly all of these factors will have an impact upon Île-à-la-Crosse and its residents.

Given the foregoing, we see no logical reason or rational for specifically excluding Île-à-la-Crosse from the LPA and the establishment of the new Cut-off Point, as compared to the historic engagement area.

Île-à-la-Crosse requests that it be added and included in the LPA.

Exclusion of Our Métis People: The Historical Métis Community of Île-à-la-Crosse

The EIS identifies several Indigenous groups and communities for full engagement ("**Primary Indigenous Groups**") and our Métis People: Île-à-la-Crosse has been specifically excluded.

The EIS explains that the communities were determined based on several factors, including, *inter alia,* their potential to the affected by or to influence the Project, their proximity to the Project, their traditional territory, and their level of interest expressed in the Project. In Table 1.2-1, a list "Rationale" has been provided for identifying a group for full engagement or information sharing, *inter alia*, as follows:

- proximity to the Project;
- potential land use in proximity to the Project;
- potential overlap with traditional territory;
- increased Project-related traffic;

- participation in engagement relation to the Cluff Lake operation; and
- previous engagement with the CNSC on uranium mining/milling projects in Saskatchewan

In reviewing Table 1.2-1 we believe that the following Rationales would equally, if not more so, apply to our Métis People: Île-à-la-Crosse in comparison to the included Metis Communities: Proximity to the Project; Potential land use in proximity to the Project; Potential overlap with traditional territory; and increased Project-related traffic.

Our historical Métis Community: Île-à-la-Crosse is approximately 320km from the Project in terms of proximity, making it closer than or equal to two of the other Primary Indigenous Groups, and closer to the Project than ***all*** the "other Indigenous Groups" identified in the EIS.

The EIS already identifies the issues and impacts in terms of potential land use in proximity to the Project, potential overlap with traditional territory and increased Project-related traffic, all of which would equally, if not more so, apply to our historical Métis Community: Île-à-la-Crosse.

Île-à-la-Crosse is not satisfied with the exclusion of our historical Métis Community as a Primary Indigenous Group.

Summary

Île-à-la-Crosse is not satisfied with its exclusion from the Local Priority Area and the exclusion of our Métis People as a Primary Indigenous Group identified for full engagement. Île-à-la-Crosse has historically been engaged on mining projects in northwest Saskatchewan, is in close proximity to the Project, and will be impacted by the Project. Île-à-la-Crosse therefore requests that the LPA be expanded to include Île-à-la-Crosse and the Métis People of Île-à-la-Crosse be identified as a Primary Indigenous Group.

Sincerely;

Duane Favel
Mayor