



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Canada



Licence Application to Prepare Site and Construct the Wheeler River Project



CNSC Staff Presentation
Commission Hearing
October 8, 2025
CMD 25-H9.A





Commission Member Document Submission

- CNSC staff's Commission Member Document (CMD) was posted August 19, 2025
- Contains CNSC staff assessment, conclusions and recommendations for the licence application and environmental assessment (EA) process, and on consultation and engagement efforts to date
 - CNSC staff will be presenting on Indigenous consultation and engagement, including conclusions and recommendations on the duty to consult, in a supplemental CMD prior to the Part II Hearing in December

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25-H9 - CNSC Staff Submission	
Denison Mines Corp. Licence Application to Prepare Site and Construct the Wheeler River Project	
Classification	UNCLASSIFIED
CMD Type	Original
CMD Number	25-H9
Reference CMD(s)	N/A
Type of Licensing CMD	A New Licence
Hearing	Commission Public Hearing - Part 1 (CNSC staff and proponent)
Date of Hearing	October 8, 2025
Word and PDF e-Doc #	7369970 – Word 7559612 – PDF
Summary	<p>This CMD presents information about the following matters of regulatory interest with respect to the proposed Wheeler River Project:</p> <ul style="list-style-type: none">• CNSC staff's review, assessment and recommendations regarding the request by Denison Mines Corp. for the Commission to issue a licence to prepare site and construct the Wheeler River Project, which would consist of a uranium mine and mill. <p>CNSC staff recommend the Commission consider taking the following actions:</p> <ul style="list-style-type: none">• determine the Wheeler River Project is not likely to cause significant adverse environmental effects referred to in subsections 5(1) and 5(2) of the <i>Canadian Environmental Assessment Act</i>, 2012,• conclude, pursuant to paragraphs 24(4)(a) and (b) of the <i>Nuclear Safety and Control Act</i> in that Denison:



Agenda

- Project Overview
 - Regulatory review process
 - Wheeler River Project overview
- Environmental Assessment
 - EA process
 - Scope of assessment
 - CNSC staff assessment
- Assessment of Licence Application
 - CNSC staff review process
 - Protection of the environment, and the health and safety of persons
- CNSC Staff Conclusions and Recommendation



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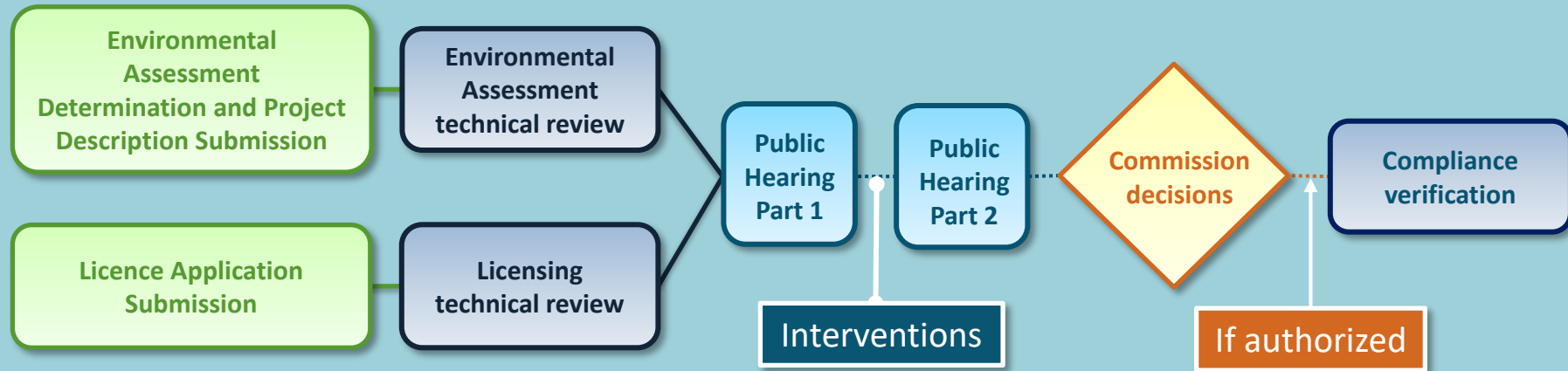
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PROJECT OVERVIEW



Regulatory Review Process Overview

← ENVIRONMENTAL MONITORING THROUGHOUT LIFECYCLE OF PROJECT →



← ONGOING INDIGENOUS AND PUBLIC INVOLVEMENT →



Wheeler River Project Overview

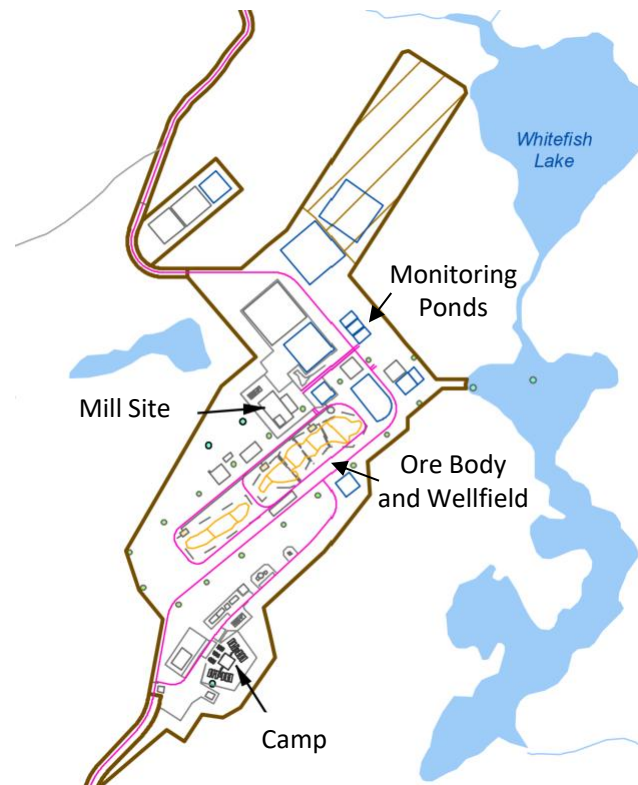
- Application for a licence to prepare site and construct the Wheeler River Project uranium mine and mill
- In-situ recovery – first proposed application of this technology in Canada for uranium mining
- Located approximately 600 km north of Saskatoon, between Cameco's McArthur River mine and Key Lake mill
- EA processes provincially and federally – decision by the Commission under CEAA 2012 and by the province of Saskatchewan under the provincial Environmental Assessment Act
- Requesting a 5-year licence to cover site preparation, construction, and commissioning activities





Proposed Wheeler River Project Facility

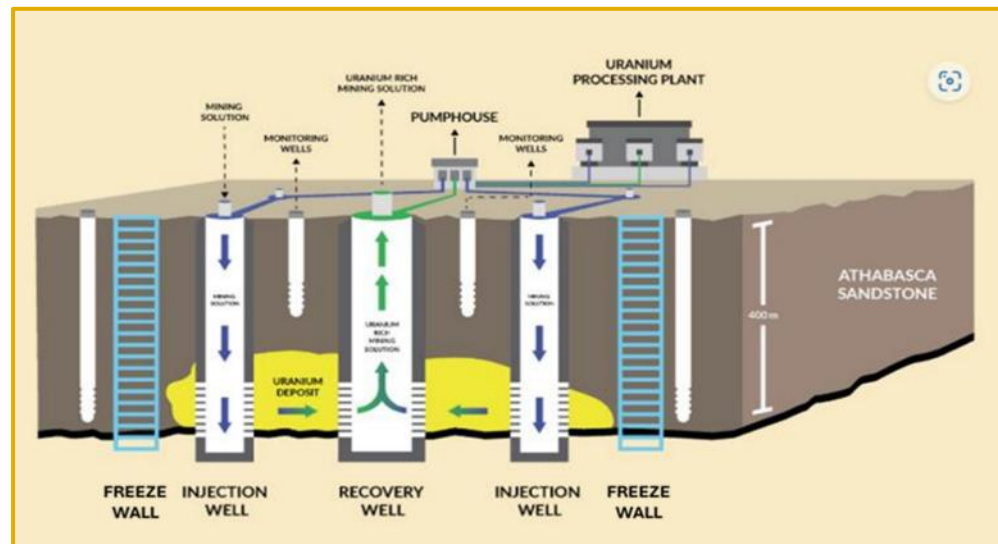
- Proposed facility would contain:
 - Wellfield
 - Mill
 - Industrial wastewater treatment plant
 - Waste management facilities
 - Freeze wall infrastructure
- Monitoring infrastructure would include:
 - Surface and groundwater
 - Surface runoff and stormwater
 - Air quality
 - Underground freeze wall and mining solution





Overview of Denison's Proposed Mining Method

- In-situ recovery (ISR) - injection of mining solution into the ore body and recovery of uranium bearing solution
- Hydraulic containment of mining solution via pumping
- Monitoring wells to verify containment of mining solution
- Defense in depth – mining areas to be enclosed by vertical freeze walls on sides, and impermeable basement rock below
- Greatly reduced volumes of waste



Conceptual ISR mine plan for the Project (Source: Denison Mines, 2025)

CNSC staff reviewed the regulations and regulatory framework, and are confident that they are fit for purpose for ISR mining



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ENVIRONMENTAL ASSESSMENT



Environmental Assessment Process

- An EA under CEAA 2012 is required for the proposed Wheeler River Project
- An EA under Saskatchewan's *Environmental Assessment Act* was also carried out, and resulted in a positive decision
- As the Responsible Authority for the CEAA 2012 EA, CNSC coordinated the Federal Indigenous Review Team (FIRT), using a whole-of-government approach:
 - Federal: Environment and Climate Change Canada, Natural Resources Canada, Health Canada, Fisheries and Ocean's Canada
 - Indigenous Nation: English River First Nation
- Input from Indigenous Nations and communities and the public was considered throughout CNSC staff's assessment

CNSC staff conducted a robust and rigorous environmental assessment



Scope of Assessment

Project-specific EA documentation and records posted online.

Scope of Environmental Assessment (see [2019 decision](#))

- Potential environmental effects for the entire lifecycle of the project (construction, operation, decommissioning, closure, post- closure) on areas of federal jurisdiction

Denison's Environmental Impact Statement (EIS) was assessed against:

- Requirements outlined in [CEAA 2012](#)
- The CNSC's [Generic Guidelines for the Preparation of an Environmental Impact Statement](#) and other relevant documentation
- [REGDOC-2.9.1: Environmental Protection: Environmental Principles, Assessments and Protection Measures](#)
- [REGDOC-3.2.2, Indigenous Engagement](#)



Indigenous and Public Engagement

CNSC provided the following opportunities for participation by members of the public and Indigenous Nations and communities:

- [Public comment period on the Project Description](#) (May - June 2019) to help inform the [EA scoping decision by the Commission](#) (December 2019)
- [Public comment period on the draft Environmental Impact Statement](#) (November 2022 - February 2023)
- Organizing community visits and engagement sessions
- Presenting webinars and shared [project bulletins](#) with communities that had interest in the project
- Public review of the [EA report](#) (August 20 – present) and interventions to the Commission
- Participant funding opportunities to support the comment review periods and engagement with CNSC



CNSC Staff Assessment (1/2)

CNSC staff assessed the predicted changes to the environment caused by the Wheeler River Project on the following environmental components:

- Atmospheric environment
- Aquatic Environment
- Terrestrial environment
- Geological and hydrogeological environment

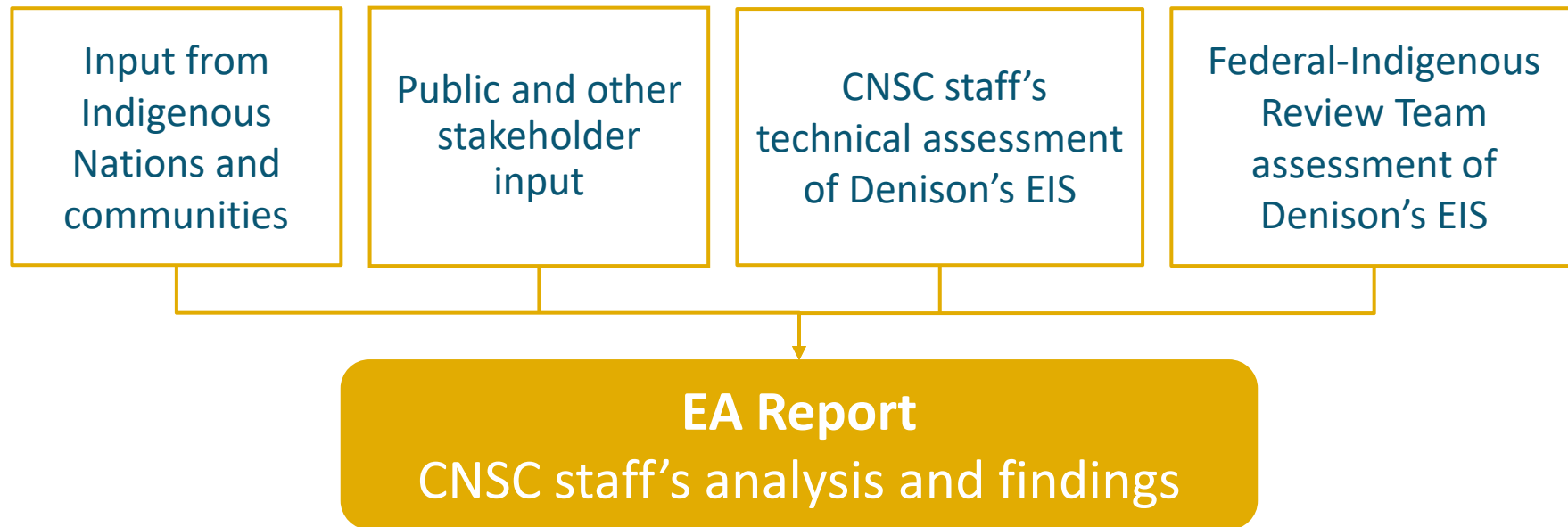
CNSC staff evaluated predicted effects on the following valued components based on the changes to the environmental components listed in the box to the left:

- Human health
- Transboundary environmental effects
- Potential effects of the environment on the project
- Fish and fish habitat
- Migratory birds
- Indigenous uses: current use of lands and resources for traditional purposes

CNSC staff assessed and evaluated all predicted changes and effects



CNSC Staff Assessment (2/2)



EA Report reflects CNSC staff analysis and consideration of each input received



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ASSESSMENT OF LICENCE APPLICATION



CNSC Staff's Review of the Licence Application

Denison submitted an application for a licence to prepare site and construct the Wheeler River Project in June 2023, with the application deemed sufficient in November 2024

CNSC staff assessed:

- Regulatory requirements, including the *Nuclear Safety and Control Act* (NSCA), associated regulations (*General Nuclear Safety and Control Regulations, Uranium Mines and Mills Regulations, etc.*), and relevant regulatory documents, guides and standards for **13 safety and control areas (SCAs)**
 - Packaging and transport SCA was not assessed as there will be no transportation of nuclear substances or devices for this stage of licensing
- Denison's proposed Financial Guarantee for the prepare site and construct phase
- Denison's public information, community outreach, and Indigenous engagement activities

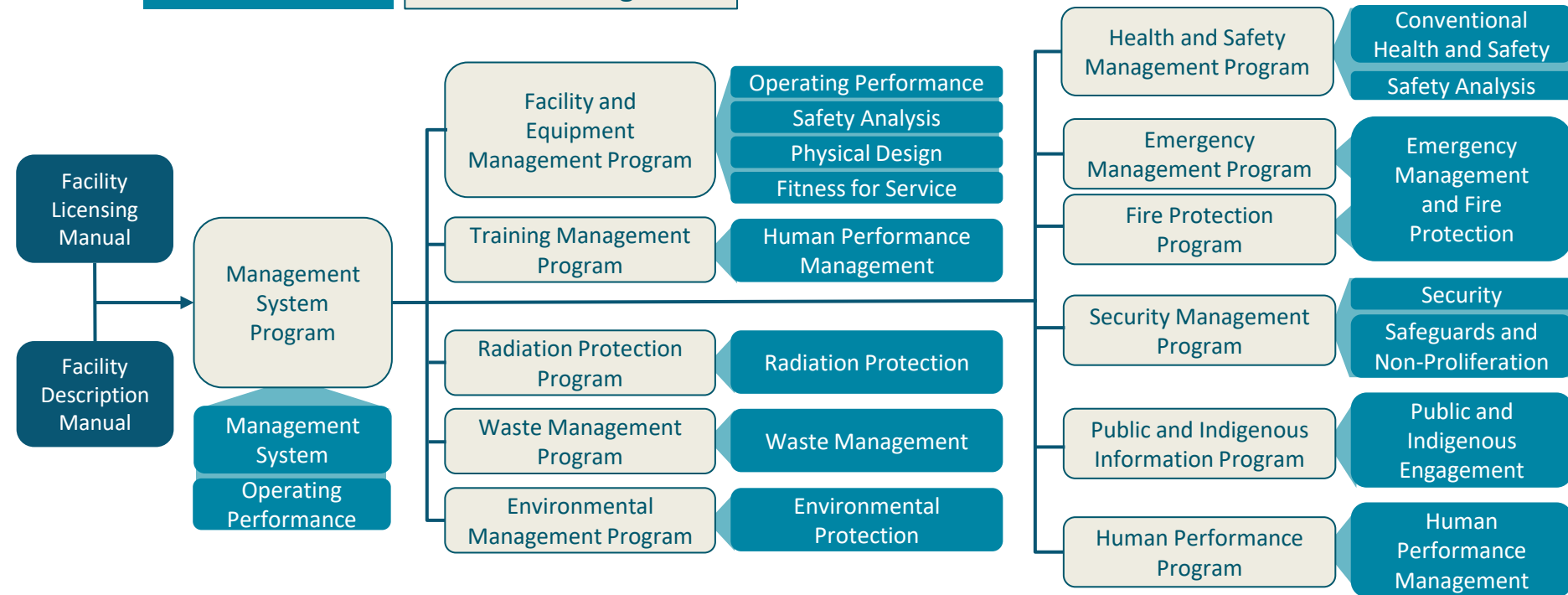
The application submitted by Denison is complete and adequate



Proposed Management Systems for Licensed Activities

CNSC SCAs

Denison's Programs



Denison's Management System meets regulatory requirements



Protection of the Environment

- CNSC staff reviewed the programs relevant to the protection of the environment
- Review of the proposed programs shows that Denison will take all reasonable precautions to protect the environment
- CNSC staff do not expect significant releases to the environment during the prepare site and construct phase of the project
- Area regulated by Saskatchewan Ministry of the Environment

Design Considerations:

- Preliminary BATEA assessment
- Surface water management
- Industrial wastewater treatment plant
- Waste pads and monitoring ponds
- Hydraulic control of lixiviant underground
- Freeze wall

The proposed activities will be protective of the environment



Protection of People

- CNSC staff reviewed the programs relevant to the protection of people
- Construction activities were reviewed to ensure hazards will be protective of workers
- Review of the proposed programs shows that Denison will take all reasonable precautions to protect workers and people outside of the facility area
- CNSC staff do not expect workers nor land users to receive significant doses of radiation during the proposed prepare site and construct activities
- Area regulated by Saskatchewan Ministry of Labour Relations and Workplace Safety

Design Considerations:

- Features for ALARA
- Ventilation
- Reduction of radon gas, radon progeny, and long-lived radioactive dust
- Human factors considerations
- Construction activities
- Linkages to protection of the environment

The proposed activities will be protective of persons



Financial Guarantee

- Denison is proposing a phased approach to financial guarantees, which will increase along with the scope of their project activities
- The proposed PDP and financial guarantee description have been accepted by the Saskatchewan Ministry of Environment (SMOE)
 - As per the Memorandum of Understanding between the CNSC and the SMOE, the SMOE will be the holder of financial instruments for decommissioning
- The proposed PDP, associated cost estimate, and the description of the financial guarantee meet regulatory requirements

CNSC staff recommend that the Commission require the submission of finalized Financial Guarantee documents



Proposed Compliance Activities

- CNSC staff have prepared a compliance plan to verify compliance at the Wheeler River Project
 - Inspections, technical assessments similar to other licensed sites
- All relevant safety and control areas would be verified commensurate with their risk
- The compliance plan targets construction milestone activities, along with regular baseline inspections
- Regulatory commitments, EA conditions and the follow-up monitoring program will be verified by CNSC staff



CNSC staff during a 2024 technical visit to the Wheeler River site
(Source: CNSC staff)

CNSC staff are prepared to verify compliance at Wheeler River



EA Conditions and Regulatory Commitments

- Conditions and commitments are derived from:
 - Review of the environmental assessment (EA conditions)
 - Review of licensing documents (regulatory commitments)
- EA conditions are proposed as mitigation measures to ensure that licensed activities will not cause significant adverse effects to the environment
- Regulatory commitments are proposed to ensure that key updates are assessed by CNSC staff prior to specified future activities
- If a licence is issued, all regulatory commitments will form part of the licensing basis and will be verified by CNSC staff compliance activities

CNSC staff will update the Commission on Denison's progress



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CNSC STAFF CONCLUSIONS AND RECOMMENDATIONS



CNSC Staff Conclusions and Recommendations (1/2)

From the EA review, CNSC staff have determined that:

The proposed Wheeler River Project is not likely to cause significant adverse environmental effects, taking into account the implementation of all identified EA regulatory commitments.

An EA Follow-Up Monitoring Program will be implemented for:

- Confirmation of EA predictions
- Evaluation of proposed mitigation measures

CNSC staff recommend the Commission determine that the Wheeler River Project is not likely to cause significant adverse environmental effects referred to in section 5 of CEAA 2012.



CNSC Staff Conclusions and Recommendations (2/2)

From the licensing review, CNSC staff have determined that:

The Wheeler River Project application complies with all applicable regulatory requirements for a licence to prepare site and construct the Project.

The Wheeler River Project will be protective of the environment and the health and safety of people.

CNSC staff recommend the Commission determine that Denison is qualified to carry on the activities that the licence will authorise and will make adequate provision for the protection of the environment and the health and safety of persons.



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