Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 26-H105.2

Date: 2026-08-31

Written Submission from English River First Nation

Mémoire de la Première Nation d'English River

In the matter of

À l'égard d'

Orano Canada Inc.

Orano Canada Inc.

Application to renew the McClean Lake Operating Licence for 2-year term

Demande pour le renouvellement du permis d'exploitation de McClean Lake pour une période de deux ans

Hearing in writing based on written submissions

Audience par écrit fondée sur des mémoires

September 2026

Septembre 2026

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Canada

English River
First Nation

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August 26, 2026

Canadian Nuclear Safety Commission
P.O. Box 1046, Station B
280 Slater Street
Ottawa, Ontario K1P5S9

"VIA EMAIL **interventions@cnsc-ccsn.gc.ca**"

RE: ERFN Intervention- Orano McLean Lake Licence Renewal

This submission is made on behalf of the English River First Nation (ERFN). The Orano McLean Lake License Renewal is of great importance to the people of the ERFN, because of the presence of the Uranium Mines and Mills located within English River First Nation Ancestral Lands. The people of ERFN have and continue to subsist on this land for generations- fishing, hunting, gathering, holding Ceremony, and thriving.

English River First Nation is comprised of 19 reserves located in Northern Saskatchewan. ERFN has a population of approximately 2,100 people. The on-reserve members of the First Nation reside at two small remote Northern Saskatchewan reserves called Wapatuanak and La Plonge. These reserves are located approximately 600 km north of Saskatoon.

ERFN has intervened on the Orano McLean Lake License Renewal so that we may review the CNSC and Orano documentation and be satisfied that the Project will continue to operate safely within our Treaty 10 Territory.

ERFN has engaged Robin Kusch to assist the Nation in reviewing and understanding the technical and scientific aspects of the Orano McLean Lake License Renewal. Mrs. Kusch has once again provided the people of ERFN a thorough and informative critical review of the documentation.

ERFN concludes that there is no reason to object to the CNSC's conclusions that the McLean Lake Operation is being managed effectively in terms of the Safety and Control Areas and that the 2-year extension would not result in an undue risk. Consistent with the

2024 ROR, ERFN is assured that adequate protections are in place to protect the environment and humans.

Sincerely,

Cheyenna Hunt B.A., LL.B.
English River First Nation
Director, Lands & Consultation

Technical Memorandum

Review of the Written Submission from Orano Canada Inc: Application to Renew the McClean Lake Operating License for 2-year Term
CMD 26-H105.1

August 30, 2026

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Submission Background

Orano Canada Inc. (Orano) operates the McClean Lake Operation (MLO) in accordance with the Licence UML-MINEMILL-McCLEAN.02/2027 issued by the Canadian Nuclear Safety Commission (CNSC) on July 17, 2017 with a 10-year term, expiring on June 30, 2027. The MLO is a joint venture between Orano and Denison Mines Inc. (Denison). Orano submitted to the CNSC on June 29, 2026 a request for a 2-year term license extension (i.e., with no change) to provide time to pursue a license amendment or new license to construct and operate: Sue F and Midwest Projects.

This technical memorandum has been prepared for the English River First Nation (ERFN) and provides a summary and review of the Request for a Licensing Decision Regarding McClean Lake Operation – License Renewal (CMD 26-H105.5; Decision Request) with the intent to inform the ERFN's Intervener Submission. The Commission Member Document (CMD) CMD26-H105 – CNSC Staff Submission and the Decision Request were 210 and 114 pages, respectively and Part 1 of 4 of REF1 (V1; Environmental Performance Assessment; 1044 pages) and Part 1 of 5 of REF2 (V2; Environmental Risk Assessment; 388 pages) (all electronic documents [LINK]), the review effort included summarizing relevant information relating to concerns expressed by ERFN. The review focused on information in addition to ERFN's understanding of MLO based on the 2024 Regulatory Oversight Report (ROR; overview completed January 2026; e.g., the operation is currently in good standing, rated Satisfactory in all Safety and Control Area (SCAs) with mature programs and an experienced workforce in place).

Concerns expressed by ERFN pertain in general to environmental protection of their Ancestral lands (Nuhtsiye-kwi Benéne in Dene), safeguarding their traditional, current and foreseeable way of life and reclaiming their identity and heritage (culture). Specifically, concerns were related to the preservation of their people's ability to hunt, fish and gather country food and advocate for their devotional connections with the lands of Nuhtsiye-kwi Benéne. ERFN maintains that any activity that poses a risk of environmental degradation within or in the vicinity of the Nuhtsiye-kwi Benéne should be considered a threat to the vitality of ERFN people and their ways of life – past, present and future. Specific to MLO, ERFN has expressed concerns regarding selenium concentrations in sediment, benthic invertebrates and fish tissue and the potential for the established aqueous environmental protection guidelines to not be as protective of the broader aquatic community as assumed. This concern is supported by Western Science, for example, selenium speciation can occur resulting in organic selenium species (e.g., selenomethionine [SeMet], methylseleninic acid [MSA] and dimethylselenoixide [DMSeO]) that are more prone to bioaccumulation than inorganic species (e.g., selenite [Se(IV)], selenate [Se(VI)]). Further, in terms of closure and end-state environmental protections, ERFN perceive uranium mills (MLO and Key Lake) to pose substantially longer-term effects as compared to an uranium mine.

Review Background

English River First Nation

ERFN is a Dene and Cree First Nation located in Northern Saskatchewan. ERFN's Nhutsiye-kwi Benéne encompasses 75,000 km^2 of the boreal forest in central-northern Saskatchewan, stretching from the Churchill River in the south to Wapata Lake in the north. ERFN has seven historical settlements located at Sucker Creek, Cree Lake, Elak Dase, Knee Lake, Dipper Rapids, Wapachewunak and La Plonge. Since 1992, an additional twelve reserve parcels have been added to their land base through the Treaty

Land Entitlement process, which aims to resolve outstanding Treaty land obligations. ERFN's two largest reserves are La Plonge Reserve and Wapachewunak, located approximately 600 km north of Saskatoon, Saskatchewan. ERFN's main settlement area is located along the Churchill River, about 500 km north of Saskatoon at the Wapatuanak Reserve, Saskatchewan. The ERFN is a signatory to Treaty 10 (1906) and is comprised of nineteen different reserves:

- La Plonge 192,
- Elak Dase 192A,
- Knee Lake 192B,
- Dipper Rapids 192C,
- Wapachewunak 192D,
- Ile a la Crosse 192 E,
- Primeau Lake 192F,
- Cree Lake 192G,
- Grasswoods 192J,
- Leaf Rapids 192P,
- English River (Porter Lake) 192H,
- English River FN Barkwell Bay No. 192I,
- English River FN Haultain Lake No. 192K,
- English River FN Flatstone Lake No. 192L,
- English River FN Cable Bay No. 192M,
- English River First Nation Cable Bay Cree Lake192N,
- English River FN Beauval Forks No. 192O,
- Slush Lake Reserve No. 192Q, and
- Mawdsley Lake Reserve No.192R.

The ERFN's total membership is 1,927, with approximately 810 members living on reserve lands (Cheyenna Hunt, personal communication, September 2025). Comprised of both Cree and Dene people, the "people of the river" are known for their bold and collaborative spirit and trusting and humble nature (CanNorth 2017).

The ERFN name originates from the English River area, which was inhabited by the Poplar House people for periods during the year. Most of the families that now live at the Wapachewunak Reserve and La Plonge reserve, traditionally lived along the Churchill River system at Primeau Lake, Knee Lake, Dipper Lake and/or Cree Lake to the north. Summers were spent primarily fishing along the river system. For the rest of the year, family units would spread out through the northern forests for trapping and subsistence hunting. Commonly used winter trapping areas included Haultain Lake, Costigan Lake, Foster Lake and the area between Cree Lake and the Churchill River (Jarvenpa 1980, CanNorth 2017, SVS 2022).

The community is shaped by its respected Elders who are widely consulted for decisions, wisdom and strength. ERFN is dedicated to stewardship of the land and the education of future generations through land-based learning youth camps and other opportunities to share knowledge on the land (Cameco 2021). ERFN is rising to the challenge of ensuring sustainable development in the vicinity of their communities and within their Nhutsiye-kwi Benéne and recognizes the unique and important role they have to play in the protection of Northern Saskatchewan. While remaining true to traditional values as "keepers of the land," members also pursue opportunities to participate in the development of ERFN's resources (e.g., forestry, industry and workforce).

ERFN established Des Nedhe Group of Companies in 1991 to create sustainable employment and business opportunities for English River members. Since its inception, Des Nedhe Group has invested in established companies that are leaders in Saskatchewan's mining and construction industry and expanded its portfolio into the areas of retail and real estate development and management. The company takes pride in its strong focus on growth through investment, experienced management team and history of delivering solid financial results. Looking forward, Des Nedhe Group is exploring new opportunities across the Country, in multiple sectors, and is positioned to play an important role in Canada's economic future.

Saskatchewan Uranium Industry

The Athabasca Basin of northern Saskatchewan has been the site of several major uranium discoveries and Saskatchewan is recognized as a world leader in uranium production. The uranium is exclusively used for electricity generation at nuclear power plants, which is a non-carbon emitting energy source and provides about 13% of Canada's electricity needs. The uranium industry is a significant economic driver in northern Saskatchewan. Within Treaty 10 boundaries and ERFN's Nhutsiye-kwi Benéne, three uranium operations are currently operating or in a state of care and maintenance:

- Key Lake Mill [commissioned 1983; halted mining in 1997 and milling halted from 2018 to 2021],
- McArthur River Mine [commissioned 1999; halted mining from 2018 to 2021], and
- Cigar Lake Mine [commissioned 2015; halted mining from March 2020 to September 2020]).

As well, there are two additional operations in the Treaty 10 boundaries and just northwest of ERFN Traditional Lands near Wollaston Lake:

- McClean Lake Mine and Mill [commissioned 1999], and
- Rabbit Lake Mine and Mill [commissioned 1975; mining and milling halted in 2016 and operations transitioned to care and maintenance].

Currently, there are two new uranium mines in construction:

- The Wheeler River Operation is located within the Treaty 10 boundaries and the Nhutsiye-kwi Benéne of ERFN; and
- The Rook 1 Project is located within the Treaty 10 boundaries and the northwest of the Nhutsiye-kwi Benéne of ERFN.

Following recovery around 2021, the outlook for the uranium industry remains positive, supported by growing global demand for reliable, low-carbon electricity and renewed investment in nuclear energy. Expanding reactor fleets, life extensions for existing nuclear facilities, and emerging demand from electrification and data center growth are strengthening long-term uranium consumption. At the same time, supply growth remains constrained due to lengthy permitting and development timelines for new mines, supporting a constructive market outlook and continued focus on secure uranium supply chains.

Agreements

All of the uranium mines and mills in northern Saskatchewan are considered of interest to the communities of ERFN. In northern Saskatchewan, the industry leaders Orano Canada Inc (Orano) and Cameco Corporation (Cameco) entered into formal agreements with Indigenous communities, including ERFN (referred to as collaboration agreement (CAs) or impact benefit agreements (IBAs). These agreements provide Indigenous communities with workforce and business development programs, dedicated community engagement programs, community investment monies and mechanisms to collaborate around environmental stewardship. These industry leaders have also entered into several trapper compensation agreements with individual land users who are affected by their activities.

After ten years of thoughtful negotiation and an opportunity for all members to weigh in through a ratification vote, ERFN and Denison signed a Shared Prosperity Agreement on September 26, 2023 in connection with the proposed development of the Denison Wheeler River Operation in Northern Saskatchewan. The agreement acknowledges that the proposed project is located within ERFN's ancestral Lands and provides consent from ERFN to advance development of the uranium mine.

These agreements are part of the effort undertaken in recent history to engage and respect local communities, First Nations, Metis Nations and local land users during the planning and execution of industrial developments. Execution of these agreements ensures that engagement occurs with the intent to minimize the potential and perceived negative impacts from a development, as well as optimize potential positive impacts. Signing of these agreements conveys a general trust in the industry's performance and is recognition of a positive working relationship with the industry leaders.

Consultation

The Canadian Nuclear Safety Commission (CNSC) consults on regulatory documents, discussion papers and proposed regulations to ensure transparency and public engagement in nuclear safety. The CNSC consults with Indigenous Nations and communities, host communities, other interested parties and the general public to help develop many of the tools in its regulatory framework.

Consultation is recognized by the Canadian Nuclear Safety Commission (CNSC) as an important part of the process to develop the details of its regulatory framework. In recent years, specifically since 2018, ERFN has witnessed an evolution in the consultation process that they view as positive. ERFN has signed long term formal Terms of Reference for Engagement with the CNSC. This advancement is one of the ways in which the CNSC has responded to the feedback that ERFN has provided to them since 2018; ERFN applauds this advancement in reconciliation. Now there is more readily available and approachable ways to have direct dialogue between the CNSC and First Nations, which ERFN sees as invaluable to the process of building and maintaining trust in Canada's Nuclear Industry. The outcome of feeling like you have no power in a situation is a state of forced apathy, the direct engagement with ERFN has resulted in a sense of relevance and with the consultation process a sense of consequence. As well, there is a seriousness conveyed about their concerns when during hearings CNSC members reiterate or even directly represent the views the First Nations have conveyed to them directly. Previously, ERFN felt as though their views were filtered through the proponents of projects and/or operating companies to the CNSC and as such could see their perspectives being softened, deemphasized, devalued, or even lost.

ERFN looks forward to continued advancement in their relationship with the CNSC and the way they are engaged.

Leadership Role

In addition to the recent empowerment discussed above, members of ERFN gained between 2011 and 2018 a heightened awareness of the external factors that can affect the mining industry and that life-of-mine estimates based on resource delineation are just projections, in other words there are no guarantees regarding the persistence of the economic benefits to the local economy. In response, the communities shifted their engagement focus from operational performance and economic benefits to the long-term environmental effects of closure and understanding associated reclamation uncertainties. More recently in 2023 with the rebound of uranium prices and projected revival of the nuclear energy industry, members of ERFN started once again allocating more resources to identifying and pursuing opportunities for their communities to confirm they are optimizing the social and economic benefits presented by having such an industry in northern Saskatchewan. As well, ERFN has been pursuing community driven opportunities to demonstrate to community members the value and quality of resources within the Nuhtsiye-kwi Benéne and develop research that speaks directly to community concerns (e.g., Country Food Study, Medicinal Plant Quality and Cancer Rate Study).

Key concerns of the ERFN communities continue to include:

- Operation and ultimate closure of the Key Lake Operations, due to the long-term (1000s of year) management of tailings and linkages to Wheeler River system that is an area of heightened value; and
- Operation and ultimate closure of McArthur River, Key Lake and Wheeler River Operations, due to potential for cumulative effects on the Wheeler River system.

The Wheeler River region is recognized as an important cultural, ecological, and sustainability resources (i.e., drinking water, food and air) area for the communities of ERFN. The prevalence of the importance of the resources (clean air, water, soil, and country foods) in this area is considered likely to increase in value to local land users following closure of local operations.

ERFN is dedicated to stewardship of the land for future generations and doesn’t take this responsibility lightly. Often in relation to First Nation consultation and engagement the focus is on the spatial extent of their traditional and current land use, and it is conveyed that their concerns should be limited to these areas. However, it is recognized that the climate and environments around the world are changing, and there is no way to know in the future where the traditional resources that could be necessary to support future generations will be located within northern Saskatchewan or even Canada. As such, ERFN has interest in uranium operations and sites from two perspectives: (1) protection of all lands in northern Saskatchewan and (2) gaining an increased understanding of operational and long-term tailings management methods / technologies relevant to post-closure conditions.

Summary of Orano and CNSC Submissions

Site Layout Summary

The MLO consists of four main areas:

(1) JEB Site,

i. McClean Lake Mill: ammonia sulphate crystallization plant, sulphuric acid plant, oxygen plant, ore storage and areas.
ii. JEB TMF
Tailings Neutralization Circuit (in mill) → Tailings Delivery System → JEB TMF
iii. JEB Water Treatment Plant (WTP)
iv. Warehouses, work camp and office.

(2) McClean Mining (SABRE),

i. McClean North Deposit, including Pods 1E, 1W, 2 and 5
ii. Sink / Vulture Treated Effluent Management System (S/V TEMS)
JEB WTP → S/V TEMS → Collins Creek drainage
Sue WTP → S/V TEMS → Collins Creek drainage

(3) Sue Site, and

i. Previously mined deposits: Sue C, Sue A, Sue E, and Sue B; waste rock, special waste rock storage facilities, and ore transfer pad.
ii. Sue F Deposit (formerly known as Caribou Deposit)
iii. Sue D
iv. Flooded Sue C/A Pit that is used to deposit chemical and radiological materials.
v. Sue Heavy Duty Maintenance Shop
vi. Sue WTP

(4) Midwest Site.

i. Under Test Mine (test mine shaft)
1993 – Care and Maintenance
2012 – Environmental Assessment Approval
2026 – SABRE Mining Method Feasibility Study
Orano will be advancing the CNSC licensing for this project in the coming years.
ii. Surface Facilities, including old WTP building and two settling ponds.

Cigar Lake Mine Ore

High grade ore slurry from Cameco's Cigar Lake mine is transported to the MLO in Type IP-2[2] rated containers on the 52 km haul road between the two operations. The McClean Lake Mill uses sulphuric

acid and hydrogen peroxide leaching and a solvent extraction recovery process to recover uranium from the ore slurry.

Selection of Recent Operational Changes

In 2004, the MLO proposed a research program to assess mining the ore body from the surface using a hydraulic borehole (jet boring) now referred to as Surface Access Borehole Resource Extraction (SABRE). Mining and milling ore from the 5 open-pit mines was completed in 2008. In 2009, Orano received an amended license that included SABRE mining of the McClean North Deposit. In 2025 activities at the McClean North Deposit transitioned from MED Program to a continuous operating mine. In 2010, no further economic ore sources available and the mill remained in a temporary cessation of milling, until delivery of ore slurry from Cigar Lake Mine commenced in 2015. In 2019, as Cigar Lake Mine ore progressed, Orano submitted a request to further expand the JEB Tailing Management Facility (TMF); a favourable CNSC hearing decision was received in 2022 authorizing modification of the outer perimeter to accommodate additional tailings and implementation is planned after 2029. In 2025, Orano successfully restarted mining at the McClean North Deposit.

Implemented changes related to environmental risk that occurred during the licensing period are:

1. Calciner stack extension to improve sulphur dioxide (SO_2) dispersion
2. Completion of Ore Pad Runoff Pond to manage storm water (2017)
3. relocation of Temporary Containment Landfill to the permanent location in Sue C/A Pit (2017)
4. Selenium Review and Risk Assessment (2018)
5. Sulphur Dioxide Mitigation to manage sulphur dioxide emissions from the calciner exhaust stack and elevated ambient airborne concentrations in and around the mill (2018)
6. JEB TMF expansion to 448 masl (placement of liner)
7. Clean water diversion from Sue B Pit reducing volumes to be treated (2019) Cleaning of Sue site pre-sedimentation pond to improve retention time and reduce nickel in the effluent (2020)
8. Selenium Adaptive Management Plan to reduce selenium loading to the environment (2020); with 12-month rolling average selenium loading below the Effects Based Release Limit (EBRL)
9. JEB TMF expansion from 448 masl to 462 masl (2021)
10. Third ferric sulphate reactor installed in the Ferric Sulphate Plant (2022)
11. Vulture / McClean Lake sluice gate re-installed to ensure capability to cease effluent release in the event of an exceedance
12. Long-term research initiative for in-situ remediation of Sue Pits and improved surface water quality at the time of decommissioning (2021). Pilot scale application of in-situ treatment (2023)
13. Addition of ferric sulphate to the Sue E Pit to treat arsenic (2024)
14. Installed the Ferrous Treatment System in the JEB WTP to maintain the average selenium loadings below the EBRL; but the system has not been used because concentrations low enough in feed and won’t be used unless needed (2023)
15. Combined industrial and contaminated waste in the Sue C Contaminated Landfill

16. Ferrous sulphate treatment system was implemented at JEB WTP to reduce selenium concentrations in treated effluent (2023)
17. The calciner stack scrubber system received various upgrades and changes were made to improve emissions.

Environmental Management System

The Environmental Management System (EMS) has two integral components: the Environmental Monitoring Program (EMP) and the Environmental Code of Practice (ECOP). The EMP's purpose is to: verify compliance with authorized release limits, confirm that controls at the emission source are effective, demonstrate controlled releases to fish-bearing waters are not acutely lethal, and support the effectiveness of any adaptive management measures. The McClean Lake Mill treated effluent released to the environment must comply with the Environment and Climate Change Canada (ECCC) Metal and Diamond Mining Effluent Regulations (MDMER) discharge limits, which are also stipulated in the current operating Licence. As well, the EMP provides data needed to evaluate risks to human health and safety, as well as potential environmental effects, as identified in the Environmental Risk Assessment (ERA; CSA standard N288.6 Environmental Risk Assessment at Nuclear Facilities and Uranium Mines and Mills) or applicable regulations. The ECOP describes administrative and action levels for environmental protection, pertaining to routine operational and environmental monitoring. The action levels for effluent are developed in line with applicable requirements of CSA standard N288.8 Establishing and Implementing Acton Levels for Releases to the Environment from Nuclear Facilities.

Environmental Monitoring Results and Environmental RISK Assessment Update

The environmental monitoring results are outlined in Volume 1 (V1; REF1) of the Environmental Performance Technical Information Document (EP TID) and the future performance ERA based on these results is detailed in Volume 2 (V2; REF2) of the EP TID.

As identified in the 2024 ROR, the current / approved McClean Lake ERA is dated 2016; under the CNSC, ERAs are supposed to be submitted for reviewed on a 5-year cycle. In 2018 a Selenium Risk Assessment was completed, which could not eliminate selenium as a risk, but that risk would be concentrated in S/V TEMS and that selenium concentrations would decline downstream, with much lower risk in McClean Lake East Basin and minimal risk in Kewen Lake. Potential risks were primarily related to fish reproduction. Site-specific tissue benchmarks were established for fish muscle and fish ovary/egg. In 2024, it is indicated in the CNSC Submission (page 66/210), however, details pertaining to the difference between the 2018 and 2024 version are unclean. Submission of the McClean Lake ERA, as directed by the Commission, was aligned with the 10-year license period and in 2020 Orano submitted a request to defer updates until 2025.December 2025, Orano submitted updated V1 and V2 EP TID (REF1 and REF2). CNSC staff finished their review of the submission in April 2026 and have provided comments to Orano. The 2025 ERA includes SABRE development of the Midwest Deposit and milling Midwest ore at the McClean Lake Mill. Approved environmental assessments (EAs) include open pit mining of the Sue F Project and Midwest Project and underground mining of the McClean Deposits. Orano's submission states mining these areas will require further approvals from the CNSC and the Saskatchewan Ministry of

Environment (MOE) and may require modifications to the mill which may also require approvals. Mining the Sue D Deposit has not undergone an EA and may be subject to EA.

In the CNSC Submission (page 66/210), it is identified that in September 2024, Orano provided an update to its 2018 Selenium Risk Assessment. In the submission Orano revised the selenium forecast and refined its selenium model. Orano concluded that there are no significant risks to the downstream environment due to selenium loadings and this information has been incorporated in the 2025 ERA update. CNSC staff are still reviewing but have concluded that Orano is taking appropriate measures to understand and mitigate potential risks of selenium to the downstream environment.

Environmental Effects Monitoring

Environmental effects monitoring (EEM) program objective is to evaluate the potential effects of effluent on fish and fish habitat through the analyses of benthic invertebrate community, fish population and fish tissue chemistry data and must meet requirements under the MDMER, as well as requirements stipulated from the CNSC and MOE.

It is stated in the CNSC Submission (page 70/210) that Orano's Phase 7 of its EEM program took place in the fall of 2022. CNSC staff reviewed the Phase 7 EEM Interpretive Report and concluded that Orano met the EEM requirements and that the environment in the vicinity of the MLO remained protected. Phase 8 of its EEM program took place in the fall of 2025, and the interpretative Report was submitted in June 2026.

Effluent Quality and Surface Water Monitoring

For primary exposure area S/V TEMS (not receiving environment = mine works) and Vulture Lake are sampled quarterly whereas McClean Lake East Basin and Kewen Lake are sampled monthly. Sampling of secondary exposure area Collins Creek and Moffat Creek drainage completed as could be affected by changes in groundwater regime or atmospheric emissions.

As summarized in CNSC Submission (page 70/210) that during the current licensing period, the surface water monitoring results indicate that most parameters were below available guidelines and radionuclide activity levels were mostly below or close to the detection limit in McClean Lake East Basin and downstream monitoring locations.

In Orano's Submission (65/114) it is reported that during the licensing period there were twelve exceedances of action levels for treated effluent discharges.

- Six were elevated measured levels of total suspended solids (TSS). Four of which (March 2018, June 2021, February 2022, August 27 and September 23 and 24th, 2023) were concluded to be due to sample contamination. One (August 25, 2019) at the JEB WTP was related to a lengthy WTP shutdown, as such not a planned event and the effluent did not exceed the maximum authorized concentration as per MDMER (25 mg/L).
- Two were related to pH and/or un-ionized ammonia. In July 2023, effluent discharge 24-hour composite sample from the JEB WTP had a pH of 3.76 which is below the MDMER limit (6.0) and the TSS concentration exceeded the action level but was below the MDMER Limit (1,599 m^3). In July 2023, the composite sample from the JEB WTP had a pH of 8.52 and an un-ionized

ammonia concentration of 0.69 mg/L, which is above the MDMER limit (8.5 and 0.45 mg/L, respectively; 535 m^3). Release was stopped and recycled back to the JEB TMF.

- One in July 2022 was elevated un-ionized ammonia above the MDMER limit at 0.60 mg/L; the discharge was immediately ceased and recycled back to the JEB TMF.
- Three were elevated selenium concentrations in the JEB WTP effluent exceeding the Interim Selenium Action Level of 0.078 mg/L (March 28 and 29 2020 and April 4, 2020). The effluent did not exceed the maximum authorized concentration as per the MDMER (0.09 mg/L). An updated Selenium Management Plan was prepared in response.

In REF1 conclusions for surface water quality are:

- Concentrations of constituents of potential concern (COPCs) in primary exposure areas such as Sink Reservoir, Vulture Lake, McClean Lake East Basin, Collins Creek, and Kewen Lake were generally stable or declining over the long term.
- Most COPCs remained below applicable aquatic life guidelines and ERA predictions; occasional exceedances of predicted values were infrequent, minor and either temporary or attributable to analytical variability.
- Radionuclide concentrations were generally at or below detection limits or within guideline values.
- Secondary exposure lakes showed conditions comparable to reference areas, although nitrate and some major ions were elevated in Bena and Candy Lakes. Nitrate concentrations in Bena Lake have decreased since peaking in 2021.

The following are excerpts from REF1 (Environmental Monitoring) illustrating that measured aqueous, sediment and fish tissue arsenic, molybdenum, nickel, selenium and uranium concentrations as compared to SEQG.

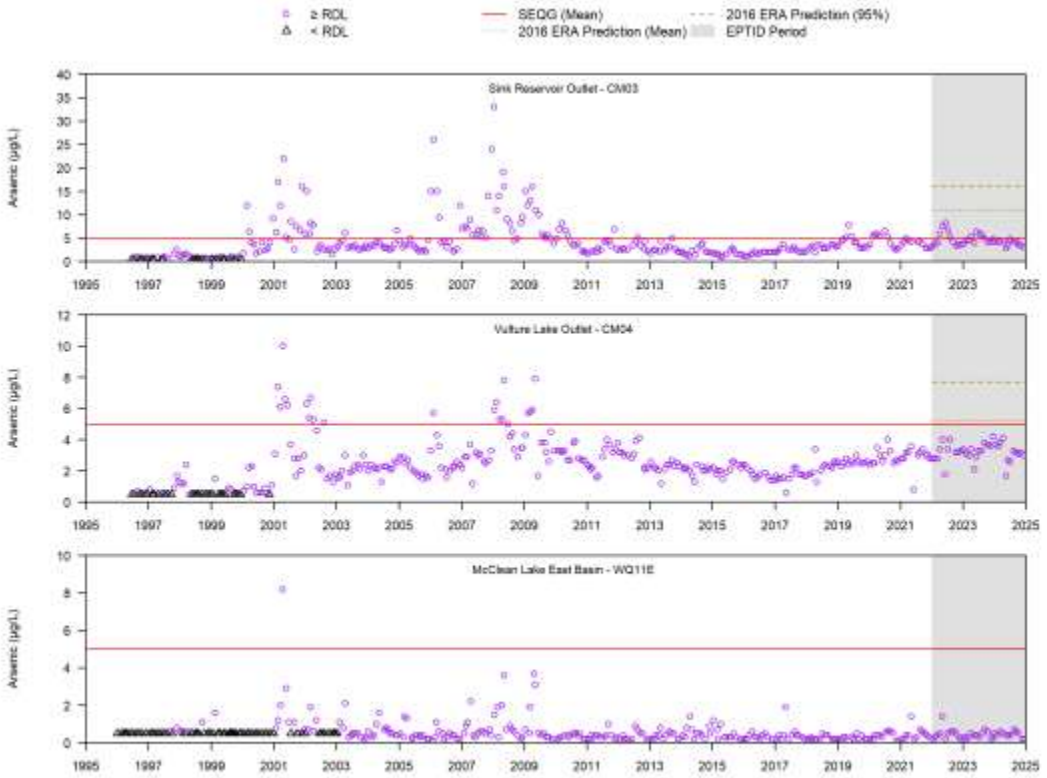


Figure 4.3-3 (26 of 44) COPC Levels in the Primary Exposure Area Surface Water with Associated Guidelines and Most Recent ERA Predictions.

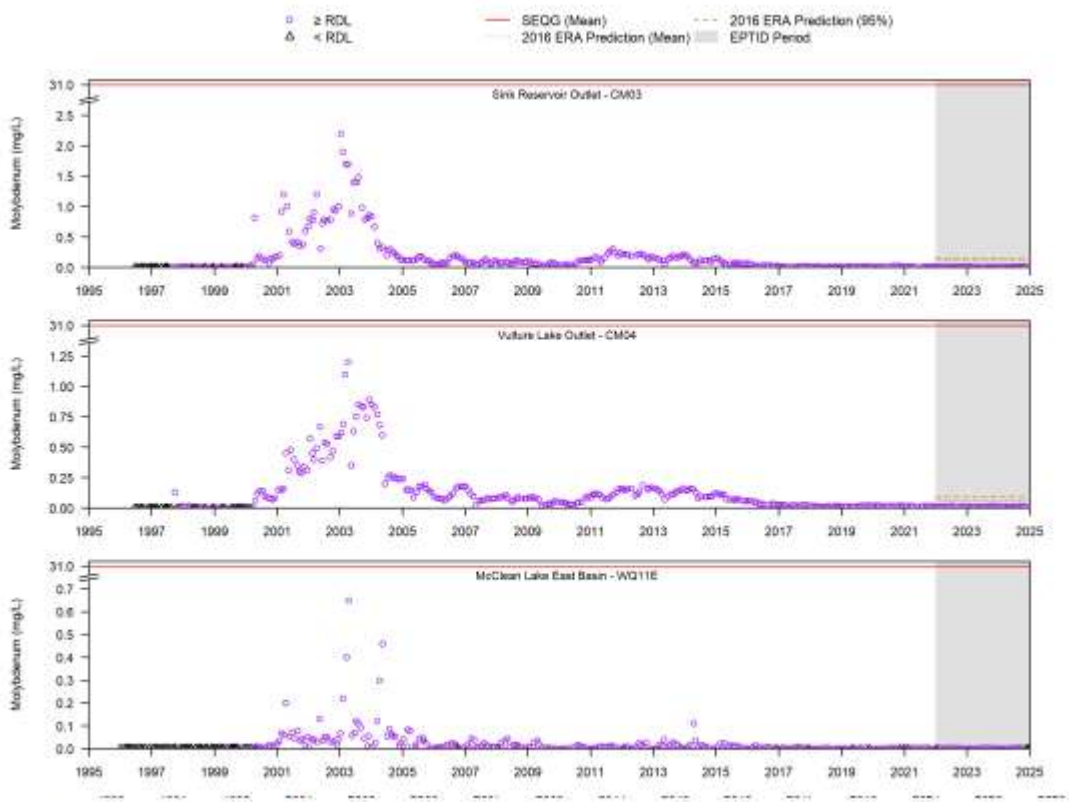


Figure 4.3-3 (34 of 44) COPC Levels in the Primary Exposure Area Surface Water with Associated Guidelines and Most Recent ERA Predictions.

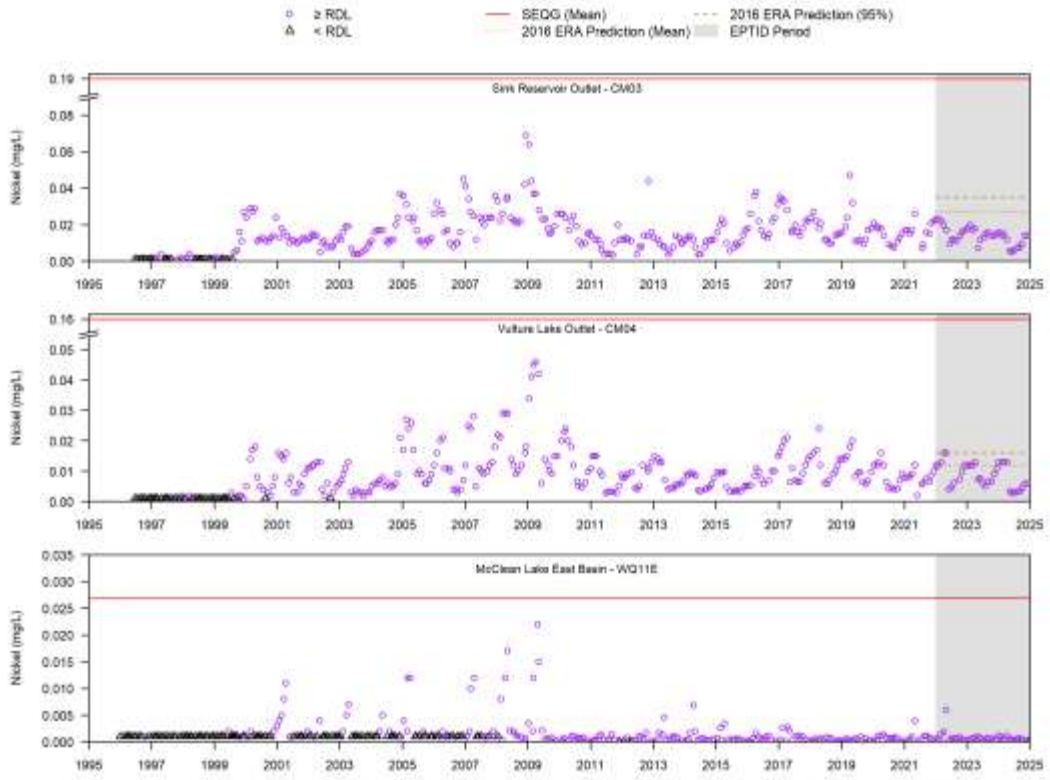


Figure 4.3-3 (35 of 44) COPC Levels in the Primary Exposure Area Surface Water with Associated Guidelines and Most Recent ERA Predictions.

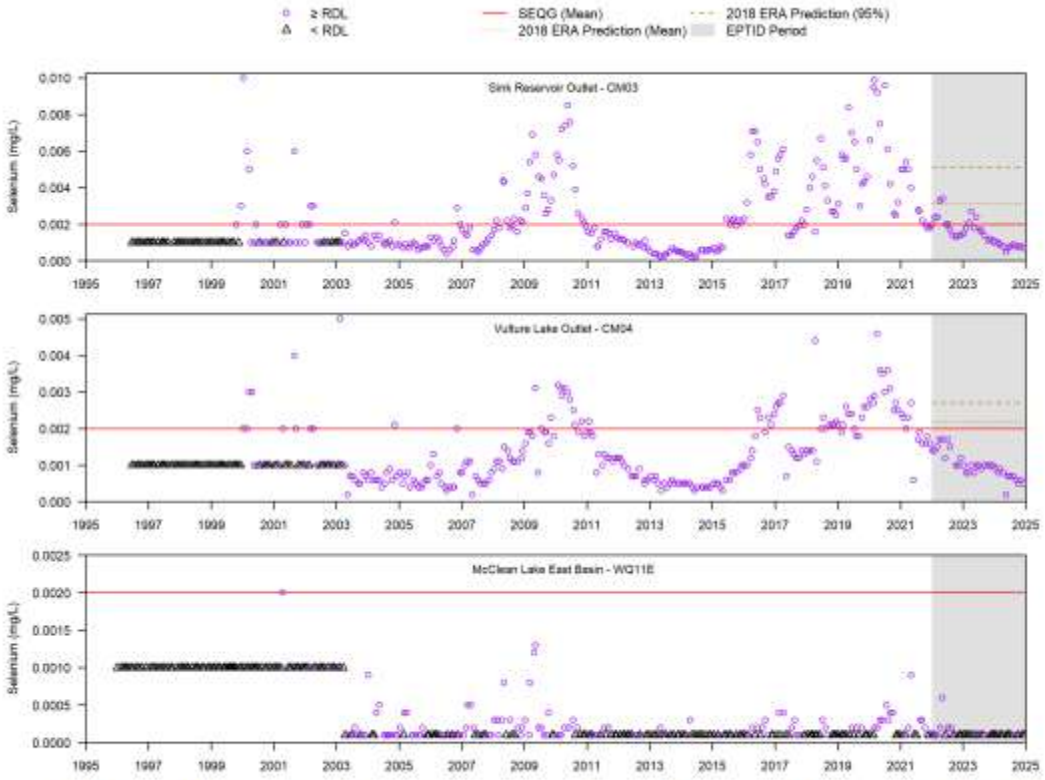


Figure 4.3-3 (36 of 44) COPC Levels in the Primary Exposure Area Surface Water with Associated Guidelines and Most Recent ERA Predictions.

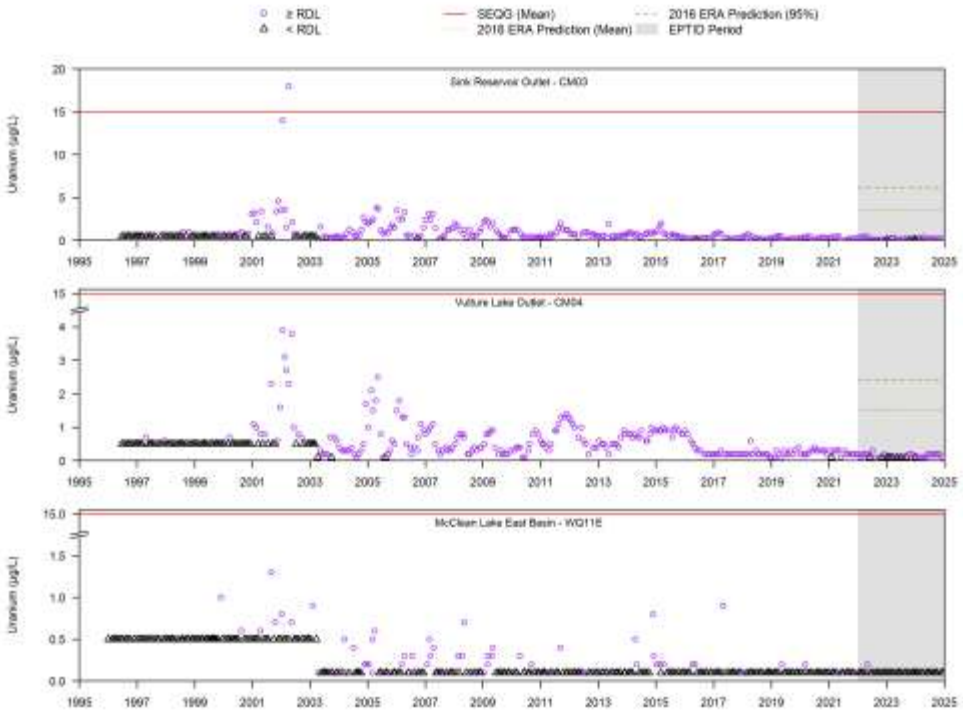


Figure 4.3-3 (41 of 44) COPC Levels in the Primary Exposure Area Surface Water with Associated Guidelines and Most Recent ERA Predictions.

Sediment

- The highest sediment concentrations of arsenic, cobalt, molybdenum, nickel, selenium, and uranium occurred in Sink Reservoir and Vulture Lake, with concentrations declining downstream.
- Results showed no widespread sediment contamination, with most sediment COPCs stable or decreasing over the past decade and remained consistent with ERA predictions.
- Any elevated concentrations observed were localized and not persistent.
- Molybdenum remained above no-effect values in Sink Reservoir and Vulture Lake but was lower downstream.
- Sediment quality in secondary exposure areas, including Fox Lake, was similar to reference conditions.
- CNSC staff concluded that sediment quality remains protective of aquatic life and is not being significantly impacted by operations.

TABLE 4.4-9

Summary of Sediment Chemistry from Lake Depositional Sampling Areas in the McClean Lake Operation LSA, February/March 2024.

Parameter	Unit	Values[1]	0-2 cm							
			Reference		Pooled Reference	Primary Exposure				Secondary Exposure
			McClean West Basin (BM10C)	Konner Lake (BM16C)		Sink Reservoir (BM3E)	Vulture Lake (BM4E)	McClean East Basin (BM5E)	Kewen Lake (BM8E)	Fox Lake (BM13E)
Molybdenum	µg/g	n	5	5	10	5	5	5	5	5
		n<RDL	0	0	0	0	0	0	0	0
		Mean	1.8	5.8	3.8	***919***	**351**	***113***	7.7	6.7
		SD	0.15	1.05	2.3	177	210	11	0.9	1.0
2016 ERA Prediction	µg/g	Mean	-	-	-	350	380	89	14	-
		95th %				740	700	220	32	-
Nickel	µg/g	n	5	5	10	5	5	5	5	5
		n<RDL	0	0	0	0	0	0	0	0
		Mean	9.9	6.8	8.3	***96***	***68***	***36***	6.2	7.3
		SD	0.8	0.3	1.7	25	36	6.6	0.86	0.60
2016 ERA Prediction	µg/g	Mean	-	-	-	64	63	30	9.3	-
		95th %				99	100	53	12	-
Selenium	µg/g	n	5	5	10	5	5	5	5	5
		n<RDL	0	0	0	0	0	0	0	0
		Mean	0.9	0.7	0.8	***14***	***6.1***	***3.2***	0.5	0.6
		SD	0.2	0	0.2	5.1	2.5	0.6	0.10	0.1
2018 ERA Prediction	µg/g	Mean	-	-	-	11	5.8	2.0	0.6	-
		95th %				16	9.2	4.2	0.8	-
Arsenic	µg/g	n	5	5	10	5	5	5	5	5
		n<RDL	0	0	0	0	0	0	0	0
		Mean	8.2	4.7	6.5	***82***	***28***	***20***	3.2	**8.5**
		SD	0.40	0.33	1.9	24	18.0	4.6	0.07	0.55
2016 ERA Prediction	µg/g	Mean	-	-	-	57	24	11	3.6	-
		95th %				89	39	25	6.2	-

Shaded means indicate significantly greater than both reference means ($p < 0.05$; see post hoc statstic results in Appendix IV.4, Table IV.4-4); bolded values indicate higher than at least one of the sediment quality criteria (Table 4.4-1); italicized values exceeded the most recent mean or 95th percentile prediction presented in Table 4.4-6.

Chemistry results presented on a dry weight basis. Values below laboratory test detection limits were set to the limit when calculating means and standard deviations.

[1] n = sample size; DL = detection limit; SD = standard deviation.

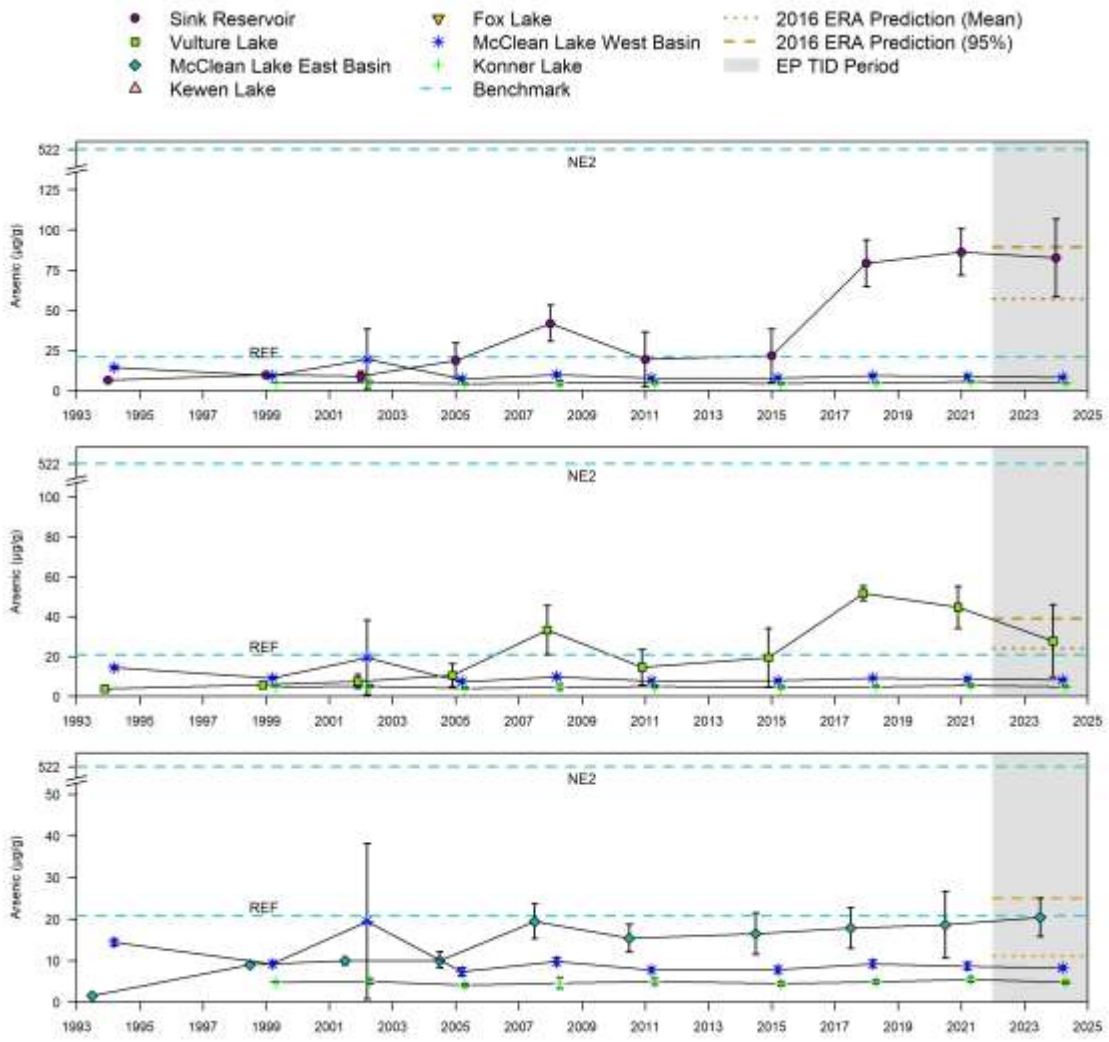


Figure 4.4-3 (5 of 28): Mean and Standard Deviation COPC Levels in the Sediment.

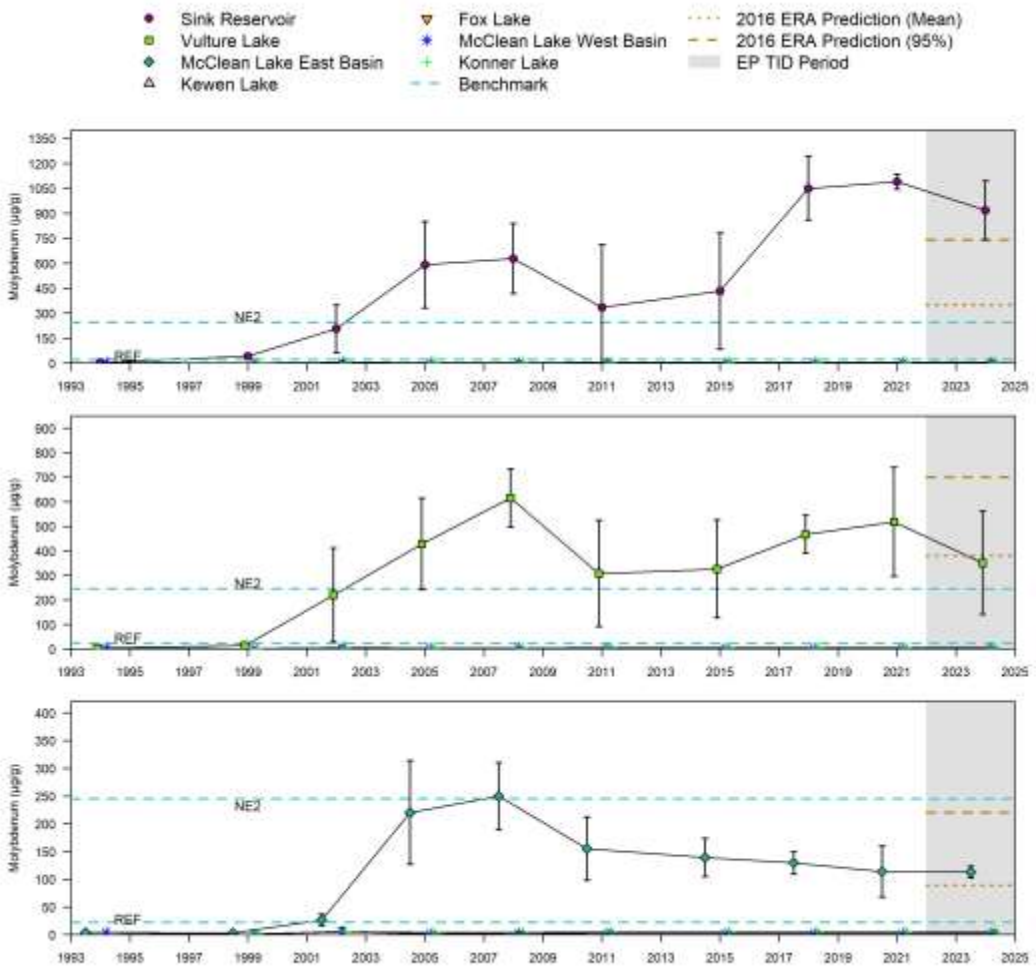


Figure 4.4-3 (15 of 28) Mean and Standard Deviation COPC Levels in the Sediment.

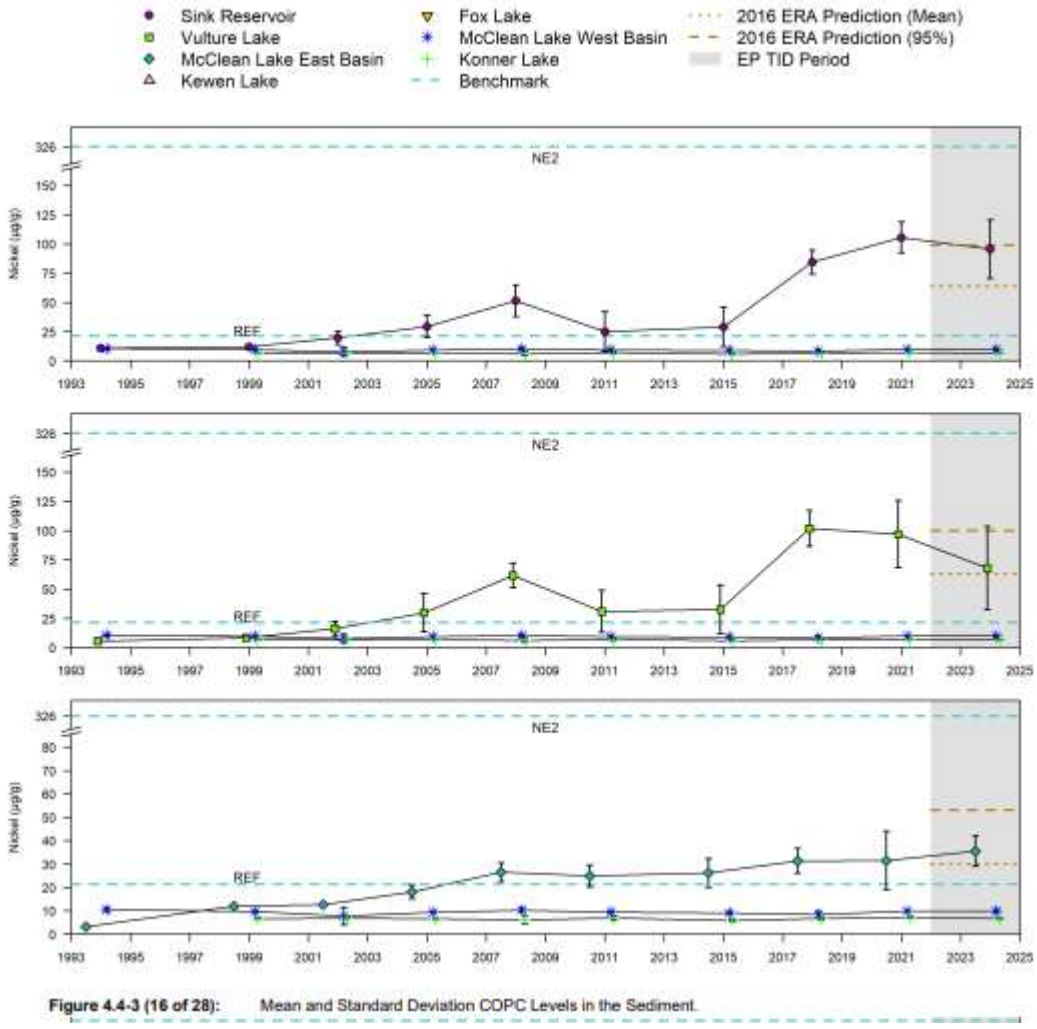


Figure 4.4-3 (16 of 28): Mean and Standard Deviation COPC Levels in the Sediment.

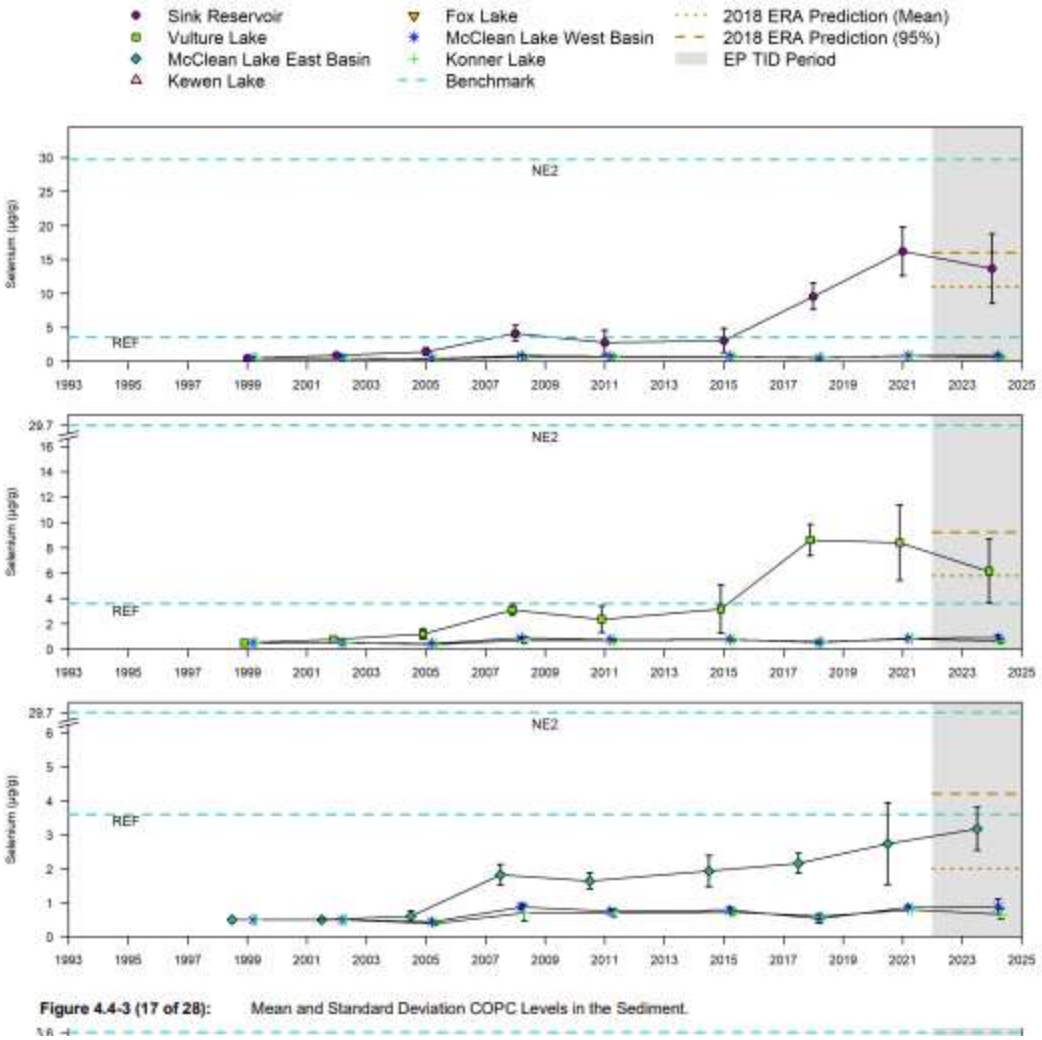


Figure 4.4-3 (17 of 28): Mean and Standard Deviation COPC Levels in the Sediment.

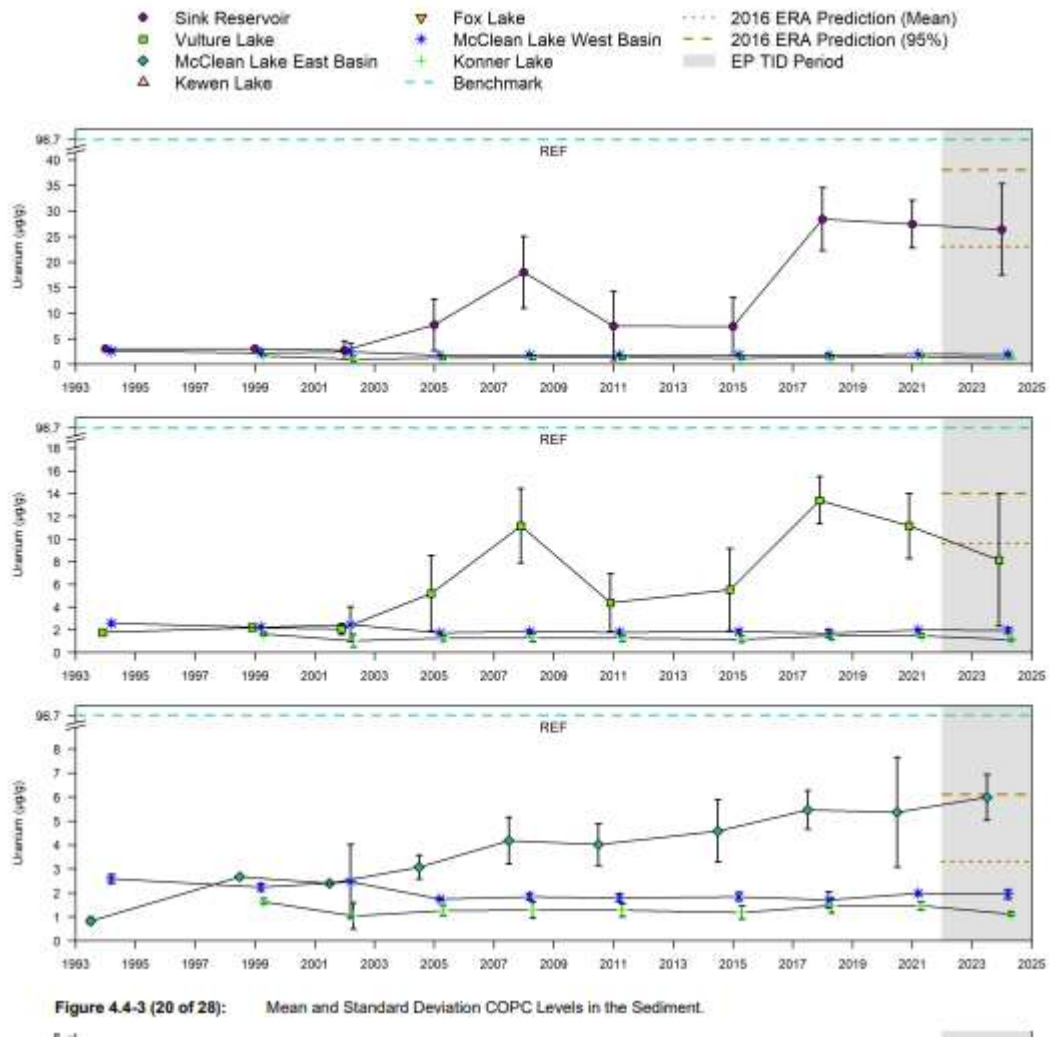


Figure 4.4-3 (20 of 28): Mean and Standard Deviation COPC Levels in the Sediment.

Benthic Invertebrates

- Benthic communities in Sink Reservoir and Vulture Lake historically showed reduced abundance and diversity compared to reference areas, but 2024 results were within normal baseline and reference ranges.
- McClean Lake East Basin and Kewen Lake exhibited minor community changes that were not considered ecologically significant.
- Collins Creek benthic communities remained similar between exposure and reference areas, indicating no measurable operational effects.
- Overall, observed changes were minor, consistent with predictions, and did not indicate adverse ecological impacts.

Fish

- Selenium concentrations in northern pike from Sink Reservoir and Vulture Lake exceeded site-specific reproductive benchmarks, consistent with long-term trends and ERA predictions.
- Other metals in fish tissues were generally stable and near reference or baseline levels in downstream lakes.
- Fish population monitoring in Collins Creek showed healthy populations, with burbot exhibiting good condition and growth in exposure areas.
- Slimy sculpin showed slightly lower reproductive success in exposure areas but maintained healthy growth and condition.
- No evidence of disease outbreaks, deformities, or population-level declines was identified.

TABLE 4.6-25

Selenium Concentrations in Large-Bodied Fish Tissue from the McClean Lake Operation LSA and Associated Reference Areas, September/October 2024.

Year	Species	Tissue	Values[1]	Reference		Pooled Reference	Exposure			
				Henday Lake	Konner Lake		Sink Reservoir	Vulture Lake	McClean Lake East Basin	Kewen Lake
2024	Northern Pike	Bone	N	5	5	10	5	5	5	5
			N<DL	0	0	0	0	0	0	0
			Mean	0.3	0.3	0.3	7.3	7	1.2	0.5
			SD	0.07	0.09	0.01	0.93	1.2	0.51	0.1
		Flesh	N	5	5	10	5	5	5	5
			N<DL	0	0	0	0	0	0	0
			Mean	0.69	0.82	0.755	**28**	**19**	4.2	1.3
			SD	0.1	0.12	0.01	1.1	1.5	0.65	0.18
		ERA Predictio	Mean	-	-	-	19	14	6.5	1.7
			95th %				28	22	16.5	4.3
		Gonad	N	5	4	9	2	2	4	3
			N<DL	0	0	0	0	0	0	0
			Mean	3.9	5.1	4.5	**33**	**34**	8.6	6.2
			SD	1.2	0.26	0.47	7.1	6.4	0.5	0.44
		Kidney	N	5	5	10	5	5	5	5
			N<DL	0	0	0	0	0	0	0
			Mean	5.8	5.9	5.85	42.1	36	8.5	7.3
			SD	1.5	1.2	0.15	20.5	15	1.5	1.5
		Liver	N	5	5	10	5	5	5	5
			N<DL	0	0	0	0	0	0	0
			Mean	4.9	5.9	5.4	25	34	8.7	6.7
			SD	1.1	0.44	0.33	12	14	1.5	2.4
	White Sucker	Bone	N	-	3	-	-	-	3	5
			N<DL		0				0	0
			Mean		0.3				0.8	0.4
			SD		0.1				0.2	0.1
		Flesh	N	-	3	-	-	-	3	5
			N<DL		0				0	0
			Mean		0.83				2.6	1.1
			SD		0.047				0.95	0.23
		ERA Predictio	Mean	-	-	-	19	14	6.5	1.7
			95th %				28	22	16.5	4.3
		Gonad	N	-	3	-	-	-	1	3
			N<DL		0				0	0
			Mean		1.6				5	2.5
			SD		0.2				-	0.32
		Kidney	N	-	3	-	-	-	3	5
			N<DL		0				0	0
			Mean		3				4.7	3
			SD		0.4				0.76	0.44
		Liver	N	-	3	-	-	-	3	5
			N<DL		0				0	0
			Mean		3.1				3.7	3.6
			SD		0.12				1.4	0.44

[1]N = sample size; N<DL = number of samples with concentrations lower than the laboratory detection limit; SD = standard deviation.
Shaded values inidicate means exceed the exceeded the most recent mean or 95th percentile prediction presented in Table 4.6-7.
Bolded values exceed the site specific benchmark for selenium in fish tissue presented in Table 4.6-8 (13.0 µg/g dry weight)
Note: Values that were measured below the detection limit were set to the detection limit when calculating means and standard deviations. Concentrations are reported in µg/g dry weight.

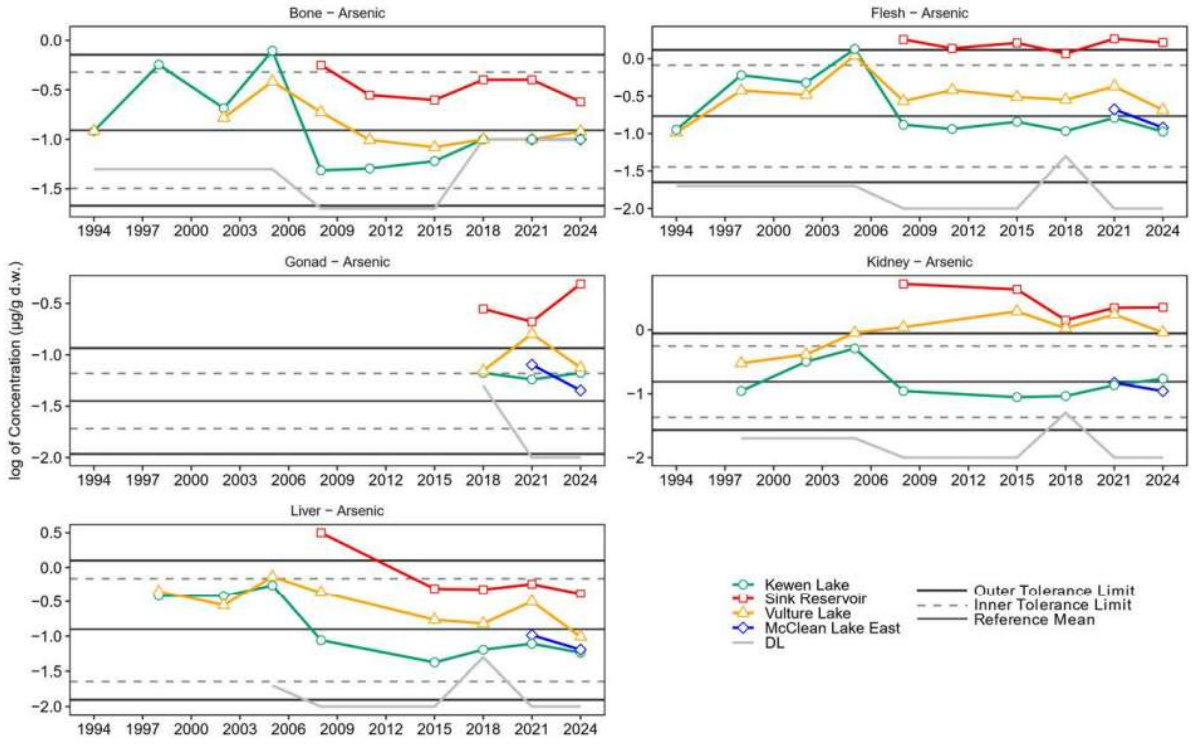


Figure 4.6-11 (3 of 21) Variations in COPCs in Northern Pike collected from Exposure Lakes between 1994 and 2024

Figure Note: Arsenic concentrations in various fish tissue samples are shown.

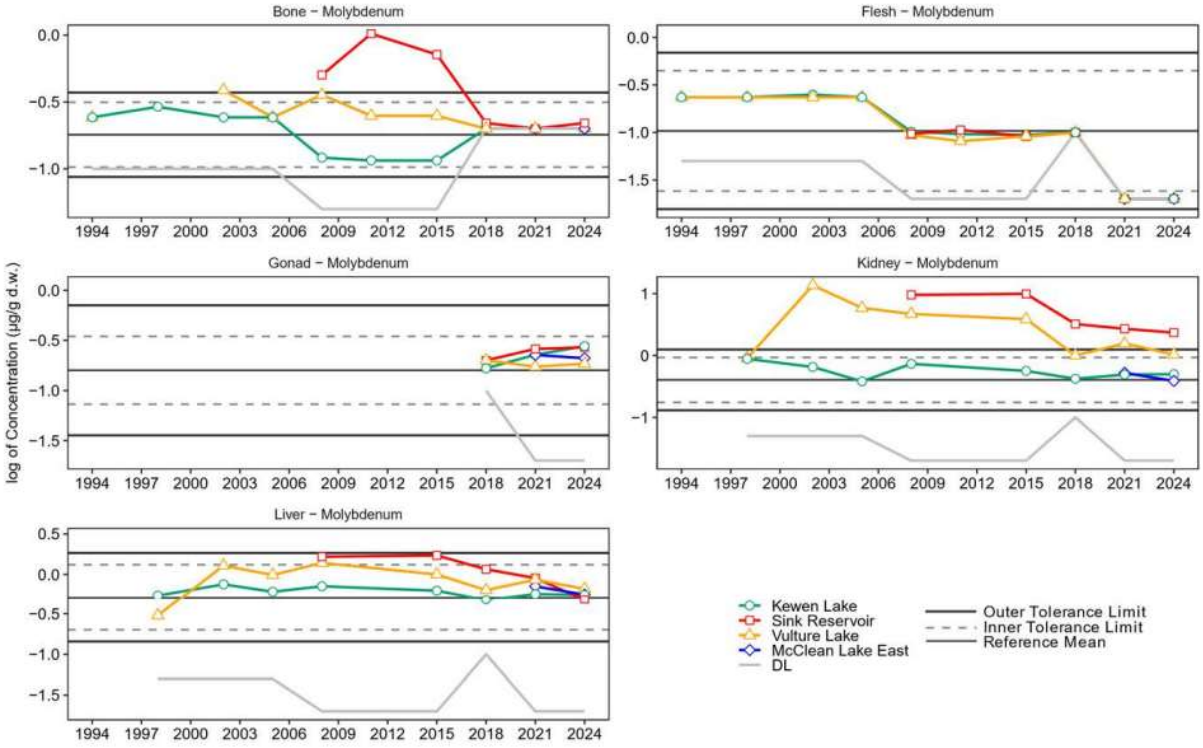


Figure 4.6-11 (13 of 21) Variations in COPCs in Northern Pike collected from Exposure Lakes between 1994 and 2024

Figure Note: Molybdenum concentrations in various fish tissue samples are shown.

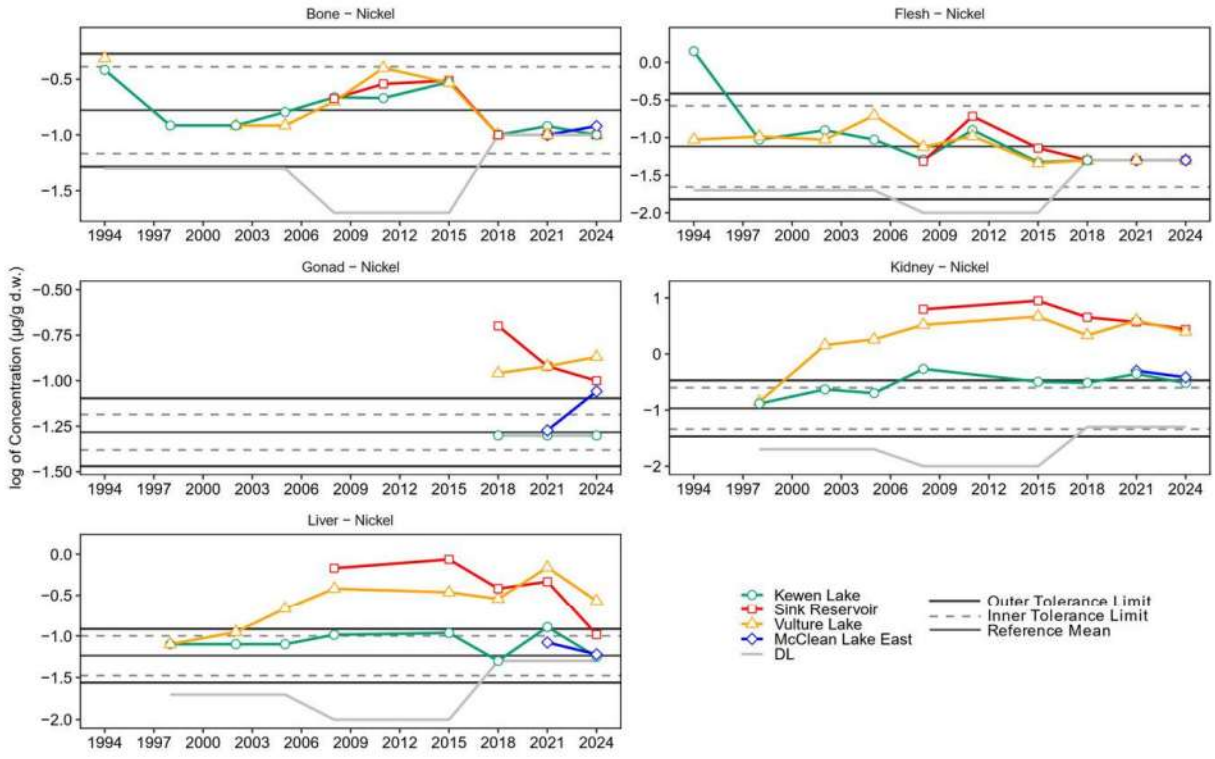


Figure 4.6-11 (14 of 21) Variations in COPCs in Northern Pike collected from Exposure Lakes between 1994 and 2024

Figure Note: Nickel concentrations in various fish tissue samples are shown.

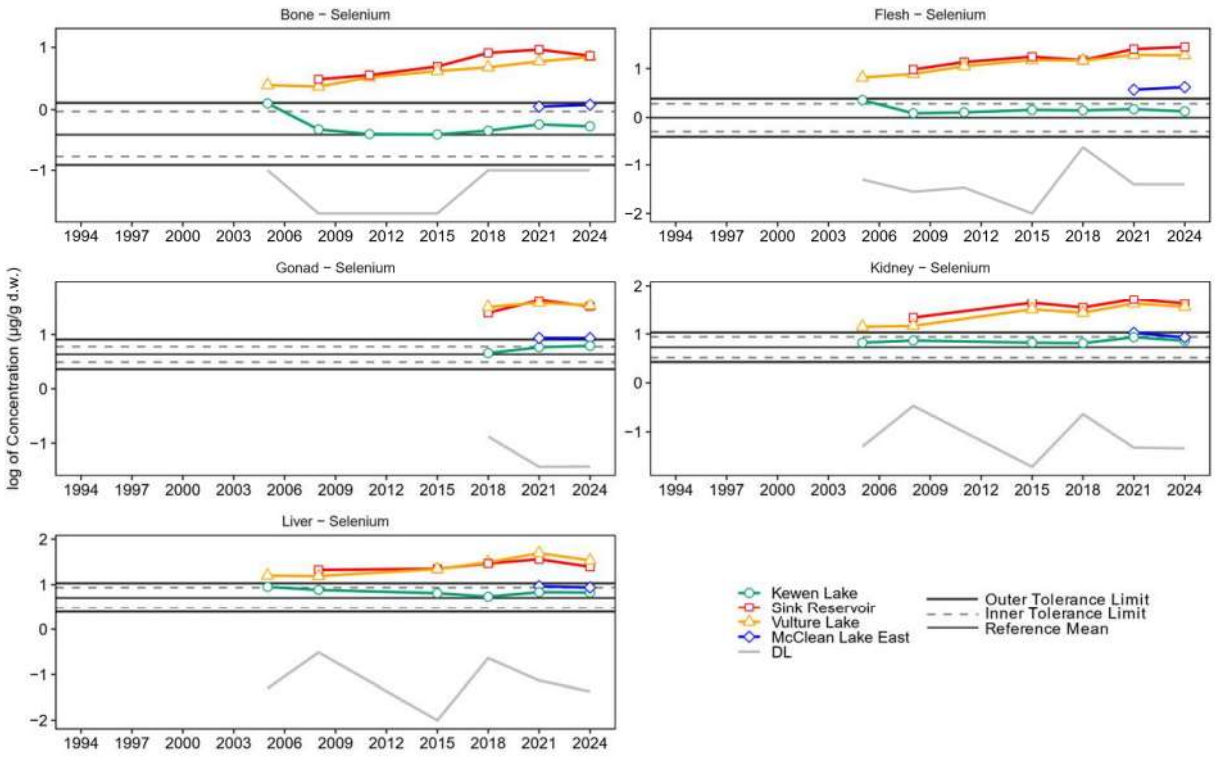


Figure 4.6-11 (15 of 21) Variations in COPCs in Northern Pike collected from Exposure Lakes between 1994 and 2024

Figure Note: Selenium concentrations in various fish tissue samples are shown.

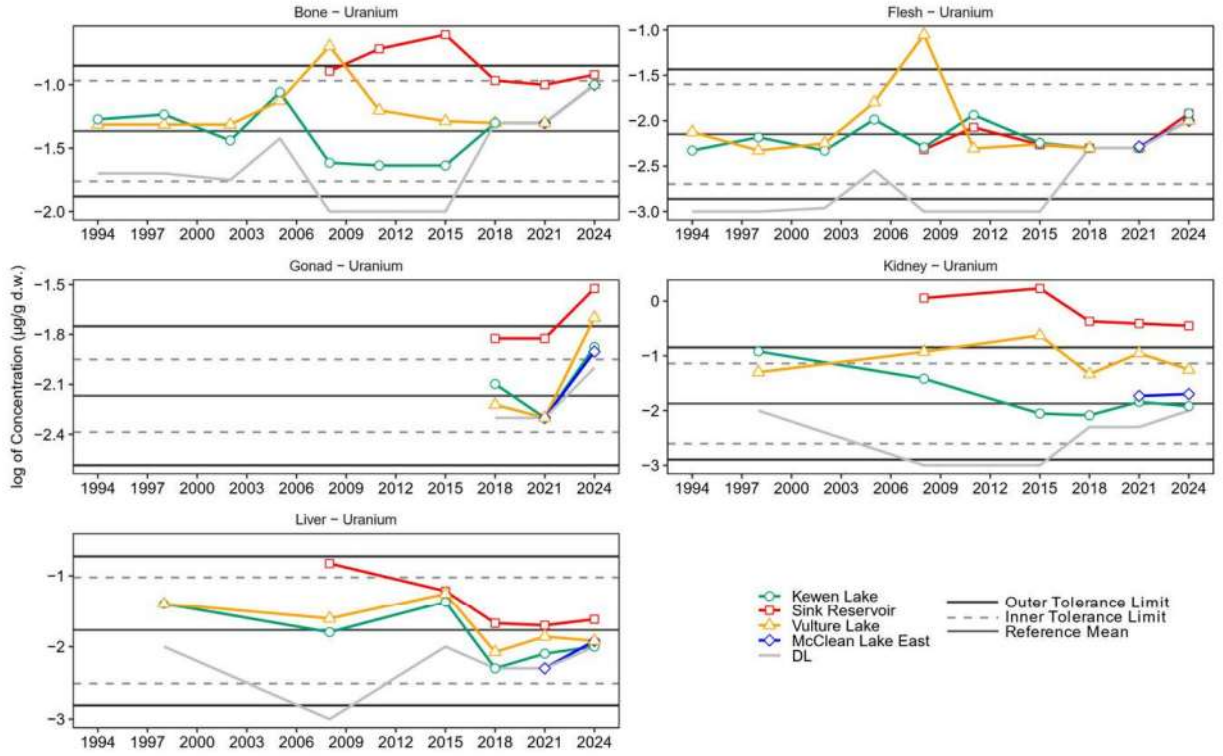


Figure 4.6-11 (20 of 21) Variations in COPCs in Northern Pike collected from Exposure Lakes between 1994 and 2024

Figure Note: Uranium concentrations in various fish tissue samples are shown.

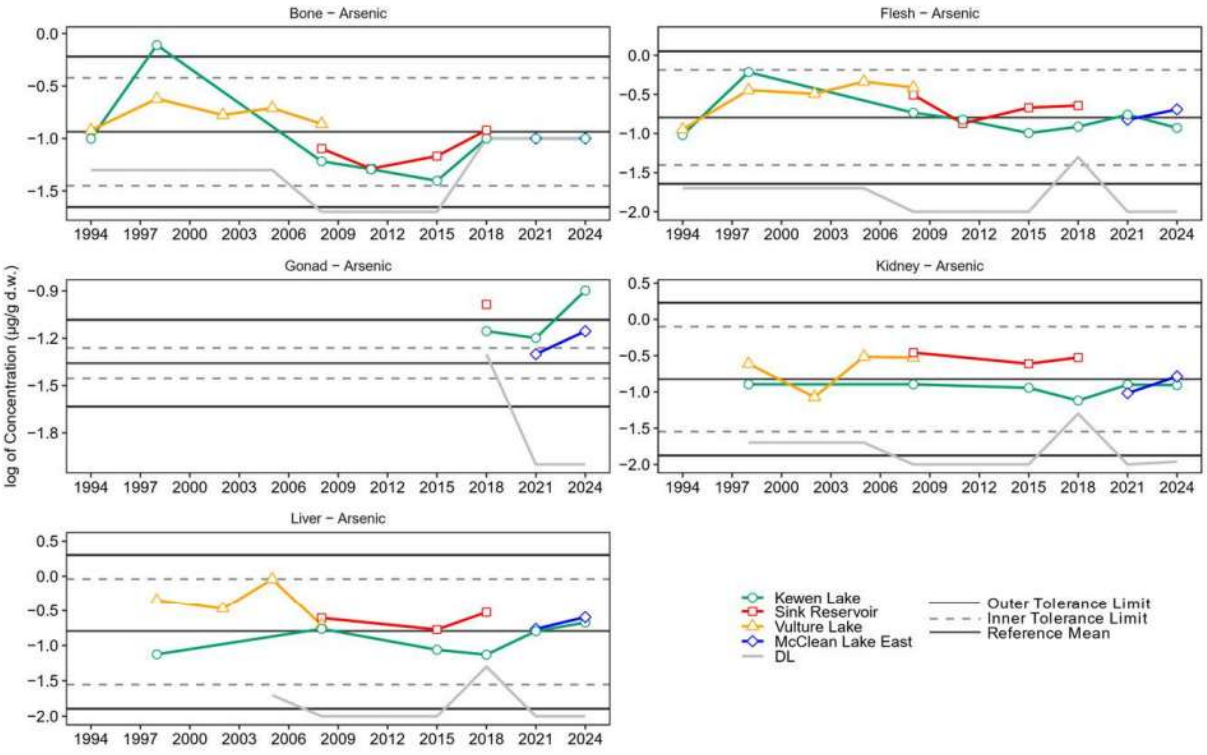


Figure 4.6-16 (3 of 21) Variations in COPCs in White Sucker collected from Exposure Lakes between 1994 and 2024

Figure Note: Arsenic concentrations in various fish tissue samples are shown.

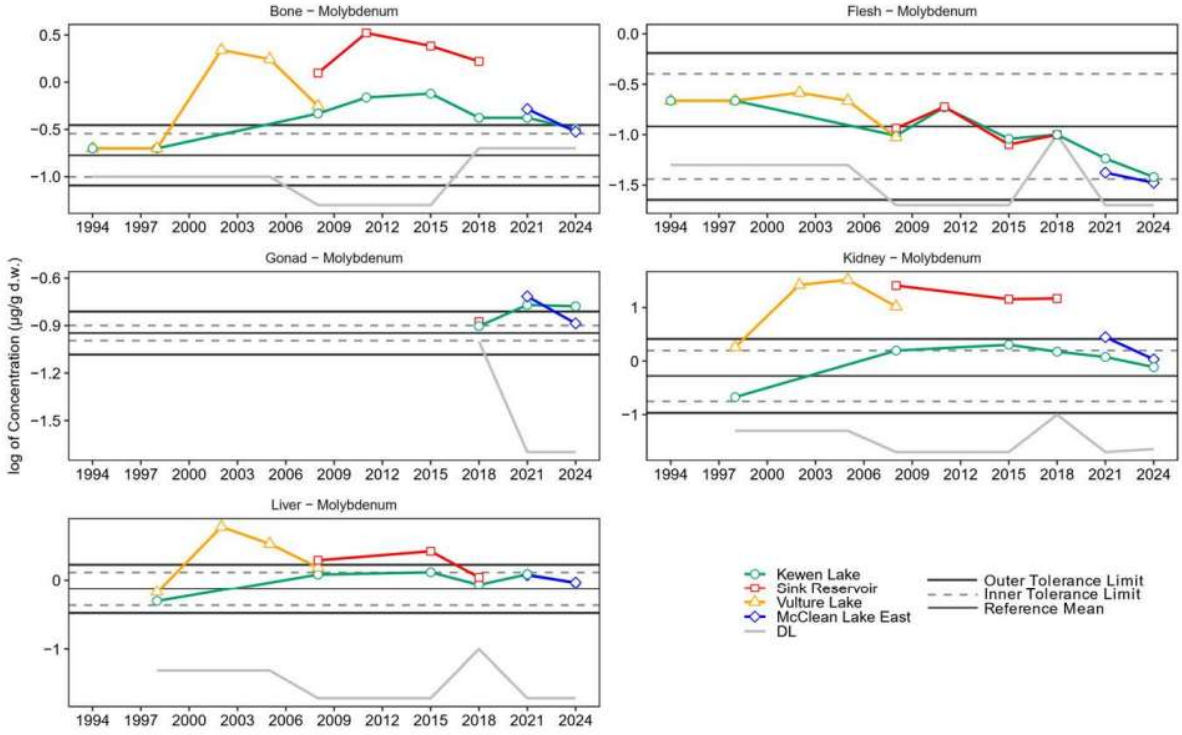


Figure 4.6-16 (13 of 21) Variations in COPCs in White Sucker collected from Exposure Lakes between 1994 and 2024

Figure Note: Molybdenum concentrations in various fish tissue samples are shown.

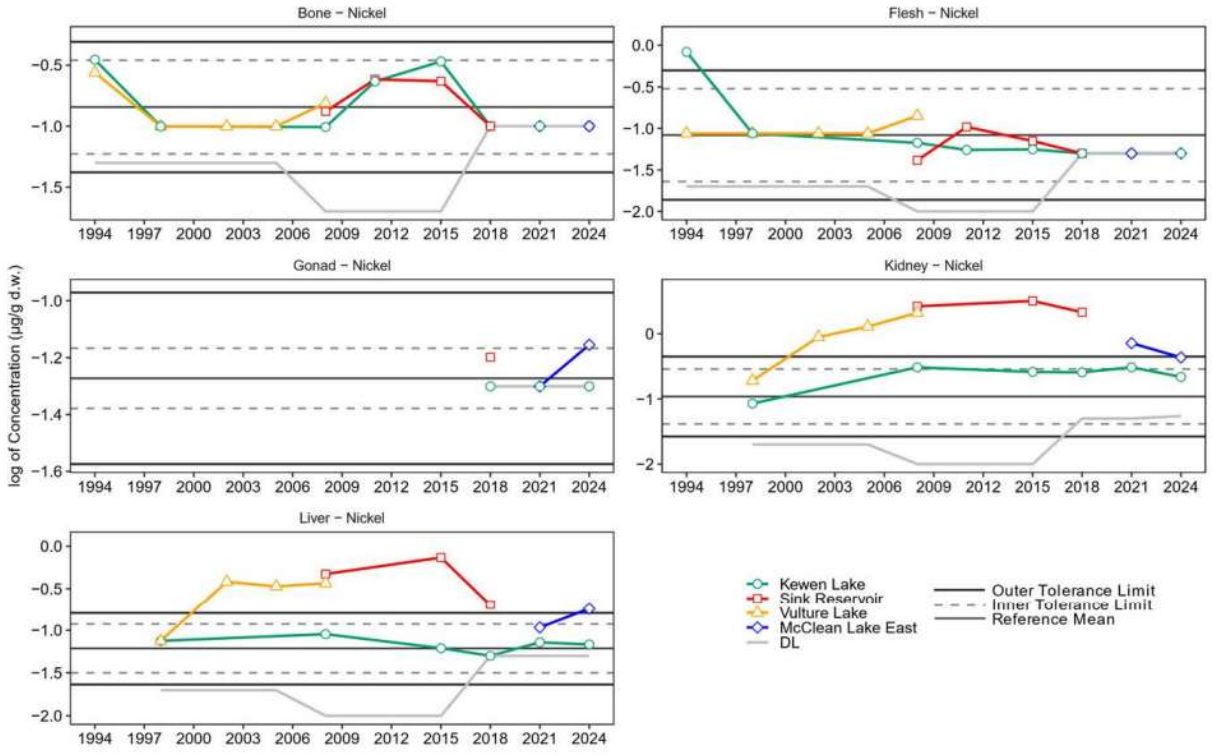


Figure 4.6-16 (14 of 21) Variations in COPCs in White Sucker collected from Exposure Lakes between 1994 and 2024

Figure Note: Nickel concentrations in various fish tissue samples are shown.

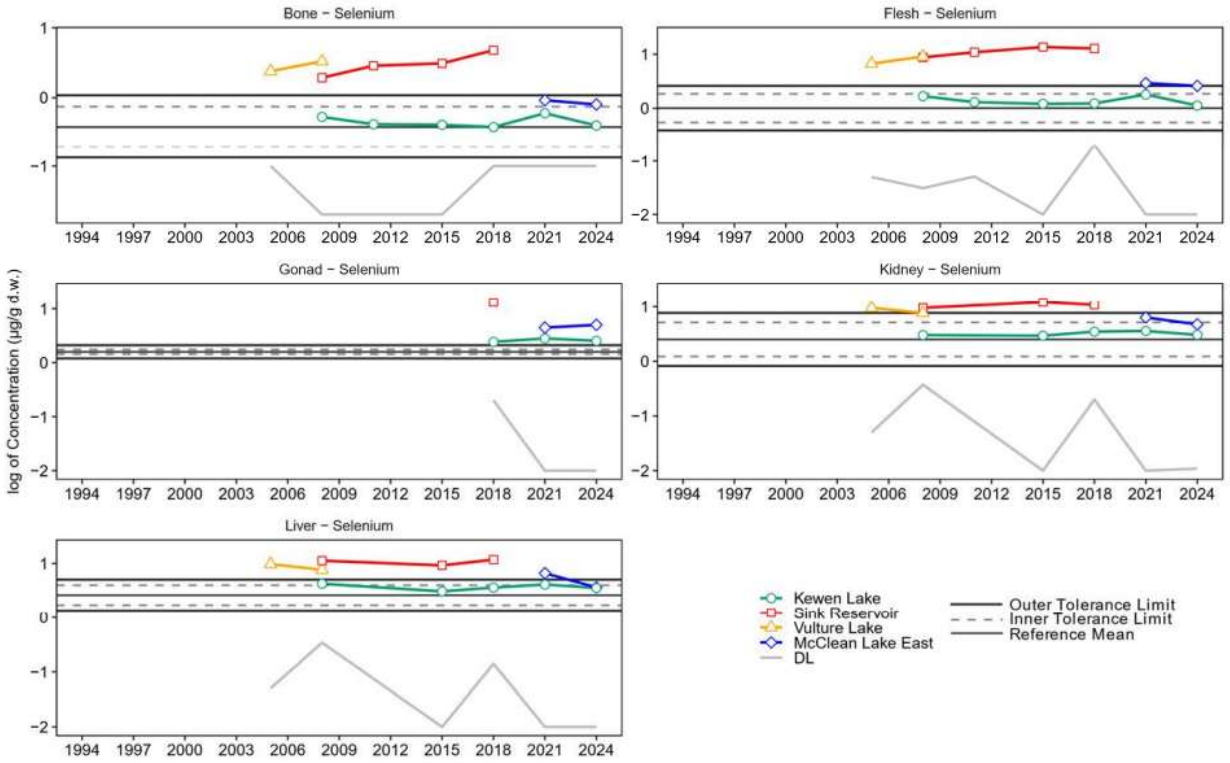


Figure 4.6-16 (15 of 21) Variations in COPCs in White Sucker collected from Exposure Lakes between 1994 and 2024

Figure Note: Selenium concentrations in various fish tissue samples are shown.

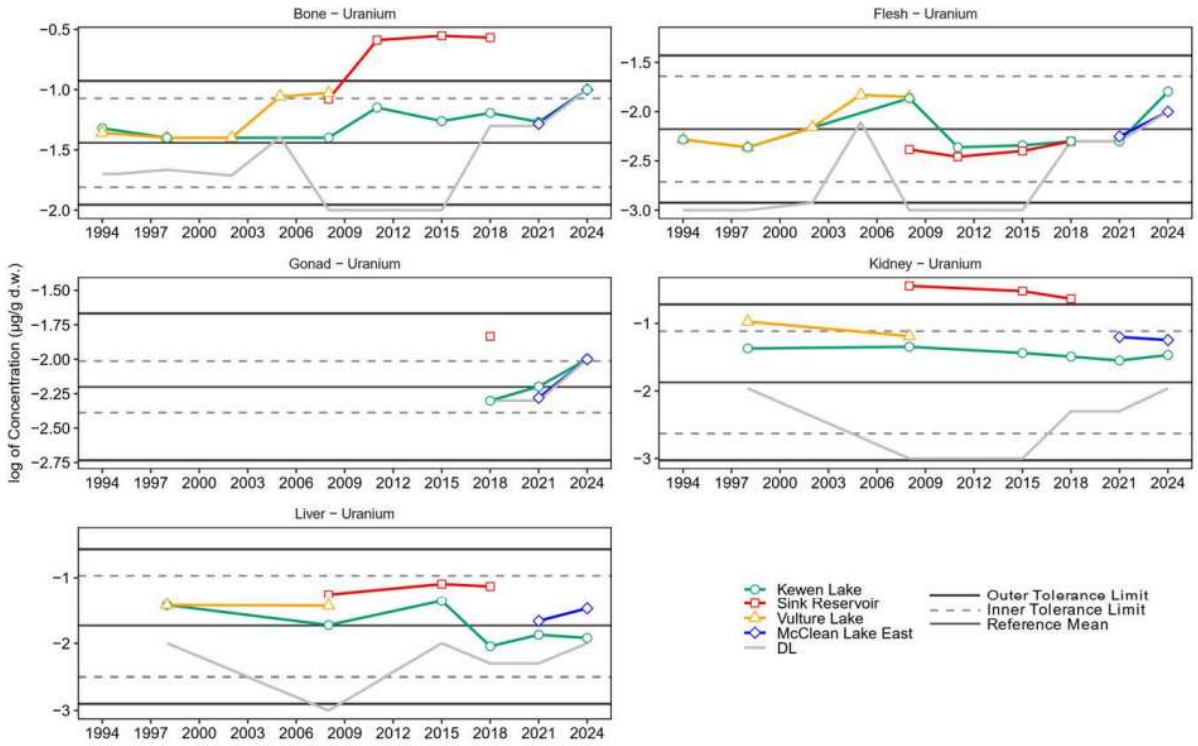


Figure 4.6-16 (20 of 21) Variations in COPCs in White Sucker collected from Exposure Lakes between 1994 and 2024

Figure Note: Uranium concentrations in various fish tissue samples are shown.

Environmental monitoring results indicate that the effects of the MLO remain localized and generally consistent with environmental assessment predictions. Surface water, sediment, benthic invertebrate, and fish communities show largely stable conditions with no evidence of widespread adverse ecological effects. The primary ongoing area of focus continues to be selenium concentrations in fish from Sink Reservoir and Vulture Lake, while additional sediment investigations have been recommended for Bena and Candy Lakes.

CNSC staff anticipate that there is no unreasonable risk to the aquatic environment from radiological and hazardous releases from the MLO, and rate Orano's overall performance at the MLO for SCA: Environmental Protection as satisfactory for the current license period.

Environmental Risk Assessment

The Phase 7 EEM is referenced in the 2025 ERA (REF2) but not the Phase 8 EEM; however, the 2025 ERA appears to be based on all data available including that collected in 2024 (REF1 Table 4.3-10; page 437/1044).

A conclusion in the 2025 ERA (page 30/388), is that while some water quality guidelines are exceeded within the S/V TEMS for a few parameters (i.e., aluminium, chloride, fluoride, nitrate, sulphate, total dissolved solids (TDS), arsenic, cobalt, selenium, silver, and thallium), no exceedances are predicted downstream (i.e., in the receiving environment). As stated on page 70/201 of the CNSC Submission there

is no requirement for water and sediment quality to meet environment quality guidelines in SV/TEMS (mine works). It is summarized in the Orano's Submission that mass loadings of key water quality parameters such as arsenic, nickel, radium-226, selenium and uranium continue to be well below the mass loading predicted in the EIS. Most of the concentrations of COPCs did not exceed the 2016 or 2018 ERAs, including 2018 Selenium Risk Assessment maximum annual mean or the 95th percentile ERA predicted levels for each waterbody. When there were exceedances of the predictions, they either occurred briefly, they were not consistent across all primary exposure areas, or they were caused by the detection limit being higher than the prediction.

Surface Water

- Predicted water quality effects are largely confined to the S/V Treated Effluent Management System (S/V TEMS).
- Some parameters, including aluminum, chloride, fluoride, nitrate, sulphate, total dissolved solids, arsenic, cobalt, selenium, silver, and thallium, may exceed guidelines within the S/V TEMS.
- Concentrations decrease rapidly downstream through dilution and natural attenuation.
- No exceedances of aquatic life guidelines are predicted in McClean Lake East Basin or further downstream.

Sediment

The 2025 ERA (page 30/388) concludes that sediment concentrations of most metals and radionuclides remain below toxicity benchmarks, with localized exceedances of the lowest effect levels for arsenic, molybdenum and nickel within S/V TEMS. For selenium, the predicted sediment concentrations are above the Severe Effects Level (SEL) within S/V TEMS and exceed the lowest effect level (LEL) within McClean Lake East Basin.

- Most sediment metals and radionuclides are predicted to remain below toxicity benchmarks.
- Localized sediment exceedances are predicted within the S/V TEMS:
- Arsenic, molybdenum, and nickel may exceed Lowest Effect Levels (LELs).
- Selenium may exceed the Severe Effect Level (SEL) in the S/V TEMS and the LEL in McClean Lake East Basin.
- Sediment concentrations are predicted to decrease downstream and recover after decommissioning. Selenium predictions are lower than those in the 2016 ERA.

Figure 3.5-20 Water Quality Predictions – Base Case - Selenium

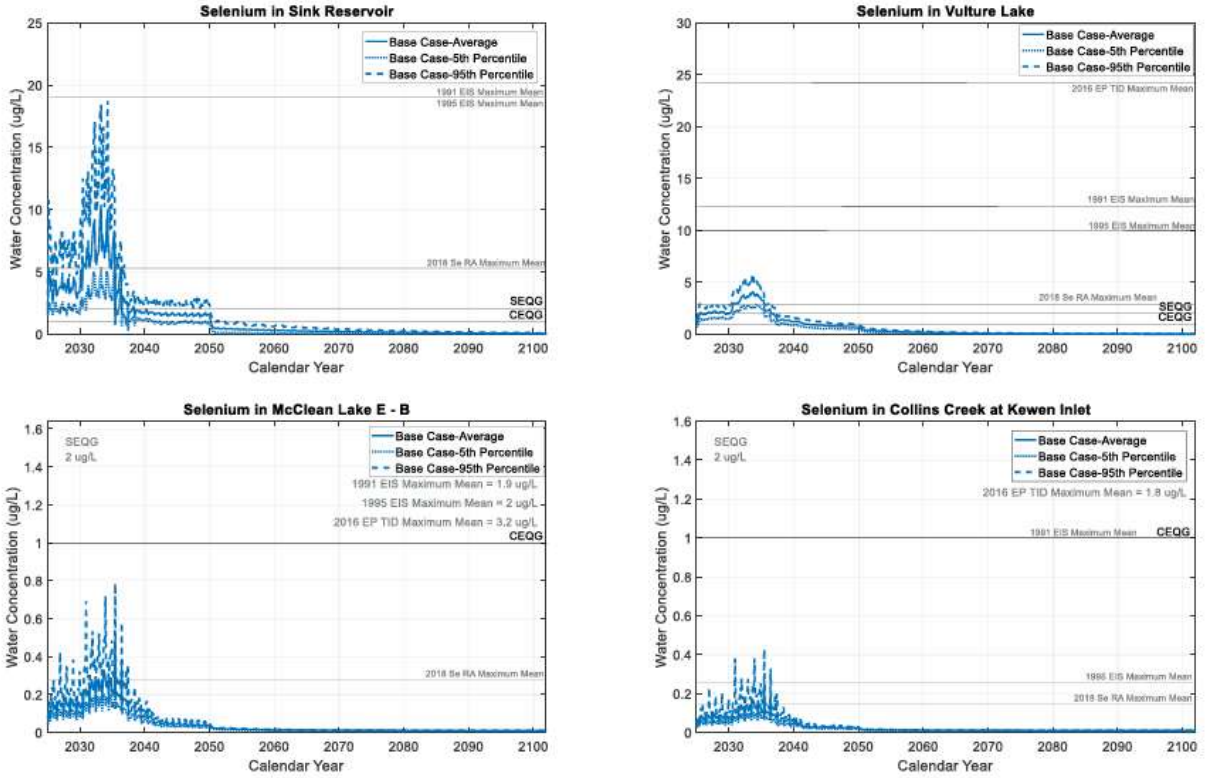
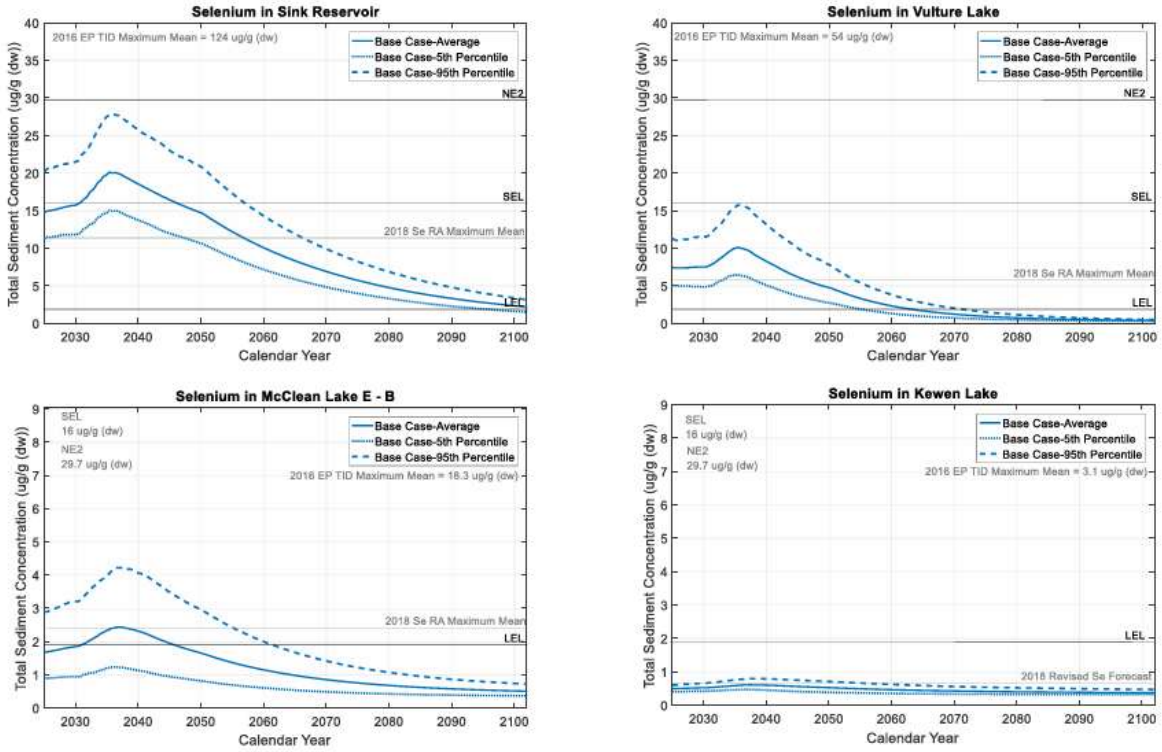


Figure 3.5-37 Sediment Quality Predictions – Base Case - Selenium



Benthic Invertebrate

- Significant effects on benthic abundance and species richness are predicted within the S/V TEMS and Vulture Lake.
- Effects are associated with elevated chloride, nitrate, sulphate, selenium, and aluminum concentrations.
- McClean Lake East Basin is predicted to experience only subtle community changes.
- No discernable effects are predicted in Kewen Lake and farther downstream, where communities are expected to reflect natural variation.
- Effects are expected to diminish following decommissioning as contaminant concentrations decline.

Fish

- Selenium is identified as the primary fish tissue COPC.
- Under the Base Case with selenium treatment:
    - Fish tissue selenium in the S/V TEMS and Vulture Lake may temporarily exceed the site-specific benchmark of 13 µg/g dry weight.

    - Concentrations in McClean Lake East Basin and downstream waters are predicted to remain below the benchmark.
- Predicted selenium concentrations are substantially lower than those predicted in the 2016 ERA due to improved treatment and management.
- Other metals are not predicted to approach tissue toxicity benchmarks.
- Population-level effects are not anticipated downstream of the S/V TEMS. Monitoring indicates any potential adverse effects are limited to the near-field area around the S/V TEMS and Vulture Lake.

Activities to Occur

As relevant to the requested extension timeframe, I've identified the activities planned over the next 2 years.

- Additional JEB TMF liner expansion is planned for spring/summer 2027
- Underperforming groundwater wells part of the EMP phase one remediation will be undertaken to redevelop/unlock wells recoverable and further evaluation of the potential to redrill / relocate well which may be damaged beyond recovery.

The 2025 ERA predicts that environmental effects remain localized to the S/V TEMS and nearby Vulture Lake. Surface water, sediment chemistry, benthic invertebrate, and fish tissue effects are expected to decrease substantially with distance from the discharge area, with no significant downstream impacts predicted for McClean Lake East Basin, Kewen Lake, or Collins Creek. Predicted risks are generally similar to or lower than those assessed in the 2016 ERA, largely due to improvements in selenium treatment and environmental management.

Revised Financial Guarantee

Accept the proposed revised financial guarantee amount of C$122,557,378 for Orano's McClean Lake Operation for decommissioning, which is an increase of $20.5 million.

Relicensing Framework

The Midwest Open Pit Mining Project EIS is already included in the licensing basis for the MLO; Orano is required to submit detailed construction and operating plans, designs and programs to the CNSC prior to mining the Midwest ore body. The future licensing submission will describe the integration of SABRE facilities and activities within the existing MLO safety and control framework and demonstrate consistency with the Site's approved environmental protection, radiation protection and operational programs.

Findings from Review of Submissions

I have reviewed the CMD 26-H105 identifying questions and comments community members would likely have, taking into consideration my engagement with ERFN and the knowledge and understanding I have of the uranium industry and regulatory requirements. The review was completed in this manner to

critically review the relicensing documents in a concise and culturally aware manner focusing on areas of interest. Blue font indicates information not excised from the submissions but provided based on the review of these documents.

Bena and Candy Lakes – Increasing Concentrations of Major Ions

In the Orano Submission (page 74/114), it is identified in Section 3.9.4 Challenges that increasing concentrations of major ions have been observed in surface water of Bena and Candy Lakes in recent years. Concentrations remain generally within applicable water quality guidelines, except for nitrate levels in Bena Lake. Investigation to identify the source will continue through 2026, with a mitigation plan to be developed. Current, understanding is residues of blasting agents used during open-pit mining of Sue E Deposit not sufficient alone to explain; as such, investigating Sue E Clean Waste Rock Pile and Bena Lake area to better understand nitrate pathways. It is stated in REF1 that the nitrate concentrations in Bena Lake have decreased since peaking in 2021 (REF1 page 41/1044); it is stated that nitrate + nitrite concentrations in Bena Lake, exceeded SEQG for the protection of aquatic life in 2016 – 2022 (107/1044).

> The elevated levels of nitrate and some major ions in Bena and Candy lakes were not predicted in the EA nor in previous ERAs (last ERA was 2016). Even though it is acknowledged that the levels peaked in 2021 and that concentrations in Bena Lake exceeded water quality guidelines, there appears to have been no mention of these effects in the past RORs that ERFN reviewed. ERFN has expressed concern in the past that 10-year licensing periods are too long and unlike a ROR review a relicensing hearing provides more information and a more meaningful opportunity for input.

Below is an excerpts from REF1 illustrating measured results in Bena Lake (Table 4.3-19) that indicates an increasing trend in Bena Lake and nitrate and from REF2 (ERA; Table 7.2-2) that shows that measured levels decreased from 2022 to 2024. It would appear that the conclusions in the ERA are based on expectation that measured levels are decreasing and will continue to decrease.

TABLE 4.3-19

Statistical Analysis and Benchmark Comparison Results for the Sue Secondary Exposure Areas at the McClean Operation, Time Period 2, 1998 to 2024.

COPC	Metric	Sue Lake WQ16E	Sils Lake WQ17E	Candy Lake WQ18E	Bena Lake WQ19E
Nutrients					
Ammonia (as N)	%<RDL	18.9	17	27.8	11.1
	Trend	decrease	no change	no change	increase
	GL Exceedance	no	no	no	no
Carbon, Inorganic	%<RDL	100	93.1	20	10
	Trend	NA	NA	no change	increase
	GL Exceedance	NA	NA	NA	NA
Nitrate (as N)	%<RDL	69.2	53.8	64.2	35.8
	Trend	NA	NA	NA	increase
	GL Exceedance	no	no	no	exc
Nitrogen, Total	%<RDL	0	0	0	0
	Trend	no change	no change	no change	increase
	GL Exceedance	NA	NA	NA	NA
Nitrogen, Total Kjeldahl	%<RDL	0	0	0	0
	Trend	no change	no change	no change	increase
	GL Exceedance	NA	NA	NA	NA
[illegible]	Trend	NA	NA	NA	increase
	GL Exceedance	no	no	no	exc
Nitrogen, Total	%<RDL	0	0	0	0
	Trend	no change	no change	no change	increase
	GL Exceedance	NA	NA	NA	NA
Nitrogen, Total Kjeldahl	%<RDL	0	0	0	0
	Trend	no change	no change	no change	increase
	GL Exceedance	NA	NA	NA	NA
Phosphorus	%<RDL	69.8	79.2	85.2	79.2
	Trend	NA	NA	NA	NA
	GL Exceedance	NA	NA	NA	NA
Alkalinity	%<RDL	18.8	18.8	0	0
	Trend	no change	no change	no change	increase
	GL Exceedance	NA	NA	NA	NA
Bicarbonate	%<RDL	17	17	0	1.9
	Trend	decrease	decrease	no change	increase
	GL Exceedance	NA	NA	NA	NA
Calcium	%<RDL	3.8	0	0	0
	Trend	decrease	no change	increase	increase
	GL Exceedance	NA	NA	NA	NA
Chloride	%<RDL	28.3	24.5	0	5.6
	Trend	0[1]	no change	increase	increase
	GL Exceedance	no	no	no	no

Table 7.2-2 Estimated Water Concentration in Bena Lake from Groundwater Loading

Parameter	WQG[e]	Units	Peak Groundwater Loading (kg/y)[a]	Estimated Concentration (mg/L) Including Groundwater Load			Mean Measured Concentration (mg/L)[d]		
				Baseline[b]	Incremental[c]	Total	2022	2023	2024
Ammonia (as N)	0.51	mg/L (as N)	36.5	0.05	0.074	0.12	0.12	0.15	0.30
Nitrate (as N)	3	mg/L (as N)	294.8	0.2	0.60	0.8	**4.0**	2.4	1.0
Bicarbonate	-	-	196.5	12	0.4	12	29	34	18
Calcium	-	-	224.6	2.3	0.45	2.7	7.4	9.1	4.3
Chloride	120	mg/L	21.1	0.4	0.04	0.5	1.2	1.1	0.75
Fluoride	1.0	mg/L	1.1	0.03	0.002	0.04	0.09	0.10	0.05
Magnesium	-	-	53.4	0.8	0.11	0.9	2.1	2.4	1.3
Potassium	-	-	31.6	0.5	0.06	0.5	1.4	1.5	0.8
Sodium	200[f]	mg/L	32.3	1.2	0.07	1.2	1.6	1.9	1.0
Sulphate	128	mg/L	11.9	0.8	0.02	0.8	0.4	0.5	0.5
Total Dissolved Solids	500	mg/L	2050.0	37	4.1	41	59	63	39

Notes:
[a] values taken from Appendix VII.2
[b] values taken from Table IV.4-3 of the 2016 McClean EP TID Vol.1 (AREVA 2016)
[c] estimated as the peak loading diluted in the annual discharge volume (0.45×10^6 m^3) as shown in Table 7.2-1
[d] as provided in Table 4.3-15 of 2025 EP TID Vol.1 (Orano 2025)
[e] Refer to Table 3.4-1.
[f] Total and dissolved, SEQG (ENV 2025)

A risk evaluation for Bena Lake was conducted based on current conditions. The assessment concluded that recent nitrate levels pose no risk to the aquatic community in downstream Candy Lake and represent a potentially low risk to sensitive fish species in Bena Lake. The potential for eutrophication was also evaluated. Given the system's low phosphorus levels, nitrate concentrations are not expected to influence the trophic status of either Bena or Candy lakes. This information was used to propose a site-specific objective for nitrate, which is currently under regulatory review.

Selenium Loadings

The most significant environmental issue identified in the submissions for the MLO, including in the ERA, continues to be selenium. As stated in the CNSC Submission (page 65/210), selenium concentrations in the JEB WTP effluent have been the subject of CNSC regulatory attention since 2016, when Orano proactively identified the probability of increased selenium concentrations in the effluent with processing of the Cigar Lake ore at the MLO and the 2016 ERA indicated the potential risk to aquatic and terrestrial biota for selenium.

> The text indicates that elevated selenium levels were identified in 2016; however, the graphed monitoring data (REF1) show there was also a spike in aqueous concentrations between 2008 to 2011. The graphs also show that at the same time as the aqueous concentrations were elevated, sediment concentrations dramatically increased in 2016. Further, the aqueous and sediment concentrations are shown to drop together in 2022, however, it would be expected that sediment concentrations likely would increase and decline much more slowly than aqueous concentrations as sediment acts as a long-term reservoir.

The CNSC placed the MLO under adaptive management and asked Orano to decrease selenium discharges leading to measures to control selenium releases in the short term (e.g., substantial

optimization of process controls, interim action level and an exposure-based release limit for selenium, comprehensive risk assessments of selenium's impacts on aquatic biota, and strengthened environmental monitoring of aquatic species downstream).

Following, the three-selenium interim action level exceedances CNSC asked Orano to propose a long-term solution for the reduction of selenium loadings to the environment, this led to updating the selenium adaptive management plan, including installation of ferrous sulphate treatment system (2022) the final commissioning stage has been delayed as of September 2025 due to low selenium levels in the feed. Orano has concluded that there are no significant risks to the downstream environment due to selenium loading to the receiving environment up to the McClean Lake Mill production rate up to 18 million pounds of triuranium octoxide / yellowcake (U_3O_8) equivalent per year.

Key observation in the 2025 ERA are:

- Selenium aqueous concentrations are predicted to be above the 2018 Revised Selenium Forecast (REF2 page 98/388), while levels are expected to exceed guidelines in the S/V TEMS, no exceedances are anticipated at the downstream locations.
- Selenium predicted sediment concentrations are above the SEL within S/V TEMS. Within McClean Lake East Basin, selenium concentrations in sediment exceed the lowest effect level at this location (REF 2, page 30/388).

  In the ERA (REF 2, page 100/388), the Lowest Effect Level (LEL) of 1.9 ug/g is exceeded at all locations except Kewen Lake. The SEL of 16 ug/g is only exceeded by predictions in Sink Reservoir with prediction for the other three locations remaining below the SEL. All predictions are below the No-Effect (NE2) of 29.7 ug/g.
- Selenium concentration in Northern Pike (*Esox lucius*) from Sink Reservoir and Vulture Lake exceeded site-specific tissue benchmarks (REF1, page 42/1044).
- Northern Pike ovary selenium concentrations exceeded reproductive-effect benchmarks and may contribute to reduced reproductive success.
- Selenium levels in downstream fish population remained below benchmarks and consistent with previous ERA predictions.

The ERA assessment concludes that potential effects on terrestrial species are negligible, while localized risk to aquatic biota within the S/V TEMS may occur due to elevated TDS, aluminum, chloride and sulphate. The potential selenium-related effects to aquatic species are limited to the S/V TEMS and a few terrestrial species at McClean Lake East Basin (REF2, page 187/388 lists blackbird, yellowlegs, mink, and little brown myotis) and no downstream impacts are anticipated. In the ERA (REF2, page 188/288) it is stated that the 1995 EIS concluded the discharge of treated effluent to Sink Reservoir was determined to result in moderate to major impacts on aquatic resource within the S/V TEMS during the operating life of the Project.

> If selenium concentrations are higher in S/V TEMS as compared to McClean Lake East Basin and there are predicted effects to a few terrestrial species at the lower concentration in McClean Lake East Basin than would there not be greater risk to terrestrial species within S/V TEMS

(REF2, page 187/388 lists mallard, merganser, yellowlegs, mink, muskrat, blackbird, and little brown myotis). There is no indication that this risk doesn't require mitigations to protect individuals (e.g., migratory birds, species at risk).

As illustrated in the graphs provided, aqueous selenium concentrations in McClean Lake East Basin do not appear to be increasing, however, sediment concentrations do appear to be increasing.

Uranium Loadings

Uranium releases from the uranium mines and mills have been subject to CNSC regulatory attention since the mid 2000s, when uranium was added to the second Priority Substances List (PSL2) of the *Canadian Environmental Protection Act* (CEPA). CNSC staff are satisfied that Orano is taking the appropriate measure to effectively control and reduce uranium in effluent.

From the graphs, although there is not an increasing trend in aqueous uranium concentration it would appear that sediment concentrations are increasing in the sediment in McClean Lake East Basin.

Molybdenum Loadings

Molybdenum releases were brought into increased regulatory oversight as a result of risks identified to riparian wildlife, such as muskrat and moose. CNSC staff reviewed the molybdenum and uranium in effluent data from the JEB WTP and noted that they remained relatively stable during the current licensing period. CNSC staff are satisfied that Orano is taking the appropriate measure to effectively control and reduce molybdenum in effluent.

If aqueous concentrations of molybdenum are predicted to stay below guidelines and stable, then why are there molybdenum predicted exceedances of sediment LELs within the S/V TEMS.

Conclusion

From my review of the information provided there is no reason to object to the CNSC's conclusions the MLO is being managed effectively in terms of the SCAs and that the 2-year extension would not result in an undue risk. Consistent with the 2024 ROR, it is concluded that adequate protections are in place to protect the environment and humans.

However, the 2-year renewal may be perceived as a 'bridge" to larger future projects and ERFN may want to establish whether or not First Nation consultation would occur as part of approval process for the Midwest, Sue F and SABRE expansion as it is acknowledged that these areas will require further approvals from the CNSC and MOE.

Sincerely,

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