Environmental Protection Operations Directorate
Prairie & Northern Region
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 6100 000 084/011
NIRB File: 22EN032

July 5, 2022

via email at: info@nirb.ca

Mia Otokiak
Junior Technical Advisor
Nunavut Impact Review Board
29 Mitik Street
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Mia Otokiak:

RE: 22EN032 – Forum Energy Metals Corp. – Nunavut Uranium Program – Screening

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Impact Review Board (NIRB) regarding the above-mentioned screening.

ECCC is providing technical, science-based information and knowledge based on our mandate pursuant to the *Canadian Environmental Protection Act*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act.* These comments are intended to inform the assessment of this project's potential effects in the receiving environment and on valued ecosystem components. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

The following comments are provided:

1. Drill Cutting Disposal

Reference(s)

- Waste Management Plan; Table 2.1: Non - hazardous (Inert) Wastes
- Abandonment and Reclamation Plan; Ongoing Operations, Seasonal Abandonment, Final Abandonment and Restoration Plans – Ongoing Operations – Drill Hole Locations

Comment

The Waste Management Plan states that disposal of drill cuttings will depend on uranium mineralization; if uranium mineralization is encountered the cuttings in sumps will be

scanned to determine the gamma radiation levels. Cuttings with levels above 1 uSv/h at a height of 1 m will be collected and shipped to an appropriate disposal location. The cuttings will already be in a sump, and removal will be done after they have been deposited. This will result in double handling of the cuttings and leave a disturbed surface which could be vulnerable to thermal erosion and surface erosion, as well as containing residual radioactive cuttings.

This contradicts the practices outlined in the Abandonment and Restoration Plan which states:

"If uranium mineralization is encountered in a drill hole and down hole conditions are such that drill return circulation persists, a drill cuttings separator will be employed to remove the radioactive material from the drilling fluids. Drill mud solids or cuttings with uranium concentration greater than 0.05 per cent must be collected pending completion of the hole at which time they will be disposed down the drill hole and sealed by grouting the upper 30 metres of bedrock."

Dealing with any radioactive cuttings at source as described represents a more efficient and proactive approach. It is unclear if monitoring of radiation levels can reliably be done in real time.

ECCC Recommendation(s)

ECCC requests clarification be provided on:

- handling and disposal of radioactive drill cuttings;
- details of measurement techniques available for identifying drilling wastes requiring segregation and disposal due to radioactivity.

2. Drill Site Scans

Reference(s)

- Abandonment and Reclamation Plan; Ongoing Operations, Seasonal Abandonment, Final Abandonment and Restoration Plans – Ongoing Operations – Drill Hole Locations

Comment

The Abandonment and Restoration Plan states:

"Any drill hole that encounters mineralization with uranium content greater than 1.0 per cent over a length of more than 1.0 metre, and with a meter-per-cent concentration greater than 5.0, will be sealed by grouting over the entire length of the mineralization zone and not less than 10 meters above or below each mineralization zone. The top 30 meters of the hole within bedrock will also be sealed by grouting once any radioactive cuttings and sludge have been disposed down the hole… A final inspection of the site will ensure that there is no remaining material at the site upon completion of the drill hole."

During restoration of the drill site after completion of drilling, it may be necessary to conduct gamma and radon gas scans of the drill holes that contain uranium mineralization in order to ensure that there are no residual radiation issues. It is likely where uranium mineralization is present, radon-222 would also be present at corresponding levels; the radon gas scan would be useful to detect the tightness of the grouting.

ECCC Recommendation(s)

ECCC recommends before final inspection of the drill sites, that a Geiger counter scan (gamma scan) and radon gas scan be conducted at the drill holes that encountered uranium mineralization in order to ensure radiation levels do not pose any danger.

3. Species at Risk

Reference(s)

- Wildlife Monitoring and Mitigation Plan

Comment

Species at risk are assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or added to Schedule 1 of *Species at Risk Act* (SARA) on a regular basis. It is important for Proponents to ensure they are aware of what species are present in the project area and take appropriate actions to ensure compliance with the SARA. The killing, harming or harassing of listed species as well as the damage and destruction of their residences is prohibited under SARA. In the territories, the prohibitions apply to:

- Threatened, Endangered and Extirpated species listed on Schedule 1 of SARA on ECCC and Parks Canada lands[1]
- Migratory Birds (as defined under the *Migratory Birds Convention Act* (MBCA)) everywhere they are found.

The destruction of critical habitat of species listed under Schedule 1 of SARA is prohibited on all lands identified within the critical habitat protection order for the species.

ECCC Recommendation(s)

As species are assessed and listed on a regular basis, ECCC recommends the Proponent:

a) Consult the Species at Risk registry to obtain the most current information for their operations.

b) Consult the Government of Nunavut to identify appropriate mitigation and/or monitoring measures to avoid and lessen project effects to species under their management

[1] SARA s.35
(1) Sections 32 and 33 apply in each of the territories in respect of a listed wildlife species only to the extent that the Governor in Council, on the recommendation of the Minister, makes an order providing that they, or any of them, apply.
Exception (2) Subsection (1) does not apply
(a) in respect of individuals of aquatic species and their habitat or species of birds that are migratory birds protected by the *Migratory Birds Convention Act, 1994*; or
(b) on land under the authority of the Minister or the Parks Canada Agency.

responsibility.

4. Species at Risk Missing and/or Effects and Measures Missing

Reference(s)

- Wildlife Monitoring and Mitigation Plan

Comment

Section 79 of SARA requires the assessor and decision body to ensure that where a project is likely to affect a listed species or its critical habitat, all adverse effects of the project are identified and considered in the assessment of the project.

Appropriate measures must be taken to avoid or lessen those effects and include monitoring. Measures should be consistent with applicable recovery documents.

Section 79 applies to all listed species on schedule 1 of SARA including those listed as Special Concern, Threatened, Endangered, and Extirpated.

The Proponent has not identified all species at risk that are likely to be present in the project area; and the status of all of the identified species at risk have not been provided. The Proponent has not identified adverse effects of the Project on identified species at risk specifically.

As a matter of best practice, COSEWIC-assessed species should be assessed similar to those listed under SARA.

The Table below lists species that may be encountered in the Project area that have been designated as at risk by COSEWIC as well as their current listing on Schedule 1 of SARA (and designation if different from that of COSEWIC). This list may not include all species identified as at risk by the territorial government. As species are assessed and listed on a regular basis, consult the Species at Risk registry to maintain the most current information.

Table 1: Terrestrial Species at Risk potentially interacting with project components.

Terrestrial Species at Risk[1]	Scientific Name	COSEWIC Designation	SARA Status	Primary Management Responsibility[2]	Available Recovery Documents
Caribou (Barren-ground population)	*Rangifer tarandus*	Threatened (2016)		Government of Nunavut	
Grizzly Bear (Western population)	*Ursus arctos*	Special Concern (2012)	Special Concern (2018)	Government of Nunavut	
Harris's Sparrow	*Zonotrichia querula*	Special Concern (2017)		Environment and Climate Change Canada	

Peregrine Falcon (anatum/ tundrius complex)	*Falco peregrinus anatum/tundrius*	Not at Risk (2017)	Special Concern (2012)	Government of Nunavut	Management Plan
Red-necked Phalarope	*Phalaropus lobatus*	Special Concern (2014)	Special Concern (2019)	Environment and Climate Change Canada	Management Plan*
Short-eared Owl	*Asio flammeus*	Threatened (2021)	Special Concern (2012)	Government of Nunavut	Management Plan
Transverse Lady Beetle	*Coccinella transversoguttata*	Special Concern (2016)	Special Concern (2021)	Government of Nunavut	
Wolverine	*Gulo gulo*	Special Concern (2014)	Special Concern (2018)	Government of Nunavut	

Notes:
[1] Fisheries and Oceans Canada (DFO) has responsibility for aquatic species (not listed here)
[2] ECCC has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the MBCA. Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the territorial government. Populations that exist in National Parks are managed under the authority of the Parks Canada Agency (PCA).
* Denotes recovery documents that are in the process of being finalized but where a draft/proposed version is available for use

The project may have adverse effects on listed species including: direct habitat loss, impacts due to noise, dust or other sensory disturbances, wildlife injury or mortality, exposure to toxic or hazardous substances and wildlife attraction.

ECCC Recommendation(s)

ECCC recommends the Proponent:

a) Identify adverse effects of the project on the species at risk likely to be affected and their critical habitat;

b) Ensure that measures are taken to avoid or lessen those adverse effects and monitor them to inform adaptive management.

If the Proponent encounters species at risk, the primary mitigation measure should be avoidance. ECCC recommends:

c) Mitigation and monitoring measures are consistent with applicable species at risk Recovery Strategies and Action Plans, or Management Plans.

d) At a minimum, monitoring should include recording timing and location of observed species at risk, their behavior when encountered, and actions taken by the Proponent to avoid disturbance to the species, its habitat, and/or its residence.

e) The Proponent submit monitoring reports to the appropriate regulators and organizations with management responsibility for that species.

5. Migratory Birds

Reference(s)

- Wildlife Monitoring and Mitigation Plan

Comment

The *Migratory Birds Regulations* (MBR) prohibit the disturbance or destruction of migratory birds and their nests or eggs.

The project occurs during the nesting season for migratory birds which extends from mid-May to mid-August for this region.

Migratory birds, their nests and their eggs can be inadvertently harmed, killed, disturbed or destroyed because of many activities including, but not limited to, clearing of trees and other vegetation, draining or flooding land, or using fishing gear. Harming of individual birds, nests or eggs, can have long-term consequences for migratory bird populations in Canada, especially through the cumulative effects of many different incidences.

ECCC Recommendation(s)

ECCC recommends the Proponent carry out all phases of the project in a manner that reduces risk to migratory birds and to avoid harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests and eggs.

Proponents should not conduct potentially destructive or disruptive activities at key locations or during key periods to avoid negative impacts to migratory birds. In this regard, the Proponent should take into account ECCC's Guidelines to Reduce Risk to Migratory Birds.

6. Storage of Attractants

Reference(s)

- Wildlife Monitoring and Mitigation Plan

Comment

The Proponent has indicated that food, domestic waste, and/or petroleum-based chemicals may be kept on site.

Food, domestic wastes, and petroleum-based chemicals (e.g. greases, gasoline, glycol-based antifreeze) can attract predators of migratory birds such as foxes, ravens, gulls, and bears. Although these animals may initially be attracted to the novel food sources, they often will also eat eggs and young birds in the area. These predators can have significant negative effects on the local bird populations.

ECCC Recommendation(s)

ECCC recommends the Proponent make food, domestic wastes, and petroleum-based chemicals (e.g. greases, gasoline, glycol-based antifreeze) inaccessible to wildlife at all times.

7. ECCC Contact Information

Reference(s)

- Wildlife Monitoring and Mitigation Plan

Comment

ECCC has management responsibilities for migratory birds. ECCC should be contacted for any guidance and in instances involving mortalities or interactions with individuals, nests, or eggs of these species.

ECCC Recommendation(s)

The Proponent should contact ECCC's Canadian Wildlife Service at cwsnorth-scfnord@ec.gc.ca.

If you need more information, please contact Melissa Pinto at (867) 445-5384 or Melissa.Pinto@ec.gc.ca.

Sincerely,

[original signed by]

Melissa Pinto
Senior Environmental Assessment Officer

cc: Jody Small, Acting Head, Environmental Assessment North (NT and NU)