DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

TALON NICKEL (USA) LLC

ACCELERATED DOMESTIC NICKEL EXPLORATION IN THE UPPER PENINSULA OF MICHIGAN

Lead Federal Agency:
United States Department of War
Department of the Air Force

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COMPLIANCE

The United States Department of the Air Force (DAF) has prepared this Programmatic Environmental Assessment (PEA) in compliance with the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] Sections 4321 et seq.), as amended by Public Law 118-5 and the Fiscal Responsibility Act of 2023, and in accordance with the Department of War (DoW) NEPA Implementing Procedures, effective July 1, 2025. The DoW Implementing Procedures replace the rescinded DAF NEPA regulations (32 Code of Federal Regulations [CFR] Part 989) because they supplement the Council on Environmental Quality's NEPA regulations that were rescinded in February 2025. This PEA has been certified in accordance with DoW NEPA Implementing Procedures to not exceed the 75-page limit not including the citations or appendices. A "page" means 500 words and does include maps, diagrams, graphs, tables, and other means of graphically displaying quantitative or geospatial information.

PRIVACY ADVISORY

This PEA has been provided for public comment in accordance with the NEPA as amended by the Fiscal Responsibility Act of 2023, and the DoW NEPA Implementing Procedures. This provides an opportunity for public input on DAF decision-making, allowing the public to offer input on alternative ways for the DAF to accomplish what it is proposing and soliciting comments on the DAF's analysis of environmental effects. Letters or other written or verbal comments provided may be published in this PEA. Providing personal information is voluntary. Private addresses will be compiled to develop a stakeholder inventory. However, only the names of the individuals making comments and specific comments will be disclosed. Personal information, home addresses, telephone numbers, and email addresses will not be published in this PEA.

SECTION 508 OF THE REHABILITATION ACT OF 1973

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ACRONYMS AND ABBREVIATIONS

ACAM	Air Conformity Applicability Model
ACHP	Advisory Council on Historic Preservation
AES	Advanced Exploration System
AFRL	Air Force Research Laboratory
ANT	Ambient Noise Tomography
AOI	Area of Interest
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
BCC	Bird of Conservation Concern
BCE	Before Common Era
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BO	Biological Opinion
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_{2e}	carbon dioxide equivalent
CRIS	Cultural Resources Information System
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DAF	Department of the Air Force
dBA	A-weighted decibel
DNR	Michigan Department of Natural Resources
DoW	Department of War
DPA	Defense Production Act
DPS	Distinct Population Segment
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EM	Electromagnetic
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act

fasl	feet above sea level
FPPA	Farmland Policy Protection Act
FR	Federal Register
ft	foot/feet
gal	gallon
GHG	Greenhouse Gas
GIS	Geographic Information System
HSE	Health & Safety Environment
in	inch
IPaC	Information for Planning and Consultation
KBIC	Keweenaw Bay Indian Community
lb	pound
LED	Light-Emitting Diode
MBTA	Migratory Bird Treaty Act
mi	mile
MRS	Midcontinent Rift System
MT	Magnetotelluric
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLEB	Northern Long-Eared Bat
NOAA	National Oceanic and Atmospheric Administration
NO_X	oxides of nitrogen
NRCS	Natural Resources Conservation Service
NREPA	Natural Resources and Environmental Protection Act
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
NWP	Nationwide Permit
O_3	ozone
OSHA	Occupational Safety and Health Administration
Pb	lead

PCPI	Per Capita Personal Income
PEA	Programmatic Environmental Assessment
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
PSD	Prevention of Significant Deterioration
PWS	Public Water Supply
SDWA	Safe Drinking Water Act
SESC	Soil Erosion and Sedimentation Control
SHPO	State Historic Preservation Officer
SO_2	sulfur dioxide
SRU	Solids Removal Unit
TCB	Tricolored Bat
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
U.S.	United States
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WHPA	Wellhead Protection Area
WQBEL	Water Quality-Based Effluent Limits
WQS	Water Quality Standards

1.0 INTRODUCTION

Nickel is a critical mineral, as defined by 30 United States Code (U.S.C.) § 1606(a)(3) and found on the 2022 final list of critical minerals, because it is designated as critical by the Secretary of the Interior.

Nickel is used as a refined metal in stainless steel and superalloy production. Superalloys, mixtures of two or more metals capable of withstanding high temperatures and stress, are largely consumed by the aerospace industry for turbine blades, discs, and jet engine components. Nickel is also used in other alloys, rechargeable batteries, chemical production, plating, foundry products, and coinage (USGS, 2025a).

The United States (U.S.) reliance on foreign nickel supply chains threatens national and economic security. To strengthen national security, the U.S. must secure domestic nickel supply chains. In March 2022, Presidential Determination No. 2022-11 authorized the Department of War (DoW) to utilize Defense Production Act (DPA) (50 U.S.C. § 4533) Title III funding to support domestic, critical mineral supply chains in the production of DoW components and large-capacity batteries. In March 2025, the Trump Administration reinforced and expanded these Title III authorities by issuing Executive Order (EO) 14241, *Immediate Measures to Increase American Mineral Production*, to address the national emergency declared pursuant to EO 14156, *Declaring a National Energy Emergency*, through federal land access, fast-tracked permitting, and financial incentives. By the authority vested in the President by the Constitution and the laws of the United States of America, including 3 U.S.C. § 301, the President delegated authority to the Secretary of War to lead the effort to advance domestic mineral production. Oversight of the DPA Title III program has been assigned to the DPA Title III Executive Agent Program Office within the Air Force Research Laboratory (AFRL).

Nickel sulfide deposits are typically found deep in the Earth's crust within ultramafic rock formations, which are rich in iron and magnesium. According to the U.S. Geological Survey (USGS, 1997), the Midcontinent rift rocks in the Lake Superior region have a high probability for nickel-copper sulfide deposits. This region remains largely untapped due to the historically risky and lengthy gap between exploration to discovery and subsequent production.

Under the Proposed Action, the Department of the Air Force (DAF) would invest DPA Title III funds, matched on a 49:51 basis, to support Talon's accelerated nickel exploration project on secured mineral agreements in a 445,000-acre area within the Upper Peninsula of Michigan. Talon Nickel (USA) LLC (Talon) has developed a cutting-edge Advanced Exploration System (AES) that can identify viable nickel deposits in a matter of months or years, as opposed to the decades-long industry standard. Title III support would provide funds to Talon to utilize their AES to accelerate nickel exploration and protect the U.S. when the sole operating nickel mine (Eagle Mine in Michigan) ceases production in 2029.

The DAF is preparing this Programmatic Environmental Assessment (PEA) to analyze the potential effects to the human and natural environment resulting from the proposed Talon nickel exploration project in the Upper Peninsula of Michigan (Baraga, Marquette, Dickinson, Iron, and Houghton counties) and to inform its decision making with respect to providing federal funding

to Talon. This PEA discloses the direct and indirect environmental effects that would result from the Proposed Action and alternatives.

1.1 PURPOSE AND NEED

The purpose of the Proposed Action is to identify sources of domestic nickel to meet the nation's demands for both industrial and defense purposes. Title III funds would support labor, materials, and equipment required to explore new nickel deposits within Talon's secured mineral agreements in the Upper Peninsula of Michigan. The Proposed Action is needed because it has been determined that without government intervention, private industry would be unable to address the national security need for domestic nickel in a timely manner. Domestic nickel exploration is essential for both the nation's economy and national defense as directed by Presidential Determination No. 2022-11 and EO 14241, *Immediate Measures to Increase American Mineral Production*.

There is currently only one active nickel mine operating in the U.S., and it will cease production in 2029. To strengthen national security, the U.S. must secure domestic nickel supply chains and accelerate domestic nickel production. Development of a long-term domestic source for nickel in a timely manner is unlikely without government intervention. Accelerating access to domestic nickel sources requires a shift from traditional step-by-step exploration methods to a more rapid, integrated, data-driven approach. Therefore, only the Proposed Action described in Chapter 2 meets the purpose and need; thus, no other alternatives were considered.

1.2 PROGRAMMATIC SCOPE

The DAF determined that a programmatic approach is appropriate for the Proposed Action because the overall time frame and geographic boundary for Talon's mineral exploration activities are known and the activities to be performed are well-defined, but the exact extent and location of the activities would be determined as the work progresses based on the data collected.

The PEA is a comprehensive document that provides detailed analysis of the environmental effects for Talon's mineral exploration activities based on regional conditions, habitat types, species, and other factors. The PEA analyzes the activities associated with the drilling component, described in Chapter 2, that would be performed at prospect sites identified by Talon (see Section 1.2.1). A prospect site includes the drill pad(s), access trail(s), staging area, and sump at a particular target location. The PEA does not identify the specific time or place for drilling at individual prospect sites for the overall mineral exploration project. The analysis in the PEA demonstrates that the DAF has sufficient information to analyze the potential effects of drilling regardless of timing and location.

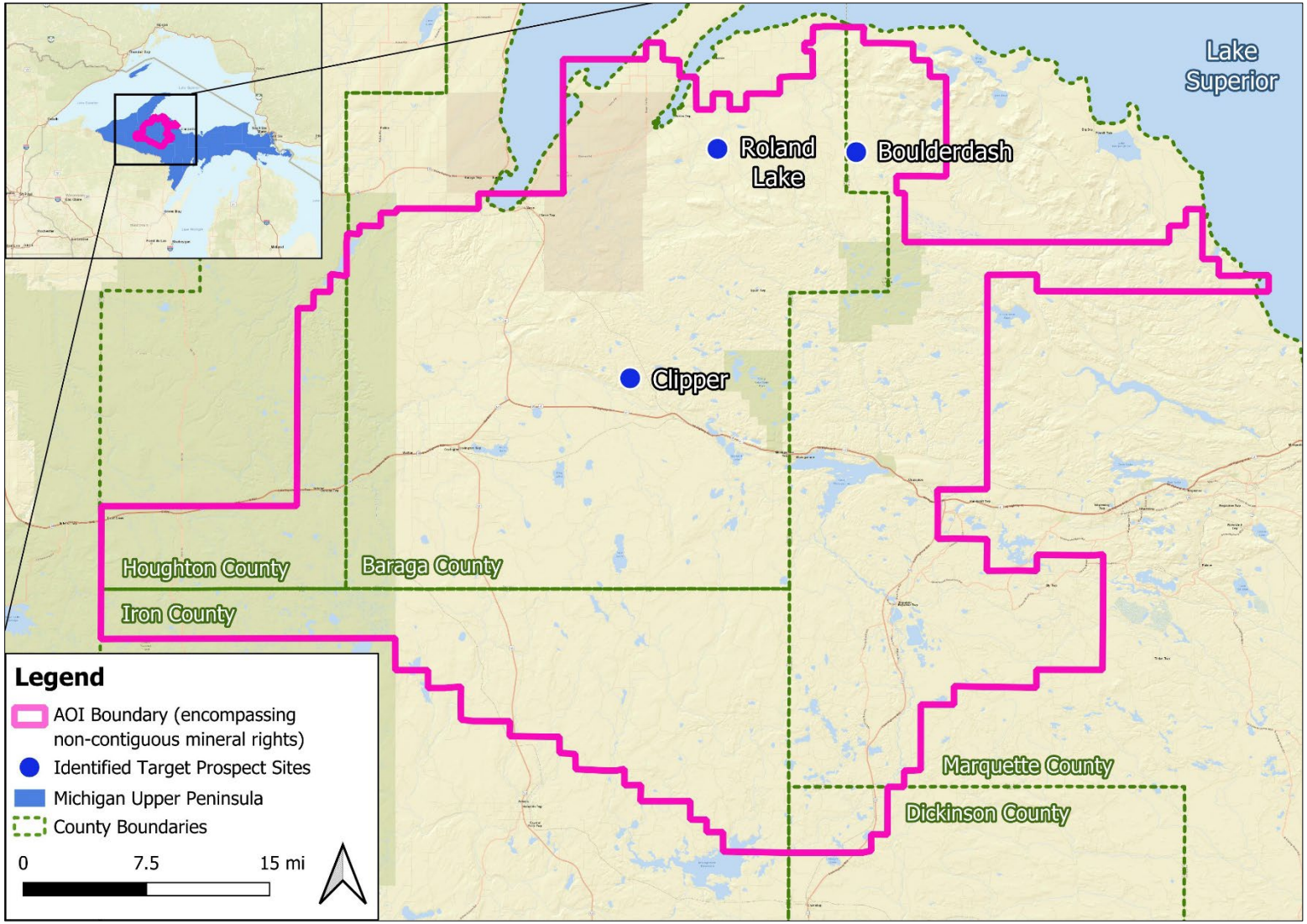
As mineral exploration locations become sufficiently well-defined, the site conditions and potential environmental consequences would be evaluated to determine whether the planned drilling activities fall within the scope of the activities and effects detailed in the PEA. The DAF would also review the planned activities to ensure that all applicable mitigation measures are incorporated into project plans. Prior to project approval, the DAF would review all applicable environmental laws to ensure that all compliance requirements would be fulfilled. If the DAF

determines that any of the site conditions or planned drilling activities are outside of the scope of the PEA, additional site-specific National Environmental Policy Act (NEPA) analysis and environmental compliance review would be conducted prior to commencing any onsite activity.

1.2.1 GEOGRAPHIC SCOPE

Geographic scope is the spatial extent of the areas potentially affected by the Proposed Action and the No Action Alternative. Talon has secured mineral rights in the Upper Peninsula of Michigan covering portions of the following counties in the state: Baraga, Marquette, Dickinson, Iron, and Houghton. The area that encompasses these mineral rights is bounded by the pink outline in **Figure 1.2-1**. The non-contiguous areas of mineral rights comprise 445,000 acres within the boundary and are referred to as the Area of Interest (AOI). The AOI is composed of federally-, state-, and privately-owned properties and is analyzed in Chapter 3. Talon's planned exploration activities would take place predominately on privately-owned land. If mineral exploration leads to mineral rights within federal, state, or Tribal lands, Talon will seek appropriate approvals.

Based on previous studies, Talon has identified three prospect sites that have drill-ready targets across Baraga and Marquette counties: Roland Lake, Boulderdash, and Clipper, shown in **Figure 1.2-1**. The project activities being conducted and proposed at these prospect sites, as well as any other sites Talon identifies, are analyzed in detail in Chapter 3. Future activities at other prospect sites subsequently identified would be reviewed by the DAF to determine whether they are within the scope of the PEA or would require additional site-specific NEPA analysis and/or environmental compliance review. In addition, the DAF would initiate project-specific consultations under Section 106 of the National Historic Preservation Act (NHPA) review before commencing any additional drilling activity outside of the three identified prospect sites.



Note: The identified target prospect sites are not drawn to scale.

Figure 1.2-1. Boundary of AOI and Currently Identified Prospect Sites in the Upper Peninsula of Michigan

1.3 INTERAGENCY / INTERGOVERNMENTAL COORDINATION AND CONSULTATIONS

As part of the NEPA process, the DAF is consulting with the Michigan State Historic Preservation Officer (SHPO) per the requirements of Section 106 of the NHPA and its implementing regulations (36 Code of Federal Regulations [CFR] § 800) and with the United States Fish and Wildlife Service (USFWS) Michigan Ecological Services Field Office per the requirements of Endangered Species Act (ESA) Section 7 and its implementing regulations (50 CFR § 402). Example correspondence with the SHPO and USFWS is provided in Appendix A.

Due to the programmatic scope of the Proposed Action, the DAF would pursue programmatic consultations, when possible, to fulfill statutory requirements. For example, the DAF would pursue programmatic consultation under Section 7 of the ESA to streamline the procedures, and the time involved for consultation. By identifying potential effects of the undertaking and developing guidelines to minimize these effects to the affected resources, subsequent "stepped down" consultations, where more site-specific effects can be determined within the context of a local geographical area, can be conducted more expediently, if needed (USFWS and NMFS, 1998).

1.4 PUBLIC PARTICIPATION

An early public notice was published in *The Mining Journal* and *L'Anse Sentinel* on July 9, 2025, to inform the public about potential effects to wetlands in compliance with EO 11990, *Protection of Wetlands*. The notice informed the public of a 30-day comment period that ended on August 8, 2025. No comments were received.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter describes the project alternatives that address the purpose and need for the action. Per the NEPA statute and DoW NEPA Implementing Procedures, the DAF must analyze reasonable alternatives to a proposed action including the "no action" alternative. Considering alternatives helps avoid unnecessary effects and allows analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be reasonable. To be considered reasonable, an alternative must be economically feasible, capable of implementation, and must meet the purpose of and need for the action. Based on these criteria, the DAF identified one action alternative (the "Proposed Action") that meets the stated purpose and need of the project; thus, the Proposed Action has been analyzed in detail in this PEA. The DAF also analyzed a No Action Alternative, which allows DAF leadership, its tenants, and the public to compare the potential effects of the action alternative with the effects that would occur if the DAF did not fund Talon nickel exploration in Michigan (i.e., the status quo). Section 2.3 discusses alternatives considered but eliminated.

2.1 PROPOSED ACTION

The Proposed Action analyzed in this PEA is the provision of federal funding to support Talon's proposed nickel exploration project on secured mineral agreements in the Upper Peninsula of Michigan. The majority of Talon's mineral rights are fee-simple rights, meaning they are owned outright. Talon also has leased mineral rights, with corresponding agreements, from the state of Michigan and other private parties. All requirements described in the mineral agreement would

be fulfilled prior to the implementation of project activities. Refer to Section 1.2.1 for a description and map (**Figure 1.2-1**) of the geographic scope.

2.1.1 MINERAL EXPLORATION ACTIVITIES

The goal of nickel exploration is to identify geological formations with high-grade mineralization, or rock with concentrated and economically viable nickel deposits. Locations where the surface sampling, geophysical anomalies (i.e., differences that may indicate mineralization), and geological context collectively suggest high potential for nickel showings may be considered targets for further analysis through drilling. Phases and components of the AES mineral exploration cycle are described in **Table 2.1-1**.

Table 2.1-1. AES Mineral Exploration Cycle

Mineral Exploration Cycle Component	Description
Phase 1. Assessment	Exploration begins with extensive desk studies and research.
Initial Research and Desktop Studies	Geologists and exploration teams gather existing geological data, maps, aerial surveys, and historical exploration records. This phase involves reviewing regional geology to identify areas with potential nickel deposits. Key factors include geological formations known to host nickel, such as ultramafic rocks, and historical mining data indicating nickel occurrences. Geologists and exploration teams gather existing geological data, maps, aerial surveys, and historical exploration records. This phase involves reviewing regional geology to identify areas with potential nickel deposits.
Field Reconnaissance	Once promising areas are identified, field reconnaissance is conducted. This work involves visiting potential sites to collect surface samples and evaluate geological features. Geologists look for signs of mineralization, such as nickel-rich outcrops or gossans (i.e., oxidized surface deposits). For example, outcrops are sampled using only hand tools. The goal is to assess whether the area warrants more detailed exploration.
Phase 2. Target Generation	Geochemical and geophysical data are used to map and model targets.
Geochemical Sampling	If the initial reconnaissance is promising, the next step involves more systematic geochemical sampling. Soil, stream sediment, and rock samples are collected and analyzed for nickel content and other elements that are associated with nickel deposits. Geochemical anomalies (i.e., areas with higher-than-normal concentrations of nickel or other indicative elements) help refine target areas for further investigation.
Geophysical Surveys	Geophysical methods are employed to gain deeper insight into the subsurface without drilling. Common techniques used for nickel exploration include but are not limited to: Magnetic Surveys: Nickel deposits are often associated with magnetic ultramafic rocks. Magnetic surveys help outline potential ore bodies by measuring

Mineral Exploration Cycle Component	Description
	variations in the Earth's magnetic field. The magnetic surveys are performed using a backpack-mounted magnetometer that is walked in a grid pattern. Electromagnetic (EM) Surveys: EM surveys detect conductive bodies, including nickel sulfide deposits, by measuring variations in the Earth's electrical conductivity. This technique can be used on the surface or within a borehole (i.e., a drill hole) to identify subsurface mineralization. Surface EM surveys are performed by transmitting various frequencies through looped wire placed on the ground and collecting data by relocating a small receiver in a grid pattern. Borehole EM surveys utilize a probe, about 10 feet (ft) long, that is tethered to a data cable and lowered into an existing borehole using a winch. Magnetotelluric (MT) Surveys: MT surveying is a deep-seeing method that utilizes ambient electromagnetic signals generated by a wide variety of naturally occurring sources, such as lightning storms and solar fluctuations, to map subsurface materials based on their electrical resistance. The MT survey is performed by placing a backpack-sized device on the ground overnight to collect data. Gravity Surveys: Gravity surveys measure variations in the Earth's gravitational field, detecting density differences between nickel-bearing rocks and surrounding materials. Gravity surveys require placing a tripod-mounted gravimetric sensor on the ground. Cross-Hole Tomography: This technique involves taking measurements between existing boreholes using compressional waves. Compressional waves are induced by a probe that generates air bubbles in a source borehole, which are then sensed by a series of hydrophones (i.e., underwater microphones) in the receiving borehole. By raising and lowering these devices, physical property data (e.g., density) can be collected to create high-resolution two- or three-dimensional images of subsurface structures. Cross-hole tomography is particularly useful for producing detailed imaging of ore bodies and understanding their spatial distribution. Ambient Noise Tomography (ANT): This method involves analyzing naturally occurring ground vibrations (i.e., passive seismic waves) such as road and railroad noise. Passive seismic data is collected for about two weeks by placing small, pill-bottle sized receivers in a grid pattern on the ground. By measuring passive seismic wave movement through the Earth, ANT provides detailed images of subsurface structures and properties. It is useful for identifying variations in rock properties that may indicate the presence of mineral deposits.
Phase 3. Target Validation	The subsurface targets are tested to determine the presence of nickel mineralization at depth.
Drill Program Planning	With targets identified, a drill program is planned. This involves designing the drill holes (e.g., selecting the pad location relative to the target), selecting the drilling methods (e.g., diamond drilling for core samples), and securing the necessary permits.

Mineral Exploration Cycle Component	Description
Drilling	Drilling is executed based on the planned program. Core samples are extracted from various depths. Drilling provides critical information about the depth, size, and grade of mineralization, if found. Once a drill hole is completed, a borehole geophysical survey may be conducted to evaluate near-hole geophysical anomalies. If a geophysical anomaly is identified, the targeting process starts again, resulting in an iterative approach to drilling that incorporates real-time results into the planning of subsequent holes.
Analysis and Evaluation	This step includes evaluating the size, grade, and distribution of the nickel mineralization. Core logging involves trained geologists analyzing the drill cores to determine their nickel content and other relevant properties. Once the core has been logged, certain samples are selected for chemical assay, which is a quantitative analysis of mineral concentration (i.e., grade). The results are used to assess the economic viability of the deposit and to forecast the location of potential additional mineralization.

2.1.2 TALON'S AES

Conventional practice in the minerals exploration industry is to follow a step-by-step approach and to contract many of the services required such as drilling, geophysical surveys, and even core logging. This sequential approach for target validation involves drilling, sample collection, and laboratory analysis of samples, followed by analysis of the data to identify the next steps for drilling, resulting in high costs and lengthy discovery timelines. Talon has developed a faster process by bringing geophysical surveying, modelling, drilling, core logging, sample analysis (except assays which must be done by third parties), and interpretation in-house. Talon's AES allows real-time integration of geophysical data with ongoing drilling operations. This means that as drill cores are retrieved and as boreholes are completed, geophysical sensors and software are deployed to generate immediate analysis, giving the exploration team instant feedback. The team then uses this feedback loop to make onsite decisions such as adjusting drill angles or focusing on more promising targets without having to wait for laboratory or fly-in turnarounds. The synergy of Talon's interdisciplinary team and technologies make Talon's AES extremely efficient at identifying nickel deposits with strong prospects for economic extraction.

The mineral exploration cycle involves the components described in **Table 2.1-1** and is defined in three phases. Phase 1, Assessment, identifies potential drill targets through desktop studies and field reconnaissance. Phase 2, Target Generation, involves geochemical samples and geophysical surveys to determine whether drilling at a site could be successful. Drilling is conducted in Phase 3, Target Validation, to extract and analyze core samples for nickel mineralization.

Under the Proposed Action, DPA Title III funding would be used to support environmental compliance processes and all components of the mineral exploration process described in **Table 2.1-1.**

Phases 1 and 2 of mineral exploration involve only non-intrusive methods that do not require vegetation or tree removal; therefore, these phases have low potential for adverse effects. The components of mineral exploration that have the potential for measurable environmental

consequences are clearing for drill pads and/or access trails and the drilling activity (Phase 3, Target Validation, in **Table 2.1-1**). Therefore, the analysis in this PEA is focused on the site preparation and drilling components of the Proposed Action.

2.1.3 SUMMARY OF PROPOSED ACTIVITIES

Under the Proposed Action, Talon would conduct mineral exploration including geophysical surveys and drilling throughout the AOI as new prospect sites are identified. The AOI is in a remote, heavily forested region (**Figure 2.1-1**) that is actively used for logging.

Figure 2.1-1. Example drill pad setting in the Upper Peninsula

Mineral exploration is a cyclical, results-driven process that becomes refined over time as discoveries are made and delineated. Since most targets are eliminated, new targets need to be continuously identified. If no nickel mineralization is encountered during initial drilling, the location is eliminated from future work. However, if nickel mineralization is encountered, additional drilling to evaluate the deposit may be warranted. Continuously adding to the lineup of targets is a critical step in exploration since the majority of drill targets are eliminated shortly after the target is drill tested.

Talon is currently performing nickel exploration activities on privately-owned land within the AOI at its own expense outside of the Title III program. As stated in Chapter 1, Talon has already identified three prospect sites encompassing 225 acres in Baraga and Marquette counties where drilling would be conducted: Roland Lake, Boulderdash, and Clipper (indicated in blue in **Figure 1.2-1**). Once drilled, current targets could either be eliminated or warrant further delineation. All

drill pads at these prospect sites have been or are to be constructed on private land for which Talon has obtained landowner permission to conduct operations; none of the prospect sites are located on federal, state, or Tribal land. Talon has drilled two of these sites and analyzed core samples to confirm model predictions at its own expense.

As data from Talon's current drilling program informs the process, more prospect sites would be identified within the 445,000-acre AOI. Locations for up to 35 future drill pads would be determined based on geochemical and geophysical analyses. Over the time frame of the Proposed Action, drilling could occur at up to three drill pads simultaneously. Each prospect site identified would be reviewed to determine whether the planned activities at the site fall within the scope of this PEA or would require additional NEPA and/or environmental compliance review.

In addition to mineral exploration activities at the prospect sites identified within the AOI, the Proposed Action would involve transportation of equipment, materials, and personnel between the prospect sites and Talon's Michigan field office, core shed, and drill rig maintenance facility in L'Anse, Michigan. A core shed is an offsite permanent structure used for drill core storage and analysis.

2.1.3.1 Site Preparation

Under the Proposed Action, drill programs would be carefully planned by 1) selecting a drilling location that minimizes environmental effect while allowing access to the target; 2) designing the drill pad(s), access trail(s), boreholes, and drill method; and 3) following temporary or permanent closeout procedures. Once a target area for drilling is identified, the area would be assessed for access points and drill pad locations, utilizing natural clearings, existing logging trails, and flat ground to the greatest extent possible. Drill pads are cleared areas where the drill rig sits directly on the ground. Access to most parts of the AOI is very limited as it is heavily forested, thus heavy machinery would be used to clear vegetation and debris from the drill pad site and existing access trails, if needed.

In some cases, new temporary access trails may need to be cleared for the drill rig and for light vehicles to traverse to the prospect site (**Figure 2.1-2)**. Temporary access trails would be 15 to 20 ft wide, which is the minimum width to accommodate exploration equipment. Temporary access trails would be sited in upland areas, when possible, and would be as short as is reasonable after considering safety factors and terrain. Some grading of slopes and tree removal may be necessary to create access trails. Trail design would minimize potential for soil erosion, and temporary erosion control devices would be installed if conditions are warranted.

Figure 2.1-2. Example drill pad access trail in the Upper Peninsula

Drill pads range from 0.25 to 0.50 acres in size; pads are on average 0.30 acres. The creation of 35 drill pads could result in the potential clearing of up to 17.5 discontinuous acres across the AOI. Drill pad preparation may require clearing of trees and other vegetation. If trees are present, Talon would coordinate removal in agreement with the landowner. Although rarely used by Talon in Michigan, composite mats may be placed under the drill rig or along the access trail to provide an engineered working surface that allows operations to continue in wet areas or during seasonal transitions when the ground may be muddy. Composite mats are approximately 8 by 14 ft and composed of a thermoplastic composite material, weighing approximately 1,000 pounds (lbs) each. They are modular and can be connected to form trails or large pads. Mats would be placed one at a time using a skid steer and would be locked into place with linking pins.

Talon would make every effort to minimize tree removal and site disturbance by carefully choosing the drill pad location and by drilling an angled hole, if needed, to hit a target. Using angled drilling, Talon could set up one pad and drill multiple holes testing different targets, substantially reducing the number of drill pads required. Erosion from soil exposed during construction would be mitigated with the placement of erosion control devices (e.g., straw wattles, berms) to prevent sedimentation from leaving the drill pads and/or access trails.

2.1.3.2 Drilling

Each prospect site requires a Tier 3 or 4 diesel drill rig, a Tier 3 diesel generator and light plant, and two pickup trucks. Equipment tiers are defined by Environmental Protection Agency (EPA) emission standards for nonroad engines (DieselNet, 2023). Boreholes would be drilled from the surface or constructed from wedging out from parent holes to depths anticipated to range

between 800 to 3,000 ft; however, the final depths and numbers of boreholes at each site would depend on the geology encountered as the drill program progresses. The drill rig typically bores a hole of approximately 3.8 inches (in) diameter to obtain a drill core that is of approximately 2.5 in diameter, approximately the same diameter as a standard soda can (see relative size comparison in **Figure 2.1-3**).

The drilling process starts by drilling a steel casing through unconsolidated sediments into bedrock. Once bedrock is reached, bentonite grout is pumped around the casing to create a watertight seal, preventing sand and groundwater from entering the borehole and enabling return circulation of drill fluids. After the casing is installed and sealed, a series of slightly smaller diameter 10 ft-long drill rods are threaded together and lowered into the hole to form the drill string. At the bottom of the drill string is the core barrel, which is tipped with a hollow diamond-embedded drill bit. The drill bit spins at approximately 2,000 revolutions per minute to grind away rock, cutting a cylindrical core for retrieval and analysis. Drilling fluid, composed of water and a biodegradable polymer, is pumped down the drill string to cool the drill bit and lift drill cuttings out of the hole. Drilling fluid and cuttings are routed from the hole through a Solids Removal Unit (SRU). The SRU uses centrifugal force to separate the drilling fluid from the cuttings. After separation, the cuttings are the consistency and texture of fine-grained paste. After each 10-ft run of core drilling, a wireline is used to retrieve the core tube that contains the drill core within the core barrel. The drill core is labeled and placed in core boxes for the geologists to study.

Figure 2.1-3. Diamond-embedded drill bit next to a standard soda can

Each drill rig would use up to 1,000 gallons (gal) of surface water per day. Water would be pumped from a nearby natural surface water feature such as a pond or stream into a 1,000-gal holding tank and chlorinated prior to use. Additionally, AMC Liqui Pol, an inert, biodegradable

drilling polymer, which meets National Sanitation Foundation/American National Standards Institute/Canada Standard 60: Drinking Water Treatment Chemicals, would be added to the water (NSF, No Date; AMC, No Date). The combination of chlorinated drilling water and the polymer forms the drilling fluid. The purpose of the polymer additive is to improve suspension and transport of drill cuttings during drilling and to keep the borehole from closing. The drill rig recycles water by routing it through the SRU and reusing it; more water is consumed as the volume of the drill hole increases with depth.

To contain the drilling wastewater and cuttings generated at each drill pad, Talon would either use sumps (i.e., pits) or tanks depending on the specific site's environmental conditions. Talon would be highly selective when siting sumps to avoid any sensitive areas. On drill pads that are not located near sensitive areas (e.g., wetlands), a shallow sump would be excavated at or near the drill pad. Each sump would be approximately 12 by 25 ft and 4 ft deep. Erosion from soil exposed during construction would be mitigated with the placement of erosion control devices (e.g., straw wattles, berms) to prevent sedimentation from leaving the drill pads. On drill pads that are located near sensitive areas, Talon would not construct sumps to avoid potential effects to wetlands due to associated ground disturbance and/or vegetation damage. Instead, Talon would use large portable tanks to contain drilling wastewater and cuttings. The drilling wastewater and cuttings would subsequently be transferred to sumps dug in non-sensitive areas on private land. In areas of Michigan where metallic sulfides are expected, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) requires that drilling fluid and cuttings must be transported offsite for disposal at a licensed facility once more than 1 cubic foot of sulfide-bearing cuttings are produced, or more than 10 boreholes are drilled within a 660-ft radius from the first drill hole (MDEQ, 2005).

Work would be conducted seven days per week and 24 hours per day with approximately 25 percent downtime for non-operating activities such as holidays, transport, surveying, or repairs. Each drill rig requires three personnel per 12-hour shift; thus, a fully staffed rig comprises a complement of nine staff (i.e., three during the day, three at night, and three on breaks). Most personnel would travel from other areas to the AOI to deploy geophysical equipment, conduct drilling operations, and interpret data, though Talon typically hires and trains some personnel from local communities.

2.1.3.3 Closure

In Michigan, boreholes can be temporarily sealed for up to two years. To temporarily seal a borehole, Talon would thread a steel cap on top of the casing and install a marker for visibility. After drilling of the hole has been completed and the drill cores are collected, the boreholes remain useful for data collection through borehole EM and other geophysical surveys. When work at a borehole is finished, the borehole would be filled with cement up to ground level and the casing would be removed. If there is a need to collect data from a borehole for more than two years, Talon would apply for a variance to keep the hole open for continued use under Part 625, Mineral Wells, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended.

Drilling would occur as seasonal conditions allow each year. Once work is completed at a prospect site, the drill pad and any temporary trails that have been built would be reclaimed by re-establishing the natural contour of the land surface and distributing woody debris over the area to promote regrowth of native vegetation.

2.2 NO ACTION ALTERNATIVE

The NEPA statute and DoW NEPA Implementing Procedures require consideration of the No Action Alternative to assess any environmental consequences that may occur if the Proposed Action is not implemented. Under the No Action Alternative, the DAF would not proceed with Title III funding of mineral exploration for nickel in Michigan. Without federal funding, Talon would continue the mineral exploration activities described in Section 2.1 above in the AOI at a slower pace. Identification of potential viable nickel deposits would occur over a longer time frame. While the No Action Alternative does not support Presidential Determination No. 2022-11 or EO 14241 or fulfill the purpose and need, it is being carried forward to provide a baseline for comparison with effects from the Proposed Action and to satisfy federal requirements for analyzing “no action” under NEPA.

2.3 ALTERNATIVES ELIMINATED

The U.S. relies mostly upon foreign sources for nickel, mainly Chinese, Russian and Canadian companies. There is currently only one active nickel mine operating in the U.S., which will cease production in 2029. To strengthen national security, the U.S. must secure domestic nickel supply chains and accelerate domestic nickel production. Development of a long-term domestic source for nickel in a timely manner is unlikely without government intervention. Accelerating access to domestic nickel sources requires a shift from traditional step-by-step exploration methods to a more rapid integrated, data-driven approach. Talon has secured mineral rights in an area highly likely to contain nickel deposits and has the technology to provide accelerated identification of nickel deposits. Therefore, only the Proposed Action, to federally fund Talon’s mineral exploration effort, meets the purpose and need; thus, no other alternatives were considered.

2.4 PERMITS, LICENSES, AND OTHER AUTHORIZATIONS

Relevant permits would be obtained from the Michigan Department of Natural Resources (DNR); from EGLE; and from Baraga and Marquette Counties as necessary prior to breaking ground for the Proposed Action. Permits and documentation required under the Michigan NREPA, 1994 PA 451, as amended, may include, but are not limited to:

- Part 91, Soil Erosion and Sedimentation Control Permit;
- Part 301, Inland Lakes and Streams, General Permit Category C (clear span bridge);
- Part 303, Wetlands Protection, General Permit Category AA (construction mats);
- Record of Well Drilling or Deepening Form EQP 7200-5;
- Record of Well Plugging Form EQP 7200-8; and
- Drilling Water Requirements Form EQC 7200-1.

The Proposed Action would comply with all applicable federal, state, and local environmental statutes, instructions, directives, manuals, handbooks, regulations, policies, and EOs.

2.5 COMPARISON OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

Table 2.5-1 summarizes potential effects to each analyzed resource that may occur under the Proposed Action and the No Action Alternative.

Table 2.5-1. Summary Comparison of Effects

Resource	Proposed Action	No Action Alternative
Biological Resources	**Vegetation –** Direct, adverse, negligible to minor, short-term to long-term, and site-specific effects due to the removal of trees and native or invasive plant species during site preparation. **Wildlife –** Direct and indirect, adverse, negligible to minor, short-term, and local effects due to the minimal removal of available habitat and disturbance of animals due to noise and activity during mineral exploration. **Special status species –** Direct and indirect, adverse, negligible to moderate, short-term, and local effects from the minimal removal of vegetation and available habitat and from the disturbance of animals due to noise and activity during mineral exploration.	**Vegetation –** Direct, adverse, negligible, short-term to long-term, and site-specific due to the removal of trees and native or invasive plant species during site preparation. Effects would be over a similar geographic extent but would take place over a longer time frame as compared to the Proposed Action. **Wildlife –** Effects would be the same as under the Proposed Action over a similar geographic extent but would take place over a longer time frame. **Special status species –** Effects would be the same as under the Proposed Action over a similar geographic extent but would take place over a longer time frame.
Earth Resources	**Geology –** Direct, adverse, minor, permanent, and local effects due to the drilling of bedrock. **Topography –** Direct, adverse, negligible to minor, long-term, and local effects due to the leveling of terrain and alteration of natural contours from grading activities. **Soils –** Direct, adverse, minor, short-term to long-term, and local effects due to ground disturbing activities, such as alteration of soil horizons, soil compaction, and erosion.	**Geology –** Effects would be the same as under the Proposed Action over a similar geographic extent but would take place over a longer time frame. **Topography –** Effects would be the same as under the Proposed Action over a similar geographic extent but would take place over a longer time frame. **Soils –** Effects would be the same as under the Proposed Action over a similar geographic extent but would take place over a longer time frame.
Water Resources	**Surface water and floodplains –** Direct and indirect, adverse, negligible to minor, temporary to short-term, and site-specific to local effects due to ground disturbance from construction vehicles and temporary access trail and/or bridge establishment, as well as	**Surface water and floodplains –** Direct and indirect, adverse, negligible to minor, temporary to long-term, and site-specific to local effects due to ground disturbance from construction vehicles and temporary access trail and/or bridge establishment, as well

Resource	Proposed Action	No Action Alternative
	stormwater runoff during site preparation and drilling. **Wetlands –** Direct, adverse, minor to moderate, temporary to short-term, and site-specific effects due to ground disturbance from construction vehicles and temporary access trail establishment, as well as stormwater runoff during site preparation and drilling. **Groundwater –** Direct, adverse, negligible, temporary to short-term, and site-specific effects due to possible groundwater contamination.	as stormwater runoff during site preparation and drilling. Effects would be over a similar geographic extent but would take place over a longer time frame as compared to the Proposed Action. **Wetlands –** Direct, adverse, minor to moderate, temporary to long-term, and site-specific effects due to ground disturbance from construction vehicles and temporary access trail establishment, as well as stormwater runoff during site preparation and drilling. Effects would be over a similar geographic extent but would take place over a longer time frame as compared to the Proposed Action. **Groundwater –** Effects would be the same as under the Proposed Action over a similar geographic extent but would take place over a longer time frame.
Cultural Resources	Direct and indirect, adverse, negligible to moderate, short-term to permanent, and site-specific to local effects due to the potential for physical effect and auditory/visual disturbance from site preparation and drilling activities.	Effects would be the same as under the Proposed Action over a similar geographic extent but could occur at a somewhat elevated risk and over a longer time frame.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Chapter 3 describes the current environment for each resource and the potential environmental consequences associated with the Proposed Action and the No Action Alternative that may occur to each resource. Sections 3.2 through 3.5 discuss the four resources analyzed. The resources analyzed are:

- Biological Resources;
- Earth Resources;
- Water Resources; and
- Cultural Resources.

3.1 METHODOLOGY

The affected environment summarizes the current physical, biological, social, and economic environments of the area within and surrounding the AOI. For each resource, the bounds of the

area of analysis that could be affected by the Proposed Action and the No Action Alternative are defined, and the elements or components of the resource that may be affected are described.

The analysis of environmental consequences for each resource begins by explaining the methodology used to characterize potential effects, including any assumptions made. This analysis considers how the condition of a resource would change as a result of implementing each of the alternatives and describes the types of effects that would occur (e.g., direct, indirect, beneficial, or adverse). The significance of effects is assessed using three parameters: magnitude, duration, and extent. The effect types and significance criteria are described in Section 3.1.1.

3.1.1 TYPES OF EFFECTS

In this PEA, identified effects may be direct or indirect and either adverse or beneficial. These terms are defined as:

Direct effects: Effects that are caused by the action and occur at the same time and place. Examples include filling a wetland or digging up an archaeological site.

Indirect effects: Effects that are caused by the action and occur later in time or are farther removed in distance but are still reasonably foreseeable. Indirect effects also include "induced changes" in the human and natural environments. For example, removal of vegetation decreases available habitat for wildlife. The effect on the vegetation is direct, but the effect on wildlife is indirect.

Adverse effects: Effects that have a negative and harmful effect on the analyzed resource. An adverse effect causes a change that moves the resource away from a desired condition or detracts from its appearance or condition.

Beneficial effects: Effects that have a positive and supportive effect on the analyzed resource. A beneficial effect constitutes a positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

Adverse and beneficial effects from the alternatives are not combined into a single, net effect; they are noted and assessed separately because an action may result in a significant adverse effect to a resource even though there may be an overall beneficial effect.

3.1.2 EVALUATION CRITERIA

Evaluation criteria (i.e., significance criteria) provide a structured framework for assessing effects, supporting conclusions regarding the significance of effects, and comparing effects between alternatives.

Context and Intensity

Determination of the significance of effects requires consideration of both the context of the action and the intensity of the effect. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Both short- and long-term effects are relevant. Intensity refers to the severity or magnitude of the effect.

The significance of effects was determined systematically by assessing three parameters of environmental effect: magnitude (how much), duration (how long), and extent (how big or how far). Each parameter was divided into the following levels:

Magnitude:

- Major – Substantial effect or change in a resource that is easily defined, noticeable and measurable, or exceeds a regulatory standard.
- Moderate – Noticeable change in a resource occurs, but the integrity of the resource remains intact.
- Minor – Change in a resource occurs but does not result in substantial resource effects.
- Negligible – The effect is at the lowest levels of detection – barely measurable but with perceptible consequences.
- None – The effect is below the threshold of detection with no perceptible consequences.

Duration:

- Permanent – Effects would last indefinitely.
- Long-term – Effects would persist beyond completion of activities under the Proposed Action.
- Short-term – Effects would occur for the duration of the Proposed Action.
- Temporary – Effects would only occur during implementation of the access trail and drill pad development, drilling, or other activities of the Proposed Action.

Extent:

- Regional – Effects extend well past the immediate prospect sites to a large part of the 445,000-acre AOI or on a county, regional, state, or national level.
- Local – Effects extend beyond the prospect sites and affect the area in the general vicinity of the site.
- Site-specific – Effects are limited to individual prospect sites.

3.1.3 Resources Not Carried Forward for Detailed Analysis

The Proposed Action would have insignificant effects on the following resources: waste and hazardous materials, traffic and transportation, noise and acoustic environment, air quality and greenhouse gas emissions, socioeconomics, land use, infrastructure and utilities, and safety and occupational health. The area of analysis for these resources is the 445,000-acre AOI. The following subsections describe each resource not carried forward for detailed analysis.

3.1.3.1 Waste and Hazardous Materials

Under the Proposed Action, the hazardous materials that would be used, transported, and stored within the area of analysis would be hydrocarbon fuels and oils used for fuel and lubrication in

gasoline and diesel engines and in hydraulic power systems. Fuel and oil would be stored in small-volume containers. Stationary equipment (e.g., drill rigs) would have secondary containment to prevent fuel leaks, and drip trays would be placed beneath all internal combustion engines on the prospect site to prevent any leaked fuel from entering the environment, including during oil changes and other fuel-related onsite maintenance activities. Additionally, a spill kit would be kept at each drill rig to respond in the unlikely event of a leak or spill, and any spilled material, including the contaminated substrate such as snow or soil, would be collected for disposal. Waste fuel and oil would be captured in 5-gal pails and removed from the prospect site for temporary storage offsite, separate from other types of waste, to prevent the waste from entering the environment. Periodically, a licensed contractor would collect, transport, and dispose of waste hydrocarbons.

Drill cuttings generated over the duration of the Proposed Action would consist of a non-hazardous, semi-dry paste. Cuttings would be disposed of in sumps at the prospect sites. On prospect sites that are located near sensitive areas, Talon would not construct sumps in order to avoid potential effects to wetlands due to associated ground disturbance and/or vegetation damage. Instead, Talon would use large portable tanks to contain drilling wastewater and cuttings. The drilling wastewater and cuttings would subsequently be transferred to sumps dug in non-sensitive areas on private land. If 10 or more boreholes are drilled within a 660-square-foot radius from the central hole, all drilling fluid and cuttings must be transported offsite for disposal. Additionally, if greater than 1 cubic foot of sulfide-bearing cuttings are generated from a borehole, the cuttings must be transported offsite to a licensed landfill for disposal (MDEQ, 2005). Other types of nonhazardous waste, primarily including food waste and packaging waste (e.g., cardboard) would be collected during each shift at each prospect site and transported offsite for disposal. With the proper use, storage, transport, and disposal of hazardous materials and waste generated under the Proposed Action, adverse effects to health, safety, or the environment within the area of analysis are unlikely. Therefore, hazardous materials and waste is dismissed from further analysis.

3.1.3.2 Traffic and Transportation

Traffic throughout the Upper Peninsula of Michigan is low due to the region's low population density. The primary means of accessing sites for mineral exploration in the area of analysis would be U.S. Routes 41 and 141 and state highways M-28 and M-95. Pickup trucks would be the primary vehicle used to support work activities. Worker commutes would be in a Talon vehicle whenever possible, though personal vehicles would be allowed. Travel distance would be expected to range from 15 to 50 miles (mi) one-way to the prospect site from worker accommodations and Talon's Michigan field office in L'Anse, Michigan. Large equipment would be hauled on 18-wheel transport trucks when moved to and from the prospect site at the beginning and end of work at a particular site. All smaller equipment would be hauled in pickup trucks or on a trailer towed by a pickup truck. Trucks would make a minimum of three roundtrips per day and per drill rig. However, there would be daily variability in the number of roundtrips at the beginning and end of work at a prospect site. To access the remote prospect sites, Talon would use existing logging trails to the greatest extent possible. If necessary, Talon would clear areas for temporary access trails. Use of existing logging trails and temporary access trails would

not affect transportation or traffic in the area of analysis because the only vehicles present on the trails at the time of exploration would be owned by Talon or Talon's contractors. Talon would conduct most exploration activities in remote locations away from public roads; often prospect sites could be over 1 mi from the closest public road. Talon would not conduct exploration activities close to any railroads. Exploration activities would not affect airport or railroad operations. No substantial changes to traffic movements, flows, volumes, safety, or timing would be anticipated as a result of the Proposed Action. Traffic in the area of analysis would continue to remain low with no major congestion problems under all considered alternatives. As a result, no changes to traffic and transportation would be anticipated and this resource area is dismissed from further analysis.

3.1.3.3 Noise and Acoustic Environment

The areas surrounding the identified drill-ready targets (Roland Lake, Boulderdash, and Clipper) can be categorized as remote and forested; additional prospect sites would be identified in other similar remote areas within the area of analysis during the AES program. The noise receptors closest to the prospect sites could be from users of recreational cabins, though in most locations, none are present. Prospect sites would not be close to towns. Due to the remoteness of the prospect sites and the low population density of the surrounding area, it is assumed that there are no noise-sensitive receptors within or near potential exploration areas. Under the Proposed Action, transportation vehicles and drilling equipment including the drill rig, generator, water pump, solids recovery unit, skidsteer, excavator, bulldozer, and pickup trucks would be used at prospect sites within the area of analysis 24 hours a day, seven days a week. The main source of noise associated with exploration activities would be from the drill rig, which produces noise at a maximum level of approximately 90 A-weighted decibels (dBA). The noise level decreases to approximately 48 dBA at 480 ft from the prospect site. Noise from vehicles and equipment would contribute to the soundscape at a prospect site and potentially interfere with the communication, sleep, or stress levels of nearby humans and wildlife. Sound produced from project activities would be partially buffered by the surrounding forest, reducing the overall amount of noise pollution. The only human receptors that would be affected by noise associated with the Proposed Action would be project personnel and users of recreational cabins. Noise from transportation and drilling would affect resident wildlife for the duration of project activities as discussed in as discussed in Section 3.2 Biological Resources. All equipment would employ functioning exhaust mufflers from the manufacturer. On-site personnel would wear hearing protection at all times. Because the prospect sites and the overall area of analysis are remote and distant from sensitive receptors, and because there would be no substantial effects from noise on the ambient soundscape of the area of analysis, noise and acoustic environment is dismissed from further analysis.

3.1.3.4 Air Quality and Greenhouse Gase Emissions

The EGLE's Air Quality Division provides regulatory oversight and has the authority to implement and enforce air quality and air pollution requirements in Michigan. The area of analysis is in compliance with the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants and thus is in an *attainment* area. Total expected net direct and indirect emissions were

calculated on a calendar year basis for the Proposed Action within Baraga and Marquette counties. It was estimated that the annual net emissions of criteria pollutants associated with the Proposed Action would not exceed the *de minimis* thresholds for the NAAQS (see summary of criteria pollutants in **Table 3.1-1** and Appendix E). Emissions of fugitive dust may occur during site preparation activities from operating drilling equipment and from vehicle traffic on access roads. Best Management Practices (BMPs) would be implemented to minimize any adverse effects to air quality, such as using water for dust control and turning off vehicles and equipment when not in use. Additionally, the use of Tier 3 and 4 engines, with their advanced emission control technologies, would emit lower levels of particulate matter and oxides of nitrogen (NO_X). Effects to air quality under the Proposed Action would be negligible, thus air quality is dismissed from further analysis.

The annual greenhouse gas (GHG) emissions for the Proposed Action were calculated for the reporting period 2026 to 2027 and were found to be well below the Prevention of Significant Deterioration (PSD) threshold (**Table 3.1-2**). The DAF has adopted the PSD threshold for GHG of 75,000 tons per year (ton/yr) of CO2 equivalents as an indicator or "threshold of insignificance" for NEPA air quality impacts in all areas. The annual GHG emissions for the Proposed Action would constitute a negligible percentage of the Michigan and the U.S. total annual GHG emissions (see Appendix E). Therefore, GHG emissions under the Proposed Action are insignificant and are dismissed from further analysis (DAF, 2024).

Table 3.1-1. Criteria Pollutant Emissions from the Proposed Action

Pollutant	Proposed Action Emissions (ton/yr)	Insignificance Indicator	
		Indicator (ton/yr)	Exceedance (Yes or No)
VOC	0.565	250	No
NO_x	2.987	250	No
CO	5.965	250	No
SO_x	0.011	250	No
PM 10	2.705	250	No
PM 2.5	0.097	250	No
Pb	0.000	250	No
NH_3	0.028	250	No

Table 3.1-2. Comparison of GHG Emissions from the Proposed Action

Region	GHG Emissions (metric tons)			
	CO_2	CH_4	N_2O	CO_{2eq}
Michigan Total	317,340,984	1,161,201	56,061	364,710,866
U.S. Total	10,272,908,358	51,253,823	3,001,415	12,503,390,459
Proposed Action	1,150	0.049018	0.011085	1,154

Region	GHG Emissions (metric tons)			
	CO_2	CH_4	N_2O	CO_{2eq}
Percent of Michigan Totals	0.00036230%	0.00000422%	0.00001977%	0.00031642%
Percent of U.S. Totals	0.00001119%	0.00000010%	0.00000037%	0.00000923%

3.1.3.5 Socioeconomics

Under the Proposed Action, each drill rig would have up to nine personnel assigned to it so that it can operate 24-hours per day every day. Up to three drill rigs may be operating at any one time. Talon would require 35 to 40 staff and contractors when operating three drill rigs over the project period across multiple disciplines, including management, geoscientists, drill crew, truck drivers, and technicians. While many of these positions would be filled by existing Talon employees who would travel to temporary work locations for the duration of the activity, preference for some of the positions, particularly drillers and drill helpers, would be given to members of local communities. Some workers are contracted locally on an as-needed basis for tasks like trail building and hauling equipment. Accommodation and food for workers would be met by a combination of local hotels, local house rentals, restaurants, and grocery stores. Local businesses would be prioritized to provide the goods and services needed to complete the exploration work, including hardware, mechanical repairs and parts, fuel, and earth moving. The temporary relocation of employees to the area of analysis would see a small increase in demand for housing rentals and hotel accommodation, though it is not expected to cause a shortage in short-term accommodation in the region as this population is a negligible fraction of the overall population in the area of analysis. The population increase in the area of analysis as a result of the temporarily relocated employees would not be substantial. In the short-term, the Proposed Action would result in new employment opportunities in the mineral exploration sector in the area of analysis. The per capita personal income (PCPI) and compensation of the workers in this sector would be expected to increase slightly over the duration of the Proposed Action. Most of the wages received by the workers would remain in or flow back into the economy of the area of analysis. During this time, the unemployment rate in the area of analysis may experience a slight decrease. However, since the employment generated as a result of the Proposed Action would only affect a negligible fraction of the total population in the area of analysis, these beneficial effects to socioeconomics would be insignificant. There may be some indirect beneficial effects from Talon purchasing supplies, materials, and services from local vendors in the region, and some marginal induced beneficial effects would occur when employees of the directly and indirectly affected industries, such as accommodation and food services and arts, entertainment, and recreation services, spend the wages they receive in the area of analysis. Overall, the project would result in insignificant short-term beneficial socioeconomic effects to the labor force and earnings in the area of analysis. In the long term, the project would help increase domestic production of nickel, which is an essential mineral used for the production of high-temperature aerospace alloys, stainless steel, and chemicals for lithium-ion batteries used in electric vehicles (DoD, 2023). The Title III funds would secure domestic nickel reserves, stabilize nickel supply chains, and potentially lower the cost of the material, resulting in beneficial effects to the end

users in the long term, though this would not affect the day-to-day lives of the consumers. Overall, effects to socioeconomics are insignificant, thus this resource area is dismissed from further analysis.

3.1.3.6 Land Use

Over 80 percent of the land in the counties intersecting the 445,000-acre area of analysis is forested (USDA, 2023). Talon's identified drill-ready targets (i.e., Roland Lake, Boulderdash, and Clipper) are in remote timberland previously used for logging; additional prospect sites would be identified on other forested land within the area of analysis during the AES program. Because the land has already been used for industrial activity (e.g., logging), mineral exploration would not represent a substantial change in land use. While minimal grading and vegetation removal could occur at prospect sites for installation of drill pads and temporary access trails, areas immediately surrounding the drill pads and access trails would continue to be remote forest. Land cover, mostly forested, in the area of analysis would not substantially change because vegetation would be minimally cleared only as needed and would revegetate after drilling operations are completed. There would be no effect on designated land use under the Proposed Action; therefore, land use is dismissed from further analysis.

3.1.3.7 Infrastructure and Utilities

Under the Proposed Action, there would be no change in local electricity demand because exploration equipment would be powered using diesel generators and would, therefore, not utilize the local electric grid. Likewise, since the maximum total number of onsite workers would be negligible relative to the population in and surrounding the area of analysis, there would be minimal to no change in sanitary sewer demand over the duration of the Proposed Action. Additionally, the identified natural water sources from which drill rig water would be sourced within the area of analysis would have the capacity to support water demand under the Proposed Action (i.e., up to 1,000 gal or more of water per drill rig per day) and would have no effect on the availability of potable or process water within the area of analysis. Therefore, infrastructure and utilities is dismissed from further analysis.

3.1.3.8 Safety and Occupational Health

Talon consistently provides a safe and healthy workplace in compliance with Occupational Safety and Health Administration (OSHA) standards per 29 CFR § 1910, and as described in the Talon Code of Business Conduct and Ethics (Talon, 2008) and the Talon Health & Safety Environment (HSE) Policy (Talon, No Date). Talon would implement its standard corporate project planning measures, including a pre-exploration planning period and a risk assessment. All Talon employees and contractors are required to adhere to the work plan developed during the risk assessment and are expected to stop work immediately if a task is assessed to have a high-risk level when performed in the field. Talon would also have a plan that covers safety for any member of the public who happens upon the exploration activities and would make the plan available upon request. Given Talon's adherence to OSHA regulations and implementation of corporate safety and health project planning measures, potential adverse effects on safety and health are unlikely to occur under the Proposed Action. Furthermore, if any adverse effects were to occur, it would

likely be minimal due to the implementation of risk controls and the presence of trained HSE staff and emergency equipment onsite. Therefore, safety and occupational health is dismissed from further analysis.

3.1.4 REASONABLY FORESEEABLE ACTIONS

Reasonably foreseeable actions include federal and non-federal projects that are likely to occur within the AOI in the immediate future (i.e., within a few years). These activities are considered in conjunction with the effects of the Proposed Action in the environmental consequences section for each resource. Planning documentation such as recreation plans, zoning ordinances, and annual reports from counties and townships within the AOI were reviewed for ongoing or proposed projects that have the potential to result in environmental effects that may be additive or interactive with the effects of the Proposed Action. Additive effects are the sum of the effects on a resource; for example, groundwater pumping for agricultural irrigation, domestic consumption, and industrial cooling and process activities that all contribute incrementally and additively to drawing down a groundwater aquifer. Interactive effects may be either countervailing – where the combined adverse effect is less than the sum of the individual effects – or synergistic – where the combined adverse effect is greater than the sum of the individual effects. An example of a countervailing effect is when particulate matter and aerosol air pollutants, which tend to block or reflect insolation (i.e., sunlight or incoming solar radiation) and thus cool the planet surface, counteract the warming or radiative forcing effect of carbon dioxide emitted at the same time. An example of a synergistic effect is the discharge of fuel or other harmful constituents to a river that combine to decrease water quality and subsequent loss of dissolved oxygen greater than the additive effects of each individual pollutant. Effects on a resource can result from individually small, but collectively substantial, reasonably foreseeable actions taking place over a period of time.

Reasonably foreseeable actions within the AOI are shown in **Table 3.1-3**. Since prospect sites would not be located directly in developed areas, and the AOI covers a large area, the reasonably foreseeable actions considered are those that encompass 20 acres or more and are located in undeveloped areas in the AOI.

Table 3.1-3. Reasonably Foreseeable Actions within the AOI

Project Name	Location	Project Details
Logging/Timber Harvest	Throughout AOI	Logging activities for timber harvest would continue throughout the AOI. There are approximately 50,000 privately owned parcels of timber on the Upper Peninsula, many of which are under corporate ownership (Cook, 2015).
Michigamme Highlands Project	Baraga, Marquette, and Iron counties	This project proposes conservation easement that would protect 73,000 acres of forests, lakes, streams, and wetlands on the Upper Peninsula (DNR, No Date-c). Some of the land considered for this project is in or near the AOI.
Camping and Dark Sky Park	Arvon Township, Baraga County	In 2028, Arvon Township plans to develop a 30+ acre parcel overlooking Huron Islands for camping and dark sky park (Arvon Township Board of Trustees, 2023).

Project Name	Location	Project Details
Silver Lead Creek Greenway Project	Former K.I. Sawyer Air Force Base, Marquette County	This project would establish 500 acres of public greenway around Little Trout Lake in the K.I. Sawyer community. Construction is planned for 2025 (Marquette County, 2024).
Prescribed Burning	Ottawa and Hiawatha National Forests	Prescribed burning is planned yearly for hazardous fuels management and decreased risk of wildland fire across the Ottawa and Hiawatha National Forests on the Upper Peninsula (USFS, 2024; USFS, 2025).
Eagle Mine Closure	Western Marquette County	The Eagle Mine is expected to produce 440 million lb of nickel, 429 million lbs of copper, and trace amounts of other minerals over its estimated life (2014 through 2029) (Eagle Mine, 2022). The surface facilities encompass roughly 130 acres. When mining operations are completed, restoration efforts will be implemented to preserve the environment and for any land that has been disrupted during the mining process to return to a natural state.
Marquette County 2040 Master Plan	Marquette County	The Marquette County 2040 Master Plan is a comprehensive planning process aimed at guiding the county's future development and growth (Marquette County, No Date). Goals and strategies include a stimulated, sustained and diverse regional economy; a regional recreation hub where residents and visitors experience the natural environment and recreational assets without ecological degradation; and a County Forest Management Plan with prescriptions that range from intensive forestry efforts such as plantations where the focus is growing trees to preserving areas for fish and wildlife habitat.
Keweenaw Bay Indian Community Forest Carbon Project	Baraga County	This project is located on approximately 15,356 acres of forests on the L'Anse Band of Chippewa Indians reservation on the Upper Peninsula and is committed to maintaining forest carbon stocks above the regional baseline to provide climate benefits through carbon sequestration (Climate Impact Partners, 2025). The forest is managed sustainably under this program to reduce habitat fragmentation and degradation of water quality, decrease greenhouse gas emissions (i.e. carbon dioxide), and provide a new revenue stream for forest landowners.

3.2 BIOLOGICAL RESOURCES

Biological resources refer to the living components of the environment, including terrestrial and aquatic vegetation and wildlife and special status species protected under federal and state law. Special status species include threatened and endangered species protected under the ESA, migratory birds protected under the Migratory Bird Treaty Act (MBTA), and bald and golden eagles protected under the Bald and Golden Eagle Protection Act (BGEPA). Under Section 7 of

the ESA, federal agencies must informally consult with the USFWS when any action the agency carries out, funds, or authorizes may affect ESA-listed or proposed species and designated or proposed critical habitat. If adverse effects to ESA-listed species are expected, the action agency must request Section 7 consultation and provide the information required in 50 CFR § 402.14(c) and (d) (USFWS, No Date-a).

The defined area of analysis for biological resources comprises the 445,000-acre AOI subject to discovery work and mineral exploration.

3.2.1 AFFECTED ENVIRONMENT

The area of analysis for biological resources encompasses the entire AOI. The AOI is bound by Lake Superior to the north and the Ottawa National Forest to the west. Approximately 43,400 acres of the Ottawa National Forest are within the AOI, including 8,650 acres of the Sturgeon River Gorge Wilderness and 9,200 acres of the McCormick Wilderness (**Figure 1.2-1**).

3.2.1.1 Vegetation

The area of analysis lies in the Northern Lakes and Forests Level III ecoregion (USEPA, 2013). An ecoregion is a geographically defined area where ecosystems and the quality and quantity of environmental resources within them are generally similar (USEPA, 2025a). A humid continental climate and coniferous and northern hardwood forests characterize this ecoregion (Wilken et al., 2011).

The area of analysis consists of 445,000 acres of remote forest, most of which is vegetated. Common trees include white spruce (*Picea glauca*), black spruce (*Picea mariana*), eastern white pine (*Pinus strobus*), red pine (*Pinus resinosa*), jack pine (*Pinus banksiana*), northern white cedar (*Thuja occidentalis*) balsam fir (*Abies balsamea*), tamarack (*Larix laricina*), sugar maple (*Acer saccharum*), hemlock (*Conium maculatum*), and yellow birch (*Betula alleghaniensis*) (Wilken et al., 2011). Common shrubs and grasses include ground juniper (*Juniperus communis*), elderberry (*Sambucus nigra*), nannyberry (*Viburnum lentago*), big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and northern sweetgrass (*Hierochloe hirta*) (MSU, No Date-a). Riparian vegetation composed of trees, shrubs, and grasses is likely present adjacent to streams, ponds, and wetlands in the area of analysis, acting as buffers that reduce the introduction of pollutants and nutrients into aquatic ecosystems, provide habitat and food for terrestrial and aquatic wildlife, and stabilize stream banks (USDA, 2022).

Invasive plant species that have established in the Upper Peninsula of Michigan such as black locust (*Robinia pseudoacacia*), stiltgrass (*Microstegium vimineum*), phragmites (*Phragmites australis*), autumn olive (*Elaeagnus umbellata*), common buckthorn (*Rhamnus cathartica*), and multiflora rose (*Rosa multiflora*) may also be present in the area of analysis (State of Michigan, No Date). These species compete with native flora for resources such as space and sunlight. Seed dispersal by wildlife allows for the aggressive spread of invasive plants.

3.2.1.2 Wildlife

The area of analysis provides 445,000 acres of forest and freshwater habitat for many terrestrial and aquatic taxa. Common mammals include white-tailed deer (*Odocoileus virginianus*), moose

(*Alces alces*), coyote (*Canis latrans*), American black bear (*Ursus americanus*), American badger (*Taxidea taxus*), North American beaver (*Castor canadensis*), North American porcupine (*Erethizon dorsatum*), and northern river otter (*Lontra canadensis*) (Upper Peninsula Travel and Recreation Association, No Date). Reptiles and amphibians such as common snapping turtle (*Chelydra serpentina*), eastern garter snake (*Thamnophis sirtalis sirtalis*), green frog (*Lithobates clamitans*), and blue-spotted salamander (*Ambystoma laterale*) may be present (Upper Peninsula Travel and Recreation Association, No Date; DNR, No Date-d). Fish such as brook trout (*Salvelinus fontinalis*), rainbow trout (*Oncorhynchus mykiss*), smallmouth bass (*Micropterus dolomieu*), and northern pike (*Esox lucius*) may be present in rivers, lakes, ponds, and streams within the area of analysis (Trout Unlimited, No Date).

Invasive animal species introduced to the Upper Peninsula of Michigan which may also be present in the area of analysis, include Russian boar (*Sus scrofa Linnaeus*), Eurasian ruffe (*Gymnocephalus cernuus*), and emerald ash borer (*Agrilus planipennis*) (State of Michigan, No Date). These species destroy native vegetation, eat the eggs of other species, and compete with native fauna for resources.

3.2.1.3 Special Status Species

3.2.1.3.1 ESA-Listed Species

A list of ESA-listed species that may be present in the area of analysis was generated on July 21, 2025 using the USFWS Information for Planning and Consultation (IPaC) online project planning tool (USFWS, 2025). According to the IPaC report (see Appendix B), there are six ESA-listed species that may occur in the area of analysis, including one Distinct Population Segment (DPS) (**Table 3.2-1**). A DPS is a discrete population of a vertebrate species that is significant (i.e., important) relative to the entire species (61 Federal Register [FR] 4722). No designated or proposed critical habitat for these species is present within the area of analysis. **Table 3.2-1** also includes the listing status of these species in the state of Michigan, if applicable (DNR, 2023).

Table 3.2-1. ESA- and State-Listed Species Potentially Occurring in the Area of Analysis

Common Name	Scientific Name	ESA Status	State Status
Canada lynx, Contiguous U.S. DPS*	*Lynx canadensis*	Threatened	Endangered
Gray wolf	*Canis lupus*	Endangered	N/A
Northern long-eared bat	*Myotis septentrionalis*	Endangered	Threatened
Tricolored bat	*Perimyotis subflavus*	Proposed Endangered	Threatened
Rufa red knot	*Calidris canutus rufa*	Threatened	N/A
Monarch butterfly	*Danaus plexippus*	Proposed Threatened	N/A

* DPS = Distinct Population Segment

N/A = Not Applicable

Sources: USFWS, 2025; USFWS, No Date-b; DNR, 2023

3.2.1.3.1.1 Canada Lynx

The Canada lynx (*Lynx canadensis*) is a medium-sized (32 to 33.5 in) long cat that inhabits boreal and northern hardwood forests. Canada lynx prefer areas that receive deep snow and have high-density populations of their primary prey, the snowshoe hare (*Lepus americanus*) (USFWS, No Date-b). More active at night, lynx are solitary hunters. Mating occurs once per year between February and April with a gestation period of eight to ten weeks. Lynx have been known to live for up to 14 years in the wild (NWF, No Date). In 2000, the USFWS determined that federal land management plans were inadequate for the conservation of lynx populations and habitats and thus listed the Contiguous U.S. DPS of the Canada lynx as threatened wherever found (USFWS, No Date-c). Critical habitat was designated in 2006 and revised several times, with the most recent revision in 2024; current designated critical habitat is found in the western U.S., Minnesota, and Maine. There is no designated or proposed critical habitat in the area of analysis (USFWS, No Date-b). The Canada lynx is also a state-listed endangered species in Michigan (DNR, 2023). Lynx are threatened by timber harvest and recreation activities, which are the predominant land uses in their habitat (USFWS, No Date-c). There is no known lynx population in the Upper Peninsula; fewer than five lynx occurrences have been documented since 1979 (Linden et al., 2011; MSU, No Date-b). Michigan State University, No Date-b). Thus, Canada lynx are not likely to be present in the area of analysis.

3.2.1.3.1.2 Gray Wolf

The gray wolf (*Canis lupus*) is the largest wild member of the dog family, weighing up to 175 lbs. Found in a northern circumpolar range across North America, Europe, and Asia, gray wolves thrive in a variety of habitats, including boreal and temperate forests, mountains, tundra, grasslands, and deserts (USFWS, No Date-c). Gray wolves in North America prey upon medium and large hooved mammals such as moose, elk, deer, caribou, and bison, but they also scavenge and eat smaller mammals, birds, and fish. Wolves hunt and defend their territories in packs; territory size can be extensive and is related to prey density. Gray wolves typically breed once per year in February (USFWS, No Date-b). When rearing pups (typically April 15-September 1), wolves center their activity around dens and secondary pup rearing locations known as rendezvous sites (Ausband et al., 2016). Predator-control programs in the early 1900s eliminated the gray wolf throughout the contiguous U.S. except in northeast Minnesota; recovery efforts began in the 1970s and continue in the present day (USFWS, No Date-c). Originally listed under the ESA as subspecies or as regional populations of subspecies, the gray wolf was listed as endangered at the species level in 1978 in the contiguous U.S. and Mexico, except in Minnesota, where the gray wolf was listed as threatened (USFWS, No Date-c). Critical habitat was designated in Minnesota in 1978; there is no designated or proposed critical habitat in the area of analysis (USFWS, No Date-b). At least 762 gray wolves live in the Upper Peninsula, and the population has remained stable for 14 years (Meyer, 2024). However, due to the large size of the area of analysis, it is unlikely that gray wolves would commonly occur at any individual prospect site.

3.2.1.3.1.3 Northern Long-Eared Bat

The northern long-eared bat (NLEB) (*Myotis septentrionalis*) is a medium-sized bat (3 to 3.7 in long) distinguished by its long ears. The NLEB's range includes 37 states in the eastern and north

central U.S. and multiple Canadian provinces (USFWS, No Date-b). A variety of insects, including moths, flies, and beetles, characterize the NLEB's diet. During winter, NLEBs hibernate in caves and mines called hibernacula. In non-hibernating seasons, they can be found roosting in the crevices of live and dead trees or underneath bark (USFWS, No Date-c). Summer roosting season in Michigan is considered to be May 15 to August 15, with most pups born between June 1 and August 15 (USFWS, 2023a; USFWS, 2024a). The predominant threat to NLEB is white-nose syndrome, a disease caused by the fungus *Pseudogymnoascus destructans* that affects hibernating bats (White-Nose Syndrome Response Team, No Date). White-nose syndrome is found in at least 25 states within the NLEB's range. In the northeast U.S., white-nose syndrome has killed up to 99 percent of NLEBs at many hibernation sites. The USFWS listed the NLEB as threatened in 2015, but the species was reclassified as endangered wherever found in 2022 due to the wide-range impacts of white-nose syndrome. There is currently no proposed or designated critical habitat for the NLEB (USFWS, No Date-b). The NLEB is also a state-listed threatened species in Michigan (DNR, 2023). White-nose syndrome continues to threaten NLEB populations; other threats include mortality due to collision with wind turbines, habitat loss, and human disturbance during hibernation (USFWS, No Date-c).

3.2.1.3.1.4 Tricolored Bat

The tricolored bat (TCB) (*Perimyotis subflavus*) is slightly smaller than the NLEB (3 to 3.5 in long) and distinguished by tricolored fur that is dark at the base, lighter in the middle, and dark at the tip (USFWS, No Date-c). Its range encompasses 39 states in the eastern and central U.S. as well as southern Canada and northern Mexico (USFWS, No Date-b). The TCB's diet consists of small insects. The TCB hibernates in caves and mines (known as hibernacula) in the winter and roost in leaf clusters and live and dead trees in non-hibernating seasons. (USFWS, No Date-c). Like the NLEB, white-nose syndrome is the predominant threat to TCBs, with estimated declines of more than 90 percent in affected colonies. In 2022, the USFWS proposed to list the TCB as endangered. There is currently no proposed or designated critical habitat for the TCB (USFWS, No Date-b). The TCB is also a state-listed threatened species in Michigan (DNR, 2023). In addition to white-nose syndrome, TCBs are also threatened by collisions with wind turbines, habitat loss, and human disturbance during hibernation (Center for Biological Diversity, No Date).

3.2.1.3.1.5 Rufa Red Knot

The rufa red knot (*Calidris canutus rufa*) is a shorebird and one of three subspecies of red knots (Baker et al., 2020). Rufa red knots could be found in the area of analysis using the coast of Lake Superior as stopover areas during migration, though this species is not common in Michigan (Sorg, 2017). The birds breed in the Arctic beginning in late May, and the highly precocial young (i.e., hatchlings requiring lower levels of parental care, such as ducklings or goslings) fledge during July (Baker et al., 2020). Red knots overwinter in South America, the Caribbean, and the Gulf coasts of the U.S. and Mexico (USFWS, No Date-c). During migration, rufa red knots generally prefer sandy coastal habitats near tidal inlets at the mouths of bays and estuaries. They also use sandy beaches, rocky beaches, mudflats, mangroves, salt marshes, and intertidal rocky areas, particularly those with high availability of bivalves and crustaceans (Baker et al., 2020). Rufa red knots eat a variety of invertebrates such as bivalves, snails, crustaceans, marine worms, and

horseshoe crab eggs (USFWS, No Date-c). Prior to the early 20th century, rufa red knot populations were heavily and primarily impacted by hunting. After removal of hunting pressures with the passage of the MBTA in 1918, accelerated coastal development and reduction of horseshoe crab populations continued to impact rufa red knot populations. In 2015, the rufa red knot was listed as threatened wherever found, and a proposed revision to critical habitat was published in 2023. There is no designated or proposed critical habitat in the area of analysis (USFWS, No Date-b). Current threats to the rufa red knot include sea level rise, coastal development, overfishing of shellfish, and disturbance by vehicles, aircraft, and boats (Baker et al., 2020).

3.2.1.3.1.6 Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) is a large insect with orange and black wings. Its bright coloration serves as a warning to potential predators that eating the butterfly can be toxic; monarchs obtain toxins called cardenolides from milkweed plants (primarily *Asclepias* spp.). Monarchs exclusively lay eggs on milkweed plants, which serve as food sources for caterpillars (USFWS, No Date-c). Monarch butterflies are present in Michigan in the summer and migrate south for the winter (DNR, No Date-e). Migrating monarchs enter a period of suspended reproduction while overwintering and live for six to nine months (USFWS, No Date-b). The eastern monarch population has declined by 90 percent since the 1990s due to habitat decline, specifically the loss of milkweed in rural areas due to agricultural activities (DNR, No Date-e; Monarch Joint Venture, No Date). In 2024, the USFWS proposed to list the monarch butterfly as threatened and to designate critical habitat in California (89 FR 100662). There is no designated or proposed critical habitat in the area of analysis (USFWS, No Date-b). In addition to loss of habitat, threats to the monarch butterfly include insecticides, parasites, disease, and rising temperatures (Monarch Joint Venture, No Date).

3.2.1.3.2 State-Listed Species

Review of the Michigan Natural Features Inventory indicated 68 state-listed threatened and endangered species may be present in the area of analysis, including 38 plants, nine birds, four mammals, three reptiles, six fish, four mollusks, and four insects (MSU, No Date-c). A complete list of state-listed species that may be present in the area of analysis is included in Appendix C. Many of these species have not been observed in the counties comprising the area of analysis in several decades or in some cases centuries, including the small rounded-leaved orchis (*Amerorchis rotundifolia*, last observed in 1891) and the king rail (*Rallus elegans*, last observed in 1969). Other species such as lake sturgeon (*Acipenser fulvescens*) are found in large bodies of water that would not be subject to project activities. One state-listed species of note is the little brown bat (*Myotis lucifugus*), which has similar habitat and threats as the NLEB and TCB, described above (MSU, No Date-c).

3.2.1.3.3 Migratory Birds

Over 400 bird species have been documented in the Upper Peninsula of Michigan, many of which are migratory birds (NPS, 2021). The MBTA and EO 13186 require the protection of migratory birds and their habitats. EO 13186 clarifies the responsibilities of federal agencies to consider the

effects of agency actions on birds listed under the MBTA. Bird species commonly observed in the area of analysis include Canada goose (*Branta canadensis*), wood duck (*Aix sponsa*), mourning dove (*Zenaida macroura*), red-winged blackbird (*Agelaius phoeniceus*), northern mockingbird (*Mimus polyglottos*), American crow (*Corvus brachyrhynchos*), great blue heron (*Ardea Herodias*), red-tailed hawk (*Buteo jamaicensis*), and great horned owl (*Bubo virginianus*) (NPS, 2021). These species and others may nest in trees in the area of analysis. Breeding season for most migratory birds in Michigan occurs in spring and summer, peaking in June (Michigan Audubon, 2021). The USFWS IPaC report listed 18 migratory birds of conservation concern (BCCs), which are species of high conservation priority due to population trends and threats to habitat, potentially present in the area of analysis (**Table 3.2-2**) (USFWS, 2025). Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) may also be present in the area of analysis (**Table 3.2-2**) (USFWS, 2025). Though not considered BCCs, both species are protected under the BGEPA.

Table 3.2-2. Protected Bird Species Potentially Occurring in the Area of Analysis

Common Name	Scientific Name	Protection Status	Breeding Season
Bald eagle	*Haliaeetus leucocephalus*	BGEPA*	Dec to Aug
Golden eagle	*Aquila chrysaetos*	BGEPA	Jan to Aug
Black tern	*Chlidonias niger surinamenisis*	BCC**	May to Aug
Black-billed cuckoo	*Coccyzus erythropthalmus*	BCC	May to Oct
Bobolink	*Dolichonyx oryzivorus*	BCC	May to Jul
Canada warbler	*Cardellina canadensis*	BCC	May to Aug
Chimney swift	*Chaetura pelagica*	BCC	Mar to Aug
Common tern	*Sterna Hirundo*	BCC	May to Aug
Connecticut warbler	*Oporornis agilis*	BCC	Jun to Aug
Eastern whip-poor-will	*Antrostomus vociferus*	BCC	May to Aug
Evening grosbeak	*Coccothraustes vespertinus*	BCC	May to Aug
Golden-winged warbler	*Vermivora chrysoptera*	BCC	May to Jul
Kirtland's warbler	*Setophaga kirtlandii*	BCC	May to Jul
Lesser yellowlegs	*Tringa flavipes*	BCC	Breeds elsewhere
Olive-sided flycatcher	*Contopus cooperi*	BCC	May to Aug
Pectoral sandpiper	*Calidris melanotos*	BCC	Breeds elsewhere
Ruddy turnstone	*Arenaria interpres morinella*	BCC	Breeds elsewhere
Veery	*Catharus fuscescens fuscescens*	BCC	May to Jul
Whimbrel	*Numenius phaeopus hudsonicus*	BCC	Breeds elsewhere
Wood thrush	*Hylocichla mustelina*	BCC	May to Aug

* BGEPA = Bald and Golden Eagle Protection Act

** BCC = Bird of Conservation Concern

Source: USFWS, 2025

3.2.2 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential effects to biological resources in the area of analysis under the Proposed Action and the No Action Alternative.

3.2.2.1 Proposed Action

3.2.2.1.1 Vegetation

Under the Proposed Action, forest vegetation would be cleared by heavy machinery to provide space for drill pads and access trails in the area of analysis. Up to 0.50 acres of trees and other vegetation could be cleared for each drill pad, but the actual amount of vegetation cleared would vary based on the space needed and the vegetation cover at the site. Talon would determine locations for up to 35 drill pads in the area of analysis, resulting in the potential clearing of up to 17.5 discontinuous acres of vegetation for the drill pads themselves. If access trails or stream crossings are required for the drill rig and vehicles to travel to the prospect site, additional forest or riparian vegetation could be cleared or trampled. Access trails would be 15 to 20 ft wide and kept as short as is reasonable considering safety factors and terrain. Vegetation clearing would be distributed spatially and temporally across the area of analysis and limited to the greatest extent possible.

Talon would limit vegetation clearing by utilizing natural clearings, existing logging trails, and sparsely vegetated ground to the greatest extent possible. If trees are present, Talon would coordinate removal in agreement with the landowner and attempt to leave large trees in favor of removing smaller trees. Talon would make every effort to minimize tree removal and site disturbance by carefully choosing the drill pad locations. Talon would also use angled drilling to test multiple targets from a single drill pad, which would minimize the number of drill pads. In the rare circumstance that disturbance would intersect a wetland area, composite mats may be placed under the drill rig or along the access trail to stabilize the ground surface, which would flatten herbaceous or shrubby vegetation underneath but allow the root structures of the plants to remain intact, enabling the vegetation to regrow quickly once the mats are removed.

Vegetation clearing and placing of composite mats would occur over the duration of the Proposed Action as drilling targets are identified. Once work is completed at a site, the drill pad and any access trails that have been built would be reclaimed based on landowner preference either by reseeding the area with native vegetation or by distributing woody debris over the area to promote regrowth of native vegetation.

Transportation of equipment and other mineral exploration activities could potentially result in the spread of invasive plant species to or from the prospect sites. Additionally, vegetation clearing, drill pad set up, and drilling operations would increase the area of disturbed soil conditions that would be susceptible to the establishment and spread of invasive plant species. BMPs such as proper disposal of dirt and plant material found on construction equipment would be implemented to minimize the introduction and establishment of invasive plant species. Dirt and debris would be removed from drill rigs, equipment, and vehicles between work at different prospect sites. Talon would only use seed mixes approved by the landowner (on private land) or the relevant government unit (on public land) when revegetating a prospect site.

Reasonably foreseeable future actions occurring in or near the area of analysis could interact with the effects that the Proposed Action would have on vegetation. Actions such as timber harvest, prescribed burning, and small-scale development projects would interact with the effects of vegetation clearing under the Proposed Action to contribute to the overall decrease of

vegetation in the area of analysis. Prescribed burning would damage or kill individual plants in the short term but would ultimately be beneficial to vegetation communities by decreasing wildfire risk. Sustainability initiatives such as the Michigamme Highlands Project and the Keweenaw Bay Indian Community Forest Carbon Project would protect approximately 88,356 acres of forests, lakes, streams, and wetlands in the Upper Peninsula of Michigan, including any vegetation present (DNR, No Date-c; Climate Impact Partners, 2025). No land in the proposed conservation easement of the Michigamme Highlands Project would be subject to mineral exploration activities. The eventual closure of Eagle Mine would involve restoration efforts that reestablish vegetation. Vegetation clearing due to mineral exploration under the Proposed Action in the area of analysis would comprise an extremely small portion of the total vegetated area available in the Upper Peninsula, and the reasonably foreseeable actions would result in both adverse and beneficial interactive effects to vegetation.

The Proposed Action would have direct, adverse, negligible to minor, short-term to long-term, and site-specific effects on vegetation due to the removal of trees and native or invasive plant species occurring at prospect sites within the area of analysis. However, disturbed areas would be allowed to revegetate naturally or would be reseeded with a native seed mix following closure of a prospect site depending on landowner preference. Long-term adverse effects due to minimal tree removal would negligibly affect native plant communities.

3.2.2.1.2 Wildlife

Adverse effects to wildlife under the Proposed Action would primarily consist of changes in available habitat at prospect sites, as well as disturbance and displacement of animals in the vicinity of prospect sites over the duration of the Proposed Action. Up to 0.50 acres of trees and other vegetation that serve as forest habitat could be cleared for each drill pad. Talon would determine locations for up to 35 drill pads in the area of analysis, resulting in the potential clearing of up to 17.5 discontinuous acres of habitat for wildlife. Additional forest and riparian habitat could be cleared for access trails and stream crossings. Wildlife habitat clearing would be distributed spatially and temporally across the area of analysis and limited to the greatest extent possible.

Mineral exploration activities would cause displacement and disturbance of wildlife occurring at the prospect site and in surrounding habitat. Species likely to be found in the area of analysis, such as deer, small mammals, snakes, and birds, may be prevented from using the resources at or near prospect sites due to removal or alteration of habitat. These effects would be limited to the immediate vicinity of and within the prospect site. Noise and visual disturbance from vehicles, equipment, and humans could potentially result in the displacement of wildlife in the immediate vicinity of the prospect site. Noise can startle individual animals, cause stress, mask communication and other natural sounds, and displace animals from surrounding habitat. Once vegetation at a prospect site is cleared, the habitats surrounding the prospect site would generally be more suitable than at the prospect site itself, so any displaced animals could use these more suitable habitats and could return to the prospect site upon completion of project activities. Any displacement of animals is not likely to increase their energy expenditure or resource competition outside of the range of natural variation.

Talon would be highly selective when siting sumps to avoid any sensitive areas such as wetlands and streams to prevent adverse effects from contamination to water quality and aquatic wildlife. BMPs for limiting effects to water quality are described in Section 3.4 Water Resources.

BMPs would be implemented during the Proposed Action to minimize potential adverse effects to wildlife and habitat. The BMPs previously described to minimize effects on vegetation, such as limiting the area of disturbance and naturally revegetating, would also minimize effects on wildlife habitat. Vehicles would observe maximum speed limits to minimize the possibility of wildlife collisions. Staging and stockpile areas would be located within the prospect site to reduce the area of habitat disturbance. Night work would use light-emitting diode (LED) lights pointed down at the drill pad to minimize light disturbance to wildlife in the surrounding forest habitat.

The effects to wildlife habitat due to reasonably foreseeable future actions occurring in or near the area of analysis would be similar to the effects discussed for vegetation, such as tree removal or protection of forestland. In addition, wildlife could be displaced and disturbed by the foreseeable future actions, even if they do not occur within the area of analysis. For example, smoke from prescribed burnings could travel into the area of analysis via wind and harm wildlife present in areas that are not burned, though these effects would be temporary and ultimately lead to benefits for wildlife due to decreased wildfire risk in the future. Human activity from the development and use of the campground in Arvon Township, the greenway in Marquette County, and similar small-scale projects would produce noise and visual disturbance that could prevent wildlife from accessing habitat and resources. Minimal habitat removal and disturbance of wildlife due to mineral exploration under the Proposed Action in the area of analysis would affect a small portion of available wildlife resources on the Upper Peninsula, thus the reasonably foreseeable actions would result in both adverse and beneficial interactive effects to wildlife.

Effects to wildlife under the Proposed Action would be direct and indirect, adverse, negligible to minor, short-term, and local due to the minimal removal of available habitat and disturbance of animals due to noise and activity during mineral exploration.

3.2.2.1.3 Special Status Species

Effects to special status species, including ESA-listed species, Michigan state-listed species, and migratory birds, would be similar to the effects described above for other wildlife, primarily consisting of changes in available onsite habitat and disturbance and displacement of animals in the vicinity of prospect sites over the duration of the Proposed Action. The Proposed Action would result in the clearing of up to 17.5 discontinuous acres of vegetation which potentially serves as habitat for special status species within the area of analysis. Additional forest and riparian habitat could be cleared for access trails and stream crossings. Vegetation clearing would be distributed spatially and temporally across the area of analysis and limited to the greatest extent possible. Mineral exploration activities would cause displacement and disturbance of wildlife residing at the prospect site and in surrounding habitat. The same BMPs that would minimize disturbance to all wildlife would also apply to special status species.

3.2.2.1.3.1 ESA-Listed Species

Federal agencies are required under the ESA to formally determine whether their actions may affect listed species or their designated critical habitat. Effect determinations divide potential effects into three categories:

- No Effect;
- May Affect, Not Likely to Adversely Affect; and
- May Affect, Likely to Adversely Affect.

Actions receiving a "No Effect" designation do not affect ESA-listed species or their designated critical habitat (hereafter listed resources) either positively or negatively, and this designation is typically only used in situations where no listed resources are present in the action area. Actions receiving a "May Affect, Not Likely to Adversely Affect" designation have only beneficial, insignificant, or discountable effects to listed resources. Effects are considered insignificant if they are of low relative impact, undetectable, not measurable, or cannot be evaluated. Adverse effects are considered discountable if they are extremely unlikely to occur. Actions designated as "May Affect, Likely to Adversely Affect" may adversely affect any exposed listed resources.

The Canada lynx could be affected by the Proposed Action during vegetation clearing and mineral exploration activities, especially at the beginning of the drilling season each year. However, because there is no evidence of a resident lynx population in the Upper Peninsula, it is very unlikely that lynx would be present in the area of analysis (Linden et al., 2011). The Canada lynx is known to be elusive and avoidant of human activity, so encounters between lynx and project personnel would be unlikely (The Big Cat Sanctuary, No Date). Its primary prey species, the snowshoe hare, would also avoid prospect sites. However, female Canada lynx give birth to young in logs and stumps in the spring, which aligns with the start of Talon's drilling season (NWF, No Date). If a prospect site is identified near a lynx den, kittens could be present nearby and disturbed during vegetation clearing, use of vehicles and equipment, and drilling activities. Noise and visual disturbance could result in den relocation, though the frequent movement of kittens to other dens is considered normal lynx behavior even without human disturbance (Olson et al., 2011). For the identified and future prospect sites, Talon would coordinate with DNR and USFWS as appropriate to identify known lynx dens within the area of analysis. If lynx dens are identified via consultation or discovered during mineral exploration activities, Talon would coordinate with DNR and USFWS as appropriate to establish a buffer where work would not occur between the prospect site and the den. Effects on the Canada lynx from disturbance and habitat removal are expected to be discountable (i.e., extremely unlikely to occur) and insignificant. Thus, the Proposed Action *may affect but is not likely to adversely affect* the Canada lynx (**Table 3.2-3**). Effects to the Canada lynx would be direct and indirect, minor, short-term, and local due to disturbance caused by mineral exploration activities and minimal removal of available habitat in the area of analysis.

The gray wolf could be affected by vegetation clearing and disturbance during mineral exploration activities, of which some would occur between April and September when wolves rear pups (Ausband et al., 2016). Wolves and their prey would generally avoid prospect sites, but denning wolves and wolf pups would be more sensitive to human presence. If a prospect site is identified near a wolf den or rendezvous site, pups could be present nearby and disturbed during

vegetation clearing, use of vehicles and equipment, and drilling activities. Mineral exploration activities could trigger wolves to move their dens, though this behavior also occurs in the absence of human disturbance (Nonaka, 2011). For the identified and future prospect sites, Talon would coordinate with DNR and USFWS as appropriate to identify known gray wolf dens and rendezvous sites within the area of analysis. Consultation with DNR and USFWS is ongoing, and DNR may recommend that Talon maintain a minimum distance from known gray wolf dens and rendezvous sites for vegetation clearing and mineral exploration. If dens or rendezvous sites are identified via consultation or discovered during mineral exploration activities, Talon would coordinate with DNR and USFWS as appropriate to establish a buffer where work would not occur between the prospect site and the den or rendezvous site, similar to the measures described in the 2023 Biological Opinion (BO) for forest restoration (USFWS, 2023b). Effects from disturbance and habitat removal on the gray wolf are expected to be discountable (i.e., extremely unlikely to occur) and insignificant. Thus, the Proposed Action *may affect but is not likely to adversely affect* the gray wolf (**Table 3.2-3**). Effects to the gray wolf would be direct and indirect, minor, short-term, and local due to disturbance caused by mineral exploration activities and minimal removal of available habitat in the area of analysis.

The NLEB and TCB could be affected by tree clearing and disturbance during mineral exploration activities, especially during the summer roosting season (May 15 to August 15) (USFWS, 2023a). In Michigan, all drilling actions are excluded from the USFWS Determination Key for individual review, meaning that the actions do not qualify for a predetermined consultation outcome for these species and additional evaluation and/or consultation must be completed with the USFWS Michigan Ecological Services Field Office on an individual project basis. However, drilling that does not result in noise or vibrations above the baseline conditions at the site does not need to be considered (USFWS, 2024b). Disturbance to existing or potential bat hibernacula could occur due to noise and human presence. Bats roosting in trees could be killed or injured due to tree removal, especially during pup season (June and July) when young are unable to fly (USFWS, 2017). Talon has coordinated with USFWS to identify known bat hibernacula in the AOI, though the exact locations of these hibernacula are sensitive and have not been disclosed. Vegetation clearing and mineral exploration activities would not occur in township sections that intersect a 0.25-mi buffer of these sites. Per USFWS recommendation, Talon would make every effort to perform tree cutting between November 1 and April 14 at potential prospect sites in areas within a 5-mi radius of the township sections intersecting the 0.25-mi buffer around a known hibernaculum. In other areas of the AOI within the species ranges of NLEB and TCB, tree cutting could occur between August 1 and May 31 to avoid the summer roosting season in June and July. The likelihood of bat mortality due to tree removal during pup season is expected to be discountable (i.e., extremely unlikely to occur). Some tree removal could be necessary outside the recommended cutting dates depending on logistical and environmental factors. If potential roost trees are identified in areas slated for vegetation clearing outside the recommended cutting dates, Talon would adjust the footprint of the drill pad and/or access trail to avoid these trees, if possible, which could potentially be accomplished by drilling an angled hole to hit a target. If potential roost trees must be cleared outside the recommended cutting dates, emergence

and/or acoustic bat surveys would be performed by trained staff to determine the suitability of the roost tree and presence/absence of bats prior to tree cutting. Survey methods would be preapproved by USFWS and follow the USFWS Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines (USFWS, 2024a). If bats are observed using trees slated for removal, consultation would be initiated with USFWS prior to clearing vegetation or mineral exploration. Mineral exploration activities could also disturb bats hibernating in areas that have not yet been identified by USFWS and DNR as known hibernacula, such as historic mines. If Talon identifies a potential hibernaculum near a prospect site where work would occur during bat hibernation (between November 1 and April 14), Talon would coordinate with DNR to survey the site and determine its suitability as a potential bat hibernaculum prior to continuing work. Effects from disturbance and habitat removal on the NLEB and TCB are expected to be discountable and insignificant. Thus, the Proposed Action *may affect but is not likely to adversely affect* the NLEB and TCB (**Table 3.2-3**). Effects to the NLEB and TCB would be direct and indirect, minor, short-term, and local due to disturbance caused by mineral exploration activities and minimal removal of available habitat in the area of analysis.

The rufa red knot could be disturbed and displaced by mineral exploration activities during summer migration, but because this species is uncommon in Michigan, adverse effects to the red knot would be extremely unlikely. The Proposed Action would occur in remote forestland within the area of analysis away from coastal stopover areas used by migrating red knots. Vegetation clearing would not affect rufa red knot habitat or coastal resources. Because mineral exploration activities would not occur along coastal areas, the Proposed Action would have *no effect* on the rufa red knot under both the ESA and NEPA (**Table 3.2-3**).

The monarch butterfly could be affected by the Proposed Action during vegetation clearing, especially if milkweed plants are present at prospect sites. As discussed in Section 3.2.1.3, the loss of habitat, specifically milkweed, is the primary threat to monarch butterflies. Other plants used by monarchs as nectar resources could also be cleared at prospect sites. Mineral exploration activities would be organized to prevent the storage of equipment and foot traffic near milkweed plants to the maximum extent practicable. Effects from disturbance and habitat removal on the monarch butterfly are expected to be discountable (i.e., extremely unlikely to occur) and insignificant. Thus, the Proposed Action *may affect but is not likely to adversely affect* the monarch butterfly (**Table 3.2-3**). Effects to the monarch butterfly would be direct and indirect, negligible to minor, short-term, and local due to disturbance caused by mineral exploration activities and minimal removal of available habitat in the area of analysis.

An example ESA Section 7 informal consultation letter, summarizing the alternatives and providing effects determinations for the ESA-listed species identified in the IPaC analysis and considered in this PEA per **Table 3.2-1,** is included in Appendix A. Section 7 consultation is ongoing and would be completed prior to the start of mineral exploration activities, including drilling.

Effects determinations were made for each ESA-listed species based on the potential effects of the Proposed Action and considering BMPs to be implemented. **Table 3.2-3** summarizes the effects determinations for ESA-listed species that could potentially occur in the area of analysis.

Table 3.2-3. Summary of Effects Determinations for ESA-Listed Species

ESA-Listed Species	Effects Determination	Summary of Rationale
Canada lynx, Contiguous U.S. DPS*	May Affect, Not Likely to Adversely Affect	**Disturbance during vegetation clearing and mineral exploration activities –** Talon would coordinate with DNR and USFWS as appropriate to identify known lynx dens within the area of analysis. If lynx dens are identified via consultation or discovered during mineral exploration activities, Talon would coordinate with DNR and USFWS as appropriate to establish a buffer where work would not occur between the prospect site and the den. Canada lynx are not likely to be present in the area of analysis (Linden et al., 2011). **Removal of habitat –** Vegetation clearing would be distributed spatially and temporally across the area of analysis and limited to the greatest extent possible.
Gray wolf	May Affect, Not Likely to Adversely Affect	**Disturbance during vegetation clearing and mineral exploration activities –** Talon would coordinate with DNR and USFWS as appropriate to identify known gray wolf dens and rendezvous sites within the area of analysis. Consultation with USFWS and DNR is ongoing, and DNR may recommend that Talon maintain a minimum distance from known gray wolf dens and rendezvous sites for vegetation clearing and mineral exploration. If dens or rendezvous sites are identified via consultation or discovered during mineral exploration activities, Talon would coordinate with DNR and USFWS as appropriate to establish a buffer where work would not occur between the prospect site and the den or rendezvous site, similar to the measures described in the 2023 BO for forest restoration (USFWS, 2023b). **Removal of habitat –** Vegetation clearing would be distributed spatially and temporally across the area of analysis and limited to the greatest extent possible.
Northern long-eared bat	May Affect, Not Likely to Adversely Affect	**Disturbance during vegetation clearing and mineral exploration activities –** Talon has coordinated with USFWS to identify known bat hibernacula in the AOI, though the exact locations of these hibernacula are sensitive and have not been disclosed. Vegetation clearing and mineral exploration activities would not occur in township sections that intersect a 0.25-mi buffer of these sites. Per USFWS recommendation, Talon would make every effort to perform tree cutting between November 1 and April 14 at potential prospect sites in areas within a 5-mi radius of the township sections intersecting the 0.25-mi buffer around a known hibernaculum. In other areas of the AOI within the species ranges of NLEB and TCB, tree cutting could occur between August 1 and May 31 to avoid the summer roosting season in June and July. Some tree removal could be necessary outside recommended cutting dates

ESA-Listed Species	Effects Determination	Summary of Rationale
		depending on logistical and environmental factors. If potential roost trees are identified in areas slated for vegetation clearing outside recommended cutting dates, Talon would adjust the footprint of the drill pad and/or access trail to avoid these trees, if possible, which could potentially be accomplished by drilling an angled hole to hit a target. If potential roost trees must be cleared outside the recommended cutting dates, emergence and/or acoustic bat surveys would be performed by trained staff to determine the suitability of the roost tree and presence/absence of bats prior to tree cutting. Survey methods would be preapproved by USFWS and follow the USFWS Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines (USFWS, 2024a). If bats are observed using trees slated for removal, consultation would be initiated with USFWS prior to clearing vegetation or mineral exploration. Mineral exploration activities could also disturb bats hibernating in areas that have not yet been identified by USFWS and DNR as known hibernacula, such as historic mines. If Talon identifies a potential hibernaculum near a prospect site where work would occur during bat hibernation (between November 1 and April 14), Talon would coordinate with DNR to survey the site and determine its suitability as a potential bat hibernaculum prior to continuing work. **Removal of habitat –** Tree removal would be limited to the greatest extent practicable. If roost trees are identified in areas slated for vegetation clearing during the summer roosting season, Talon would adjust the footprint of the drill pad and/or access trail to avoid the trees, which could potentially be accomplished by drilling an angled hole to hit a target.
Tricolored bat	May Affect, Not Likely to Adversely Affect	The effects determination rationale would be the same as for the NLEB (above).
Rufa red knot	No Effect	**Disturbance during vegetation clearing and mineral exploration activities –** The Proposed Action would occur in remote forestland within the area of analysis away from coastal stopover areas used by migrating red knots. Vegetation clearing would not affect rufa red knot habitat or coastal resources. Mineral exploration activities would not occur along coastal areas, where the rufa red knot would most likely be found.
Monarch butterfly	May Affect, Not Likely to Adversely Affect	**Removal of habitat –** Mineral exploration activities would be organized to prevent the storage of equipment and foot traffic near milkweed plants to the maximum extent practicable.

*DPS = Distinct Population Segment

3.2.2.1.3.2 State-Listed Species

Effects to state-listed species would be similar to the effects to general vegetation and wildlife discussed above, including vegetation clearing, minimal removal of wildlife habitat, and displacement and disturbance of wildlife. Notably, effects to the little brown bat would be similar to the effects on the NLEB and TCB. The same surveys for suitable hibernacula and roost trees discussed above would identify potential habitat for the little brown bat habitat. Talon would implement the same BMPs described for the NLEB and TCB to limit effects to the little brown bat and its habitat. Effects to state-listed species would be direct and indirect, negligible to minor, short-term, and local due to disturbance caused by mineral exploration activities and minimal removal of available habitat in the area of analysis.

3.2.2.1.3.3 Migratory Birds

Migratory birds potentially present at prospect sites would likely avoid the area during project activities. Vegetation clearing and mineral exploration activities would cause short-term visual and noise disturbance, potentially displacing birds and disrupting behaviors such as feeding and roosting. The disturbance would not increase the energy expenditure or resource competition of migratory birds outside of the range of natural variation. Mineral exploration would occur as seasonal conditions allow each year, partially overlapping with the breeding season of bald eagles, golden eagles, and multiple BCCs (**Table 3.2-2**). Human presence and noise associated with mineral exploration activities could disrupt nesting and breeding behaviors. Clearing of trees for drill pads and access trails would potentially result in the destruction of migratory bird nests. If trees with nests are identified in areas slated for vegetation clearing, Talon would adjust the footprint of the drill pad and/or access trail to avoid the trees, which could potentially be accomplished by drilling an angled hole to hit a target. Effects to migratory birds would be direct and indirect, adverse, minor to moderate, short-term, and local due to disturbance caused by mineral exploration activities, minimal removal of available habitat, and potential destruction of migratory bird nests in the area of analysis.

The effects to special status species due to reasonably foreseeable future actions occurring in or near the area of analysis would be similar to the effects discussed above for vegetation and wildlife.

Overall, the Proposed Action would have direct and indirect, adverse, negligible to moderate, short-term, and local effects on special status species from the minimal removal of vegetation and available habitat and from the disturbance of animals due to noise and activity during mineral exploration.

3.2.2.2 No Action Alternative

Under the No Action Alternative, Talon would continue limited mineral exploration in the area of analysis at a slower pace. The effects to vegetation, wildlife, and special status species described in Section 3.2.2.1, including vegetation clearing, minimal removal of habitat, and displacement and disturbance of wildlife, would occur to a lesser extent and over a longer time frame compared to the Proposed Action. Fewer nickel deposits would be identified, resulting in fewer drill pads and thus less vegetation and habitat would be cleared each year. Displacement and

disturbance of wildlife would occur for a longer period but in fewer locations. Talon would implement the same BMPs described in Section 3.2.2.1 to limit effects to vegetation, wildlife, and special status species.

Effects to vegetation under the No Action Alternative would be direct, adverse, negligible, short-term to long-term, and site-specific due to the removal of native or invasive plant species occurring at prospect sites within the area of analysis. However, disturbed areas would be allowed to revegetate naturally or with a native seed mix following closure of a prospect site depending on landowner preference.

Effects to wildlife under the No Action Alternative would be direct and indirect, adverse, negligible to minor, long-term, and local due to the minimal removal of available habitat and disturbance from noise and activity during mineral exploration.

Effects to special status species under the No Action Alternative would be direct and indirect, adverse, negligible to moderate, long-term, and local due to the minimal removal of available habitat and disturbance due to noise and activity during mineral exploration.

3.3 EARTH RESOURCES

This section describes the geology, topography, and soils of the AOI, which is located in the Upper Peninsula of the state of Michigan. The entirety of the AOI is the area of analysis for Earth Resources.

3.3.1 AFFECTED ENVIRONMENT

3.3.1.1 Geology

Geology is the study of how the Earth was formed, how the Earth has changed since it was formed, the materials that the Earth is made of, and the processes acting on it (USGS, 2025b). Michigan's geologic history spans over 3.5 billion years, from ancient Precambrian[1] bedrock to the loose sediments deposited by the continental ice sheets of the Pleistocene[2] period (Schaetzl, No Date-a). All of Michigan's Lower Peninsula and the eastern half of the Upper Peninsula are underlain by a series of sedimentary rock layers, the Michigan Basin, which are rich in resources such as petroleum, natural gas, salt, gypsum, and limestone. The rock formations of the Michigan Basin consist primarily of shales, limestones, and sandstones that were deposited on the bottom of ancient seas that covered Michigan intermittently for millions of years. Most of the rocks of the Michigan Basin are buried beneath thick deposits of Pleistocene glacial drift, ranging from a few feet to over 1,200 ft (Gillespie et al., 2008).

The western part of the Upper Peninsula, where much of the area of analysis is located, is composed of Precambrian-age igneous and metamorphic rocks comprising the Canadian Shield, the original core of the North American continent (Paleontological Research Institute, No Date).

[1] The Precambrian is referred to as the "Age of Early Life" as the continents formed and the modern atmosphere developed during this time. It began 4.5 billion years ago and ended 541 million years ago (NPS, 2023).
[2] The Pleistocene epoch refers to the glacial time period that includes the last ice age, when glaciers covered majority of the Earth. It began about 2.6 million years ago and ended 11,700 years ago (Zimmerman and Pester, 2022).

The igneous rocks are hard, crystalline, resistant to erosion, and are largely made up of granites, whereas the metamorphic rocks are composed mostly of gneisses and schists (Schaetzl, No Date-a). As the thick Precambrian crust rose above sea level, erosion stripped it down, and the sediments settled in nearby depressions (Schaetzl, No Date-b). Later in the Precambrian era, a shallow sea covered the Lake Superior region, where thick layers of sand, mud, and lime were deposited. Over time, vast quantities of iron minerals also accumulated, eventually forming the world's largest iron deposits. These formations stretch across the present-day counties of Marquette, Baraga, Iron, and Dickinson in the area of analysis. In contrast to the easter Upper Peninsula, the bedrock in the western Upper Peninsula is often at or near the surface (Gillespie et al., 2008).

Portions of the Upper Peninsula are located in the 1,100-million-year-old Midcontinent Rift System (MRS), which extends from Kansas through Michigan (USGS, 2018). The modern-day MRS is a series of deep, fault-bounded basins filled with flood basalts and layered sedimentary rocks, with large intrusions along its edges. Intrusions in igneous rocks form when magma displaces existing rock and is trapped deep inside the earth, then cools over a long period of time until it crystallizes. The MRS formed from a mantle plume that produced massive amounts of mafic magma, erupted, and intruded in two pulses over approximately 26 million years. Several types of world-class mineral deposits are found in the MRS and are classified into two main groups depending on the type of fluid that carried and precipitated the metals:

- **Magmatic** deposits are precipitated directly from a cooling magma and have sufficient concentration of metallic minerals to be economically mined.
- **Hydrothermal** deposits are concentrations of metallic minerals formed by precipitation from hot mineral-laden waters (a hydrothermal solution).
- **Magmatic/Hydrothermal** deposits were precipitated by ore-bearing fluids circulated by the magmatic heat of local intrusions.

Magmatic deposits in the MRS rocks host large quantities of nickel, copper, platinum group elements, titanium and vanadium. Nickel is primarily found in conduit-type magmatic sulfide deposits, which occur where metal-rich magmas encountered and incorporated sulfide-rich rocks. These deposits consist of magmatic sulfide concentrations in small mafic and ultramafic dikes and sills that were once conduits for flowing magma through the crust. These sulfide deposits are generally relatively small but can contain solid masses of sulfide minerals enriched in nickel, copper, and platinum group elements. The restricted size of the intrusions and limited rock exposure has resulted in limited identification of these deposits, though exploration efforts are ongoing.

3.3.1.2 Topography

Topography is the study of the shape of the earth. It is the three-dimensional arrangement of physical attributes (e.g., shape, height, and depth) of a land surface in a certain location (Bailey, 2014). **Table 3.3-1** provides a description of the topographic landscapes of the counties comprising the AOI.

Table 3.3-1. Topography in the AOI

County	Description of Topography
Baraga (USDA, 1988)	The topography in Baraga County ranges from gently sloping lake plains and nearly level outwash plains to steep, rocky ridges and prominent hills. Mount Arvon and Mount Curwood, in the northeastern part of the county, are the highest points in Michigan. They have an elevation of nearly 1,980 feet above sea level (fasl). The elevation changes in the east-central part of the county range from 1,400 fasl to more than 1,900 fasl. The northeastern, central, and southern parts of the county experience elevation ranges between 900 to 1,840 fasl. Broad valleys are common, and hills are not so steep as those in the east-central county. Elevation in the northernmost and western parts of the county ranges from about 600 fasl in the areas bordering the Keweenaw and Huron Bays to about 900 fasl in other areas.
Dickinson (USDA, 1989)	Dickinson County is part of a high plateau region. Elevation ranges from about 800 to 1,600 fasl. The northern and eastern parts of the county occur as a complex system of moraines. The moraines are rolling and hilly, uneven areas that commonly have closed depressions, or kettles. Intermixed with the moraines are nearly level and undulating till plains and outwash plains. Much of the topography of the southwestern part of the county is bedrock controlled. Other bedrock-controlled areas are in a complex system of low ridges and knobs, which generally are covered with till but which have many small rock outcrops. Moraines, till plains, and outwash plains are intermixed with these bedrock-dominated areas.
Houghton (USDA, 1991)	The topography in Houghton County ranges from steep, rocky ridges and dissected glacial deposits to gently sloping lake plains and nearly level outwash plains. Elevation ranges from 1,200 to 1,500 fasl to about 602 fasl at the Lake Superior shoreline. The present topography is a result of glacial erosion and deposition, glacial lake processes, and subaerial erosion following melting of the ice and drainage of the lakes. A complex of moraines, outwash deposits, glacial lake shorelines, and lake outlet channels characterize the surficial geology and topography of Houghton County.
Iron (USDA, 1997)	Iron County is part of a high plateau region. Elevation ranges from about 1,285 to 1,875 fasl. The physiography of the county is the result of continental glaciation, modified in some areas by bedrock. Glacial landforms include rolling ground moraines, end moraines, steep ice-contact features, and outwash plains. Outcrops of bedrock occur throughout the county, but most areas are covered with glacial drift as much as 200 thick.
Marquette (USDA, 2007)	The topography of Marquette County is dominated by steep, Precambrian bedrock hills that in some areas occur alongside sharply contrasting sandstone benches. Much of the region is covered by glacial deposits ranging from hilly, bedrock-controlled moraines and steep, dissected sandy deposits to gently rolling ground moraines and nearly level outwash plains. Elevation ranges from 1,200 to more than 1,800 fasl in the highlands and about 602 fasl at the Lake Superior shoreline.

3.3.1.3 Soils

Soil is the unconsolidated mineral or organic material on the intermediate surface of the Earth that serves as a natural medium for the growth of vegetation (USDA, No Date). Soil types may vary depending on factors such as the parent material, topography and natural drainage, natural

vegetation, climate, and duration of the weathering process (MSU, 2016). The processes involved in the formation of soils in Michigan included (a) accumulation of organic matter, (b) leaching of carbonates (lime) and other bases, (c) reduction and transfer of iron, and (d) formation and translation of silicate clay minerals. Soils in Michigan vary widely in thickness, color, texture, slope, and chemical and mineralogical composition.

A general map of the soil associations occurring throughout the state of Michigan is included in Appendix D (MSU, 1981). Soil associations comprise broad areas that have a distinctive pattern of soils, topography, and drainage (USDA, 2007). Each soil association has a unique natural landscape. A soil association typically consists of one or more or more major soils and some minor soils. It is named for the major soils or miscellaneous areas. For example, the Munising-Yalmer Association, which occurs in Baraga County, is about 52 percent Munising soils, 34 percent Yalmer soils, and 14 percent soils of minor extent (USDA, 1988). Detailed soil maps show soil map units, which are delineations representing an area dominated by one or more major kinds of soils or miscellaneous areas (USDA, 2007). A map unit is identified and named according to the taxonomic classification of the dominant soils. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils. There are hundreds of soil map units that occur within the area of analysis.[3]

Soil types can determine the uses and management of soils in a given region. Because of steep slopes, frequent periods of drought, and rockiness, most soils in the area of analysis are suited for woodlands. The subsoil in most of the moderately well drained soils has a restrictive layer that limits residential development and the use of forestry equipment (USDA, 1988; USDA, 2007).

Soil types in the area of analysis are generally suitable for timber and mining. In contrast, agriculture on the Upper Peninsula is generally limited due to relatively nutrient-poor soils (USEPA, 2007). Most agriculture on the Upper Peninsula consists of livestock, primarily cattle, sheep, and goats, or feedstock, primarily barley, oats, or hay (MSU, 2024).

The Natural Resources Conservation Service (NRCS) classifies and provides protection to soils which contain ideal characteristics for agricultural production. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. Prime farmland has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. Farmland of statewide importance is defined as those lands which do not meet the definition of prime farmland but still economically produce high yields of crops (7 CFR § 657). Prime farmlands and farmlands of statewide importance are protected under the Farmland Policy Protection Act (FPPA), and consultation with the NRCS is required for any federal action which would remove these areas from existing or future agricultural production. The percentage of total land area that is classified as prime farmland in the counties within the area

[3] Due to the extensive nature of the soil map units dataset, they have not been listed in detail in this section.

of analysis ranges from 0.48 percent to 19.45 percent (USCB, 2000). There is no farmland of statewide importance in the area of analysis.

The area of analysis contains more than 200,000 acres of prime farmland (NRCS, 2025a; NRCS, 2025b; NRCS, 2025c; NRCS, 2025d; NRCS, 2025e). The Proposed Action could occur on prime farmland, but because mineral exploration activities only temporarily convert the land used, these activities would be exempt from the FPPA, which applies to projects that may permanently convert farmland. Additionally, the Proposed Action for the DAF to fund Talon's mineral exploration on the Upper Peninsula is aligned with EO 14156, *Declaring a National Energy Emergency*; construction activities for national defense purposes during a national emergency are not subject to the FPPA (NRCS, 2013).

3.3.2 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential effects to earth resources in the area of analysis under the Proposed Action and the No Action Alternative.

3.3.2.1 Proposed Action

3.3.2.1.1 Geology

The Upper Peninsula's Precambrian bedrock contains minerals such as nickel, copper, iron, and other elements and is highly sensitive to disturbance, particularly in areas within the MRS and other structurally complex geologic zones. Drilling activities under the Proposed Action would create boreholes to depth ranging between 800 to 3,000 ft. Because the drilling process cuts cleanly through bedrock in a small diameter, the Proposed Action would not fracture bedrock or affect the stability of geological formations. Drilling activities have the potential to penetrate or disturb groundwater aquifers, which could result in the mixing of aquifers. To prevent aquifer mixing, a watertight steel casing would be installed in the borehole where it penetrates unconsolidated sediments above the bedrock surface (see Section 2.1.3.2). This casing also prevents sand from falling into the borehole, which would constrict drilling operations. Non-sulfide-bearing drill cuttings removed from the borehole would be properly contained within a sump near the drill pad or in a tank in some areas. If greater than 1 cubic foot of sulfide-bearing cuttings are present, the cuttings and drilling fluid would be temporarily stored in plastic-lined sumps prior to being hauled offsite for disposal in a licensed landfill (MDEQ, 2005). Upon conclusion of drilling activities, boreholes would be filled with cement so that the hole no longer exists, thus preventing any possible mixing of aquifers in the long term.

Reasonably foreseeable future actions occurring in or near the area of analysis could interact with the effects that the Proposed Action would have on geology. The implementation of Eagle Mine's closure plan would ensure proper management of drill cuttings and groundwater contamination, resulting in beneficial interactive effects to geology. No other reasonably foreseeable actions are expected to result in geological effects.

Overall, the Proposed Action would result in direct, adverse, minor, permanent, and local effects to geology. Direct effects would occur due to grinding and hammering of rock from drilling activities and may occur in the unlikely event of aquifer mixing. However, the likelihood of

adverse effects to aquifers and subsurface hydrogeology would be very low as Talon would implement appropriate mitigation measures.

3.3.2.1.2 Topography

Under the Proposed Action, site preparation activities, particularly the use of heavy equipment to install temporary access trails and to prepare clearings for drill pads, may require grading and leveling to create even, flat surfaces where uneven terrain is encountered. Ground disturbances resulting in removal of soil would create flat depressions or berms from pushed soil and would disrupt the natural surface contours at the prospect site. The proposed activities may alter slope gradients, leading to changes in the elevation profile and drainage patterns, which may affect the rate of runoff from the prospect site. The movement of heavy equipment across soft soils could cause soil compaction and surface depressions, which would increase soil erosion at the prospect site and may lead to stream sedimentation in nearby waters (see Section 3.3.2.1.3 for detailed discussion on soil effects and BMPs). Upon completion of the project, prospect sites would be regraded to reestablish the natural contour of the land surface.

Reasonably foreseeable future actions occurring in or near the area of analysis could interact with the effects that the Proposed Action would have on topography. Action such as timber harvest and small-scale development projects may require the use of heavy machinery for excavation and grading, resulting in adverse interactive effects to topography as described above. Closure of the Eagle Mine would see the surface sites regraded to reestablish the original contours of the affected area, resulting in beneficial interactive effects to topography.

Effects to topography under the Proposed Action would be direct, adverse, negligible to minor, long-term, and local. Direct effects would include the leveling of terrain and alteration of natural contours from grading activities.

3.3.2.1.3 Soils

Effects from the Proposed Action to soils would result from the presence and use of heavy equipment, foot traffic from construction and drilling personnel, excavation (e.g., for the sump), grading, vegetation clearing, stockpiling of soils and debris, and drilling activities. The use of heavy equipment would be temporary, and the magnitude of soil effects would depend on whether soils have been previously disturbed. Where previous soil disturbances have occurred, it is anticipated that adverse effects would be minimal as soil structure and function have already been destroyed or altered. Where natural soil horizons (i.e., natural layers in the soil) exist, they would likely be disturbed during the earthwork. Heavy equipment may compact or loosen and destroy the structure and function of the organic soil horizon and mineral soils, reduce soil moisture, and potentially result in increased runoff and erosion. The loss of soil structure due to compaction would adversely affect drainage patterns, which may alter the quantity of flow of surface runoff from prospect sites. Soil erosion from the use of heavy equipment could occur as a result of ground disturbance leading to detachment of soils and transport of freshly disturbed surfaces in wind and stormwater runoff. Additionally, vegetation removal needed for trail construction could also temporarily result in soil and wind erosion on exposed surfaces. All such

activities have the potential to increase stream sedimentation in nearby water bodies (see Section 3.4 Water Resources for detailed discussion).

Similar to the use of heavy equipment, any areas that would be repeatedly compacted by vehicles or foot traffic during construction of trails and drill pads would experience adverse effects on soils in the short and long term. Vehicular traffic can decrease soil porosity, decreasing the transfer of air and water through the soil and causing decreased vegetative productivity due to root restriction. If any natural soil horizons exist, they would likely be lost. Exposed soils would be subject to erosion until stabilized or revegetated. Rutting could occur if proper drainage along the trail is not implemented.

To the extent practicable, existing disturbed land at the prospect sites would be utilized for creating access trails and siting new drill pads; thus, very small land areas, up to 0.5 acres, would be disturbed at each site. Part 91, Soil Erosion and Sedimentation Control, of the NREPA provides for the control of soil erosion from construction activities. For prospect sites requiring land disturbances greater than one acre or located within 500 feet of a lake or stream, Talon would obtain Part 91 coverage in the form of a Soil Erosion and Sedimentation Control (SESC) permit from the authorized public agency. Soil erosion control measures, such as the use of site design, berms, erosion control blankets, straw wattles, and/or silt fencing, would be implemented as needed to minimize effects from stormwater erosion. Areas cleared of vegetation would be reseeded with appropriate native plant species to re-stabilize the topsoil.

Reasonably foreseeable future actions occurring in or near the area of analysis could interact with the effects that the Proposed Action would have on soils. Action such as timber harvest and small-scale development projects may require ground-disturbing activities such as land clearing, excavation, and grading resulting in adverse interactive effects to soils, such as compaction and erosion. Due to the closure of the Eagle Mine, there would be no further effects to soil resources in the affected area, resulting in beneficial interactive effects to soils in the region.

Overall, the Proposed Action would result in direct, adverse, minor, short-term to long-term, and local effects to soils. Direct effects would result from ground disturbing activities, such as alteration of soil horizons, soil compaction, and erosion.

3.3.2.2 No Action Alternative

Under the No Action Alternative, Talon would conduct mineral exploration in the area of analysis at a slower pace. Effects to geology, topography, soils, and geologic hazards would be similar in nature to the effects described under the Proposed Action; however, the extent of the effects would be comparatively lower, and they would occur over a longer time frame. Drilling and associated activities would result in direct, adverse, minor, permanent, and local effects to geology; direct, adverse, negligible to minor, long-term, and local effects to topography; and direct, adverse, minor, short-term to long-term, and local effects to soils.

3.4 WATER RESOURCES

This section describes the affected environment and environmental consequences for water resources, which include surface water, floodplains, wetlands, and groundwater.

3.4.1 AFFECTED ENVIRONMENT

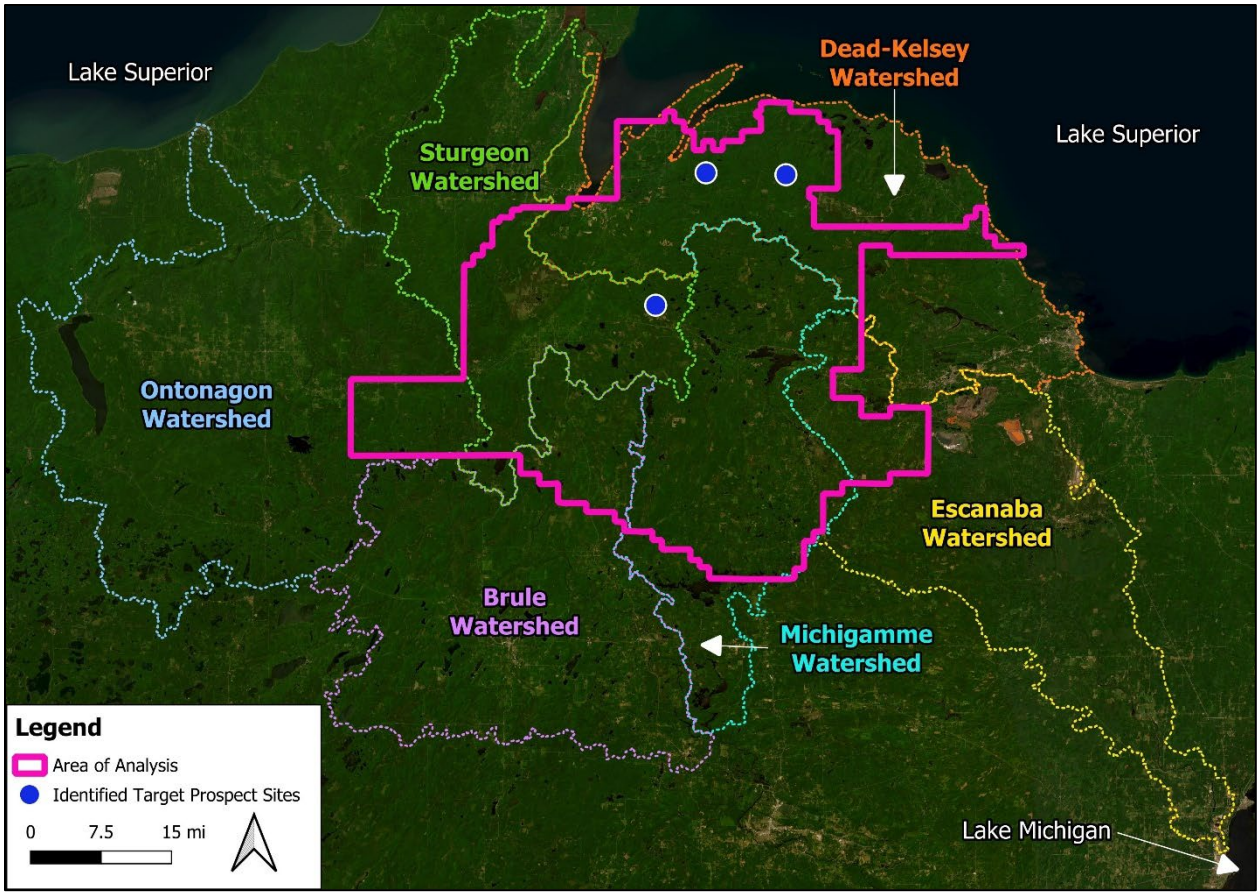
This section describes the affected environment for water resources and includes a summary of the regulatory setting and a discussion of available water quality information for each water resource subtopic. The area of analysis for water resources is the 445,000-acre AOI.

The area of analysis is located in the Northern Lakes and Forests ecoregion, which abuts Lake Superior in the north and Lake Michigan in the south (USEPA, 2010; USEPA, 2013). The Northern Lakes and Forests ecoregion is primarily forested, with numerous scattered lakes, rivers, and streams (USEPA, 2007). Most rivers in the ecoregion originate from lakes or wetlands and tend to have substantial groundwater inputs (EGLE, 2024a). The Northern Lakes and Forests ecoregion is further characterized by a humid, temperate climate due to the surrounding Great Lakes, with variable annual precipitation that ranged from 30 to 38 in from 1991 through 2020 (OSU, 2022; USEPA, 2007). The ecoregion's proximity to the Great Lakes also results in heavy winter snowfall, known as the "lake effect"; snowfall in some areas routinely exceeds 250 in (GLISA, No Date).

3.4.1.2 Surface Water and Floodplains

Surface water includes water features such as rivers, streams, and lakes. A floodplain is the area of ground adjacent to a surface water feature that is susceptible to flooding. The area of analysis overlaps six watersheds: Ontonagon, Sturgeon, Brule, Michigamme, Escanaba, and Dead-Kelsey (**Figure 3.4-1**) (Michigan GIS Open Data, 2024). A watershed is an area of land from which all water, whether from rainfall, stream, or river, drains to a common outlet (USGS, 2019). Watersheds are named for their outlet and can be limited to a single stream or encompass an entire region's water features. For example, all water in the Sturgeon Watershed ultimately flows to (i.e., is a tributary of) the Sturgeon River. The Sturgeon River, in turn, ultimately flows to Lake Michigan, making the Sturgeon Watershed part of the Great Lakes Watershed, notably the largest watershed in the world (Great Lakes Compact Council, No Date). The Brule, Michigamme, and Escanaba watersheds also discharge to Lake Michigan, while the Ontonagon and Dead-Kelsey watersheds discharge to Lake Superior. **Figure 3.4-2** depicts rivers, streams, and lakes located partially or entirely within the area of analysis. The Upper Peninsula has hundreds of lakes, of which 166 are considered public access lakes, meaning that they have a boat launch and a minimum surface area of 25 acres (EGLE, 2024a). Note that while no specific floodplain location data are available within the area of analysis due to its remoteness (FEMA, 2024), the area of analysis overlaps numerous floodplains associated with the surface water features therein.

Surface water quality is regulated at the federal level by the Clean Water Act (CWA) and the Coastal Zone Management Act (CZMA) at the state level by Michigan's water quality standards (WQS) program and by the Great Lakes Water Quality Agreement. The CWA establishes the basic structure for regulating the discharge of potential pollutants into waters of the U.S., including wetlands. The CWA is primarily administered by U.S. EPA in coordination with state governments, although some provisions, such as Section 404, which regulates the discharge of dredged or fill material, are administered by the U.S. Army Corps of Engineers (USACE). In the State of Michigan, EGLE has authority from the federal government to develop and implement surface water quality standards with oversight from U.S. EPA and to administer the Section 404 program. EGLE has developed WQS (Michigan Administrative Code R. 323.1041) which



Sources: Esri, No Date; Michigan GIS Open Data, 2024

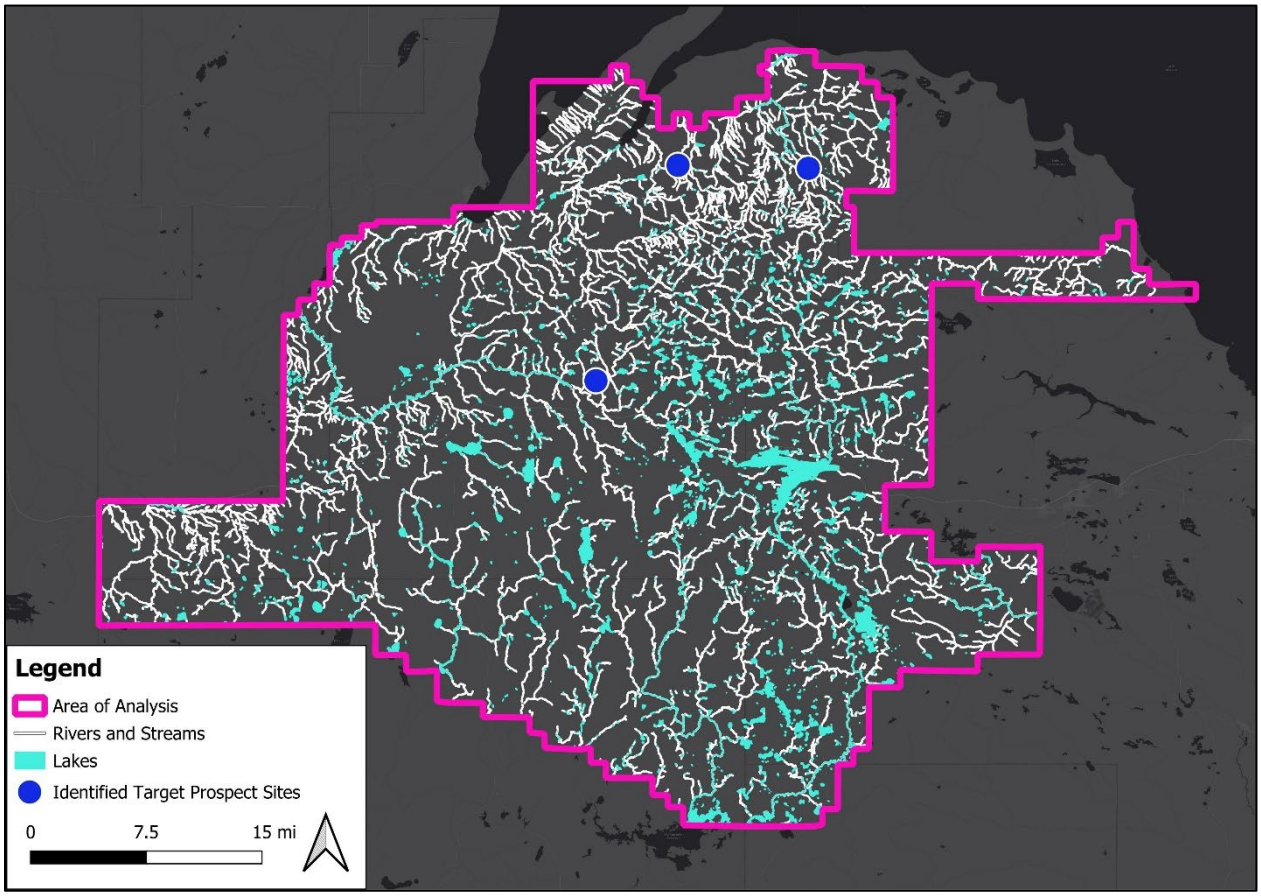
Note: The identified target prospect sites are not drawn to scale.

Figure 3.4-1. Watersheds Overlapping the Area of Analysis

designate standard uses for all surface waters in the state, as well as for specific water bodies (e.g., the Great Lakes), specify physical and chemical standards to protect those uses, and establish Water Quality-Based Effluent Limits (WQBELs) for toxic substances (Michigan Administrative Code R. 323.1201). The CZMA, which aims to protect, restore, and responsibly develop the nation's coastline, including the freshwater coastline of the Great Lakes, is primarily administered by the National Oceanic and Atmospheric Administration (NOAA) in coordination with state governments (NOAA, 2025). In the state of Michigan, EGLE is authorized to administer the CZMA at the state level with oversight by NOAA (EGLE, No Date-b). The Great Lakes Water Quality Agreement is a treaty between the U.S. and Canada to restore and maintain the chemical, physical, and biological integrity of the Great Lakes. Floodplains in the state of Michigan are protected under EO 11988, which directs federal agencies to avoid actions located in or that would adversely affect floodplains unless infeasible and to mitigate any adverse effects to floodplains if avoidance is not feasible (FEMA, 2021).

Water quality is the measure of the concentration of defined constituents and other parameters in a body of surface or groundwater, typically with respect to the intended use of the water. Water quality is affected by natural or human-made (i.e., anthropogenic) inputs which, depending on their concentration, can cause harm to humans, aquatic life, or the environment.

Natural sources that contribute to decreased water quality include sedimentation as a result of heavy precipitation, natural disasters, and certain metals or salts occurring in soil or the atmosphere, while anthropogenic sources include sedimentation and harmful constituents resulting from stormwater or construction runoff, sewage or solid waste, and agricultural or industrial sources. Water quality within the Upper Peninsula is generally not well-characterized due to the region's remoteness. Therefore, this section provides an overview of the sources, consisting mainly of industry and agriculture, that may contribute to decreased water quality in the area of analysis and a summary of water quality of the Lake Superior and Lake Michigan watersheds.



Sources: Esri, No Date; Michigan GIS Open Data, 2025a; Michigan GIS Open Data, 2025b

Notes: This figure does not depict floodplains as no location data are available within the area of analysis due to its remoteness (FEMA, 2024).

The identified target prospect sites are not drawn to scale.

Figure 3.4-2. Surface Water Features Overlapping the Area of Analysis

According to EGLE's 2024 Water Quality and Pollution Control Integrated Report, Lake Superior and Lake Michigan have water quality ranging from good to excellent with respect to state WQS (EGLE, 2024a). The Lake Superior Watershed as a whole has good water quality according to the Michigan Pollution Control Agency, although some tributaries do not meet WQS for drinking or recreation due to turbidity (i.e., suspended sediments) and/or biological constituents such as *Escherichia* (*E.*) *coli*. Additionally, periodic algal blooms, which can block light and deplete oxygen

from the water column, form on Lake Superior itself (EGLE, 2024a; MPCA, No Date-a; MPCA, No Date-b; MPCA, No Date-c). The Lake Michigan watershed, likewise, has overall good water quality, although Lake Michigan and some of its tributaries have recurring *E. coli* concerns which result in beach closures during the summer (SWMPC, 2018; State of the Great Lakes, 2022).

Surface water features on the Upper Peninsula have overall good water quality with respect to the state WQS according to EGLE's 2024 Integrated Report (EGLE, 2024a). The 2024 EGLE Integrated Report incorporates by reference data from the 2019 Integrated Report (EGLE, 2019), which was collected statewide from 2005 through 2014 at 250 surface water test sites, 58 of which were on the Upper Peninsula. Multiple water quality parameters, such as trace metals and nitrogen, were measured at each site; refer to the full report for the complete list of parameters. Within the area of analysis, no WQS exceedances were identified for any parameter measured, indicating good water quality within the area of analysis. However, note that these data are 10 years old and thus may not be representative of current water quality conditions within the area of analysis.

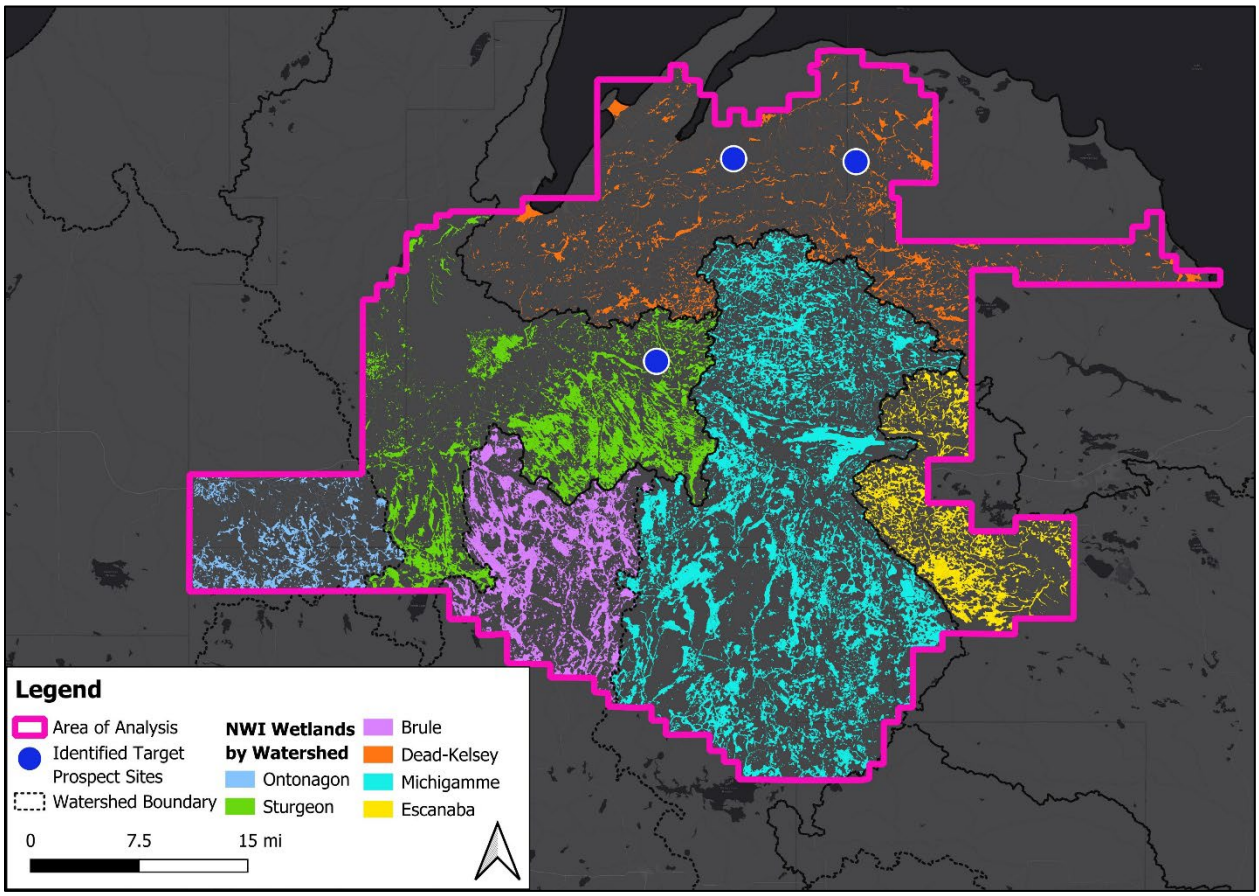
3.4.1.3 Wetlands

Wetlands are areas where water covers the soil or lies at or near the soil surface either seasonally or year-round (USEPA, 2025b). The area of analysis contains abundant wetland resources; as of the most recent wetland inventory completed by the Michigan Department of Environmental Quality using data through 2005, the Upper Peninsula had approximately 3.1 million acres of wetlands (MDEQ, 2014). **Figure 3.4-3** depicts wetlands that overlap the area of analysis according to the National Wetland Inventory (NWI) (USGS, 2025c). All wetlands within the area of analysis are classified as either freshwater emergent or forest/shrub, with the overwhelming majority being forest/shrub wetlands. Emergent wetlands are ecologically transitional areas where the land, as well as the plants growing within the wetland, arise from the water and blend with the surrounding forest (NPS, No Date-a). Forest/shrub wetlands are those dominated by trees and/or shrubs.

As mentioned above, wetlands are protected under Section 404 of the CWA (33 U.S.C. § 1343), which regulates the discharge of dredged and fill materials into waters of the U.S., including wetlands. Section 404 requires federal agencies to obtain a permit before dredged or fill material may be discharged into such waters. In the state of Michigan, EGLE is authorized to administer the CWA Section 404 program with oversight from USACE (EGLE, No Date-a). Under CWA Section 404(e), general permits can be issued to authorize activities that have minimal individual and cumulative adverse environmental effects. General permits can be issued for a period of no more than five years. A nationwide permit is a general permit that authorizes activities across the country. Additionally, wetlands are protected under EO 11990, *Protection of Wetlands*, which directs federal agencies to avoid, or to minimize if unavoidable, short and long-term adverse effects to wetlands associated with destruction or modification, and to avoid supporting, whether direct or indirect, construction within wetlands (USACE, No Date).

Water quality information for wetlands in the area of analysis is not currently available. However, EGLE has developed a wetlands monitoring and assessment strategy to evaluate the success of the state in managing, protecting, and restoring Michigan's wetlands (EGLE, No Date-c). As part

of this strategy, EGLE analyzed wetland inventories over 30 years, from 1978 through 2005, to determine historic wetland trends (EGLE, No Date-c). Through its analysis, EGLE determined that very little (i.e., 0 to 2 percent) wetland loss has occurred on the Upper Peninsula; the areas of Michigan with the highest wetlands losses are those with high population density and/or heavily industrialized areas (e.g., Huron County in the Lower Peninsula) (MDEQ, 2014). Areas with historic losses are known to face water quality issues and flooding associated with wetland loss. Since the Upper Peninsula has not experienced substantial wetland losses, the area of analysis may not experience water quality and flooding issues associated with wetland loss.



Sources: Esri, No Date; USGS, 2025c

Notes: The NWI database includes lakes and ponds in addition to freshwater emergent and forest/shrub wetlands; thus, this figure depicts some lakes and ponds as well as wetlands.

The identified target prospect sites are not drawn to scale.

Figure 3.4-3. Wetlands Overlapping the Area of Analysis

3.4.1.4 Groundwater

Groundwater consists of subsurface hydrologic resources and is often essential as a source for drinking water, agricultural irrigation, and industrial applications. Groundwater is typically described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate (i.e., the rate at which the aquifer or well is replenished with new water inputs).

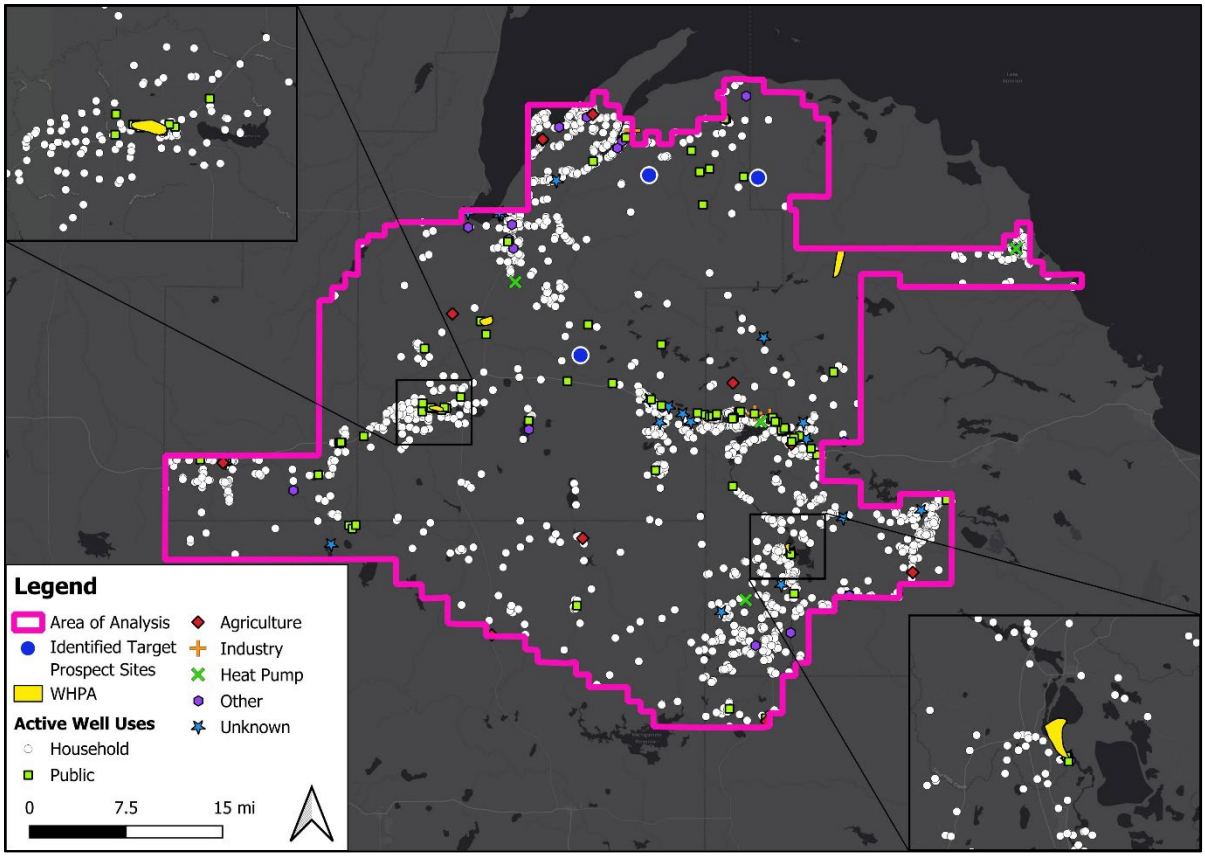
Groundwater quality is protected federal under the Safe Drinking Water Act (SDWA) of 1974 and the National Primary Drinking Water Regulations Groundwater Rule of 2006 (known as "the Groundwater Rule"). The SDWA authorizes the EPA to set health-based standards for drinking water to protect against both naturally occurring and human-made contaminants (USEPA, 2025c). Public water supply systems (PWSs) sourced from groundwater are regulated by the SDWA; the SDWA does not regulate private household wells that serve fewer than 25 individuals. The Groundwater Rule aims to reduce disease associated with microorganisms in PWSs sourced from groundwater by identifying and implementing corrective action at groundwater systems susceptible to contamination (USEPA, 2025d; USEPA, 2008). The Groundwater Rule does not regulate private household wells.

The state of Michigan has the highest number of U.S. groundwater PWSs of any state (FLOW, 2024). Approximately 45 percent of Michigan's residents, including nearly 100 percent of rural residents and 17 percent of urban residents, use groundwater as their potable water supply through a PWS, as well as through private wells for individual households (FLOW, 2024). The Upper Peninsula has hundreds of thousands of wells (**Figure 3.4-4**) (Michigan GIS Open Data, 2025c). Most wells within the area of analysis were active as of February 2025, nearly all of which are private household wells serving a single residential unit (Michigan GIS Open Data, 2025c). Other water supply wells within the area of analysis are used for the following purposes (EGLE, 2023; EGLE, No Date-d; FLOW, 2024; MCHD, No Date; State of Michigan, 1994):

- To supply geothermal heat pumps;
- To supply industrial processes, including non-potable uses such as fire protection;
- For agriculture, such as irrigation or livestock watering; and
- To supply the public, including wells that serve multiple residential homes or commercial units such as restaurants, hotels, or apartments.

Additionally, the area of analysis may overlap four wellhead protection areas (WHPAs); the location of WHPAs relative to confidential Talon mineral rights would not be known until a prospect site is identified (**Figure 3.4-4**) (Michigan GIS Open Data, 2025d). A WHPA is the surface and subsurface area that contributes groundwater to a PWS well, through which harmful constituents are reasonably likely to reach and potentially contaminate the well (EGLE, No Date-e; Michigan GIS Open Data, 2025d). EGLE is responsible for identifying WHPAs and helping communities develop management strategies to reduce contamination risk through the Source Water Protection Program (EGLE, No Date-e; EGLE, 2020a).

Groundwater quality within the area of analysis is generally unknown because nearly all groundwater wells are private household wells, which are not regulated. While some statewide groundwater quality data for up to a few thousand wells are available (EGLE, No Date-f; EGLE, No Date-g; FLOW, 2024; FLOW, 2021; MNDH, 2024; WIDHS, 2025; USGS, 2025d), these data are not specific to the Upper Peninsula and characterize a tiny fraction of the hundreds of thousands of wells on the Upper Peninsula. Therefore, the data are not suitable for generalizing groundwater quality within the area of analysis, and as a result, no characterization of groundwater quality within the area of analysis can be drawn at this time.



Sources: Esri, No Date; Michigan GIS Open Data, 2025d

Note: The identified target prospect sites are not drawn to scale.

Figure 3.4-4. Active Groundwater Wells and WHPAs Overlapping the Area of Analysis

3.4.2 ENVIRONMENTAL CONSEQUENCES

This section describes the potential environmental consequences for water resources within the area of analysis from the Proposed Action and the No Action Alternative.

3.4.2.1 Proposed Action

Potential effects to water resources from exploration activities under the Proposed Action could result from site preparation and drilling operations. Site selection and preparation activities would include identifying the optimal prospect site based on the location of the identified target and environmental conditions; establishing temporary access trails and/or stream or wetland crossings, if necessary; and digging sumps for the percolation of drilling fluid wastewater and the containment of drill cuttings. Drilling operations would include borehole drilling and disposal of cuttings.

3.4.2.1.1 Surface Water and Floodplains

Under the Proposed Action, potential effects to surface water and floodplains could occur as a result of sedimentation via stormwater runoff or in the unlikely event that drilling fluid is accidentally leaked on to the ground during drill rig operation.

Talon would carefully plan each drill pad location such that potential effects to water resources are minimized while allowing access to the target. As a result, no drill pads would be located within 150 ft of surface water resources in order to avoid potential effects to rivers, streams, lakes, and ponds. Talon would not site drill pads within a floodplain in order to avoid potential effects to floodplains. Additionally, Talon would minimize the total number of drill pads needed by making every effort to utilize angled drilling to hit a target, allowing multiple boreholes to be drilled at a single drill pad and thereby minimizing potential effects to water resources overall. Construction vehicle movement during exploration activities can cause ground disturbance and soil compaction. As stated in Section 3.3.2.1.3, soil compaction can adversely affect natural drainage patterns by decreasing soil porosity and water percolation. To minimize ground disturbance and compaction and to avoid disturbing surface water resources, drill pads would be sited using natural clearings, existing logging trails, and flat ground to the greatest extent possible. However, due to terrain or topography limitations and the abundance of surface water features within the area of analysis, it may be necessary to establish a temporary access trail and/or to cross a stream or floodplain in order to reach an identified target.

To establish a temporary access trail while minimizing potential effects to surface water, Talon would site the trail a minimum of 150 ft from surface water resources and within an upland area, if possible, and would clear the minimum amount of trees and vegetation necessary to achieve the required trail width (i.e., 15 to 20 ft) for the drill rig and associated project vehicles and equipment to reach the prospect site. Additionally, temporary access trails would be as short as is reasonable to reach the desired target in order to minimize ground disturbance. Tree and vegetation removal associated with temporary trail establishment would expose and disturb soils, increasing the likelihood of soil erosion, especially if a temporary trail overlaps a floodplain and flooding occurs during or shortly after soils are disturbed. Exposed soils may be carried to nearby surface water features by stormwater runoff, leading to temporary sedimentation of and/or the introduction of potentially harmful constituents (e.g., pesticides) to those water features, as well as downstream water features depending on the volume of precipitation and the connectivity of the water features. Any sedimentation of surface water features would be distributed spatially and temporally across the area of analysis and would be limited to the greatest extent possible. To avoid and minimize potential adverse sedimentation effects, Talon would design trails to minimize the potential for soil erosion and would install temporary erosion control devices (e.g., silt fencing, straw wattles, and/or berms). Additionally, Talon would ensure that authorized brushing, mowing, and other site preparation activities would not cause nearby water features to be blocked with debris (e.g., vegetation clippings or woody debris) generated during site preparation. If more than one acre of land would be disturbed, Talon would obtain a SESC permit from the authorized public agency.

To avoid or minimize the adverse effects from crossing a stream or floodplain, Talon would install a temporary bridge according to Michigan state general permit requirements for clear span bridges (EGLE, 2021), which include standards for bridge construction and anchoring to minimize disturbance to the streambank and streambed. The improper installation and use of temporary bridges over streams can disturb or damage the stream bed, destabilize the streambank, or result in sedimentation of the water feature (USEPA, 2021). However, adherence to permit

requirements would ensure that potential adverse effects are avoided or minimized to the maximum extent possible.

Up to three 0.25- to 0.50-acre drill pads would be operational at one time. Each drill rig would use 500 to 1,000 gal per day of water sourced from the nearest stream, which could be up to a few miles away from the prospect site. Talon would obtain a DNR Water Appropriation Permit, if needed, if more than 10,000 gallons per day or one million gallons per year of water is required for drilling. Drilling water would either be pumped from the nearest stream into a tank and trucked to the prospect site or pumped directly into a tank located at the prospect site, depending on the distance of the stream from the prospect site. Drilling water would be chlorinated prior to use to prevent groundwater contamination by non-potable surface water in compliance with state requirements for drilling water (Michigan Administrative Code R 325.1639(8)). Additionally, an inert biodegradable drilling polymer which meets national drinking water standards would be added to the water to form drilling fluid (NSF, No Date; AMC, No Date).

Drilling fluid is used to pump drill cuttings to the top of the borehole where they are collected and fed through an SRU to separate the drilling fluid from the cuttings. The separated drilling fluid is reused in the drilling process, with makeup fluid added as necessary. The drill rig has secondary containment to prevent drilling fluid from entering the environment in the event of an accidental leak. If no sulfide-bearing rock was intersected in the borehole, Talon would dig a shallow sump (i.e., 12 by 25 ft and 4 ft deep) at the prospect site to percolate filtered drilling fluid wastewater and contain drill cuttings. If cuttings contain greater than 1 cubic meter of sulfide-bearing rock or if more than 10 boreholes are drilled within a 660-ft radius, then Talon would temporarily store cuttings and drilling fluid in plastic-lined sumps prior to transporting them to an offsite licensed landfill for disposal in compliance with state regulatory requirements (MDEQ, 2005). Sumps would not be constructed at drill pads located near wetlands. Talon would be highly selective when siting sumps to avoid any sensitive areas and would mitigate any potential sedimentation effects due to erosion of exposed soils by installing erosion control devices (e.g., straw wattles or berms). Excavated soil would be stored in berms along the edge of the excavation. Berms act as barriers preventing sediment from leaving the site. If an elevated risk of erosion to the berm is present, erosion control blankets would be installed on the outside of the berm. It is unlikely that drilling fluid would accidentally enter the environment or water resources. For drilling fluid to enter the environment, the drill rig fluid recycling system would need to experience a failure, and the leaked drilling fluid would subsequently need to bypass either the steel casing on the borehole or the secondary containment device on the drill rig. In the unlikely event that drilling fluid was leaked into the environment, it would ultimately percolate into the ground or flow to a nearby surface water feature. However, since drilling fluid is composed of locally sourced stream water; an inert, biodegradable polymer; and suspended rock particles from the reused drilling fluid, the fluid would be unlikely to adversely affect surface water resources.

Once placed into the sump for disposal, wastewater would be naturally filtered a second time as it percolates through the soil within the sump. Since wastewater would be contained in a sump surrounded by prospect site erosion control devices, the likelihood of drilling wastewater escaping the sump and reaching any nearby surface water resources is low.

During prospect site closure, Talon would ensure that any temporary bridges are removed promptly after exploration activities at the prospect site are complete so that the affected water features can return to their baseline condition, thereby ensuring that any adverse effects do not extend past the lifetime of the project. The drill pad and any temporary trails that were built would be reclaimed by reestablishing the natural contour of the land surface and distributing woody debris and/or a seed mix over the area to promote regrowth of native vegetation. Root growth during natural revegetation would restabilize the ground, ensuring that sedimentation and stormwater runoff effects resulting from the ground disturbance do not extend substantially, if at all, beyond the conclusion of the project.

Reasonably foreseeable actions within or in the vicinity of the area of analysis (see Section 3.1.4) would contribute both adverse and beneficial effects to surface water and floodplains in the area of analysis in conjunction with the Proposed Action over the long term. Prescribed burning disturbs ground and exposes soils, potentially leading to increased surface runoff and subsequent temporary sedimentation of any nearby surface water (MS Forestry Commission, No Date). Additionally, ash left behind by prescribed burns can leach minerals into the soil during rainfall; however, prescribed burns generally do not increase concentrations of harmful constituents in surface water over the long term, if at all. Furthermore, the purpose of prescribed burns is to reduce excess vegetation and debris that comprise hazard fuels for wildfires in the forest understory, reducing the likelihood of uncontrolled wildfires in the future, which often have greater adverse effects to surface water compared to prescribed burns. Therefore, over the long term, prescribed burns can have beneficial and indirect effects to surface water by preventing wildfires. Likewise, community development plans would contribute to adverse effects to surface water through the reduction in vegetation coverage, particularly if vegetation removal occurs in a floodplain, and beneficial effects through protection of surface water by placing portions of the area of analysis under conservation easement and/or establishing protected natural areas. In contrast to prescribed burns and community development, continued industrial activity (i.e., logging, mining, and mineral exploration) would primarily contribute adverse effects to surface water by decreasing forested area, increasing ground disturbance and sedimentation, and potentially leaking harmful constituents into the environment. However, all industrial activity within the area of analysis must comply with federal, state, and local regulatory and permitting requirements, which serve to minimize and mitigate potential adverse effects to surface water related to industry. Additionally, many industrial companies employ erosion control, spill control, and other BMPs in order to further avoid or minimize potential adverse effects to surface water.

Since Talon would avoid surface water and floodplains to the maximum extent possible; would minimize or mitigate ground disturbance to the maximum extent possible via careful prospect site selection, the implementation of erosion control BMPs, and adherence to permit and regulatory requirements; and would promptly remove any temporary bridges and reestablish the site to baseline condition upon prospect site closure, potential effects to surface water and floodplains under the Proposed Action would be direct and indirect, adverse, negligible to minor, temporary to short-term, and site-specific to local. Indirect effects would include increased stream sedimentation from greater stormwater runoff at prospect sites.

3.4.2.1.2 Wetlands

Under the Proposed Action, potential effects to wetlands could occur from construction vehicles crossing wetlands, sedimentation during site preparation, or in the unlikely event that drilling fluid is accidentally leaked during drill rig operation. If the EGLE Part 303 State Wetland Inventory map (EGLE, 2024b) indicates that a potential prospect site is located within a wetland, or if Talon personnel believe based on physical evidence that a potential prospect site is located within a wetland, then qualified Talon staff would complete visual wetland delineations during drill program planning to accurately identify wetland boundaries.

Although Talon would avoid wetlands to the extent possible when locating drill pads, it may be necessary to cross a wetland in order to reach an identified target. Construction vehicles, including pickup trucks and 18-wheel transport trucks, could cause ground or vegetation disturbance, increasing the likelihood of soil compaction and erosion leading to sedimentation of the wetland or damage to or destruction of wetland vegetation. Since emergent and forest/shrub wetlands exhibit little to no water flow, it is unlikely that sedimentation of one wetland would have downstream effects. Talon holds a Nationwide Permit (NWP) 33 for Wetland Projects under CWA Section 404(e) (USACE, 2021), which contains requirements for temporary construction (e.g., the establishment of temporary bridges), including structure maintenance and removal, potentially affecting water resources. Adherence to NWP requirements would minimize potential adverse effects to wetlands as a result of traversal. Additionally, Talon would try to ensure that any travel across a wetland would occur when the ground is sufficiently frozen to support equipment (EGLE, 2020b). Traversing wetlands when the ground is frozen would minimize physical disturbance to the wetland because the ground would not be as malleable. In the rare event that a wetland cannot be avoided due to terrain or topography limitations and the ground is not frozen, Talon would obtain an EGLE wetland permit (EGLE, No Date-h) to temporarily place composite mats within the wetland in order to minimize disturbance to the wetland from vehicle movement. Prior to submitting an EGLE wetland permit application, Talon would request a pre-application site visit from a state specialist to review the planned activity and provide direction on whether a wetland permit is needed. For a forest/shrub wetland, Talon would clear the minimum number of trees at ground level necessary to enable mat placement, leaving the residual stumps intact. According to EGLE, proper use of composite mats in wetland areas can result in little to no effect to the wetland (EGLE, 2020b).

As described above, Talon would dig a shallow sump on prospect sites that are not located near wetlands to percolate filtered drilling fluid wastewater and contain drill cuttings. On prospect sites that are located near wetlands, Talon would not construct sumps in order to avoid potential effects to wetlands due to associated ground disturbance and/or vegetation damage. Instead, Talon would use large portable tanks to contain drilling wastewater and cuttings. If no sulfide-bearing rock was intersected in the borehole, the drilling wastewater and cuttings would be transferred to sumps dug in non-wetland areas on private land. If greater than 1 cubic foot of sulfide-bearing cuttings are present, the cuttings and drilling fluid would be temporarily stored in plastic-lined sumps prior to being hauled offsite for disposal in a licensed landfill (MDEQ, 2005).

Similar to surface water and floodplains described above, reasonably foreseeable actions within or in the vicinity of the area of analysis (see Section 3.1.4) would contribute both adverse and

beneficial effects to wetlands in the area of analysis in conjunction with the Proposed Action over the long term. Prescribed burning could contribute both adverse and beneficial effects to wetlands through increased temporary sedimentation and reducing the likelihood of future wildfires respectively. Likewise, community development plans would overall contribute adverse effects to wetlands through the reduction in vegetation coverage and beneficial effects through protection of wetlands under conservation easement and/or the establishment of protected natural areas. In contrast to prescribed burns and community development, continued industrial activity would primarily contribute adverse effects to wetlands; however, potential adverse effects to wetlands due to industrial activity would be minimized and mitigated by adhering to regulatory and permit requirements and possibly through the implementation of BMPs. When considered in conjunction with the Proposed Action, reasonably foreseeable actions within the area of analysis would contribute direct and indirect, adverse and beneficial, negligible to minor, temporary to long-term, and regional effects to wetlands within the area of analysis.

Since Talon would avoid wetlands to the maximum extent possible; would minimize or mitigate ground disturbance to the maximum extent possible via the installation of composite mats, implementation of erosion control BMPs, and adherence to permit and regulatory requirements; and would promptly reestablish the site to baseline condition upon prospect site closure, potential effects to wetlands under the Proposed Action would be direct, adverse, minor to moderate, temporary to short-term, and site-specific.

3.4.2.1.3 Groundwater

Under the Proposed Action, Talon would avoid WHPAs when siting drill pads. As described in Section 3.3.2.1.1, potential effects to groundwater could occur if drilling activities penetrate or disturb aquifers, allowing them to mix. To prevent groundwater aquifer mixing and to keep sand from entering the borehole, Talon would install a steel casing on the 3.8-in borehole that would extend from the surface of the ground, through the unconsolidated sediment layer, into the bedrock on all boreholes, in compliance with Michigan Department of Health regulations (Michigan Administrative Code R 325). Additionally, in compliance with state requirements for drilling water (Michigan Administrative Code R 325.1639(8)), drilling water would be chlorinated prior to use to prevent groundwater contamination by non-potable surface water in the unlikely event of a leak. Since drilling fluid is composed of chlorinated water, an inert biodegradable polymer, and suspended rock particles, there is no potential for adverse effects to groundwater from drilling fluid. To prevent groundwater contamination, Talon would place a welded steel cap on top of temporarily closed boreholes. When the borehole is no longer needed, Talon would remove the casing from the hole and fill the borehole with cement up to ground level. If there is a need to collect data from a borehole for more than two years, Talon would apply for a variance to keep the hole open for continued use under Part 625, Mineral Wells, of the NREPA, 1994 PA 451, as amended.

Similar to surface water and floodplains described above, reasonably foreseeable actions within and in the vicinity of the area of analysis (see Section 3.1.4) would contribute both adverse and beneficial effects to groundwater in the area of analysis in conjunction with the Proposed Action over the long term. Community development plans would contribute beneficial effects to groundwater through placing land under conservation easement and/or the establishment of

protected natural areas, and potentially adverse effects as a result of increased groundwater demand for residential use. Prescribed burning within the area of analysis could contribute beneficial effects to groundwater through reducing the likelihood of future wildfires and reducing the likelihood of firefighting chemicals contaminating groundwater. Continued industrial activity within the area of analysis would primarily contribute adverse effects to groundwater through increased demand and the potential for groundwater contamination from industrial sources; however, potential adverse effects due to industrial activity would be minimized and mitigated by adhering to regulatory and permit requirements, and possibly through the implementation of BMPs. When considered in conjunction with the Proposed Action, reasonably foreseeable actions within the area of analysis would contribute direct and indirect, adverse and beneficial, negligible to minor, temporary to long-term, and regional effects to groundwater.

Since Talon would avoid WHPAs when siting drill pads and would avoid or minimize groundwater contamination by casing and capping active boreholes and plugging closed boreholes, potential effects to groundwater under the Proposed Action would be direct, adverse, negligible, temporary to short-term, and site-specific.

3.4.2.2 No Action Alternative

Under the No Action Alternative, the DAF would not proceed with Title III funding of mineral exploration for nickel in Michigan. Without federal funding, Talon would continue limited mineral exploration in the area of analysis at a slower pace, and identification of potential viable nickel deposits would occur over a longer time frame. As a result, potential effects to water resources due to site selection and preparation, drill rig operation, and prospect site closure would be largely the same magnitude and would occur over a similar geographic extent as under the Proposed Action but would take place over a longer time frame.

To avoid or minimize effects to surface water and floodplains under the No Action Alternative, Talon would follow the same site selection criteria as described under the Proposed Action to place drill pads 150 ft or more away from surface water resources. Additionally, Talon would minimize or mitigate ground disturbance to the maximum extent possible via purposeful prospect site selection and would avoid or minimize adverse effects from stormwater runoff and sedimentation by implementing the same erosion control BMPs as listed under the Proposed Action. Finally, Talon would promptly remove any temporary bridges and reestablish each prospect site and any temporary access trails to baseline condition upon prospect site closure. Therefore, potential effects to surface water and floodplains under the No Action Alternative would be direct and indirect, adverse, negligible to minor, temporary to long-term, and site-specific to local.

To avoid or minimize effects to wetlands under the No Action Alternative, Talon would avoid wetlands to the maximum extent possible when siting drill pads and would minimize or mitigate ground disturbance to the maximum extent possible via the installation of composite mats and the implementation of erosion control BMPs. Additionally, Talon would maintain the NWP and would obtain, as needed, EGLE wetland permits for the temporary installation of wetland-protective composite mats. Finally, Talon would promptly remove any composite mats and reestablish each prospect site to baseline condition upon prospect site closure. Therefore,

potential effects to wetlands under the No Action Alternative would be direct, adverse, minor to moderate, temporary to long-term, and site-specific.

To avoid or minimize effects to groundwater under the No Action Alternative, Talon would avoid WHPAs when siting drill pads and would avoid or minimize groundwater contamination by casing and capping active boreholes and plugging closed boreholes. Therefore, potential effects to groundwater under the No Action Alternative would be direct, adverse, negligible, temporary to long-term, and site-specific.

3.5 CULTURAL RESOURCES

Cultural resources are associated with the human use of an area and may include archaeological sites, locations of ethnographic interest, or historic properties associated with the past and present use of an area. This section discusses the cultural resources potentially affected by the Proposed Action and the No Action Alternative.

A cultural resource can represent past cultures or modern-day cultures and can be composed of physical remains, intangible traditional use areas, or an entire landscape. An archaeological site is "a location that contains the physical evidence of past human behavior that allows for its interpretation" and includes sites that are eligible, listed, and those that do not qualify for the National Register of Historic Places (NRHP) (ACHP, 2009). The NHPA defines the term 'historic property' as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior (36 CFR § 800.16(l)(1)). The term historic property also includes any artifacts, records, and remains that are associated with the property as well as properties of traditional religious and cultural importance to Native American Tribes or Native Hawaiian organizations that meet the NRHP criteria found in 36 CFR § 60.4. In general, cultural resources include historic properties and a wider range of resources that are not eligible for inclusion in the NRHP (NPI, 2025).

The NHPA established a framework to preserve the nation's historic properties. Under Section 106 of the NHPA, federal agencies are required to consider the effect of their actions on historic properties and provide the Advisory Council on Historic Preservation (ACHP) with an opportunity to review the action before implementation. As part of this process, federal agencies are required to consult with SHPOs, Native American Tribes and Native Hawaiian organizations with or without a Tribal Historic Preservation Officer (THPO), representatives of local government, the public, and other interested groups (36 CFR § 800.3). SHPOs reflect the interests of their state and its citizens in the preservation of their cultural heritage and are responsible for reviewing undertakings for their effect on historic properties and evaluating and nominating historic buildings, sites, structures, and objects to the NRHP. A THPO is the official representative of a federally recognized Tribe who has assumed the responsibilities of the SHPO. A THPO is responsible for the administration of any or all of the functions of a SHPO with respect to Tribal lands, on or off reservation.

The Section 106 process helps ensure that the presence of historic properties, and possible effects to these properties, are considered as early as possible in the federal project planning process. Implementing regulations for Section 106 at 36 CFR § 800 (Protection of Historic Properties) require the responsible federal agency to determine the level of effort to identify

historically significant cultural resources in the area of potential effect (APE) of the undertaking. The APE is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR § 800.16(d)).

The Archaeological Resources Protection Act of 1979 (ARPA), as amended, established the protection of archaeological resources and sites on public and Indian lands. ARPA defines an archaeological resource as physical remains from past human life or activities that are of archaeological interest and more than 100 years old. If an activity may disturb an archaeological resource on federal land, the federal land manager can issue an ARPA permit to authorize an investigation. The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), and its implementing regulations (43 CFR § 10), govern the treatment and return of Native American human remains and objects to lineal descendants, culturally-affiliated Indian Tribes, and Native Hawaiian organizations.

In Michigan, the NREPA Part 761 reserves the state's right to explore, survey, excavate, and regulate aboriginal records and other antiquities on state lands, including mounds, earthworks, forts, burial and village sites, mines or other relics, and abandoned property of historical or recreational value.

3.5.1 AFFECTED ENVIRONMENT

The area of analysis for cultural resources comprises the 445,000-acre AOI subject to mineral exploration. Cultural and historic resources exist throughout the AOI; therefore, the area of analysis for cultural and historic resources is defined as the entire AOI. The APE for individual prospect sites shall be determined through site-specific Section 106 review and consultation. The types of cultural and historic resources that could be present in the area of analysis include:

- Viewshed and soundscape for historic buildings, structures, and districts;
- Archaeological sites and resources; and
- Traditional cultural properties (TCPs) and areas where treaty rights are practiced.

3.5.1.1 Pre- and Post-Contact Archaeological Resources

The Upper Peninsula of Michigan has an extensive precontact history following the retreat of the glacial ice sheet about 12,000 years ago. The post-glacial environment likely gave way to a mix of open tundra and evergreen woodland, followed by a deciduous forest community in some areas (Fitting, 1970; Gray & Pape, 2024). During the Early Paleoindian Period, from 11,000 Before Common Era (BCE) to 9000 BCE, the first hunters arrived, as evidenced by the distribution of fluted, projectile points. The variety of techniques and tools may indicate the presence of different cultural groups hunting large game, including caribou, bison, and mammoth. The archaeological record consists of scattered sites and artifacts during the Late Paleoindian period, from 9000 BCE to 7000 BCE, with significant ancient lakeshore sites likely submerged underwater due to shifted, modern shorelines. This period is characterized by changes in the design of projectile points and the northward expansion of populations, especially to newly exposed shorelines that could have attracted hunter-gatherers seasonally.

During the Archaic Period, from 7500 BCE to 600 BCE, populations adapted to stabilizing environmental changes as mixed deciduous and evergreen forests replaced pine forests (Fitting, 1970; Gray & Pape, 2024). This period was marked by seasonal to more permanent settlements reliant on hunting, fishing, and gathering a wider variety of plants and animals. By the Mid to Late Archaic Period, Great Lakes populations began mining, using, and trading native copper from the Keweenaw Peninsula and Isle Royale (Fitting, 1970; Cleland, 1992). During this archaeological period known as the Old Copper Culture, from 4000 BCE to 1000 BCE, copper was cold-hammered and heat-treated for utilitarian and ornamental purposes (Bebber and Eren, 2018; Cleland, 1992). In the Woodland Period, from 1000 BCE to the 1600s, new tools, ceramics, burial mounds, and agriculture emerged as populations substantially expanded. While distinct cultural patterns were present, groups generally relied on seasonal mobility, social organization, and trade. The area of analysis was primarily occupied by Anishinaabe groups, particularly the Ojibwe, during the first European contact (Cleland, 1992). The plural, Anishinaabeg, includes three distinct, Algonquin-speaking groups: the Ojibwe, Odawa, and Potawatomi.

During the 1600s, the Anishinaabeg's relationship to their ancestral homeland changed significantly due to European settlement in the Great Lakes region. In 1836, leaders from Ottawa and Chippewa/Ojibwe Tribes in northern Michigan signed the Treaty of Washington to avoid removal and retain rights to hunt, fish, and gather (GLIFWC, No Date-a; NPS, No Date-b). In 1837, Michigan became the 26th state admitted to the Union, with the Upper Peninsula added to compensate for ceded land around Toledo, Ohio. The Upper Peninsula was found to be rich in copper, iron, and other metals, making it attractive for settlers and initiating the Keweenaw copper boom, the first mining boom in the U.S., which began in the 1840s (Michigan Geological Survey, 1969; DNR, No Date-b). While copper country centered in Houghton County, an iron discovery led to the growth of nearby Marquette, Iron, and Dickinson counites (Schaetzl, No Date-c). In 1842, the Ojibwe signed the Treaty of La Pointe, ceding mineral-rich territories to the U.S. while retaining rights for hunting, fishing, and gathering in the region (NPS, No Date-c). Logging on the Upper Peninsula began in the 1830s and peaked during the 1890s; currently, the Upper Peninsula supports approximately 450 logging firms; saw, pulp, and paper mills; and secondary manufacturers that produce finished wood goods, accounting for approximately 23 percent of the statewide forest industry (DNR, No Date-a; DNR, No Date-b). In the late 19th and early 20th centuries, railroads, logging, and increasing settlement continued to shape the cultural and physical landscape. The Upper Peninsula currently supports timber, mining, tourism, and agricultural industries. While logging and mining were once vast and wealthy industries in the state, they have declined and now the Upper Peninsula economy relies more heavily on tourism (Schaetzl, No Date-c). Mining and mineral exploration are a principal part of Michigan's industry. As of 2018, more than one quarter of mining jobs in the state of Michigan (approximately 1,400) were on the Upper Peninsula; currently, there are two active mines on the Upper Peninsula: the Eagle Mine that produces nickel ore and is scheduled to close in 2029, and the Tilden Mine that produces iron ore (DTMB, 2020; Bridge Michigan, 2024).

In 2024, Michigan SHPO's Archaeology Program reported that 14 to 33 new archaeological sites were identified within the five counties in the area of analysis (MISHPO, 2024). In Iron and Dickinson counties, three or fewer sites were identified. Between four and nine sites were recorded in Baraga, Marquette, and Houghton counties. Michigan SHPO attributes the majority

of the land surveyed each year to federal undertakings that require Section 106 review. The State Archaeological Site File, that contains records of all known archaeological sites, is now available through the Michigan SHPO's beta Cultural Resources Information System (CRIS) to qualified archaeologists.

3.5.1.2 Native American Tribes

Tribal interests in the area of analysis may include, but are not limited to, TCPs, archaeological resources, and areas of treaty rights. Federally-recognized Tribes with current or ancestral interest in the area of analysis include, but are not limited to (HUD, 2025): Bad River Band of the Lake Superior Tribe of Chippewa Indians of the Bad River Reservation, Wisconsin; Fond du Lac Band of the Minnesota Chippewa Tribe; Grand Portage Band of the Minnesota Chippewa Tribe; Ho-Chunk Nation of Wisconsin; Keweenaw Bay Indian Community, Michigan; Lac du Flambeau Tribe, Lac du Flambeau Band of Lake Superior Chippewa Indians; Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan; Leech Lake Band of the Minnesota Chippewa Tribe; Menominee Indian Tribe of Wisconsin; Miami Tribe of Oklahoma; Mille Lacs Band of Ojibwe (The Mille Lacs Band of the Minnesota Chippewa Tribe Mille Lacs Band of Ojibwe); Minnesota Chippewa Tribe; Red Cliff Band of Lake Superior Chippewa Indians of Wisconsin; Red Lake Band of Chippewa Indians, Minnesota; Sault Ste. Marie Tribe of Chippewa Indians, Michigan; Sokaogon Chippewa Community, Wisconsin; and White Earth Band of Minnesota Chippewa.

Five federally-recognized Tribes reside in the Upper Peninsula region (MEDC, No Date): Bay Mills Indian Community of Anishinaabe Indians, Hannahville Indian Community of Potawatomi Indians, Keweenaw Bay Indian Community (KBIC) of Lake Superior Chippewa Indians, Lac Vieux Desert Band of Lake Superior Chippewa Indians, and Sault Ste. Marie Tribe of Chippewa Indians. The KBIC has dual land bases in Baraga County on both sides of the Keweenaw Bay Peninsula. The KBIC L'Anse Reservation, established under the treaty of 1854, is the oldest and largest in Michigan (KBIC, No Date). Eastern portions of L'Anse Reservation are within the area of analysis.

Talon regularly engages with local Tribal leadership during planning and throughout ongoing mineral exploration activities.

3.5.1.3 Traditional Cultural Properties and Treaty Rights

In addition to physical objects and artifacts, cultural and historic resources include locations of cultural and historic significance. A TCP is a site that is eligible for inclusion in the NRHP "based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community" (NPS, 1998). The cultural practices or beliefs that give a TCP its significance was at least observed at the time the TCP was considered for inclusion in the NRHP and usually continue to be important in maintaining the cultural identity of the community. Examples of sites that can be TCPs include a location, known as a cultural landscape, associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world; a location historically and/or currently used by Native American religious practitioners to perform ceremonial activities; and a location where a community has traditionally carried out practices that are important in maintaining its historic identity.

While no publicly listed TCPs occur within the area of analysis, there is a high potential that eligible TCPs exist, especially in culturally important areas for the Ojibwe. Michigan SHPO lists TCPs as one of their most threatened resources due to the typically reactive approach taken by the state's preservation community and is working to develop improved guidelines to establish proactive preservation (MISHPO, 2020). In 2024, Michigan SHPO released a form for Tribal Governments and consultants to report a TCP or cultural landscape that contains archaeological and/or architectural components, as well as ethnographically significant places (MISHPO, 2024). There is a potential for occurrence of TCPs and/or cultural landscapes within the area of analysis, such as burial or sacred sites associated with ceremonial activities.

The KBIC exercise sovereignty and treaty rights in the region where the area of analysis is located (GLIFWC, No Date-b). 1836 and 1842 treaty rights are exercised by multiple Tribes on public lands, such as state forests, commercial forest lands, or national forests within or in the vicinity of the area of analysis (DNR, No Date-f).

3.5.1.4 Aboveground Historic Properties

Michigan SHPO's CRIS has an online database and Geographic Information System (GIS) service that provides information and NRHP statuses on aboveground historic sites and architectural/history surveys in Michigan to beta users (MISHPO, 2025). According to Michigan SHPO's CRIS, there are four bridges, two buildings, and two historic districts listed on the NRHP in the area of analysis. In addition, there are eight eligible aboveground historic properties in the area of analysis. There are 18 unevaluated aboveground historic properties in the area of analysis. Two architectural/history surveys exist for the Cyrus H. McCormick Experimental Forest, now part of the Ottawa National Forest, that spans the border between Baraga and Marquette counties within the area of analysis. Baraga State Park has also been extensively surveyed for aboveground resources.

3.5.1.5 Section 106 Consultation for Current Prospect Sites

Talon contracted Gray & Pape to conduct a Phase 1 Survey for the three identified prospect sites: Roland Lake, Boulderdash, and Clipper. Boulderdash is located in Marquette County, and Roland and Clipper are located in Baraga County. The approximately 2-acre APE included four drill pads and access trails and was buffered to encompass all anticipated disturbances. The October 2024 Phase 1 Survey Report indicated that no historic properties were recorded in or around the APE, and the archaeological survey resulted in no cultural resources identified in the APE (Gray & Pape, 2024).

The DAF identified the Michigan State Historic Preservation Office and the following federally-recognized Tribes as consulting parties for the site-specific consultation that included the three identified prospect sites : Bad River Band of the Lake Superior Tribe of Chippewa Indians of the Bad River Reservation, Wisconsin; Bay Mills Indian Community; Fond du Lac Band of the Minnesota Chippewa Tribe; Grand Portage Band of the Minnesota Chippewa Tribe; Ho-Chunk Nation of Wisconsin; Keweenaw Bay Indian Community, Michigan; Lac du Flambeau Tribe, Lac du Flambeau Band of Lake Superior Chippewa Indians; Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan; Leech Lake Band of the Minnesota Chippewa Tribe; Menominee

Indian Tribe of Wisconsin; Miami Tribe of Oklahoma; Mille Lacs Band of Ojibwe (The Mille Lacs Band of the Minnesota Chippewa Tribe Mille Lacs Band of Ojibwe); Minnesota Chippewa Tribe; Red Cliff Band of Lake Superior Chippewa Indians of Wisconsin; Red Lake Band of Chippewa Indians, Minnesota; Sault Ste. Marie Tribe of Chippewa Indians, Michigan; Sokaogon Chippewa Community, Wisconsin; White Earth Band of Minnesota Chippewa.

In June 2025, the DAF submitted a finding of no historic properties affected, with supporting documentation for review and consideration by the Michigan SHPO and consulting parties. During the consultation period, the Michigan SHPO responded with questions and the DAF followed up with clarifying information. On July 25, 2025, the Michigan SHPO sent their concurrence with the DAF's finding of no historic properties affected in accordance with 36 CFR § 800.4(d)(1). The DAF mailed Tribal consultation packages and followed up with Tribes. In a letter of determination dated August 6, 2025, the Leech Lake Band of Ojibwe stated they do not have any recorded historic properties within the APE. The DAF contacted the Red Cliff Band of Lake Superior Chippewa Indians of Wisconsin via phone on August 18, 2025, and confirmed they would not consult. The Sault Ste. Marie Tribe of the Chippewa Indians requested coordinates on August 19, 2025, which the DAF provided. The Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan and Sokaogon Chippewa Community requested a copy of the PEA link when it becomes available. An example Section 106 finding letter for the site-specific consultation that included the three prospect sites, the SHPO concurrence letter, and the Leech Lake Band of the Ojibwe letter of determination are included in Appendix A.

3.5.2 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential effects to cultural and historic resources in the area of analysis under the Proposed Action and No Action Alternative. Section 106 of NHPA defines specific Criteria of Adverse Effects. Adverse effects may include direct or indirect destruction, damage, alteration, removal, or the change in character of a historic property.

3.5.2.1 Proposed Action

The DAF has determined the Proposed Action is an undertaking, as defined by 36 CFR § 800.16(y), with the potential to affect historic properties through disturbance to the ground, viewshed, or soundscape. The DAF would assume the role of lead agency and may invite a cooperating agency dependent upon ownership of the prospect site. To fulfill the Section 106 process, the lead agency would define a site-specific APE, considering direct and indirect effects at each individual prospect site. Prior to any ground-disturbing work funded under the Proposed Action, appropriate architectural and archaeological surveys would be completed to identify cultural resources in each site-specific APE. If cultural or historic resources are identified through survey work or consultation, the prospect site could be relocated during early planning. If the site cannot be relocated, then consultation with the Michigan SHPO, THPOs, and Tribes would be required to determine appropriate mitigation to avoid or minimize adverse effects to historic properties.

Under the Proposed Action, some previously undisturbed areas would be cleared of vegetation if needed and graded by heavy machinery to provide access and space for drill pads in the APE. Talon would limit ground disturbance by utilizing natural clearings, existing logging trails, and

sparsely vegetated ground to the greatest extent possible. Talon would minimize the potential for disturbance to cultural resources by prioritizing previously disturbed areas, seeking early input from local Tribal leadership, and siting the sump and staging area within the prospect site. Talon would also use angled drilling to test multiple targets from a single drill pad, which would minimize the number of drill pads. Clearing of up to 17.5 discontinuous acres of land for up to 35 drill pads could occur over the duration of the Proposed Action. If new access trails are required for the drill rig and vehicles to travel to the prospect site, additional clearing would occur. Clearing, grading, and drilling could cause surface and subsurface disturbance to previously unidentified cultural resources. Potential damage due to physical disturbance could be permanent; however, the likelihood of damage at a site that has been thoroughly surveyed for cultural resources is very low. Inadvertent discovery protocols would be in place, and all activities would comply with Section 106 of NHPA, ARPA, NAGPRA, and NREPA.

Drilling has the potential to disturb known or potential TCPs, archaeological sites, or resources. Visual or noise disruptions could cause indirect effects to viewshed and/or soundscape for TCPs or historic buildings, structures, and districts if the prospect site is located near these sensitive receptors. Since prospect sites would likely be remote and removed from most sensitive receptors, noise has been dismissed from full analysis (see Section 3.1.3), and it is not likely the Proposed Action would occur within auditory or visual range of eligible or listed historic buildings, structures, and districts within the APE. Site preparation and drilling operations would introduce noise, vibration, and artificial lighting that would alter the cultural landscape if areas of Tribal interest occur nearby. Short-term disruptions to hunting, fishing, or gathering may occur, especially if prospect sites are located on or near Tribal lands or public lands where treaty rights are commonly exercised. Once work is completed at a site, the drill pad and any access trails that have been built would be reclaimed.

Reasonably foreseeable future actions occurring in or near the area of analysis could interact with the effects that the Proposed Action would have on cultural resources. Actions such as timber harvest and small-scale development projects with no federal nexus for the Section 106 process would interact with the effects of potential cultural resource disturbance or damage under the Proposed Action to decrease the likelihood of preserving intact cultural resources in the area of analysis.

The Proposed Action would have direct and indirect, adverse, negligible to moderate, short-term to permanent, and site-specific to local effects on cultural resources due to the potential for physical effect and auditory/visual disturbance from site preparation and drilling activities. However, due to the Section 106 process and Talon's ongoing working relationship with Tribal leadership, effects would be minimized to the greatest extent possible.

3.5.2.2 No Action Alternative

Under the No Action Alternative, Talon would proceed with mineral exploration at a slower pace and without federal funding. The effects to cultural resources described in Section 3.5.2.1 could occur at a somewhat elevated risk and over a longer time frame compared to the Proposed Action. As discussed under the Proposed Action, Talon would carefully select sites and seek input from local Tribal leadership, utilizing previously disturbed areas to the greatest extent possible.

Mineral exploration activities in the area of analysis predominately occur on private lands and do not typically require federal permitting. Due to the potential lack of a federal nexus, it is more likely that consultation with Michigan SHPO, THPOs, and Tribes would not be required under Section 106 of NHPA. However, Talon would continue to voluntarily coordinate and informally consult with local Tribal leadership with regard to planned and ongoing mineral exploration activities, reducing the risk of inadvertent adverse effects to Tribal cultural resources. Section 106 consultation and archaeological surveys would not be required on private lands within the area of analysis, and the No Action Alternative would have the potential to inadvertently affect unidentified archaeological sites with cultural resources. Clearing, grading, and drilling could cause surface and subsurface disturbance to previously unidentified cultural resources. Potential damage due to physical disturbance could be permanent; however, the likelihood of damage at a small site, that has been reviewed by local Tribal leadership is low. Inadvertent discovery protocols would be in place for prospect sites with a federal nexus (e.g., on federal or Tribal lands) and all activities would comply with Section 106 of NHPA, ARPA, NAGPRA, and NREPA.

Effects to cultural resources under the No Action Alternative would be direct and indirect, adverse, negligible to moderate, short-term to permanent, and site-specific to local due to the potential for physical effects and auditory/visual disturbance from site preparation and drilling activities. Due to Talon's ongoing working relationship with Tribal leadership, effects would be minimized to the greatest extent possible.

4.0 LIST OF PREPARERS

This PEA was prepared and reviewed by a team from the DAF and Talon. Consultants from Solv LLC assisted the DAF and Talon in conducting research, gathering data, and preparing the PEA.

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5.0 CITATIONS

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APPENDIX A. AGENCY AND PUBLIC COORDINATION

THE MINING Journal

AFFIDAVIT OF PUBLICATION

State of Florida, County of Orange, ss:

I, Edmar Corachia, of lawful age, being duly sworn upon oath depose and say that I am an agent of Column Software, PBC, duly appointed and authorized agent of The Mining Journal, a newspaper published and circulated in the state of Michigan and Marquette county and otherwise qualified according to Supreme Court Rule; that annexed hereto is a printed copy of a notice which was published in said newspaper on the following date, or dates, to-wit:

Publication Dates:
- Jul 9, 2025

Notice ID: 0tCEOaYkOa3I0ZhnW9rG
Publisher ID: LZ0020
Notice Name: Talon/DPA Title III Wetland/Floodplains

Publication Fee: $165.66

Edmar Corachia

Agent

PAMELA BAEZ
Notary Public - State of Florida
Commission # HH 186700
Expires on October 14, 2025

VERIFICATION

State of Florida
County of Orange

Signed or attested before me on this: 07/11/2025

Notary Public

Notarized remotely online using communication technology via Proof.

Public Notice for Actions in Wetlands/Floodplains DPA Title III Program

Talon Nickel (USA) LLC Accelerated Domestic Nickel Exploration, Michigan

The Department of the Air Force (DAF) is preparing an Environmental Assessment (EA) for a federally funded agreement to secure domestic nickel supply chains. This effort is sponsored by the DAF Air Force Research Laboratory and is being executed under Presidential Determination No. 2022-11 and Executive Order (EO) 14241, Immediate Measures to Increase American Mineral Production, authorizing the Department of Defense (DoD) to utilize Defense Production Act (50 U.S.C. 4533) Title III funding to support domestic, critical mineral supply chains to be used in the production of DoD components and large-capacity batteries. The funds would be used for nickel exploration (Proposed Action) in the Upper Peninsula of Michigan by Talon Nickel (USA) LLC. The Proposed Action consists of three locations in Baraga and Marquette Counties. The purpose of the Proposed Action is to identify sources of domestic nickel to meet the nation's demands for both industrial and defense purposes. The Proposed Action is needed because without government intervention private industry would be unable to address the national security need in a timely manner. DAF would fund the studies, labor, materials, and equipment required to explore for new nickel deposits.

Proposed exploration activities are subject to the requirements and objectives of EOS 11990, Protection of Wetlands, and 11988, Floodplain Management, because they may involve temporary stream and/or wetland crossings. Exploration activities would avoid wetlands and floodplains to the greatest extent possible. The DAF requests advance public comments to determine if there are any concerns regarding the project's potential to

impact wetlands and floodplains. The proposed project will be analyzed in an EA, and there will be another opportunity for public comment on the draft EA when it is released.

PUBLIC COMMENT PERIOD:

Date July 2nd, 2025 - August 2nd, 2025

The DAF will accept both electronic and written comments during the 30-day public comment period on the proposed action and its potential effects on floodplain and wetland areas. Comment letters must be postmarked by August 2nd, 2025, and should be submitted to:

Air Force Research Laboratory Public Affairs
1864 4th Street
Wright-Patterson Air Force Base, OH 45433
Phone: 937-469-1728
E-mail: bryan.ripple@us.af.mil

Notices in Brief

LET'S EAT--
Let's Eat Community meal is Sunday, July 13, at St Ann's, 4-5:30 p.m. The menu will be: Mac and Cheese, corn on the cob, a roll, dessert, juice. The meal sponsor is new to the Let's Eat family, NorthIron church, L'Anse campus.

TRIAD MEETING--
The Baraga County TRIAD group meets at Baragaland Senior Citizens. Our next meeting is Aug. 6, 2025 at 10 a.m. All are welcome.

CAREGIVERS MEET--
A caregiver's support group meeting will be held on Thursday, July 17, at 3 p.m. at the Baragaland Senior Center. Unless otherwise specified, meetings will continue every other Thursday. For more details, please contact Nancy at the Senior Center for more information at (906) 524- 6711 or (906) 524-6922

CTY COMMISSIONERS-
The Baraga County Board of Commissioners will hold its regular monthly meeting on Monday, July 14, 2025 at 5 p.m. in the Circuit Courtroom, Baraga County Courthouse, L'Anse, MI.

ZEBA METHODIST--
Zeba United Methodist Church schedule for July: July 13, July 27, 10 a.m. Camp meeting, Marksman Road, 6 p.m.; Wed., July 30, Thurs., July 31 and Fri., Aug. 1.

CANCER SUPPORT--
The monthly meeting for Baraga County Cancer Support Group will be held on July 11 at 1 p.m. at the Baragaland Senior Center. For more information, please call the senior center or Melissa Treadeau at 906-201-1479.

SENIORS POTLUCK--
Baragaland Senior Citizens monthly potluck will be held on July 10 at noon. Trooper Narhi from Michigan State will present on senior scams. All are welcome.

PELKIE HIST. SCHOOL
The Pelkie Historical School is open 11 a.m. to 4 p.m. on Sundays and holidays.

L'ANSE CONCERTS--
Village of L'Anse/DDA announces its free 2025 Lakefront Concerts continuing on Thursday, July 10 at 7 p.m. with Uncle Pete's Red Hot Revue. The concerts are held every Thursday in the lakefront park at the foot of Broad Street at the lake. There is limited seating, so bring a chair or blanket. Concerts will be in the L'Anse School Cafetorium in case of inclement weather.

LHS CLASS REUNION--
Class of 1965 reunion will be on July 26, 2025. Please check the L'Anse High School Alumni website for more information.

NEW MEETING--
Nutritional Eating Workshop (N.E.W.) meets every Tuesday at 1 p.m. in the community room at the Baraga Housing Authority.

SUPPORT GROUP--
Celebrate Recovery on Tuesdays at 6:30 p.m. at NorthIron Church (former Shopko) Hwy. US 41, L'Anse.

AL-ANON MEETING--
Wednesday: 11 a.m. Methodist Church, 304 Main St., L'Anse.

AA MEETNGS--
AA--Monday: 7:30 p.m. at Zion Lutheran Church, Roland Lake Road, Skanee; Wednesday: 12 p.m., Methodist Church, 304 N. Main, L'Anse; Thursday: 11 a.m. at United Lutheran Church 211 State St., Baraga; 6 p.m. Covington Multi-Purpose Building M-28.

OPEN KNITTING--
There will be open knitting at the L'Anse Public Library on Mondays from 12:30 to 2 p.m. summer hours. Bring your own project to work on. No instruction, everyone welcome.

SENIOR MEALS--
Baraga County Senior Meals program will serve congregate meals (dine in only)at Greenhill Manor on Mondays, Wednesdays, and Fridays. Meals are served from 11:30 a.m. to 12:30 p.m. Please call (906) 524-5450 to reserve your meal.

CTY. COMMISSIONERS-
The Baraga County Board of Commissioner is accepting letters of interest from persons interested in serving on the Baraga County Department of Human Services Board.

COUNTY EDC MEET--
The Board of Directors of the Economic Development Corporation of the County of Baraga will hold its monthly meetings on the following Tuesdays in 2025: Aug. 19, Sept. 16, Oct. 21, Nov. 11 and Dec. 9.

FOOD PANTRY--
United Lutheran Church has a small food pantry with non-perishable food items, paper products, etc. The food pantry is open during office hours (which are listed on the doors of the church) and on Sunday morning. If you need a little extra to get you through your week, stop by and see what we have.

KBIC HEAD START--
KBIC Head Start and Early Head Start are accepting applications for the 2025-26, school year. Applications are available at the Center in Zeba, and Baraga at the Pre-Primary Center. You can also call (906) 524-6626. An application can be mailed or emailed to you as well.

OJIBWA LIBRARY--
Ojibwa Community Library - open to the public 9-5 Mon-Fri and 9-2 Sat. Check our Facebook page for announcements and more information about services. 409 S Superior, Baraga. 906-353-8163.

ARVON TOWNSHIP--
The Arvon Township Planning Commission will hold their quarterly meetings in the second Thursdays of July and October in 2025. Meetings are at 6 p.m. at the Arvon Fire Hall or Town Hall. Thursday, July 10 and Thursday, Oct. 9.

LIBRARY HOURS--
L'Anse Area Schools/ Public Library Summer hours are as follows: Tues.-Thurs. 9-2.

RETIREMENT PLANS--
There will be a workshop to "Learn about the Best Retirement Plans your financial advisor didn't show you". This educational workshop will be held the first Tuesday of each month at the Baraga Lakeside Inn at 6 p.m. Presented by Safe Money Advisors USA. RSVP to 906-201-0420.

TOPS MEETINGS--
TOPS: Take off pounds sensibly meets on Tuesday at Sacred Heart Church in L'Anse. Weigh in from 3:30 to 4:20 p.m. Meeting from 4:30 to 5 p.m. Come and get support for your weight loss journey. Questions call 906-524-5476.

SASSY SENIORS--
Strength and balance class meets on Monday, Wednesday and Friday, 9:30 - 10:30 a.m. at the SDA church on Main St. contact Cheryl for more information at 906-524-2215.

GRIEF SUPPORT--
Grief support group for ages 18 and up who have lost someone to suicide. Group meets first Tuesday of every month from 5:30 - 7 p.m. Please call Ann Marie at 353-4506 or email ann-marie.amsler@kbic-nsn.gov or Carmen at 338-2421 for information and to register.

VETERANS OFFICER--
Veterans Service Officer will have office hours at 2 S. Main Street, L'Anse in the Baraga County Admin. Building on Monday and Tuesday, 11 a.m. to 7 p.m.; Wednesday and Thursday from 8 a.m. to 4 p.m. The officer is available for Veteran Affair claims or to help spouses and children of veterans. If you are a Veteran in need of assistance, food, heating, please call 524-5454. Veterans requiring a ride to the Oscar G. Johnson Medical Center in Iron Mountain for appointments, schedule 7-10 days prior by calling 482-0102.

FOOD PANTRY--
St. Vincent de Paul's Food Pantry and Assistance Office is open Monday, Wednesday and Friday from 1-3 p.m. at 10 E. Broad Street. Call 524-7001 for more information.

ADVISORY BOARD--
The L'Anse Area Schools/ Public Advisory Board - meets the second Tuesday of Sept., Nov., Jan., March, May at 3:30 p.m. at the library.

BC DEMOCRATS--
Baraga County Democrats monthly meetings will be held every third Tuesday of each month at 6 p.m. at the L'Anse Township Hall. All interested are welcome.

BC REPUBLICANS--
The Baraga County Republicans hold their monthly meetings the second Wednesday of each month 7 p.m. at the Baraga Lakeside Inn. All interested are welcome.

WIC AVAILABLE--
WIC is a cost-effective, governmental health and nutrition program that has demonstrated a positive effect on pregnancy outcomes, child growth and development. The program provides a combination of nutrition education, supplemental foods, breast feeding promotion and support and referrals to health care for women, infants and children up to the age of five. To see if you qualify call the Western UP Health Dept. at 906-482-7382.

Important Notice Regarding Disposal of Special Education Records

The Copper Country Intermediate School District is in the process of removing outdated and inactive special education files from storage. In accordance with state and federal rules and ISD policies/guidelines concerning the retention and disposal of student records, we are providing notice that we plan to dispose of files for inactive students born in 1999. The contents of the file should also be in the CA-60 at the last school attended. For students that attended the CCISD Learning Center, the CA-60 will be retained in accordance with state and federal rules.

If you were born in 1999 and either received special education services or were referred for testing but did not need special education services while attending elementary or secondary school in the Copper Country, contact the CCISD Special Education Department if you would like to schedule a time to retrieve your duplicate file. Proof of identification is required.

Any unclaimed files and their contents will be destroyed on July 31, 2025.

Please call the Special Education Department at (906) 482-4250 ext. 181 if you have any questions or to schedule a time to pick up your file.

Copper Country ISD
Supporting a Lifetime of Learning

COPPER COUNTRY MENTAL HEALTH
offices in Baraga, Ontonagon, & Calumet
WILL CLOSE AT 10:00 A.M.
& the main office in Houghton will close at **11:00 A.M. on Wednesday, July 16th.**
Regular business hours will resume on July 17th.
The crisis line, 1-800-526-5059, will remain open & Access calls will be returned the next day.

Legal

STATE OF MICHIGAN
PROBATE COURT
COUNTY OF BARAGA

NOTICE TO CREDITORS
Decedent's Estate

File No. 25-8414-DE

Estate of
Larry C. Hiltunen
Date of Birth:
August 30, 1942

TO ALL CREDITORS: NOTICE TO CREDITORS:
The decedent, Larry C. Hiltunen died April 4, 2025

Creditors of the decedent are notified that all claims against the estate will be forever barred unless presented to Laurie Ahola, personal representative, or to both the probate court at 16 N. Third St., L'Anse, MI 49946 and the personal representative within 4 months after the date of publication of this notice.

Amy Schultz
P72128
2252 US 41 W, Ste 300
Marquette, MI 49855
906-273-1293

Laurie Ahola
25000 Nurkkala Rd.
Watton, MI 49970

Public Notice for Actions in Wetlands/Floodplains
DPA Title III Program

Talon Nickel (USA) LLC Accelerated Domestic Nickel Exploration, Michigan

The Department of the Air Force (DAF) is preparing an Environmental Assessment (EA) for a federally funded agreement to secure domestic nickel supply chains. This effort is sponsored by the DAF Air Force Research Laboratory and is being executed under Presidential Determination No. 2022-11 and Executive Order (EO) 14241, Immediate Measures to Increase American Mineral Production, authorizing the Department of Defense (DoD) to utilize Defense Production Act (50 U.S.C. 4533) Title III funding to support domestic, critical mineral supply chains to be used in the production of DoD components and large-capacity batteries. The funds would be used for nickel exploration (Proposed Action) in the Upper Peninsula of Michigan by Talon Nickel (USA) LLC. The Proposed Action consists of three locations in Baraga and Marquette Counties. The purpose of the Proposed Action is to identify sources of domestic nickel to meet the nation's demands for both industrial and defense purposes. The Proposed Action is needed because without government intervention private industry would be unable to address the national security need in a timely manner. DAF would fund the studies, labor, materials, and equipment required to explore for new nickel deposits.

Proposed exploration activities are subject to the requirements and objectives of EOs 11990, Protection of Wetlands, and 11988, Floodplain Management, because they may involve temporary stream and/or wetland crossings. Exploration activities would avoid wetlands and floodplains to the greatest extent possible. The DAF requests advance public comments to determine if there are any concerns regarding the project's potential to impact wetlands and floodplains. The proposed project will be analyzed in an EA, and there will be another opportunity for public comment on the draft EA when it is released.

PUBLIC COMMENT PERIOD:

Date July 9th, 2025 – August 9th, 2025

The DAF will accept both electronic and written comments during the 30-day public comment period on the proposed action and its potential effects on floodplain and wetland areas. Comment letters must be postmarked by August 9th, 2025, and should be submitted to:

Air Force Research Laboratory Public Affairs
1864 4th Street
Wright-Patterson Air Force Base, OH 45433
Phone: 937-469-1728
E-mail: bryan.ripple@us.af.mil

Distribution A. Approved for public release: distribution unlimited. AFRL-2025-3076

Legal

SHORT FORECLOSURE NOTICE - BARAGA COUNTY

Notice of Foreclosure by Advertisement.

Notice is given under section 3212 of the revised judicature act of 1961, 1961 PA 236, MCL 600.3212, that the following mortgage will be foreclosed by a sale of the mortgaged premises, or some part of them, at a public auction sale to the highest bidder for cash or cashier's check at the place of holding the circuit court in Baraga County, starting promptly at 10:00 AM, on July 17, 2025. The amount due on the mortgage may be greater on the day of the sale. Placing the highest bid at the sale does not automatically entitle the purchaser to free and clear ownership of the property. A potential purchaser is encouraged to contact the county register of deeds office or a title insurance company, either of which may charge a fee for this information. MORTGAGE: Mortgagor(s): Joshua Eric Mukka and Sara Lynn White, husband and wife Original Mortgagee: Mortgage Electronic Registration Systems, Inc. ("MERS"), solely as nominee for lender and lender`s successors and assigns Date of mortgage: November 11, 2022 Recorded on November 15, 2022, in Document No. 20221716, Foreclosing Assignee (if any): Lakeview Loan Servicing, LLC Amount claimed to be due at the date hereof: One Hundred Thirty-Five Thousand Seven Hundred Thirty-Two and 04/100 Dollars ($135,732.04) Mortgaged premises: Situated in Baraga County, and described as: All that part of the Southwest Quarter of the Southwest Quarter (SW 1/4 of SW 1/4) lying NORTH of the County Road, formerly M-35, EXCEPTING THEREFROM the East 66 feet thereof; and ALSO EXCEPTING THEREFROM the West 66 feet thereof, in Section 21, Township 51 North, Range 32 West, L`Anse Township, Baraga County, Michigan. Commonly known as 17091 Skanee Rd, Lanse, MI 49946 The redemption period will be 6 month from the date of such sale, unless abandoned under MCL 600.3241a, in which case the redemption period will be 30 days from the date of such sale, or 15 days from the MCL 600.3241a(b) notice, whichever is later; or unless extinguished pursuant to MCL 600.3238. If the above referenced property is sold at a foreclosure sale under Chapter 32 of Act 236 of 1961, under MCL 600.3278, the borrower will be held responsible to the person who buys the property at the mortgage foreclosure sale or to the mortgage holder for damaging the property during the redemption period. Attention homeowner: If you are a military service member on active duty, if your period of active duty has concluded less than 90 days ago, or if you have been ordered to active duty, please contact the attorney for the party foreclosing the mortgage at the telephone number stated in this notice. Lakeview Loan Servicing, LLC Mortgagee/Assignee Schneiderman & Sherman P.C. 23938 Research Dr, Suite 300 Farmington Hills, MI 48335 248.539.7400

1564728
(06-18)(07-09)

DEPARTMENT OF THE AIR FORCE
AIR FORCE RESEARCH LAB
WRIGHT-PATTERSON AIR FORCE BASE OHIO

Example State Historic Preservation Consultation Letter:

To whom it may concern,

This letter is in reference to project ER24-919. I'm following up with the additional information requested in the letter dated 15 August 2024 for the proposed Department of the Air Force (DAF) undertaking to provide financial assistance to Talon Nickel LLC through the Defense Production Act (DPA) (50 U.S.C. 4533) Title III program. DAF plans to invest Title III funds to support Talon's proposed nickel exploration project on secured mineral agreements in a 445,000-acre area in the Upper Peninsula of Michigan. Based on previous studies, Talon has identified three drill-ready targets across Baraga and Marquette counties: Roland, Boulderdash, and Clipper. The DAF is currently conducting a Programmatic Environmental Assessment in accordance with (IAW) the National Environmental Policy Act covering the entire 445,000; however, requesting site specific Section 106 review for these three sites.

In September 2024, Talon contracted Gray & Pape to conduct a Phase 1 Archaeological Survey for the three locations, totaling 225 acres (see Attachment 1). The approximately 2-acre Project Area consists of four drill pads and associated access trails located within the planning areas. Once drilled, current targets could either be eliminated or warrant further delineation. While Talon will continue to explore portions of its mineral rights area to delineate future drill targets, this request only covers the Project Area at Roland, Boulderdash, and Clipper. As more drill targets are identified, DAF will continue site-specific Section 106 review.

The Phase 1 Archaeological Survey contains the specific geographic location information for the three separate locales with identified and defined Area of Potential Effects (APE) for each. This report describes the results of the survey of the APE. No historic properties were recorded or cultural resources identified in or around the APE. DAF is submitting a finding of no historic properties present in accordance with 36 CFR § 800.4(d). Please provide your concurrence or objection electronically within 30 days of your receipt of this recommended finding.

Please direct any questions you may have to my email at christina.powell.3@us.af.mil or via phone at (937) 925-3871.

Sincerely,

Christina Powell, PhD
Compliance Specialist
Defense Production Act Title III Program
Air Force Research Laboratory
Materials and Manufacturing Directorate

Attachment:
Phase I Survey, September 2024

GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
MICHIGAN STRATEGIC FUND
STATE HISTORIC PRESERVATION OFFICE

QUENTIN L. MESSER, JR.
PRESIDENT

July 25, 2025

MICHAEL SANCHEZ
EXECUTIVE AGENT DEPUTY PROGRAM MANAGER
DEFENSE PRODUCTION ACT TITLE-3
2241 AVIONICS CIR,
WRIGHT-PATTERSON AFB, OH 45433

RE: ER24-919 Talon Metals – Nickel Exploration,

Roland Lake Locale 1 and 2, T51N/R31W/Sec. 23 & 24, Baraga County,

Boulderdash Locale, T51N/R29W/Sec. 19, 20, 29, and 30, Marquette County

Clipper Locale, T49N/R32W/S28, 29, and 32, Baraga County, (DAF)

Dear Michael Sanchez:

Under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended, we have reviewed the above-referenced undertakings. SHPO has concerns about the activity at the Boulderdash locale that occurred before our consultation letter was sent. According to the Section 106 Application for the Consultation Form, Talon has federal funding to "conduct mineral exploration to identify nickel mineralization", therefore "performing mineral exploration activities" at the Boulderdash locale would seemingly utilize aforementioned funding. It would be difficult to determine which drill hole was paid through DAF funding versus Talon's private funding. Additionally, if the state permits obtained for drilling specify that federal funding will be used for the drilling, then this could be considered segmentation.

> Segmentation is defined as the division of the environmental review of an action so that various activities or stages are addressed as though they were independent, unrelated activities needing individual determinations of significance. Except in special circumstances, considering only a part, or segment, of an overall action is contrary to the intent of the NHPA **§ 200.4 (b)(1)(i)(A)**

In the future, any drilling locale that will be using federal funding needs to complete the Section 106 Consultation process before any drilling occurs, whether that drilling is federally funded or not. There needs to be a clear distinction between drilling locales that are utilizing federal funding, or the Sec. 106 process needs to be completed before any element of drilling occurs.

Based on the information provided for our review, the State Historic Preservation Officer (SHPO) concurs with the determination of the DAF that **no historic properties are affected** within the areas of potential effect of these undertakings.

This letter evidences the DAF's compliance with 36 CFR § 800.4 "Identification of historic properties," and the fulfillment of DAF's responsibility to notify the SHPO, as a consulting party in the Section 106 process, under 36 CFR § 800.4(d)(1) "No historic properties affected." **If the scope of work changes in any way a new application needs to be submitted to our office for review.**

We remind you that federal agency officials or their delegated authorities are required to involve the public in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties per 36 CFR § 800.2(d). The National Historic Preservation Act also requires that federal agencies consult with Native American Tribes and/or Tribal Historic Preservation Officers (THPO) who may attribute religious and cultural significance to historic properties that may be affected by the agency's undertakings per 36 CFR § 800.2(c)(2)(ii).

The State Historic Preservation Office is not the office of record for these undertakings. You are therefore asked to maintain a copy of this letter with your environmental review record for these undertakings.

If you have any questions, please contact Kathryn Frederick, Archaeologist at 517-855-0082 or by email at frederickk1@michigan.gov. **Please reference our project number in all communication with this office regarding this undertaking.** Thank you for your cooperation.

Sincerely,

Kathryn Frederick
Staff Archaeologist

Copy: Christina Powell, DAF

LEECH LAKE BAND OF OJIBWE

Tribal Historic Preservation Office

Gina M Lemon, Tribal Historic Preservation Officer
Anita M Cloud, Tribal Historic Preservation Assistant

August 6, 2025 Via Internet

Department of the Air Force
Air Force Research Lab
Attn: Christina Powell, PhD – Compliance Specialist
2977 Hobson Way
Wright-Patterson AFB, OH 45433

RE: Air Force Title III Talon Project.

The proposed Department of the Air Force (DAF) action to provide financial assistance to Talon Nickel LLC through the Defense Production Act (DPA) (50 U.S.C. 4533) Title III program. DAF plans to invest Title III funds to support Talon's proposed nickel exploration project on secured mineral agreements on a 445,000-acre area in the Upper Peninsula on Michigan. The approximate 2-acre Project Area consists of four drill pads and associated access trails located within the planning areas.

LL THPO No. 25-373-NCRI

Dear Christina Powell,

Thank you for the opportunity to comment on the above referenced project. This has been reviewed pursuant to the responsibilities given to the Tribal Historic Preservation Officer (THPO) by the National Historic Preservation Act of 1966, as amended in 1992, and the Procedures of the Advisory Council on Historic Preservation (38CFR800).

I have reviewed the documentation. After careful consideration of our records, I have determined that the Leech Lake Band of Ojibwe does not have any recorded historic properties, within this area. ** This does not mean there are not any cultural resources present, at this time. **

Should any human remains or suspected human remains be encountered, all work shall cease and the following personnel should be notified immediately: County Sheriff's Office, Office of the State Archaeologist, and the Leech Lake Band of Ojibwe along with other interested parties.

Please note the above determination does not "exempt" future projects from Section 106 review. In the event of any other tribe notifying you of an issue or us (LLBO) of concerns for this specific project, we may reenter into the consultation process.

You may contact me at **(218) 335-2940** if you have questions regarding our review of this project. Please refer to the **LL-THPO Number** as stated above in all correspondence with this project.

Respectfully submitted,

Gina M Lemon
Tribal Historic Preservation Officer

Leech Lake Tribal Historic Preservation Office - Established in 1996
190 Sailstar Drive NE * Cass Lake, MN 56633
Gina.lemon@llojibwe.net

Example United States Fish and Wildlife Service Consultation Letter:

To whom it may concern,

This letter is a request for informal consultation pursuant to Section 7 of the Endangered Species Act (ESA) for the proposed Department of the Air Force (DAF) and Talon Nickel (USA) LLC (Talon) Accelerated Domestic Nickel Exploration in the Upper Peninsula of Michigan (the "project"). This request is a continuation of project-related communications between Talon and the United States Fish and Wildlife Service (USFWS) that began with a virtual meeting held on June 26, 2025 (USFWS, 2025a). This initiation package, including this letter and its attachments, is prepared in accordance with legal requirements set forth under regulations implementing Section 7 of the ESA (50 CFR 402; 16 U.S.C. 1536 (c)). The information in this initiation package is provided to comply with statutory requirements to use the best scientific and commercial information available when assessing the risks posed to ESA-listed and/or proposed species and designated and/or proposed critical habitat by proposed federal actions.

DAF has prepared a Draft Programmatic Environmental Assessment (PEA) (Attachment A) to evaluate the potential effects of federally funding nickel exploration activities within the 445,000-acre Area of Interest (AOI) in the Upper Peninsula of Michigan (the "Proposed Action") on several environmental and human resource areas. The Draft PEA also serves as the Biological Assessment (BA) that evaluates the potential environmental effects on ESA-listed and proposed species and designated and proposed critical habitats resulting from the Proposed Action, in accordance with the ESA of 1973, as amended. The Draft PEA/BA contains a description of the Proposed Action; descriptions of the six ESA-listed species that occur or may occur within the AOI (USFWS, 2025b); and effects analyses for each of the six species. There is no designated or proposed critical habitat for these six species within the AOI.[1] Please refer to the Draft PEA/BA for project and species information. Table 3.2-3 of the Draft PEA/BA summarizes the effects determinations for each species considered.

We request USFWS concurrence with the ***no effect*** determination for one species (rufa red knot) and the ***may affect, not likely to adversely affect*** determination made for five species (Canada lynx, gray wolf, northern long-eared bat, tricolored bat, and monarch butterfly). We also request guidance on any additional best management practices (BMPs) or mitigation measures that were not discussed in the June 26 meeting to avoid or minimize adverse effects to ESA-listed species in or near the project area.

[1] Critical habitat that does not intersect with the AOI is designated or proposed for four of the six ESA-listed species (Canada lynx, gray wolf, rufa red knot, and monarch butterfly).

We would appreciate your acknowledgment of this request at your earliest convenience. If you have any questions or need additional information, please contact carly.mcgregor@solvllc.com. Thank you for your continued attention and support in this matter.

Sincerely,

Carly McGregor
Project Manager
Solv LLC
o. 703-760-4801 x142

Attachment A: Draft Programmatic Environmental Assessment Talon Nickel (USA) LLC Accelerated Domestic Nickel Exploration in the Upper Peninsula of Michigan

References

(USFWS, 2025a). United States Fish and Wildlife Service. 2025. Virtual meeting with Jessica Pruden, Acting Field Office Supervisor, and Carrie Tansy, Assistant Field Office Supervisor, Michigan Ecological Services Field Office. Subject: Talon Nickel (USA) LLC Accelerated Domestic Nickel Exploration in the Upper Peninsula of Michigan - Early Coordination under Section 7. June 26, 2025.

(USFWS, 2025b). United States Fish and Wildlife Service. 2025. IPaC Resource List. Accessed July 21, 2025 at: https://ipac.ecosphere.fws.gov/publicDocument/X555OXIQEREOFKBZLYGO3Q54ZQ

APPENDIX B. INFORMATION FOR PLANNING AND CONSULTATION (IPAC) REPORT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
Phone: (517) 351-2555 Fax: (517) 351-1443

In Reply Refer To: 07/21/2025 15:10:56 UTC
Project Code: 2025-0087844
Project Name: 2025-04-24 Talon AOI

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Official Species List
The attached species list identifies any Federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat if present within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Under 50 CFR 402.12(e) (the regulations that implement section 7 of the Endangered Species Act), the accuracy of this species list should be verified after 90 days. You may verify the list by visiting the IPaC website (https://ipac.ecosphere.fws.gov/) at regular intervals during project planning and implementation. To update an Official Species List in IPaC: from the My Projects page, find the project, expand the row, and click Project Home. In the What's Next box on the Project Home page, there is a Request Updated List button to update your species list. Be sure to select an "official" species list for all projects.

Consultation requirements and next steps
Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize Federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-Federal representative) must consult with the Fish and Wildlife Service if they determine their project may affect listed species or critical habitat.

There are two approaches to evaluating the effects of a project on listed species.

Approach 1. Use the All-species Michigan determination key in IPaC. This tool can assist you in making determinations for listed species for some projects. In many cases, the determination key

will provide an automated concurrence that completes all or significant parts of the consultation process. Therefore, we strongly recommend screening your project with the **All-Species Michigan Determination Key (Dkey)**. For additional information on using IPaC and available Determination Keys, visit https://www.fws.gov/media/mifo-ipac-instructions (and click on the attachment), or for a video overview, please visit: https://www.youtube.com/watch?v=FfcerNCiL0I. Please carefully review your Dkey output letter to determine whether additional steps are needed to complete the consultation process.

Approach 2. Evaluate the effects to listed species on your own without utilizing a determination key. Once you obtain your official species list, you are not required to continue in IPaC, although in most cases using a determination key should expedite your review. If the project is a Federal action, you should review our section 7 step-by-step instructions before making your determinations: https://www.fws.gov/office/midwest-region-headquarters/midwest-section-7-technical-assistance. If you evaluate the details of your project and conclude "no effect," document your findings, and your listed species review is complete; you do not need our concurrence on "no effect" determinations. If you cannot conclude "no effect," you should coordinate/consult with the Michigan Ecological Services Field Office. The preferred method for submitting your project description and effects determination (if concurrence is needed) is electronically to EastLansing@fws.gov. Please include a copy of this official species list with your request.

For all **wind energy projects**, please contact this field office directly for assistance, even if no Federally listed plants, animals or critical habitat are present within your proposed project area or may be affected by your proposed project.

Migratory Birds
Please see the "Migratory Birds" section below for important information regarding incorporating migratory birds into your project planning. Our Migratory Bird Program has developed recommendations, best practices, and other tools to help project proponents voluntarily reduce impacts to birds and their habitats. The Bald and Golden Eagle Protection Act prohibits the take and disturbance of eagles without a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at https://www.fws.gov/program/eagle-management to help you avoid impacting eagles or determine if a permit may be necessary.

Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your consideration of threatened and endangered species during your project

planning. Please include a copy of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Coastal Barriers
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
(517) 351-2555

PROJECT SUMMARY

Project Code: 2025-0087844
Project Name: 2025-04-24 Talon AOI
Project Type: Subsurface Exploration - Non Energy Materials
Project Description: The Proposed Action is federal funding to support Talon's proposed nickel exploration project on secured mineral agreements in the Upper Peninsula of Michigan. Talon has secured mineral rights in a 445,000-acre Area of Interest (AOI) of the Upper Peninsula. The AOI covers portions of the following counties in the state: Baraga, Marquette, Dickinson, Iron, Houghton. and Ontonagon. Under the Proposed Action, Talon would continue to conduct mineral exploration including geophysical surveys and drilling throughout the AOI, also known as the Project Area. The Project Area is in a remote, heavily forested region that is actively used for logging.

Mineral exploration is a cyclical, results-driven process that becomes refined over time as discoveries are made and delineated. Since most targets are eliminated, new targets need to be continuously identified. If no nickel mineralization is encountered during initial drilling, the location would be eliminated from future work. However, if nickel mineralization is encountered, additional drilling to evaluate the deposit may be warranted. Continuously adding to the pipeline of targets is a critical step in exploration since the majority of drill targets are eliminated shortly after the target is drill tested. Talon has already identified specific drill targets using its AES in three locales within the Project Area and has drilled and analyzed core samples to confirm model predictions. As data from Talon's current drilling program informs the process, more drilling locations would be identified within the 445,000-acre Project Area. Locations for future drill pads would be determined based on geochemical and geophysical analyses. Over the timeframe of the Proposed Action, drilling could occur at up to three drill pads simultaneously.

Exploration would be conducted for three years starting in late 2025.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.58587155,-88.30333947222519,14z

Counties: Michigan

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Gray Wolf *Canis lupus* Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ Only actions that occur along coastal areas during the Red Knot migratory window of MAY 1 - SEPTEMBER 30. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information

on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

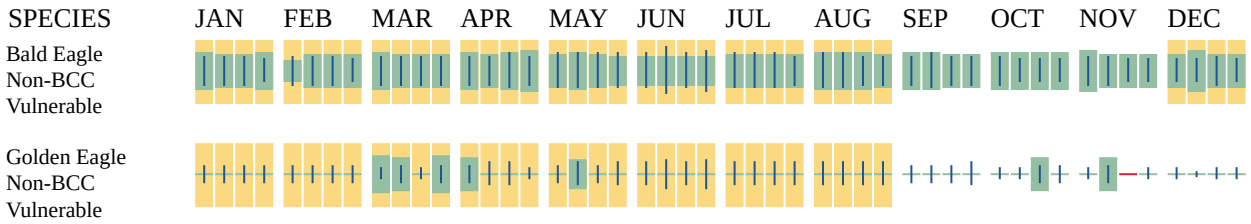
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

■ probability of presence ■ breeding season | survey effort – no data



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

NAME	BREEDING SEASON
Black Tern *Chlidonias niger surinamenisis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9643	Breeds May 20 to Aug 10
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Common Tern *Sterna hirundo* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4963	Breeds May 1 to Aug 31
Connecticut Warbler *Oporornis agilis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9442	Breeds Jun 15 to Aug 10
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9465	Breeds May 15 to Aug 10
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

NAME	BREEDING SEASON
Golden-winged Warbler *Vermivora chrysoptera* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Kirtland's Warbler *Setophaga kirtlandii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8078	Breeds May 25 to Jul 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere
Veery *Catharus fuscescens fuscescens* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11987	Breeds May 15 to Jul 15
Whimbrel *Numenius phaeopus hudsonicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11991	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental

Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

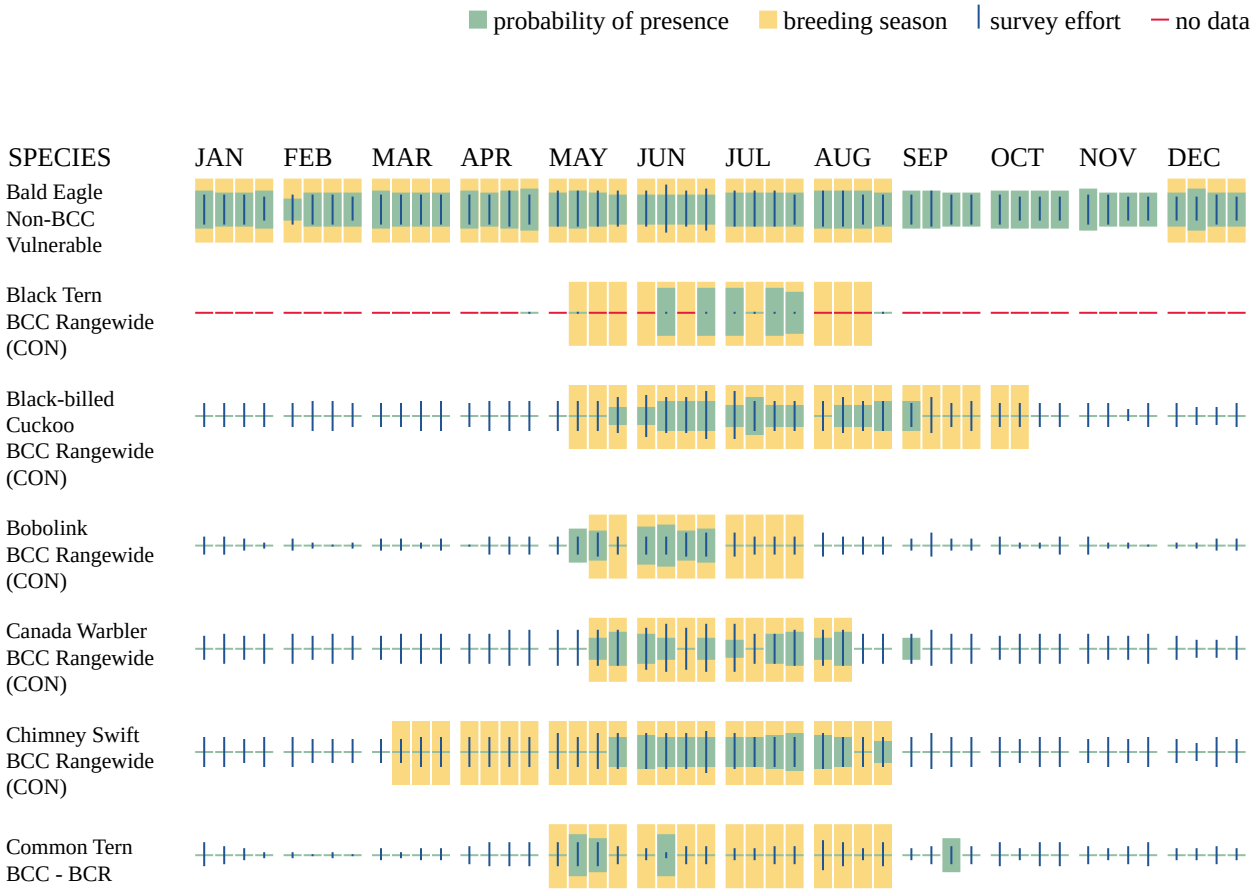
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds

- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

COASTAL BARRIERS

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

SYSTEM UNIT (SU)

Most new Federal expenditures and financial assistance, including Federal flood insurance, are prohibited within System Units. ***Federally-funded projects within System Units require consultation with the Service.*** *Consultation is not required for projects using private, state, or local funds.*

UNIT	NAME	TYPE	SYSTEM UNIT ESTABLISHMENT DATE	FLOOD INSURANCE PROHIBITION DATE
MI-62	Saux Head	SU	11/16/1990	11/16/1990

PLEASE NOTE: *If this project is Federally funded by the U.S. Fish and Wildlife Service through the Great Lakes Restoration Initiative (GLRI), there may be a programmatic GLRI CBRA consultation that applies. Please contact the lead Ecological Services Field Office shown on the letterhead for more information.*

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

Due to your project's size, the list below may be incomplete, or the acreages reported may be inaccurate. For a full list, please contact the local U.S. Fish and Wildlife office or visit https://www.fws.gov/wetlands/data/mapper.HTML

FRESHWATER FORESTED/SHRUB WETLAND

- PSS4/EM1B
- PFO4/SS4C
- PSS4B
- PFO4/SS1C
- PSS1Fb
- PSS1/EM1Cb
- PSS1/EM1F
- PFO4C
- PSS4/EM1C
- PFO4/SS1B
- PFO1A
- PSS3C
- PFO1/SS1B
- PSS1B
- PSS4C
- PFO4/SS3B
- PFO1/4B
- PSS1/EM1B
- PSS1/4B
- PFO4/EM1B
- PFO1C
- PFO1/4C
- PFO1/EM1B
- PFO4/SS3C
- PFO1B
- PSS1C
- PFO4B
- PSS1F
- PSS1/EM1C
- PFO4/EM1C

FRESHWATER POND

- PAB/UBF
- PUBGh
- PUBG
- PUBGb

- PABG
- PABGb
- PABF
- PAB/UBG
- PUBGx
- PAB/UBGx

LAKE

- L1UBH
- L2ABH

RIVERINE

- R2UBH
- R5UBH
- R4SBC

FRESHWATER EMERGENT WETLAND

- PEM1Ch
- PEM1Fb
- PEM1/FO5F
- PEM1Cb
- PEM1C
- PEM1B
- PEM1A
- PEM1/ABF
- PEM1F
- PEM1/FO5Fh
- PEM1/FO5Fb

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Emily Thompson
Address: 8201 Greensboro Drive Suite 700
City: McLean
State: VA
Zip: 22102
Email emily.thompson@solvllc.com
Phone: 7037604801

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Air Force

APPENDIX C. STATE-LISTED SPECIES

State-Listed Species Potentially Occurring in the Area of Analysis

Common Name	Scientific Name	State Status	Counties Where Present within Area of Analysis	Last Observed in Area of Analysis	Presence Likely in Area of Analysis*
Plants					
Ashy whitlow grass	*Draba cana*	Endangered	Marquette	2020	Yes
Assiniboia sedge	*Carex assiniboinensis*	Threatened	Dickinson, Iron	2010	Yes
Big-leaf sandwort	*Moehringia macrophylla*	Threatened	Baraga, Houghton, Iron, Marquette	2021	Yes
Blue-eyed-grass	*Sisyrinchium strictum*	Threatened	Baraga	1966	No
Blunt-lobed woodsia	*Woodsia obtusa*	Threatened	Dickinson, Marquette	2020	Yes
Calypso	*Calypso bulbosa*	Threatened	Iron, Marquette	2010	Yes
Canada rice grass	*Piptatherum canadense*	Threatened	Baraga, Marquette	1985	No
Carey's smartweed	*Persicaria careyi*	Threatened	Iron	1987	No
Chives	*Allium schoenoprasum*	Threatened	Houghton, Marquette	1990	No
Climbing fumitory	*Adlumia fungosa*	Threatened	Houghton, Marquette	1960	No
Dwarf bilberry	*Vaccinium cespitosum*	Threatened	Marquette	2005	Yes
Dwarf raspberry	*Rubus acaulis*	Threatened	Marquette	2010	Yes
Floating marsh marigold	*Caltha natans*	Endangered	Baraga	2008	Yes
Fragile prickly pear	*Opuntia fragilis*	Endangered	Marquette	2005	Yes
Goblin moonwort	*Botrychium mormo*	Endangered	Baraga, Dickinson, Houghton	2017	Yes
Limestone oak fern	*Gymnocarpium robertianum*	Threatened	Marquette	2016	Yes
Marsh grass-of-parnassus	*Parnassia palustris*	Threatened	Dickinson	2005	Yes
Moor rush	*Juncus stygius*	Endangered	Marquette	2017	Yes
Narrow-leaved gentian	*Gentiana linearis*	Threatened	Baraga, Marquette	2024	Yes
New England violet	*Viola novae-angliae*	Threatened	Houghton, Marquette	2010	Yes
Northern oak fern	*Gymnocarpium jessoense*	Endangered	Marquette	1957	No
Northern ragwort	*Packera indecora*	Threatened	Houghton	1926	No
Northern woodsia	*Woodsia alpina*	Endangered	Marquette	1983	No
Pearlwort	*Sagina nodosa*	Threatened	Marquette	1984	No
Pine-drops	*Pterospora andromedea*	Threatened	Baraga, Dickinson, Marquette	2008	Yes
Purple cliff brake	*Pellaea atropurpurea*	Threatened	Dickinson	2001	No
Satiny willow	*Salix pellita*	Threatened	Houghton, Iron, Marquette	1984	No
Sedge (Carex atratiformis)	*Carex atratiformis*	Threatened	Marquette	1914	No
Sedge (Carex tincta)	*Carex tincta*	Endangered	Dickinson	2020	Yes

Common Name	Scientific Name	State Status	Counties Where Present within Area of Analysis	Last Observed in Area of Analysis	Presence Likely in Area of Analysis*
Shortstalk chickweed	*Cerastium brachypodum*	Threatened	Baraga	1832	No
Showy orchis	*Galearis spectabilis*	Threatened	Baraga	1888	No
Slender beard tongue	*Penstemon gracilis*	Endangered	Dickinson	2020	Yes
Small round-leaved orchis	*Amerorchis rotundifolia*	Endangered	Dickinson, Marquette	1891	No
Small yellow pond lily	*Nuphar microphylla*	Endangered	Marquette	1981	No
Sweet coltsfoot	*Petasites sagittatus*	Threatened	Houghton	2013	Yes
Vasey's pondweed	*Potamogeton vaseyi*	Threatened	Houghton	2019	Yes
Walking Fern	*Asplenium rhizophyllum*	Threatened	Dickinson, Houghton	2001	No
Western dock	*Rumex occidentalis*	Endangered	Marquette	1990	No
Birds					
American goshawk	*Accipiter atricapillus*	Threatened	Dickinson, Houghton, Iron, Marquette	2021	Yes
Common gallinule	*Gallinula galeata*	Threatened	Baraga, Houghton	2007	Yes
Common loon	*Gavia immer*	Threatened	Baraga, Dickinson, Houghton, Iron, Marquette	2022	Yes
Eastern whip-poor-will	*Antrostomus vociferus*	Threatened	Marquette	2024	Yes
King rail	*Rallus elegans*	Endangered	Marquette	1969	No
Kirtland's warbler	*Setophaga kirtlandii*	Threatened	Baraga, Marquette	2013	Yes
Least bittern	*Ixobrychus exilis*	Threatened	Houghton	2015	Yes
Peregrine falcon	*Falco peregrinus*	Threatened	Houghton, Marquette	2021	Yes
Spruce grouse	*Canachites canadensis*	Threatened	Baraga, Dickinson, Marquette	2013	Yes
Mammals					
Canada lynx	*Lynx canadensis*	Endangered	Marquette	2022	Yes
Little brown bat	*Myotis lucifugus*	Threatened	Baraga, Dickinson, Houghton, Iron, Marquette	2012	Yes
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Baraga, Dickinson, Houghton, Iron, Marquette	2013	Yes
Tricolored bat	*Perimyotis subflavus*	Threatened	Dickinson	2010	Yes
Reptiles					
Wood turtle	*Glyptemys insculpta*	Threatened	Baraga, Dickinson, Houghton, Iron, Marquette	2024	Yes
Eastern box turtle	*Terrapene carolina carolina*	Threatened	Baraga, Houghton	1977	No
Eastern fox snake	*Pantherophis gloydi*	Threatened	Dickinson	2024	Yes
Fish					

Common Name	Scientific Name	State Status	Counties Where Present within Area of Analysis	Last Observed in Area of Analysis	Presence Likely in Area of Analysis*
Bigmouth shiner	*Notropis dorsalis*	Threatened	Baraga, Houghton	1999	No
Ives lake cisco	*Coregonus hubbsi*	Threatened	Marquette	1983	No
Lake sturgeon	*Acipenser fulvescens*	Threatened	Baraga, Houghton	2013	No
Sauger	*Sander canadensis*	Endangered	Houghton	1976	No
Shortjaw cisco	*Coregonus zenithicus*	Endangered	Baraga, Houghton, Marquette	2001	No
Lake herring	*Coregonus artedi*	Threatened	Baraga, Dickinson, Houghton, Iron, Marquette	2012	Yes
Mollusks					
Acorn ramshorn	*Planorbella multivolvis*	Endangered	Marquette	1907	No
Black sandshell	*Ligumia recta*	Threatened	Dickinson, Houghton	2016	Yes
Purple wartyback	*Cyclonaias tuberculata*	Threatened	Dickinson	N/A (Historical)	No
Slippershell	*Alasmidonta viridis*	Threatened	Dickinson, Iron	2019	Yes
Insects					
Elusive snaketail	*Stylurus notatus*	Threatened	Houghton	2001	No
Northern blue	*Plebejus idas nabokovi*	Threatened	Dickinson, Marquette	2011	Yes
Pygmy snaketail	*Ophiogomphus howei*	Threatened	Iron	2014	Yes
Rusty-patched bumble bee	*Bombus affinis*	Endangered	Dickinson	1986	No

N/A = Not Applicable

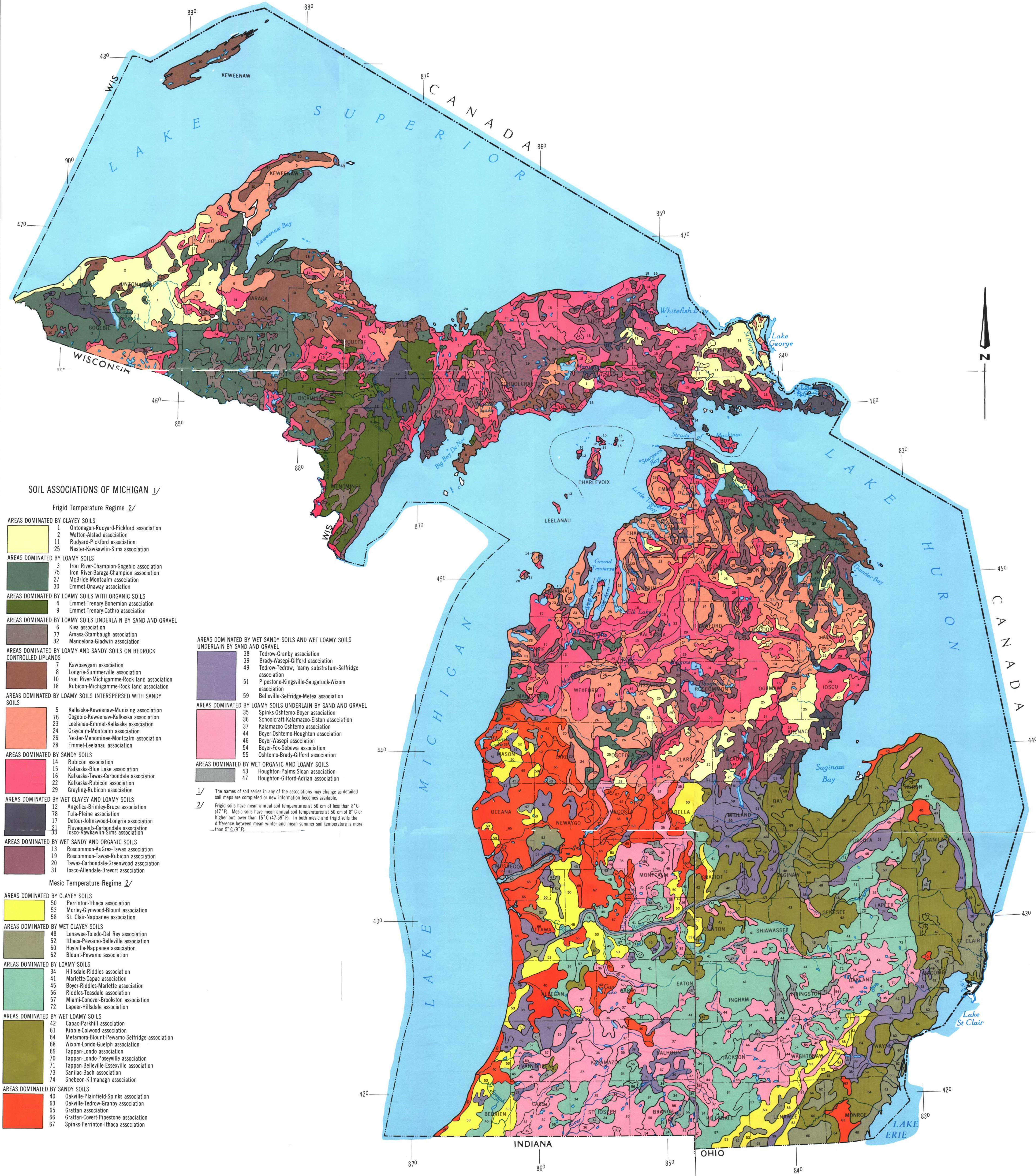
*A species is not expected to be present in the area of analysis if it has not been observed in the counties comprising the area of analysis for over 20 years or if its habitat is not likely to be within the area of analysis, such as large bodies of water as in the case of the lake sturgeon.

APPENDIX D. STATE OF MICHIGAN SOIL ASSOCIATIONS

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

MICHIGAN STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STATION
COOPERATIVE EXTENSION SERVICE
EXTENSION BULLETIN E-1550

SOIL ASSOCIATION MAP
OF MICHIGAN



SOIL ASSOCIATIONS OF MICHIGAN 1/

Frigid Temperature Regime 2/

AREAS DOMINATED BY CLAYEY SOILS
- 1 Ontonagon-Rudyard-Pickford association
- 2 Watton-Alstad association
- 11 Rudyard-Pickford association
- 25 Nester-Kawkawlin-Sims association

AREAS DOMINATED BY LOAMY SOILS
- 3 Iron River-Champion-Gogebic association
- 75 Iron River-Baraga-Champion association
- 27 McBride-Montcalm association
- 30 Emmet-Onaway association

AREAS DOMINATED BY LOAMY SOILS WITH ORGANIC SOILS
- 4 Emmet-Trenary-Bohemian association
- 9 Emmet-Trenary-Cathro association

AREAS DOMINATED BY LOAMY SOILS UNDERLAIN BY SAND AND GRAVEL
- 6 Kiva association
- 77 Amasa-Stambaugh association
- 32 Mancelona-Gladwin association

AREAS DOMINATED BY LOAMY AND SANDY SOILS ON BEDROCK CONTROLLED UPLANDS
- 7 Kawbawgam association
- 8 Longrie-Summerville association
- 10 Iron River-Michigamme-Rock land association
- 18 Rubicon-Michigamme-Rock land association

AREAS DOMINATED BY LOAMY SOILS INTERSPERSED WITH SANDY SOILS
- 5 Kalkaska-Keweenaw-Munising association
- 76 Gogebic-Keweenaw-Kalkaska association
- 23 Leelanau-Emmet-Kalkaska association
- 24 Graycalm-Montcalm association
- 26 Nester-Menominee-Montcalm association
- 28 Emmet-Leelanau association

AREAS DOMINATED BY SANDY SOILS
- 14 Rubicon association
- 15 Kalkaska-Blue Lake association
- 16 Kalkaska-Tawas-Carbondale association
- 22 Kalkaska-Rubicon association
- 29 Grayling-Rubicon association

AREAS DOMINATED BY WET CLAYEY AND LOAMY SOILS
- 12 Angelica-Brimley-Bruce association
- 78 Tula-Pleine association
- 17 Detour-Johnswood-Longrie association
- 21 Fluvaquents-Carbondale association
- 33 Iosco-Kawkawlin-Sims association

AREAS DOMINATED BY WET SANDY AND ORGANIC SOILS
- 13 Roscommon-AuGres-Tawas association
- 19 Roscommon-Tawas-Rubicon association
- 20 Tawas-Carbondale-Greenwood association
- 31 Iosco-Allendale-Brevort association

Mesic Temperature Regime 2/

AREAS DOMINATED BY CLAYEY SOILS
- 50 Perrinton-Ithaca association
- 53 Morley-Glynwood-Blount association
- 58 St. Clair-Nappanee association

AREAS DOMINATED BY WET CLAYEY SOILS
- 48 Lenawee-Toledo-Del Rey association
- 52 Ithaca-Pewamo-Belleville association
- 60 Hoytville-Nappanee association
- 62 Blount-Pewamo association

AREAS DOMINATED BY LOAMY SOILS
- 34 Hillsdale-Riddles association
- 41 Marlette-Capac association
- 45 Boyer-Riddles-Marlette association
- 56 Riddles-Teasdale association
- 57 Miami-Conover-Brookston association
- 72 Lapeer-Hillsdale association

AREAS DOMINATED BY WET LOAMY SOILS
- 42 Capac-Parkhill association
- 61 Kibbie-Colwood association
- 64 Metamora-Blount-Pewamo-Selfridge association
- 68 Wixom-Londo-Guelph association
- 69 Tappan-Londo association
- 70 Tappan-Londo-Poseyville association
- 71 Tappan-Belleville-Essexville association
- 73 Sanilac-Bach association
- 74 Shebeon-Kilmanagh association

AREAS DOMINATED BY SANDY SOILS
- 40 Oakville-Plainfield-Spinks association
- 63 Oakville-Tedrow-Granby association
- 65 Grattan association
- 66 Grattan-Covert-Pipestone association
- 67 Spinks-Perrinton-Ithaca association

AREAS DOMINATED BY WET SANDY SOILS AND WET LOAMY SOILS UNDERLAIN BY SAND AND GRAVEL
- 38 Tedrow-Granby association
- 39 Brady-Wasepi-Gilford association
- 49 Tedrow-Tedrow, loamy substratum-Selfridge association
- 51 Pipestone-Kingsville-Saugatuck-Wixom association
- 59 Belleville-Selfridge-Metea association

AREAS DOMINATED BY LOAMY SOILS UNDERLAIN BY SAND AND GRAVEL
- 35 Spinks-Oshtemo-Boyer association
- 36 Schoolcraft-Kalamazoo-Elston association
- 37 Kalamazoo-Oshtemo association
- 44 Boyer-Oshtemo-Houghton association
- 46 Boyer-Wasepi association
- 54 Boyer-Fox-Sebewa association
- 55 Oshtemo-Brady-Gilford association

AREAS DOMINATED BY WET ORGANIC AND LOAMY SOILS
- 43 Houghton-Palms-Sloan association
- 47 Houghton-Gilford-Adrian association

1/ The names of soil series in any of the associations may change as detailed soil maps are completed or new information becomes available.

2/ Frigid soils have mean annual soil temperatures at 50 cm of less than 8°C (47°F). Mesic soils have mean annual soil temperatures at 50 cm of 8° C or higher but lower than 15° C (47-59° F). In both mesic and frigid soils the difference between mean winter and mean summer soil temperature is more than 5° C (9° F).

SOURCE:
SCS FAMILY OF MAPS DRWG.
5,S-32,577 (7-26-74) AND
INFORMATION FROM SCS FIELD PERSONNEL
ALBERS EQUAL AREA PROJECTION

Published By:
Michigan State University
Agricultural Experiment Station
and Cooperative Extension Service
in cooperation with the U.S.
Department of Agriculture
Soil Conservation Service.

5,R-38,116

APPENDIX E. AIR CONFORMITY APPLICABILITY MODEL (ACAM) REPORTS

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform a net change in emissions analysis to assess the potential air quality impact/s associated with the action. The analysis was performed in accordance with the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; the *Environmental Impact Analysis Process* (EIAP, 32 CFR 989); the *General Conformity Rule* (GCR, 40 CFR 93 Subpart B); and the *USAF Air Quality Environmental Impact Analysis Process (EIAP) Guide*. This report provides a summary of the ACAM analysis.

Report generated with ACAM version: 5.0.24a

a. Action Location:

Base: GENERIC BASE
State: Michigan
County(s): Baraga; Marquette
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Talon Nickel Exploration in the Upper Peninsula of Michigan

c. Project Number/s (if applicable):

d. Projected Action Start Date: 4 / 2026

e. Action Description:

Proposed Action
The Proposed Action is federal funding to support Talon's proposed nickel exploration project on 445,000-acre secured mineral agreements in the Upper Peninsula of Michigan. Talon has identified specific drill targets in three sites and has drilled and analyzed core samples to confirm model predictions. As data from Talon's current drilling program informs the process, more drill sites would be identified within the 445,000-acre. Locations for up to 35 future drill pads would be determined based on geochemical and geophysical analyses. Over the timeframe of the Proposed Action, drilling could occur at up to three drill pads simultaneously. In addition to mineral exploration activities at the drill sites, the Proposed Action would involve transportation of equipment, materials, and personnel between the sites and Talon's Michigan field office, core shed, and drill rig maintenance facility in L'Anse, Michigan. A core shed is an offsite permanent structure used for core storage and analysis.
No Action Alternative
Under the No Action Alternative, DAF would not proceed with Title III funding of mineral exploration for nickel in Michigan. Without federal funding, Talon would continue the mineral exploration activities at a slower pace. Identification of potential viable nickel deposits would occur over a longer time frame.

f. Point of Contact:

Name: Christina Powell
Title: DRII, Compliance Specialist
Organization: AFRL/RXMZ
Email: christina.powell.3@us.af.mil
Phone Number: 937-904-4344

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the GCR are:

____ applicable
_X_ not applicable

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

Total reasonably foreseeable net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (cCba.e., no net gain/loss in emission stabilized and the action is fully implemented) emissions. The ACAM analysis uses the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the *USAF Air Emissions Guide for Air Force Stationary Sources*, the *USAF Air Emissions Guide for Air Force Mobile Sources*, and the *USAF Air Emissions Guide for Air Force Transitory Sources*.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of the proposed Action's potential impacts to local air quality. The insignificance indicators are trivial (de minimis) rate thresholds that have been demonstrated to have little to no impact to air quality. These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold and 25 ton/yr for lead for actions occurring in areas that are "Attainment" (cCba.e., not exceeding any National Ambient Air Quality Standard (NAAQS)). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutants is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQS. For further detail on insignificance indicators, refer to *Level II, Air Quality Quantitative Assessment, Insignificance Indicators*.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicators and are summarized below.

Analysis Summary:

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.565	250	No
NOx	2.987	250	No
CO	5.965	250	No
SOx	0.011	250	No
PM 10	2.705	250	No
PM 2.5	0.097	250	No
Pb	0.000	25	No
NH3	0.028	250	No

2027 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	No
NOx	0.000	250	No
CO	0.000	250	No
SOx	0.000	250	No
PM 10	0.000	250	No
PM 2.5	0.000	250	No
Pb	0.000	25	No
NH3	0.000	250	No

None of the estimated annual net emissions associated with this action are above the insignificance indicators; therefore, the action will not cause or contribute to an exceedance of one or more NAAQSs and will have an insignificant impact on air quality. No further air assessment is needed.

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

Christina Powell, DRII, Compliance Specialist	Jul 21 2025
Name, Title	**Date**

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform a net change in emissions analysis to estimate GHG emissions associated with the action. The analysis was performed in accordance with the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; the *Environmental Impact Analysis Process* (EIAP, 32 CFR 989); and the *USAF Air Quality Environmental Impact Analysis Process (EIAP) Guide*. This report provides a summary of the GHG emissions analysis.

Report generated with ACAM version: 5.0.24a

a. Action Location:

Base: GENERIC BASE
State: Michigan
County(s): Baraga; Marquette
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Talon Nickel Exploration in the Upper Peninsula of Michigan

c. Project Number/s (if applicable):

d. Projected Action Start Date: 4 / 2026

e. Action Description:

Proposed Action
The Proposed Action is federal funding to support Talon's proposed nickel exploration project on 445,000-acre secured mineral agreements in the Upper Peninsula of Michigan. Talon has identified specific drill targets in three sites and has drilled and analyzed core samples to confirm model predictions. As data from Talon's current drilling program informs the process, more drill sites would be identified within the 445,000-acre. Locations for up to 35 future drill pads would be determined based on geochemical and geophysical analyses. Over the timeframe of the Proposed Action, drilling could occur at up to three drill pads simultaneously. In addition to mineral exploration activities at the drill sites, the Proposed Action would involve transportation of equipment, materials, and personnel between the sites and Talon's Michigan field office, core shed, and drill rig maintenance facility in L'Anse, Michigan. A core shed is an offsite permanent structure used for core storage and analysis.
No Action Alternative
Under the No Action Alternative, DAF would not proceed with Title III funding of mineral exploration for nickel in Michigan. Without federal funding, Talon would continue the mineral exploration activities at a slower pace. Identification of potential viable nickel deposits would occur over a longer time frame.

f. Point of Contact:

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2. Analysis: Total combined direct and indirect GHG emissions associated with the action were estimated through ACAM on a calendar-year basis from the action's start through the action's "steady state" (SS, net gain/loss in emission stabilized and the action is fully implemented) of emissions.

GHG Emissions Analysis Summary:

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

GHGs produced by fossil-fuel combustion are primarily carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). These three GHGs represent more than 97 percent of all U.S. GHG emissions. Emissions of GHGs are typically quantified and regulated in units of CO2 equivalents (CO2e). The CO2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO2. All GHG emissions estimates were derived from various emission sources using the methods, algorithms, emission factors, and GWPs from the most current Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and/or Air Emissions Guide for Air Force Transitory Sources.

The Air Force has adopted the Prevention of Significant Deterioration (PSD) threshold for GHG of 75,000 ton per year (ton/yr) of CO2e (or 68,039 metric ton per year, mton/yr) as an indicator or "threshold of insignificance" for NEPA air quality impacts in all areas. This indicator does not define a significant impact; however, it provides a threshold to identify actions that are insignificant (de minimis, too trivial or minor to merit consideration). Actions with a net change in GHG (CO2e) emissions below the insignificance indicator (threshold) are considered too insignificant on a global scale to warrant any further analysis. Note that actions with a net change in GHG (CO2e) emissions above the insignificance indicator (threshold) are only considered potentially significant and require further assessment to determine if the action poses a significant impact. For further detail on insignificance indicators see Level II, Air Quality Quantitative Assessment, Insignificance Indicators (April 2023).

The following table summarizes the action-related GHG emissions on a calendar-year basis through the projected steady state of the action.

Action-Related Annual GHG Emissions (mton/yr)						
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**	**Threshold**	**Exceedance**
2026	1,150	0.04901825	0.01108502	1,154	68,039	No
2027 [SS Year]	0	0	0	0	68,039	No

The following U.S. and State's GHG emissions estimates (next two tables) are based on a five-year average (2016 through 2020) of individual state-reported GHG emissions (Reference: State Climate Summaries 2022, NOAA National Centers for Environmental Information, National Oceanic and Atmospheric Administration. https://statesummaries.ncics.org/downloads/).

State's Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2026	158,670,492	580,600	28,031	182,355,433
2027 [SS Year]	0	0	0	0

U.S. Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2026	5,136,454,179	25,626,912	1,500,708	6,251,695,230
2027 [SS Year]	0	0	0	0

GHG Relative Significance Assessment:

A Relative Significance Assessment uses the rule of reason and the concept of proportionality along with the consideration of the affected area (Rtba.e., global, national, and regional) and the degree (intensity) of the proposed action's effects. The Relative Significance Assessment provides real-world context and allows for a reasoned choice against alternatives through a relative comparison analysis. The analysis weighs each alternative's annual net change in GHG emissions proportionally against (or relative to) global, national, and regional emissions.

The action's surroundings, circumstances, environment, and background (context associated with an action) provide the setting for evaluating the GHG intensity (impact significance). From an air quality perspective, context of an

action is the local area's ambient air quality relative to meeting the NAAQSs, expressed as attainment, nonattainment, or maintenance areas (this designation is considered the attainment status). GHGs are non-hazardous to health at normal ambient concentrations and, at a cumulative global scale, action-related GHG emissions can only potentially cause warming of the climatic system. Therefore, the action-related GHGs generally have an insignificant impact to local air quality.

However, the affected area (context) of GHG/climate change is global. Therefore, the intensity or degree of the proposed action's GHG/climate change effects are gauged through the quantity of GHG associated with the action as compared to a baseline of the state, U.S., and global GHG inventories. Each action (or alternative) has significance, based on their annual net change in GHG emissions, in relation to or proportionally to the global, national, and regional annual GHG emissions.

To provide real-world context to the GHG and climate change effects on a global scale, an action's net change in GHG emissions is compared relative to the state (where the action will occur) and U.S. annual emissions. The following table provides a relative comparison of an action's net change in GHG emissions vs. state and U.S. projected GHG emissions for the same time period.

Total GHG Relative Significance (mton)					
		CO2	**CH4**	**N2O**	**CO2e**
2026-2027	State Total	317,340,984	1,161,201	56,061	364,710,866
2026-2027	U.S. Total	10,272,908,358	51,253,823	3,001,415	12,503,390,459
2026-2027	Action	1,150	0.049018	0.011085	1,154
Percent of State Totals		0.00036230%	0.00000422%	0.00001977%	0.00031642%
Percent of U.S. Totals		0.00001119%	0.00000010%	0.00000037%	0.00000923%

From a global context, the action's total GHG percentage of total global GHG for the same time period is: 0.00000124%.*

* Global value based on the U.S. emitting 13.4% of all global GHG annual emissions (2018 Emissions Data, Center for Climate and Energy Solutions, accessed 7-6-2023, https://www.c2es.org/content/international-emissions).