



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

Department of Natural Resources

DIVISION OF MINING, LAND & WATER
MINING SECTION

MINE PERMITTING FAIRBANKS
3700 Airport Way
Fairbanks, Alaska 99709
Main: 907.458-6896
Fax: 907.451-2703
dnr.fbx.mining@alaska.gov

Teck American, Incorporated
Attn: Leslie Olmstead
501 North Riverpoint BLVD, Suite 300
Spokane, WA 99202

RE: Multi-Year 2022-2026 Application for Permits to Mine in Alaska #9339
PERMITTING DECISION

This office has reviewed and adjudicated your 11/17/21 application submission and has issued the enclosed Miscellaneous Land Use Permit for the activities described that will remain in effect until **12/31/2026**, unless sooner revoked at will or for cause.

Please submit any changes or modifications to your originally permitted activities for approval before commencement. Any amendments to your application will be distributed to the agencies that received your original application.

By December 31st of each year that your approval is in effect, you are required to submit the following:

1. An Annual Reclamation Statement as required by AS 27.19.050(c).
2. An Annual Exploration Report detailing the exploration and reclamation actions taken during the year.
3. A Letter of Intent to do Reclamation for the next season (Use Reclamation/Signature Page of the APMA).

These items will be distributed annually, to those agencies that received your original application. Please be advised that issuance of this permit by the Division of Mining, Land & Water does not relieve you of the responsibility of securing other permits required by federal, state, or local government agencies.

Sincerely,

Dave Charron

Dave Charron
Authorized Officer

02/07/2022

Date



THE STATE
of **ALASKA**

DIVISION *of* MINING,
LAND *and* WATER

**MISCELLANEOUS LAND USE PERMIT
FOR HARDROCK EXPLORATION & RECLAMATION**

PERMIT # 9339

The Alaska Department of Natural Resources, Division of Mining, Land, & Water, in accordance with and subject to the requirements and general stipulations of Alaska Statute 27.19 (Reclamation), Alaska Statute 38.05 (Alaska Land Act); and Alaska Administrative Code Title 11, Chapter 86 (Mining Rights), Chapter 96 (Miscellaneous Land Use), and Chapter 97 (Mining Reclamation) does hereby grant a Miscellaneous Land Use Permit to:

**TECK AMERICAN INCORPORATED
501 N RIVERPOINT BLVD SUITE 300
SPOKANE,, WA 99202**

This permit is for the activities upon State managed lands described in the Hardrock Exploration Application 9339 on mineral locations See Attached List. All activities are subject to the Terms of Permit attached hereto and incorporated in this permit, as well as subject to the terms and conditions set forth in the application, including any proposed Plan of Operations or other documentation made part of the application, which terms and conditions are also incorporated in this permit. Should any Terms of Permit and terms and conditions set forth in the application conflict, the Terms of Permit shall control.

Effective dates of this permit shall be the date of signature through 12/31/2026, unless sooner revoked at will or for cause. You have submitted a Letter of Intent to do Reclamation and are exempt from reclamation bonding. In accordance with AS 27.19.050(c), you are required to file an Annual Reclamation Statement by December 31st each year this permit application is in effect, including photographs or video tape of the completed reclamation work. When submitting photography for approval, please photograph reclamation work prior to snowfall.

Activities may only be conducted on mineral locations listed in this authorization.

Changes to the originally permitted activity described in Application for Permits to Mine in Alaska # 9339 shall be submitted to this office in writing and approved in advance before such work can begin.

Approved: Dave Charron
Dave Charron
Authorized Officer

Date: 02/07/22

TERMS OF PERMIT

In accordance with AS 38.05 (Alaska Land Act), approval of your application is hereby granted, and the following reclamation stipulations will be used:

- a. Topsoil and overburden muck, not promptly redistributed to an area being reclaimed, shall be separated and stockpiled for future use. This material shall be protected from erosion and contamination by acidic or toxic materials and shall not be buried by broken rock.
- b. The area reclaimed shall be reshaped to blend with surrounding physiography using strippings, and overburden, then be stabilized to a condition that shall retain sufficient moisture to allow for natural revegetation.
- c. Stockpiled topsoil, overburden muck and organic material shall be spread over the contoured exploration to promote natural plant growth.
- d. Exploration trenches shall be backfilled, and the surface stabilized to prevent erosion. Brush piles, stumps, topsoil, and other organics shall be spread on the backfilled surface to inhibit erosion and promote natural revegetation. Exploration trenches will have water bars installed as needed for erosion control. Exploration trenches on state lands shall be flagged and signs posted to notify the public of the existence of the open trenches. All exploration trenches shall be reclaimed by the end of the exploration season in which they are constructed, unless specifically approved by the Division of Mining, Land & Water.
- e. Shallow auger holes (limited to depth of overburden) shall be backfilled with drill cuttings or other locally available material in such a manner that closes the hole to minimize the risk to humans, livestock and wildlife.
- f. All drill hole casings shall be removed or cut off at, or below, ground level.
- g. All drill holes shall be plugged by the end of the exploration season during which they are drilled, unless otherwise specifically approved by the Division of Mining, Land & Water.
- h. All drill holes shall be plugged with bentonite holeplug, a benseal mud, or equivalent slurry, for a minimum of 10 feet within the top 20 feet of the drill hole in competent material. The remainder of the hole will be backfilled to the surface with drill cuttings. If water is encountered in any drill hole, a minimum of 7 feet of bentonite holeplug, a benseal mud, or equivalent slurry shall be placed immediately above the static water level in the drill hole. Complete filling of the drill holes, from bottom to top, with a bentonite holeplug, benseal mud, or equivalent slurry is also permitted and is considered to be the preferred method of hole closure.
- i. If artesian conditions are encountered, the operator shall contact the Department of Environmental Conservation (907) 451-2136 for hole plugging requirements.
- j. Upon completion of drilling activity, drill pads shall be reclaimed as necessary, including reseeding, to encourage natural revegetation of the sites and protect them from erosion.
- k. Roads and surface disturbance shall be held to a minimum. Exploration roads, drills pads and trenches shall be constructed in such a manner that vegetation and topsoil will not be buried beneath overburden or broken rock. This may require the use of a track excavator for construction of these facilities on slopes so as to allow for segregation of materials during construction and subsequent reclamation. Exploration roads will have water bars installed for erosion control, and at the end of the project will be reclaimed by backfilling, contouring, and spreading of organic rich overburden to promote stabilization and natural revegetation.

Sec 2. OPERATION OF VEHICLES OUTSIDE OF CLAIM BLOCK: This permit does not authorize any operation of vehicles outside of the claim block. Operation of vehicles outside of the claim block must be within the scope of generally allowed uses as described in 11 AAC 96.020-.025.

Sec 3. GENERAL PROVISIONS: Operations under this permit shall be conducted in conformance with applicable Federal, State, and local laws and regulations now, or hereafter, in effect during the life of the permit.

Sec 4. SURFACE USE. A locator does not have exclusive use of the surface of the location. A locator may not restrict public access to the surface without approved authorization. (11 AAC 86.145) Issuance of this permit is not automatic authorization to restrict public access. In accordance with Alaska Statute 02.20.050, no airstrip, public or private, may be blocked or rutted in such a way as to endanger aircraft.

Sec 5. SURFACE STRUCTURES: Structures are not authorized under this permit.

Sec 6. OTHER OPERATIONS:

- a. The Division reserves the right to grant additional authorizations to third parties for compatible uses on or

adjacent to the land under this authorization. This authorization is subject to all valid existing rights in and to the land under this authorization. The State of Alaska makes no representations or warranties whatsoever, either expressed or implied, as to the existence, number, or nature of such valid existing rights.

- b. Where this permit grants the right to enter land owned, leased, or otherwise lawfully occupied by another, the permittee shall make provisions before entering the land to pay for all damages sustained by said owner, lessee, or lawful occupant by reason of entering upon said land. (AS 38.05.130).

Sec 7. ALASKA HISTORIC PRESERVATION ACT: The Alaska Historic Preservation Act (AS41.35.200) prohibits the appropriation, excavation, removal, injury, or destruction of any State-owned historic, prehistoric (paleontological) or archaeological site without a permit from the Commissioner. If cultural or paleontological resources are inadvertently discovered as a result of or during the activities authorized by this plan approval, all activities which would disturb such resources shall be stopped and measures taken to protect the site. The State Historic Preservation Officer (907-269-8722) shall be contacted immediately so that compliance with state laws may begin. If burials or human remains are found, in addition to the State Historical Preservation Officer, the State Troopers are to be notified immediately.

Sec 8. DISPOSAL OF BUILDINGS, STRUCTURES, AND DEBRIS ON STATE LAND: A miner shall remove, dismantle, or otherwise properly dispose of buildings and structures constructed, used, or improved on state land, unless granted written authorization for the structures to remain. A miner shall remove or otherwise properly dispose of all equipment, scrap iron, tools, piping, hardware, chemicals, fuels, waste, and general mining debris on state lands in a manner approved by ADEC ((11 AAC 97.210) and 11 AAC 96.040(f)). All structures, equipment, and debris remaining unclaimed on state land 180 days after the claims are no longer valid, are subject to disposition by the state as provided in 11 AAC 97.630. The locator shall pay to the state all costs of moving, storing, and disposing of such structures, equipment, and debris. The state shall not be responsible for any damages to or loss of structures and equipment caused by the moving, storing, or disposal.

Sec 9. INSPECTION AND ENTRY: Permittee shall permit the authorized representatives of the Division to enter into and upon the area and facilities covered under this plan approval at all reasonable times without notice.

Sec 10. VIOLATIONS: This authorization is revocable immediately upon violation of any of its terms, conditions, stipulations, nonpayment of fees, or upon failure to comply with any other applicable laws, statutes and regulations (federal and state). Should any unlawful discharge, leakage, spillage, emission, or pollution of any type occur due to permittee's, or its employees', agents', contractors', subcontractors', licensees', or invitees' act or omission, permittee, at its expense shall be obligated to clean the area to the reasonable satisfaction of the State of Alaska. A permittee who is charged & convicted of any violation of state hunting, trapping, and/or fishing license may be subject to revocation of this permit.

Sec 11. FUEL AND HAZARDOUS SUBSTANCES: Secondary containment shall be provided for fuel or hazardous substances in accordance with EPA Emergency Spill Response Regulations.

- a. Container marking. All independent fuel and hazardous substance containers shall be marked with the contents and the permittee's name using paint or a permanent label.
- b. Fuel or hazardous substance transfers. Secondary containment or a surface liner must be placed under all container or vehicle fuel tank inlet and outlet points, hose connections, and hose ends during fuel or hazardous substance transfers. Appropriate spill response equipment must be on hand during any transfer or handling of fuel or hazardous substances to respond to a spill of up to five gallons. Transfer operations shall be attended by trained personnel at all times.
- c. Storing containers within 100 feet of water bodies. Containers with a total capacity larger than 55 gallons which contain fuel or hazardous substances shall not be stored within 100 feet of a water body.
- d. Exceptions: The Authorized Officer may under unique or special circumstances grant exceptions to this stipulation on a case-by-case basis. Requests for exceptions should be made to the Authorized Officer.

Sec 12. NOTIFICATION: The permittee shall immediately notify the Division of Mining, Land & Water and the Department of Environmental Conservation, by telephone, of any unauthorized discharges of oil to water (including tundra); any discharge of hazardous substances other than oil; and any discharge of oil greater than 55 gallons solely to land and outside an impermeable revetment. If a discharge is greater than 10 gallons but less

than 55 gallons it must be reported within 48 hours by telephone or fax. If a discharge is less than 10 gallons it may be reported in writing on a monthly basis. If an unauthorized discharge greater than 55 gallons is made to a secondary containment, it must be reported within 48 hours by phone or fax.

The DNR 24-hour spill report number is (907) 451-2678; the fax number is (907) 451-2751. The DEC spill report number, for the Northern Region, is (907) 451-2121; the Southcentral Region is (907) 269-7548. The DEC 24-hour report number is (800) 478-9300. Division of Mining, Land & Water and ADEC shall be supplied with all follow-up incident reports.

Sec 13. CHANGE OF ADDRESS: Any change of address must be submitted in writing to the Division at 3700 Airport Way, Fairbanks, AK 99709-4699.

Sec 14. OTHER PERMITS: Be advised that issuance of this permit does not relieve the applicant of the responsibility of securing other permits required by Federal, State, or local authorities. Neither does this approval constitute certification of any property right nor land status claimed by the applicant.

Sec 15. SAVE HARMLESS: The recipient of this permit (permittee) shall indemnify, save harmless, and defend the Department, its agents and its employees from any and all claims, actions or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or the permittee's performance under this permit. However, this provision has no effect, if, and only if, the sole proximate cause of the injury is the Department's negligence.

Sec 16. DEFAULT: If permittee should fail to comply with the terms and stipulations contained in this permit, the provisions of the Miscellaneous Land Use Regulations (11 AAC 96) and (AS 27.19), Reclamation Act, and after receiving written notice, fails to remedy such default within the time specified in the notice, the Director may cancel this permit.

Sec 17. APPEAL: A person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after the date of "issuance" of this decision, as defined in 11 AAC 02.040(c) and (d) and may be mailed or delivered to the Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501; faxed to 1-907-269-8918, or sent by electronic mail to dnr.appeals@alaska.gov. Under 11 AAC 02.030, appeals and requests for reconsideration filed under 11 AAC 02 must be accompanied by the fee established in 11 AAC 05.160(d)(1)(F), which has been set at \$200 under the provisions of 11 AAC 05.160 (a) and (b).

This decision takes effect immediately. If no appeal is filed by the appeal deadline, this decision becomes a final administrative order and decision of the department on the 31st calendar day after issuance. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

Special Stipulations:

Drilling Waste and Cuttings Management:

1. Drilling mud and cuttings shall not be discharged into lakes, kettle ponds, streams, rivers, or wetlands.
2. Recirculation tanks or in-ground sumps to contain drilling mud, cuttings and discharged water from the drilling process must be used at any site utilizing water to aid in the drilling activity. Acceptable techniques include dug sumps, tanks and other settling or filtration devices designed specifically for cuttings management and previously approved by DNR.
3. Drill cuttings and additives in sumps must be allowed to sufficiently settle out of the drill water prior to backfilling the sump.
4. Settled drilling mud and all drill cuttings shall be sufficiently buried and graded to reasonably prevent oxidation.

File Annual Work Plan

Each calendar year of the permit, the applicant shall file a work plan detailing the number, type and location of

proposed activities under this authorization to be conducted for that exploration year, including any repairs and details of the repair plans. The Annual Work Plan is due by March 31. If no work is proposed, a timely statement shall still be filed.

Action Requirements on Inspection Reports

Complete and report any outstanding work requirements identified in any Department inspection report by the date specified in the inspection report for completion.

Western Arctic Caribou Herd

Operations under this authorization must avoid acoustical and visual disturbances to caribou present within permit area. Consult with the Alaska Department of Fish and Game to establish Best Management Practices in areas which may affect caribou.

Action Requirements on Inspection Reports

Complete and report any outstanding work requirements identified in any Department inspection report by the date specified in the inspection report for completion.

Fire Prevention, Protection, and Liability:

- a. The applicant shall take all reasonable precautions to prevent and suppress forest, brush, and grass fires and shall assume full liability for any damages to state land resulting from the negligent use of fire.
- b. The State of Alaska is not liable for damage to the applicant's personal property and is not responsible for forest fire protection of the applicant's activity.

Annual Exploration / Reclamation Report:

File Annual Work Plan

Each calendar year of the permit, the applicant shall file a work plan detailing the number, type and location of proposed activities under this authorization to be conducted for that exploration year, including any repairs and details of the repair plans. The Annual Work Plan is due by March 31. If no work is proposed, a timely statement shall still be filed.

You are also required to file an Annual Exploration Report by December 31st of each year; please ensure that your report contains the following information:

- A written narrative describing your activities and the reclamation measures utilized at all disturbances.
- A topographic map showing the portion of the claim block where surface disturbing exploration activities have occurred. The plan map should be at a scale of 1"=1/2 mile, or other appropriate scale sufficient to illustrate: existing trails and roads; new trails and roads; drill hole locations (other than shallow auger holes); trench locations; the camp location; and, any other surface disturbances (please distinguish between reclaimed and unreclaimed features).
- A photo, with appropriate caption, of each reclaimed drill site and exploration trench.
- A photo of representative sections of any new road or trail construction.
- A detailed description of the methods used to plug the drill holes.
- A list of Mining Claims by ADL# that contain unreclaimed disturbance at the end of the year and a total acreage that remains unreclaimed.

Water Use:

In any fish bearing waters, each water intake structure shall be centered and enclosed in a screened box designed to prevent fish entrapment, entrainment or injury. The effective screen opening may not exceed ¼ inch. To reduce fish impingement on screened surfaces, water velocity at the screen/water interface may not exceed 0.5 feet per second when the pump is operating.

All land use activity is subject to the Generally Allowed Uses on State Land as listed in 11 AAC 96.020. Questions concerning these regulations or this permit should be directed to the State Division of Mining Land & Water, Northern Regional Office, 3700 Airport Way, Fairbanks, AK 99709-4699; or by telephone to (907) 451-2736.

Commencement of permitted activities deems an acceptance of these stipulations.



MV ST MINING

Source: Alaska Department of Natural Resources, Information Resource Management

Case ID	Case Status	Case Status Description	Case Type Description	Customer Name	Notepost Date	Total Acres
ADL 725324	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725325	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725326	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725327	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725333	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725334	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725338	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725339	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725340	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725341	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725343	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725344	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725345	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725346	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725347	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160

ADL 725350	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725351	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725352	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725353	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
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ADL 725356	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
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ADL 725364	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725365	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725366	35	Active (35)	Mining Claim (713)	Teck American Incorporated	07-SEP-17	160
ADL 725367	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725368	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725369	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160

ADL 725376	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
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ADL 725391	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725392	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725393	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725400	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725401	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725402	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725403	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725404	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160

ADL 725405	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725412	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725413	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725415	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
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ADL 725426	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725440	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725448	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725525	35	Active (35)	Mining Claim (713)	Teck American Incorporated	10-SEP-17	160
ADL 725526	35	Active (35)	Mining Claim (713)	Teck American Incorporated	10-SEP-17	160
ADL 725733	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725734	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725735	35	Active (35)	Mining Claim (713)	Teck American Incorporated	09-SEP-17	160
ADL 725749	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725750	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725751	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725790	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160

ADL 725791	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725792	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725793	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725796	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725806	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725807	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725808	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160
ADL 725809	35	Active (35)	Mining Claim (713)	Teck American Incorporated	08-SEP-17	160

***END OF
REPORT***

**Report
Information**

Source ID	60
Source Name	MV_S T_MINI NG
Source Description	12/06/2 021
Run Date and Time	12:41:1 8
Record Count	AKST 74

**SQL
Statement**



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

Department of Natural Resources

DIVISION OF MINING, LAND & WATER
Mining Section

550 West 7th Avenue, Suite 900B
Anchorage, Alaska 99501-3577
Minerals Property Management Main: 907.269.8642
Fax: 907.269.8949
Coal Regulatory/Abandoned Mine Lands Main: 907.269.8631
Fax: 907.269.8930
TDD: 907.269.8411

Adjudication Summary For APMA F20229339 Wulik River and Ikalukrok Rivers Lisburne and Noatak Mining Districts

Applicant(s):

Teck American Incorporated

February 7, 2022

1. Requested Land Use and Proposed Activity Description:

Broad Proposed Activity Description:

The applicant requests Hardrock Exploration & Reclamation activities, including drilling, geophysical surveys, soil/stream sediment sampling, continued surface exploration, and baseline data collection on lands managed by Alaska. The core drilling program will operate from May to October annually and drill about 153 holes totaling up to 298,000 feet. Activities will be supported by up to two A-star helicopters. Pads are usually 30 feet by 70 feet and orientated to the site and drill hole. Drill rigs will be an LF-90 or equivalent. A single drill collar may have a series of daughter legs from the single-entry point, decreasing surface impacts in some areas. A solids recovery unit (SRU) uses centrifugal force to separate out solids to reduce water requirements. The cutting solids will be collected in sacks and transported to the Red Dog Mine for disposal.

The geotechnical exploration program will be conducted during the wintertime utilizing an auger or sonic drill and will not require water for drilling.

If a larger drill rig is required, an LF-70 or equivalent will be utilized to complete up to 52 holes for a total of 14,800 feet.

Camp infrastructure exists on the private property of the Red Dog mine.

Access to the Red Dog mine is via a 52-mile haul road from DeLong Mountain Port Facilities.

Proposed Surface Occupancy:

Equipment is consistent with the scope of exploration operations. Additional equipment can be added in the future by amendment.

Make, Model, Type, Size, Purpose of Equipment/Pump	Quantity
1. Drill Rig (LF-70, LF-90, Hydracore 5000, or similar drill rig)	4
2. Generator (1/drill rig, 2 for emergency shelters): Kubota 7000 or 11,000	6
3. Frost Fighter (Forced Air Heater):	4
4. Stream Pump:25HP Kubota 4speed D1005 attached to a L122D 435 bean pump	4
5. Water Bladder Pump: same as above	2
6. Trash Pump (rig side pump): Tsurami electric pump 120v, 1/2-1HP	4
7. Solid Recovery Units: make and model to be determined	4
8. CME-45 Auger Drill and or Sonic Drill (tracked or truck mounted)	1

Table 1: Equipment stored within the claim block

Fuel Storage:

The main fuel supply and storage is at the Red Dog mine utilizing applicable permits. A fuel cache was previously permitted and constructed in 2017 upon ADL 72534. Fuel is only on-site during active exploration. Fuel is flown in with double-walled 110-gallon fly tanks placed on drilling platforms with secondary containment.

Acreege Disturbance and Reclamation Bonding:

Pursuant to AS 27.19.050, this operation is less than five acres of disturbance and less than 50,00 cubic yards of materials; therefore, a letter of intent is sufficient for the scope and nature of the proposed activities. The current area of disturbance is 2.3 acres, with 0.3 acres of reclamation proposed for 2022.

Water, Fish, Wildlife, Wetlands and Cultural Surveying:¹

A qualified state archeologist will examine exploration areas, including drill sites and water extraction points, before commencing work in the Lisburne mining district. Personnel have been trained on protocols should an unknown cultural site be discovered.

Exploration activities will be conducted to minimize impacts on subsistence activities. The Western Arctic Caribou Herd (WACH) is a known subsistence resource to local residents. Operations will be conducted to avoid diversion of the migrating Caribou. If migrating Caribou are in the immediate vicinity, helicopter operations will cease, as safety allows.

Water use and water quality, fish and habitat mitigation, wildlife mitigation, wetlands impact, and cultural resources are managed and regulated by the following agencies:

- Alaska Department of Natural Resources, Division of Mining, Land & Water, Water Section (DMLW-Water)
- Alaska Department of Natural Resources, Office of History and Archeology (OHA)
- Alaska Department of Fish and Game, Habitat Division (ADFG)
- Alaska Department of Environmental Conservation (ADEC)
- U.S. Army Corps of Engineers, Alaska District (USACE)

2. Relevant Statutory Authorities

- AS 38.05.020 Authority and Duties of the Commissioner
- AS 38.05.035 Powers and Duties of the Director
- AS 38.05.255 Surface Use of Land or Water
- AS 38.05.850 Permits
- AS 27.19 Reclamation

3. Relevant Regulatory Authorities

- 11 AAC 97 Mining Reclamation
- 11 AAC 96 Miscellaneous Land Use
- 11 AAC 86 Mining Rights

4. Proposed Permit Area Location Information

a. Geographic Location:

The proposed operation is located near the Wulik Rivers in the DeLong Mountains.

¹ Please see the November 2021 Teck American incorporated memo to the Alaska Department of Natural Resources, Division of Mining, Land and Water *Lisburne (Red Dog) Mining district Exploration Drilling Program Impacts and Mitigation*.

b. Legal Description:

KRM T31N R19W Section 4,
KRM T31N R20W Sections 1, 2, & 11-13,
KRM T32N19W Sections 2, 3, 4, 6, 10-15, 22-26, 35 & 36
KRM T32N R20W Sections, 21, 22 32, 33 & 35

5. Land Status Information

The requested activities lie within State of Alaska general grant lands.

Interests are within the sections listed upon State mining claims (see attached list): These interests are identified in Alaska's Land Administration System and Alaska Mapper both available online at <http://dnr.alaska.gov/mlw/index.htm>

Additional activities are proposed upon privately owned land. Pursuant to AS 27.19.010 a letter of intent will be issued for exploration activities upon Nana lands.

Mineral Closing Orders

None

Leasehold Location Order

None

Municipal Selection

Fairbanks North Star Borough

Other Permits, Leases or Actions

None

Land Agreements, Settlements, Conveyances, Reconveyances and Municipal Entitlements of land

No authorization should be granted to access or use non-state lands.

Other Land Information

Regional Native Corporation owner is Nana for exploration.

Village Corporation: Native Village of Noatak

Other Federally Recognized Tribe: N/A

Description of activities above lie within the management provisions or may be affected by the Eastern Tanana Area Plan, for the following regions:

Eastern Tanana Area Plan: North West Area Plan

Plan Name: Map 11

Description: K-03, Mi

- **Designation:** Mineral and Recreation
- **Classification:** Open for mineral entry.
- **Prohibited Uses:** None
- **Management Intent:** Manage for mineral values. Any mineral development that may be authorized shall adhere to the following guideline: Authorizations issued in this unit involving long-term or permanent uses are to consider impacts upon the WACH. Special consideration is to be given to activities occurring during the summer migration period and particularly to uses that may impact areas used for insect relief. The protection of caribou movement corridors is also to be an important consideration. Consult ADF&G prior to issuing an authorization involving a long-term or permanent use.
- **Resources and Uses:** This unit, which consists entirely of state-owned land, is considered to have mineral potential and there are numerous ARDF occurrences. Its topography is generally mountainous although there are several river valleys that contain large areas of lowlands, particularly within the Wulik River drainage. Alpine tundra and barren ground characterize the mountainous areas, whereas lowlands generally consist of a mixture of high brush and moist tundra. Dall sheep are present in mountainous areas and the unit is used by the WACH for summer migration and insect relief. The western portion is located in core winter range. Moose are present in portions of the unit. The following subsistence resources are present in this unit: bear, caribou, furbearers, moose, sheep, small game, vegetation, and waterfowl. Public access to this unit is limited and is provided by ORV and snowmachine. Portions of the Wulik River are used as a source of drinking water supply.
- **Management Provisions or Restrictions:** None

6. Access

Personnel and equipment are either barged or flown into the DeLong Mountain Port facility or airport. Access to the Red Dog Mine is then via a 52-mile haul road. Transport from the Red Dog mine to the proposed area of exploration will be via helicopter.

7. Permitting Background/History of Applicant Compliance

Upon examination of DNR record, the applicant has held numerous mineral claims and exploration and development authorizations for multiple decades. No record of noncompliance was identified.

8. Project Review and Agency Notice/Public Notice

Agency Review:

The Division provided the application for review and opportunity to comment for the activities considered for authorization under this summary. The following entities were notified on 12/7/2021 for comment on the application: The Alaska Department of Fish and Game (ADFG), Alaska Department of Environmental Conservation (ADEC), ADNR Water Resources Section (ADNR-Water), ADNR State Historic Preservation Office (AK SHPO), U.S. Army Corps of Engineers (USACE), Bureau of Land Management (BLM), and all interested parties that requested notification. Agencies were given opportunity to review the application materials and submit comments for a 14-day period.

Agency Review Comment and Issue Response

One comment was received from the US Fish and Wildlife Service in regards to notifications for Golden Eagle encounters, which was forwarded to the applicant.

Public Notice:

The Division issued a public notice of the application and supporting documents on 12/8/2021. Notice was distributed using the State of Alaska Online Public Notice System.

Online Public Notice and Request For Information

Public comments were received and addressed in the attached document APMA F20229339 Public Comment and Response.

9. Potential Environmental Risk

Petroleum Transport and Storage

This project does not have a significantly higher risk to the environment than other projects of this scope and nature. Fuel will be transported and contained in double walled vessels. At the active drilling site, petroleum products will be stored in secondary containment. For a full discourse upon environmental risk and mitigations measures please see the attached document *F20229339 Impacts and Mitigation Memo*. Safety Data Sheets for drilling additives are also available.

Cuttings and Drill Fluid Disposals

The primary foreseeable impact of additional drilling activities proposed in this amendment request is the handling and disposition of drill cuttings and fluids. The applicant has proposed to self-mitigate by utilizing Solid Recovery Units (SRUs) to separate cuttings from drill water at two drilling sites which will host multiple wedged holes. The SRUs are designed to dewater cuttings, package for removal and disposal offsite. Drill water discharge to uplands is an industry best management practice for remote mineral exploration projects, and upon inspection in July 2019 by DNR, no adverse environmental effects were observed from utilizing this practice in the past.

The risk of impact from drill water and cuttings discharge is *di minimis*, finite and further mitigated by the applicant's proposal to use SRUs.

10. Performance Guaranty:

Pursuant to 11 AAC 96.060(b), a performance guaranty is determined "based on the scope and nature of the activity planned and the potential cost of restoring the permit site."

Upon review of the scope and nature of the proposed activities, in combination with the applicant's history of acceptable compliance, the DNR has determined to waive the requirement under 11 AAC 06.060 for a performance guaranty. The DNR reserves the right to evaluate the performance guaranty at any time during the life of the permit, and at least annually. If a performance guaranty is required and not timely provided, the authorization will be nullified without further consideration.

11. Insurance

Insurance is a means to protect the State from liabilities incurred through the use of State property or damages to State property.

Insurance Requirement:

In consideration with the requirements of 11 AAC 96.070, the DNR waives this requirement based on the scope and nature of the proposed activities. The DNR reserves the right to evaluate the insurance requirement at any time during the life of the permit, and at least annually. If insurance is required and not timely provided, the authorization will be nullified without further consideration.

12. Determination

DNR has determined it appropriate to issue a stipulated miscellaneous land use permit to conduct Hardrock Exploration & Reclamation activities on lands owned by the State of Alaska. A letter of intent will be issued for surface disturbance upon Nana lands.

The applicant is advised to review authorization documents carefully as well as the regulations under AS 27.19 (Reclamation), AS 38.05 (Alaska Land Act), 11 AAC 86 (Mining Rights), 11 AAC 96 (Miscellaneous Land Use), and 11 AAC 97 (Reclamation).

Modified or special stipulations to be applied to the MLUP

Hardrock exploration stipulations will be added. Camp Facilities are not part of the permit and are upon private property at the Red Dog Mine.

File Annual Work Plan

Each calendar year of the permit, the applicant shall file a work plan detailing the number, type and location of

proposed activities under this authorization to be conducted for that exploration year, including any repairs and

details of the repair plans. The Annual Work Plan is due by March 31. If no work is proposed, a timely statement shall still be filed.

Action Requirements on Inspection Reports

Complete and report any outstanding work requirements identified in any Department inspection report by the date specified in the inspection report for completion.

Western Arctic Caribou Herd

Operations under this authorization must avoid acoustical and visual disturbances to caribou present within permit area. Consult with the Alaska Department of Fish and Game to establish Best Management Practices in areas which may affect caribou.

Action Requirements on Inspection Reports

Complete and report any outstanding work requirements identified in any Department inspection report by the date specified in the inspection report for completion.

Fire Prevention, Protection, and Liability:

1. The applicant shall take all reasonable precautions to prevent and suppress forest, brush, and grass fires and shall assume full liability for any damages to state land resulting from the negligent use of fire.
2. The State of Alaska is not liable for damage to the applicant's personal property and is not responsible for forest fire protection of the applicant's activity.

Annual Exploration / Reclamation Report:

File Annual Work Plan

Each calendar year of the permit, the applicant shall file a work plan detailing the number, type and location of proposed activities under this authorization to be conducted for that exploration year, including any repairs and details of the repair plans. The Annual Work Plan is due by March 31. If no work is proposed, a timely statement shall still be filed. You are also required to file an Annual Exploration Report by December 31st of each year; please ensure that your report contains the following information:

1. A written narrative describing your activities and the reclamation measures utilized at all disturbances.
2. A topographic map showing the portion of the claim block where surface disturbing exploration activities have occurred. The plan map should be at a scale of 1"=1/2 mile, or other appropriate scale sufficient to illustrate: existing trails and roads; new trails and roads; drill hole locations (other than shallow auger holes); trench locations; the camp location; and, any other surface disturbances (please distinguish between reclaimed and un-reclaimed features).
3. A photo, with appropriate caption, of each reclaimed drill site and exploration trench.

4. A photo of representative sections of any new road or trail construction.
5. A detailed description of the methods used to plug the drill holes.
6. A list of Mining Claims by ADL# that contain un-reclaimed disturbance at the end of the year and a total acreage that remains un-reclaimed.

13. Attachments

Attachment A: APMA F20229339 Public Comment and Response

ATTACHMENT A: F20229339 Public Comment and Responses

The following are responses to public comments submitted to the Department of Natural Resources' (DNR's) Division of Mining, Land and Water, concerning the Application for Permits to Mine in Alaska (APMA) F20229339 (hereinafter the "application" and the "permit") requesting authorization to conduct mineral exploration, geotechnical investigation and reclamation.

For background, diamond core drilling is the most common method for subsurface exploration. Generally, a pipe called a casing is installed from the surface through solids and sealed into bedrock. A diamond bit rotates at the end of a drill rod or pipe inside the casing. The opening at the end of the diamond bit allows a solid column of rock to move up into the drill pipe and be recovered at the surface. Most drill rods are 10 feet long and vary in diameter from 25-65mm.

After the first segment is drilled, a new section of pipe is screwed into the top end so the combination of pipes can be drilled deeper into the ground. The diamond bit is rotated with gentle pressure and lubricated with water and drilling mud to prevent overheating. The driller adjusts rotation speed, pressure and water circulation for different rock types and drilling conditions. Inside the drill pipe is a core tube, which has a latching mechanism attached to a cable. At the end of each run, the cable is lowered to winch the core tube containing the new rock core to the surface, where it can be recovered. The drill core is stored in specially designed core boxes containing compartments to hold sections of core. The core gets logged and analyzed by a geologist.

When drilling is complete, the drilling engineer will fill the hole either completely or in part depending on the presence of water or other conditions. A reclamation crew is then deployed to conduct any necessary revegetation, removal of any debris, and to mark the site of the borehole. If a borehole is being completely abandoned, the drill casing will also be removed or cut off at or below ground level.

Comment Overview

In rendering a decision on the November 17, 2021 application, the Department considered comments submitted during the comment period which ran from December 8, 2021 to December 22, 2021.

DNR received three email or comment letters on the application. One agency comment was received from the US Fish and Wildlife Service. Comments within the scope of the application review were considered, as well as relevant, competent and scientifically sound information that the commenter cited in support of their comments

(continued)

ATTACHMENT A: F20229339 Public Comment and Responses

COMMENTS: Austin Swan

Issue Topic: Fugitive Dust

Comment: What measures have been taken to limit dust being blown towards the Wulik River which flows directly into the Kivalina lagoon? Knowing from experience working in the Teck Ak operations as an environmental technician, the predominant winds normally blow from the north and northeast most of the time during the winter, and dust does get blown westerly. This would cause dust to build on snow during the winter months and when melt comes in the spring, all the dust would tend to get washed into the Wulik River.

Knowing from experience working in the Teck Ak operations as an environmental technician, the predominant winds normally blow from the north and northeast most of the time during the winter, and dust does get blown westerly. This would cause dust to build on snow during the winter months and when melt comes in the spring, all the dust would tend to get washed into the Wulik River.

DMLW Response: The potential for fugitive dust (windblown sediments) is minimal from the exploration activities proposed in this application. Surface disturbances are limited due to the helicopter supported nature of this drilling program and the use of elevated drill pads. Vegetative mat is typically only removed if necessary for the construction of an in-ground sump or erosion control feature, and all sites receive concurrent reclamation once drilling is complete.

COMMENTS: N. Carol Wesley

Issue Topic: Helicopter Use and Caribou Migration

Comment: Caribou migrate our way and thru the Red Dog Mine area. My comment of concern is using the helicopters during our caribou hunt, more so in the fall time. We used to get them as close as across the village (Village of Noatak). I, personally I believe its cause of industrial activities in our area - Red Dog Mine.

DMLW Response: Comment Noted. The scope of this Miscellaneous Land Use Permit issuance decision is limited to the proposed exploration activities as described in APMA F20229339 that are occurring on state managed lands. Consistent with the guidance and management intent statements¹ regarding the Western Arctic Caribou herd contained within the Northwest Area Plan for State Lands, the Division has reviewed Teck American's narrative submission "Protection of Wildlife" measures for 2022-2026 operations and has determined that they are sufficient to avoid any adverse effects on caribou and other wildlife. As these measures are described in the application packet, they are thus adopted by reference in the MLUP issued by this decision. Under 11 AAC 96.040(c), the Division of Mining, Land & Water retains the ability to modify or add additional provisions in a permit after issuance should the Division determines that they are necessary in the future to minimize conflicts with other land uses in the area.

¹Chapter 2, Fish and Wildlife Harvest and Habitat Areas and Unit K-03.

ATTACHMENT A: F20229339 Public Comment and Responses

Issue Topic: Scope of Public Notice Posting

Comment: Another concern I have is what was the first approved activity and amended to what? How can we compare the activities or effects it may have from the original permit?

DMLW Response: This online public notice is for a brand new five-year (from 2022 to 2026) APMA to permit exploration on State lands. The original Online Public Notice Site posting erroneously included one reference that the proposed activities were an amendment. This minor technical defect² has been immediately corrected in the notice body. The activities proposed in this new five-year application are similar in scope to the previous five-year exploration plan APMA F20179339 (including subsequent amendments in 2019 and 2021).

COMMENTS: Kivalina IRA Council

Issue Topic: Signature of Applicant

Comment: The Application for which a link was provided in the Online Public Notice does not appear to be signed, except that the Reclamation and Closure Plan is signed by Leslie Olmstead and dated November 17, 2021. The Exploration Narrative is also not signed so it is not clear when that document was prepared or submitted.

DMLW Response: Teck American, Incorporated has submitted a complete application for a Miscellaneous Land Use Permit pursuant to 11 AAC 96.030(a), on the form provided by the department which does not require a signature from the applicant. The exploration narrative was submitted to the Division of Mining, Land and Water on November 17, 2021.

Issue Topic: Fuel Storage Secondary Containment

Comment: The Application states that there are no fuel containment berms around the storage containers.

DMLW Response: Lined fuel containment berms are one method of providing secondary containment to meet federal EPA SPCC containment requirements. While secondary containment is not required where less than 1321 gallons of fuel are stored, Teck American has proposed to continue utilizing double-walled fuel tanks for their equipment fueling, as well as keeping their double-walled 110-gallon Jet A tank in a portable 130-gallon liner. This portable liner prevents the need for additional surface disturbance for the construction of a bermed storage area. Please see Teck American's description of "PETROLEUM PRODUCT USED AT PROJECT SITE" in the exploration narrative for more information on fuel containment and spill response.

² As described in the Online Public Notice Site posting, "The DMLW reserves the right to waive technical defects in this notice". This minor defect is readily apparent since the initial posting included the full application packet materials for public review.

ATTACHMENT A: F20229339 Public Comment and Responses

Issue Topic: Exploration Trenching

Comment: The Application indicates that there is 3500 feet of trenching but there is no indication of the purpose of that trenching, the depth of the trenching or reclamation for that trenching.

DMLW Response: The application does not include trenching. The PDF application auto filled a trench location erroneously from the “estimated maximum depth” of drilling which is 3,500 feet.

Issue Topic: Wetlands Permitting

Comment #4: The portion of the Application addressing wetlands is crossed out. Teck has previously mapped known wetlands in this area. The Memo states that at "wetland specialist will conduct table-top reviews of air photographs of planned 2022 drill sites to check for potential wetlands." Teck and the U.S. Army Corps of Engineers (USACE) have already mapped and identified wetlands in this area. The impact of exploration on those wetland areas should be identified and a USACE permit obtained for activities impacting the wetlands. Teck should be required to consult with the Tribe when wetlands are identified in an area where drilling may occur, and identify what avoidance and minimization actions are proposed. Inspections should be conducted at every drilling hole to ensure no wetlands are impacted and that the drilling wastes are properly handled. Drilling muds and drilling waste should not be disposed of on or near wetlands, including at silt fences in or near wetlands.

DMLW Response: The “wetlands” portion³ of the APMA application package is appropriately crossed out, as it is specific to placer mining and not hard rock exploration. Teck American is required to comply with all applicable federal, state, local laws and regulations pursuant to the Section 14 of the issued Land Use Permit. This includes following all requirements of US Clean Water Act Section 404 Wetland Permitting Program administered by the US Army Corps of Engineers (USACE) and any applicable Section 404 permits that they may be operating under. USACE was provided a copy of this application during the agency notice period that ran from December 7th through the 21st, 2021. The Division of Mining, Land and Water has also included a special stipulation⁴ as a term of the issued Miscellaneous Land Use Permit F20229339 to prevent and/or minimize environmental impacts to wetlands.

³ This form is provided by the Division of Mining, Land and Water to placer mining applications as a courtesy to serve as a pre-construction notice to the US Army Corps of Engineers “Regional General Permit for Placer Mining”. It is not required for a complete application for a Miscellaneous Land Use Permit from the Division.

⁴ **Drilling Waste and Cuttings Management:**

1. Drilling mud and cuttings shall not be discharged into lakes, kettle ponds, streams, rivers, or wetlands. 2. Recirculation tanks or in-ground sumps to contain drilling mud, cuttings and discharged water from the drilling process must be used at any site utilizing water to aid in the drilling activity. Acceptable techniques include dug sumps, tanks and other settling or filtration devices designed specifically for cuttings management and previously approved by DNR.

3. Drill cuttings and additives in sumps must be allowed to sufficiently settle out of the drill water prior to

ATTACHMENT A: F20229339 Public Comment and Responses

Issue Topic: "Appendix D" Water Use Estimates

Comment: The Application refers to "Appendix D" but there is no Appendix D provided. We requested a copy of all application materials from DNR and were informed that there were no other materials. Therefore, it appears that an incomplete application was submitted to DNR. It is requested that once Appendix D is provided that the public and the Tribe are provided additional time to comment.

DMLW Response: Appendix D "water use estimates and authorization" was included as part of the hard rock exploration narrative and was attached to the Online Public Notice Site posting. This section outlines with maps and figures the areas of anticipated water withdrawals and volumes.

Issue Topic: Age of Studies

Comment: The information in the Application (an associated documents) is outdated, and fails to consider climate changes over the past 12 years. As examples:

"Small tributary streams typically freeze to the bottom in the winter months, whereas larger rivers can sometimes continue to flow beneath an ice covering (Tetra Tech, 2009)."

"All horizons are ice rich material. A shallow active layer thaws each summer, and permanent permafrost exists in deep layers between the bedrock and shallow active layer (Tetra Tech 2009)."

Many of the studies relied upon in the analysis are 15-20+ years old.

DMLW Response: Comment Noted. The Division has determined that due to the 1). limited scope of the activity proposed in APMA F20229339; 2). protective provisions of the MLUP issued and 3). the de minimis environmental impacts of this diamond core drilling program, there is no compelling rationale for the Division to require updated studies or supplementary information for consideration.

Issue Topic: Geochemistry

Comment: The Memo assigns the active geochemistry exclusively to "natural" conditions. However, the deposition of drilling muds and cuttings on the surface in the exploration area likely contributes to the potential to release harmful constituents (e.g., lead, zinc, cadmium, sulfur) when drilling activities expose such elements to air and water. There should be analysis of how these activities contribute to the geochemistry and impact water quality in the area.

backfilling the sump.

4. Settled drilling mud and all drill cuttings shall be sufficiently buried and graded to reasonably prevent oxidation.

ATTACHMENT A: F20229339 Public Comment and Responses

DMLW Response: Comment noted. A further analysis of metals leaching and water quality from the past exploration drilling and the current proposed drill cuttings (and muds) is not warranted at this time. Metals as described above would leach from cuttings via acid generation but only a very limited or “de minimis” amount of potentially acid generating (or “PAG”) drill cuttings are removed from their in-situ location during the diamond core drilling program⁵. These limited amounts of PAG drill cuttings, if even present at a particular drill site, are mixed up with other non-PAG cuttings and incidental acid generated would be almost entirely consumed in a result which is known as net neutralization⁶. The burying of drill sumps to prevent oxidation and/or the use of a Solid Recovery Unit (SRU) device to remove cuttings back to Red Dog Mine further prevent acid generation and thus metals leaching on site.

Issue Topic: Western Arctic Caribou Herd (WACH) Population Estimate

Comment: The information about Caribou in the Memo is outdated and incorrect. The Western Arctic Caribou Herd population is down to an estimated 188,000 animals, reflecting a 23% decrease over the past two years, according to the Alaska Department of Fish and Game. The estimate dropped from 259,000 caribou in 2017 and 244,000 in 2019. That is the equivalent to 60 animals per day dying.

DMLW Response: Comment Noted. At the time that the memo was submitted⁷, the most recent photocensus report available was from 2019, as one was not conducted in 2020. On December 15, 2021 staff with the Alaska Department of Fish and Game presented the 2021 photocensus count estimate of 188,000 to the Western Arctic Caribou Working Group. The Division will continue to consult with ADF&G⁸ prior to issuance of further authorizations for mineral exploration or development in WACH affected areas and reserves the ability to modify provisions of the issued MLUP to require additional mitigation measures if deemed necessary. Consistent with the guidance and management intent statements regarding the Western Arctic Caribou herd contained within the Northwest Area Plan for State Lands, the Division has reviewed Teck American’s narrative submission “Protection of Wildlife” measures for 2022-2026 operations and has determined that they are sufficient to avoid any adverse effects on caribou and other wildlife. As these measures are described in the application packet, they are thus adopted by reference in the MLUP issued by this decision

Issue Topic: Traditional Knowledge

Comment: None of the documents describe how Teck is incorporating-or explains why they are not incorporating-traditional knowledge of Kivalina and Noatak residents to lessen and mitigate exploration impacts. The application relies solely on Western scientific methods. Integrating

⁵ The borehole diameter is approximately 7.57 cm and of which, a 4.76 cm diameter core sample is removed for geochemical and geophysical studies. The remaining rock is pulverized by the diamond cutting bits into cuttings, circulated to the surface in the drilling fluids and muds.

⁶ Acid-Base Accounting (ABA) is the balance between the acid production and acid consumption properties of a material, in this context that material is diamond core drill cuttings.

⁷ November 17, 2021

⁸ Agency Notice (December 8, 2021).

ATTACHMENT A: F20229339 Public Comment and Responses

mitigation approaches from both knowledge systems will create a more wholistic approach with greater chances of success in lessening and mitigating exploration impacts. It is requested that Teck and DNR consult with the Kivalina and Noatak IRA Councils to incorporate the knowledge from these communities

DMLW Response: Comment Noted. Teck American's participation with the communities of Kivalina and Noatak for the purposes of obtaining traditional knowledge of the exploration area is outside the scope of this Land Use Permit application. Teck American has been provided a copy of Kivalina's comment. On December 8th, 2021, the Division posted a public notice and request for information regarding this MLUP request. This included an invitation to all members of the public—including the Kivalina and Noatak IRA Councils—to comment on the proposed activity. The Division considers all substantive comments, including those pertaining to traditional knowledge and information in its adjudication and decision-making process. The Division followed through with the public participation goal of the Northwest Area Plan for State Lands by providing a meaningful opportunity for comment regarding the proposed activity.

Issue Topic: Impacts to Birds

Comment: There is no analysis of the impacts of helicopter traffic, and industrial exploration noise to birds that occupy the area, including Bald and Golden Eagles, raptors (rough-legged hawk, gyre falcon, Peregrine falcon), merlin, Northern harriers and short-eared owl. The "mitigation" proposed is "flying at altitudes high enough to reduce noise and disturbance, limiting the numbers of flights per day, or temporarily suspending operation." However, there is no indication the necessary height to fly to protect these species, when helicopter flights will be suspended or how many times in the past Teck has employed such techniques successfully.

DMLW Response: Comment Noted. Consistent with the guidance contained⁹ within the Northwest Area Plan for State Lands, the Division has reviewed Teck American's narrative submission "Protection of Wildlife" measures for 2022-2026 operations and has determined that they are sufficient to avoid any adverse effects on caribou and other wildlife. These measures are described in the application packet and document Teck's ongoing duty to implement them. Thus, they are adopted by reference in the MLUP issued by this decision. Under 11 AAC 96.040(c), the Division of Mining, Land & Water retains the ability to modify or add additional provisions in a permit after issuance should the Division determines that they are necessary in the future to minimize conflicts with other land uses in the area. The Division has also forwarded on the US Fish and Wildlife Service's comment regarding the point of contacts for reporting if an active golden eagle nest site is identified.

Issue Topic: Subsistence Statistics

Comment: The Memo states: "The most complete summaries of subsistence activities are from ADF&G's surveys of community subsistence practices (ADF&G 2010)." The Kivalina IRA has commented previously that Teck's Subsistence information is faulty and out of date. The harvest data has not been gathered for Kivalina or Noatak since 2010. Additional information from

⁹ Chapter 2, Fish and Wildlife Harvest and Habitat Areas

ATTACHMENT A: F20229339 Public Comment and Responses

2010-2021 should be gathered before there is any further permitted exploration that may affect caribou. Even the outdated ADF&G data reveals an alarming decline in the number of Kivalina and Noatak households successfully harvesting caribou for subsistence, although they are attempting to engage in subsistence. There is also a significant decrease in the actual number of caribou harvested. These numbers verify that villages affected by the Red Dog mine are having significant declines in their ability to harvest caribou for subsistence.

DMLW Response: Comment Noted. Given the limited scope of activity requested in the application, in conjunction with Teck American's proposed "Protection of Wildlife measure" measures, the Division has determined that supplemental analysis of caribou subsistence activities is not required at this time. The Division will forward this comment regarding the subsistence data on to the Department of Fish and Game.

Issue Topic: Caribou Encounters

Comment: The Memo states: "Work will stop if caribou approach closer than 300 feet to work areas." There is no identification of how Teck measures the 300 feet, such as whether drill crews using rangefinders, estimating based on judgement, or some other means. Teck must identify the distance-measuring methods it will be using and the crew training on these methods. The Shideler et al. study demonstrates that the 300-foot range is inadequate for flight distances. The Memo also states: "During the migration of caribou, operations will be conducted to avoid diversion of the migration of caribou. Activity that may interfere with the migration, such as helicopter operations and ground surveys, will stop when migrating caribou are in the immediate vicinity (within 3/4 of a mile)." Teck's analysis defining "immediate vicinity" as being "within 3/4 of a mile." is insufficient. Research shows that caribou respond to industrial activity at a distance of 15 km (9.3 miles). A preferable approach is for Teck to cease all industrial activity when caribou are observed within 10 miles of the area, if those animals are potentially migrating through the area. The IRA Council has previously requested that a Tribal caribou observer be present during all exploration activities, and that Teck provide the necessary transportation (fixed wing or helicopter) for the Tribal member to survey the area for caribou during exploration. The observer should have authority to recommend implementation of stop-work orders when caribou are present or may be affected by the activity.

DMLW Response: Comment Noted. Consistent with the guidance and management intent statements regarding the Western Arctic Caribou herd contained within the Northwest Area Plan for State Lands, the Division has reviewed Teck American's narrative submission "Protection of Wildlife" measures for 2022-2026 operations and has determined that they are sufficient to avoid any adverse effects on caribou and other wildlife. These measures are described in the application packet and document Teck's ongoing duty to implement them. Thus, they are thus adopted by reference in the MLUP issued by this decision. Under 11 AAC 96.040(c), the Division of Mining, Land & Water retains the ability to modify or add additional provisions in a permit after issuance should the Division determines that they are necessary in the future to minimize conflicts with other land uses in the area.

ATTACHMENT A: F20229339 Public Comment and Responses

Issue Topic: Borehole Reclamation

Comment: The Memo identifies "hole abandonment" procedures and states that Hole abandonment procedures in the last 10 years or so generally involve the return of cuttings "down hole" when possible, cementing the top 50 feet of the hole, or setting a wood plug and filling the collar with a bentonite cap to prevent the hole and collar collapsing/subsiding. Additionally, cement is set roughly 300 feet above, within and below any potential ore zones encountered. This process has never been documented in prior APMA permits and there is no log of holes that have been cemented within the top 50 feet that has been provided to the Kivalina IRA. There is no data to suggest that this is sufficient to prevent intersection with subsurface aquifers or migration of drilling muds/fluids. The "detailed records exist for the last 5+years of drill pipe left in holes" have not been provided to the Kivalina IRA and it is respectfully requested that these records be provided. In addition, any records of drill pipe for previous (before 5+ years) are requested. The reference to the "collar subsiding" is confusing. Is this referencing a "cellar" used in drilling or a "collar?" Please provide manufacturer's name of this piece of equipment and what is being prevented from subsiding.

DMLW Response: Comment noted. Benseal (bentonite¹⁰) and portland cement (also known as a neat cement grout) are both utilized worldwide that are highly effective as annular space and sealing grouts in drinking water wells and boreholes, preventing the vertical migration of water and the communication of waters between aquifers. The Division has reviewed the past hole abandonment procedures and proposed future methodology and has determined that they are reasonably sufficient to protect groundwater quality.

The Division reviewed has no records of any incident of drill pipe "drill rod" left downhole at this time. Specific reporting requirements for borehole plugging have varied over the prior years of exploration, but detailed reclamation measures have been described in previous permits and Teck American has submitted corresponding end of year reclamation statements and annual exploration reports describing the boreholes that were reclaimed in accordance with those measures.

Issue Topic: Fish Presence/Water Withdrawal.

Comment: The Plan Detail, Appendix D document indicates "Unknown fish presence in streams used for water." Teck should be required to conduct surveys and discuss presence of, and potential impacts to, fish before water withdrawals are allowed.

¹⁰ Bentonite clay grouting is a recognized BMP in the "Alaska Best Management Practices- Maintaining or Decommissioning Waterwells and Boreholes" (Groundwater Protection Stakeholder Workgroup, Alaska Departments of Environmental Conservation and Natural Resources with the Alaska Water Well Association and other private/public stakeholders. Jan 2017). Bentonite clay grouting/sealing is also U.S. Environmental Protection Agency approved material for the decommissioning of monitoring wells/boreholes to prevent migration of water.

ATTACHMENT A: F20229339 Public Comment and Responses

DMLW Response: As part of the agency review notice the Alaska Department of Fish and Game and the United States Wildlife Service did not request any additional stipulations or measures for in stream activities to be included in the MLUP, such as water withdrawals¹¹. Furthermore, the Department of Fish and Game has issued pertinent fish habitat permits for this project. The Division has included an MLUP stipulation that requires the following: “In any fish bearing waters, each water intake structure shall be centered and enclosed in a screened box designed to prevent fish entrapment, entrainment or injury. The effective screen opening may not exceed ¼ inch. To reduce fish impingement on screened surfaces, water velocity at the screen/water interface may not exceed 0.5 feet per second when the pump is operating.”

Issue Topic: “Separated Water”

Comment: The Plan Detail states: "Separated water that is not required for drilling is discharged in compliance with the MLUP." Since the MLUP has not been issued, it is unclear what the discharge compliance requirements are, or will be. That information should be provided for commenters to analyze.

DMLW Response: Comment Noted. The use of the solids recovery units, recirculation tanks, and in ground sumps minimizes the amount of water that would be subject to discharge to **land** on the project site. Separated drill water must not be discharged to natural surface water bodies unless without an Alaska Pollutant Discharge Elimination System Permit (APDES) from the Alaska Department of Environmental Conservation and potentially the Alaska Department of Fish and Game. Teck American does not propose any discharges to surface waters from this drilling program.

Issue Topic: Camp Facilities

Comment: The location of the Contractor Camp is unclear, and not shown on any map. Please provide a mapped location of the contractor camp.

DMLW Response: The camp facilities supporting the exploration activities is located at the Red Dog Mine, which is situated on NANA Regional Corporation lands to the east/southeast of the project area. The camp facilities are outside of the scope of this Miscellaneous Land Use Permit issuance decision for activities on state managed lands.

Issue Topic: Activities West of Wulik River

Comment: The location of the areas identified as 32N20W and 32N19W are across the Wulik River (west), and there is no data about water, wildlife, archeological resources or potential impacts from drilling and water withdrawals in those areas on those resources.

¹¹ Water Use Authorizations are reviewed and issued pursuant to applicable statutes (AS 46) and regulations (11 AAC 93) by the DNR Water Section and are outside the scope of the MLUP permit adjudication process. Impacts to fish and aquatic resources from water withdrawals are considered by the Water Section’s adjudication of Temporary Water Use Authorizations and likewise for the Department of Fish and Game’s issuance of Fish Habitat Permits.

ATTACHMENT A: F20229339 Public Comment and Responses

DMLW Response: The previous data collected is in support drilling activities. Around 37 drill holes are proposed in 32N20W and 32N19W. The Impacts and Mitigation Memo outline impacts to the water, flora, fauna and archeological resources. The mitigation measures apply to this area as well.

Issue Topic: Paleontological Resources

Comment: One consideration for Teck and DNR is the increasing chance of exposing fossils from the melting permafrost. This NPS article provides a good explanation of fossils in northwest Alaska. The Alaska Paleontological Database shows several AS 41.35.230.2 defines “historic, prehistoric, and archeological resources” to include fossils yet none of Teck’s cultural resources work in the history of Red Dog Mine under the Alaska Historic Preservation Act (AS 41.35.070) has included a paleontological assessment. Because archaeologists are not paleontologists, there are potentially significant impacts to paleontological resources that are not being assessed

DMLW Response: This comment was previously submitted to the Division by Kivalina in the F20179339 Amendment 2 comment period in April 2021. This comment was provided to the DNR Office of History of Archeology (OHA) at that time. The Division received the following response after consulting with OHA:

“There are no paleontological resources within the cited ADLs that have been reported to the Alaska Office of History and Archaeology. Following AS 41.35.070, when there are no known significant cultural resources (including fossils) in a project area, our office recommends including inadvertent discovery language in all SOA permits and authorizations. Example: Should inadvertent discoveries of cultural resources occur during the duration of the project, our office should be notified so that we may evaluate whether the resources should be preserved in the public interest (as specified at Section 41.35.070[d]). Examples of cultural resource sites that could be encountered include: historical cabin remains (collapsed, standing, or foundations); adits; dredges or other mining equipment; cultural depressions or pits; graves or cemeteries; prehistoric tools or artifacts; and paleontological (fossilized) remains.

The Division of Mining, Land and Water still concurs with OHA’s findings and will maintain its protective stipulations in the MLUP issuance for APMA F20229339.

Issue Topic: Archeological Survey

Comment: There have been no documented archeological surveys conducted in areas where drilling is going to occur. No drilling should be permitted unless there has been a documented survey of the drilling location. The Memo states: A qualified archaeologist was brought to the other exploration drilling sites in the Lisburne (Red Dog) Mining District to examine the proposed drill site locations and other work areas (freshwater storage tank locations, material laydown areas, water pumping stations) prior to the start of field activities No results of such surveys have been provided to the Kivalina IRA, whose Tribal ownership of all archeological resources in the area is well-established. Please provide results of those surveys.

DMLW Response: The Division has passed this comment on to Teck American.

ATTACHMENT A: F20229339 Public Comment and Responses

Issue Topic: Surface Water Quality

Comment: The Surface Water Quality section of the Memo states: During the 2020 summer season, significant surface water impacts in the form of water discoloration, high total dissolved solids (TDS) concentrations were observed over a large part of the Wulik and Ikalukrok watersheds. It is speculated this was caused by melting of the shallow permafrost, exposing, and allowing sulfide mineralization to encounter shallow groundwater that then discharges to surface waters. This is an evolving situation that TAI is continuing to monitor. The Kivalina IRA requests information about who "speculated" as to this cause and why there has been no contact with Tribe to monitor and seek Traditional Knowledge about this impact. Please provide any monitoring results to the Kivalina IRA

DMLW Response: Comment noted and provided to Teck American. These are not anthropogenic impacts related to the past or current proposed exploration activities and are outside of the scope of this Miscellaneous Land Use Permit issuance decision.

Issue Topic: Silt Fences

Comment: Teck proposes to use silt fences to protect surface waters. A review of past use of silt fences demonstrates that they are not effective, are not properly maintained, and the fluids, cuttings and sediments that remain on the ground are potentially harmful to vegetation and wildlife. If Teck is allowed to use silt fences, there should be daily inspection, cleanup of residues and reporting on the performance of each fence to assure protection of water bodies and wetlands. The application cover sheet is dated June 13, 2019 and states that it contains "2019 Work Plan narrative and additional list of claims (difference between permitted claim group and activity on claims for 2019.)" It unclear what the different claims are. It is requested that the identification of actual claims being explored be provided. The application identifies drilling to begin "in Mid-May" but there currently is no permit for drilling as of June 27. It is requested that the accurate drilling dates be provided in the application.

DMLW Response: Comment Noted. This comment appears to be copied from a comment submission to the Division by Kivalina IRA Council in consideration of a proposed amendment of the prior permit in 2019. While components discussing the 2019 activities are not pertinent to this current permitting decision, the Division will still address the substantive remarks on the use of silt fences.

A silt fence¹² is made of a woven geotextile that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sheet flow/ runoff water, promoting sedimentation of coarse sediment behind the fence. Teck American proposes to utilize silt fencing as an added perimeter control measure to ensure that

¹² Also described as a "mud fence" or geotextile fence.

ATTACHMENT A: F20229339 Public Comment and Responses

drill cuttings cannot be transported to surface waters. If drill cuttings are captured by the silt fence, Teck American is required by the Terms of Permit¹³ to bury the cuttings in the drill sump with other settled drilling muds / cuttings to prevent oxidation¹⁴. Teck is also required to provide photos of each reclaimed drill site in the Annual Exploration Report¹⁵.

Issue Topic: Drill Cuttings and Materials.

Comment: The IRA Council is concerned that there has been damage to fish habitat, thermal degradation, and water quality from the exploratory drilling operations to date. Drilling waste (cuttings and fluids) should not be disposed of on the landscape. In other areas of the state (Bristol Bay) experts have documented that drill cuttings (tailings) placed on the land surface have oxidized, gone acidic, and released metals. Drilling fluids are toxic, caustic and non-biodegradable. The MSDS sheets indicate that DP EZ Mud has potentially significant health hazards. If it is inhaled, comes in contact with skin or is ingested it may cause breathing difficulties, skin irritation, eye irritation and stomach irritation requiring medical attention. The MSDS sheet states that the disposal method should be "bury in a licensed landfill according to state, federal and local regulations." Yet Teck is seeking permission to dispose of it on Kivalina's traditional subsistence lands. Clearly, this product has impacts to the environment, and those should be assessed.

The MSDS Sheet on the internet for Quick Gel states "this product contains quartz, cristobalite and/or tridymite which may become airborne without a visible cloud." It is recommended that a respirator be worn when using this product. The hazard rating is #4 "Extreme" and it states that "Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans" and "There is sufficient evidence in experimental animals for the carcinogenicity of tridymite." Its bioaccumulation, persistence and mobility into water, air and soil has not been determined, but its acute fish toxicity TLM96 at 10000 ppm has been confirmed. It is listed on the US Toxic Substances Control Act inventory. The MSDS sheet states that the disposal method should be "bury in a licensed landfill according to state, federal and local regulations." Yet Teck is seeking permission to dispose of this known carcinogenic substance on Kivalina's traditional subsistence lands, and it may impact the caribou and other wildlife in the region.

Teck's representative confirmed that Teck's drilling muds contain bentonite. Bentonite is not a chemically stable compound and when mixed with water has a pH of 9.5, which is alkaline. There has been no showing of how or whether the discharge of this alkaline concentration will affect wetlands, aquatic resources, and downstream users of water. Bentonite is also called "sodium bentonite" and the salts in the bentonite concentrations have been shown to kill vegetation at other mineral exploration sites in Alaska. Because of these impacts, in some areas, exploration drillers are required to dispose of the drilling muds into tanks, instead of in the boreholes, sumps or pits dug into the ground. To protect the wetlands, surface water and ground

¹³ Special Stipulation: Drilling Wastes and Cutting Management

¹⁴ Alternately, Teck American may transport them offsite with the cuttings sacked by the Solid Recovery Units (SRU).

¹⁵ Special Stipulation: Annual Exploration Report

ATTACHMENT A: F20229339 Public Comment and Responses

water resources, Teck should be required to use tanks to contain the drilling muds, so those muds can be treated at the Red Dog Mine water treatment facility.

The waste should not be disposed in sumps near streams or near the groundwater table, including where the groundwater table could rise to the surface during spring. We urge DNR to require that the drill wastes be transported to be properly disposed of at the Red Dog Mine.

DMLW Response: Comment Noted. Kivalina's comment offers no information to support the listed concerns that prior exploration activities have damaged fish habitat, caused thermal degradation, or impacted water quality. The permit administrative record, likewise, does not contain any evidence that supports those concerns. Furthermore, DNR's overflight and site visit to the permit area in 2019 did not provide any visual indications of the above concerns.

Under previous permits¹⁶, Teck was permitted to discharge the small amounts of rock materials that resulted from drilling directly onto the surface (drill cuttings), as this remains an accepted and standard industry practice and presents de minimis risk to surrounding environments.

In standard mining terms, drill cuttings are small, fine pieces or shavings of in situ rock that resulted from drilling of the borehole. Because there is a small, finite amount of such drill cuttings associated with these past boreholes, the acid that may be generated from even extremely highly mineralized drill cuttings is a finite, small, and localized amount, and there is little potential for drainage of any kind.

While not comparable in project scope, lithology, or geochemistry to MLUP 9339 permit area, the Division has reviewed and investigated allegations¹⁷ of acid rock drainage and metals leaching from drill cuttings at the Pebble Project¹⁸ site in Bristol Bay and determined that they were not supported by compelling evidence.

The Division has reviewed the products described in Kivalina's comment and an analysis of each material referenced is provided, by product, below:

Benseal product is a granular, sodium bentonite clay that is mined in Wyoming. This is a chemically inert, natural clay that swells 15-18 times its dry size when wetted by water. Bentonite clay is used worldwide as a drinking water well and borehole sealer liner for fish/stock (cattle) ponds, sewage lagoons and landfills. Bentonite is also a common component of cat litters. Benseal is an NSF/ANSI Standard 60 (Drinking Water Treatment Chemicals- Health Effects) Certified Product for use as an annular space and sealing grout in drinking water wells.

¹⁶ Prior to the issuance of MLUP F20179339#1 on July 29, 2019. Prior to the issuance of MLUP F20179339#1 on July 29, 2019.

¹⁷ Most notably: Zamzow, K and D Chambers. 2016. Investigation of Reclaimed Drill Sites, Pebble Prospect, 2016. Kendra Zamzow, Ph.D., and David M Chambers, Ph.D., P. Geop., Center for Science in Public Participation, Bozeman, MT, for the United Tribes of Bristol Bay, Dillingham, AK, October, 2016.

¹⁸ APMA A20196118 Pebble Limited Partnership

ATTACHMENT A: F20229339 Public Comment and Responses

Grout used in well or borehole decommissioning prevents the vertical movement or migration of water.

EZ-Mud is an NSF/ANSI Standard 60 (Drinking Water Treatment Chemicals- Health Effects) Certified Product. EZ-MUD liquid polymer emulsion contains partially hydrolyzed polyacrylamide/polyacrylate (PHPA) copolymer and is used primarily as a borehole stabilizer to prevent reactive shale and clay from swelling and sloughing. EZ-MUD polymer emulsion is also added to low-solids drilling fluids to increase lubricity, fluid viscosity, and to improve carrying capacity of air/foam injection fluids. It is routinely and appropriately used in the drilling of drinking water wells. This fluid is used only if necessary, at an approximate amount of 1 qt per 100 gallons of drilling waters/fluids. When used as intended, there is no risk to ground surface water quality or general environmental health.

Portland cement, when utilized in water well or borehole plugging is referred to as a neat cement grout. NSF/ANSI Standard 61 (Drinking Water System Components) certified Portland Cement is authorized to be in direct contact with drinking water. Neat cement is used worldwide safe and effective, quick setting and hardened annular space/sealing grout to prevent the vertical movement or migration of water to protect groundwater quality. While there are personal protective equipment (PPE) considerations (contact for those mixing), there are no human or environmental health concerns with neat cement when utilized for borehole sealing.

While Quick Gel products do contain silica-based minerals, the hazard of this product is primarily human inhalation during handling. Once emulsified in water, it is captured, recycled and removed. It does not meet criteria of hazardous waste as defined by the US EPA and is used in very small amounts to aid in viscosity and lubrication of the drill string.

Issue Topic: Analysis

Comment: The Memo states: “This information is being provided to ADNR to support the permit evaluation process, including any obligations on ADNR to take a “hard look” at TAI’s exploration activities under the REDOIL precedent”. However, the analysis and information falls far short of the information that REDOIL requires. There is no analysis of cumulative impacts of drilling in the area over the past 30+ years, and the analysis of past impacts is completely lacking. The activities constitute a disposal of an interest in land for the functionally irrevocable activities proposed and already undertaken by Teck because the boreholes and disposed drilling muds will represent a continuing physical presence on the land, and the structures cannot be removed without permanent physical impacts to the land. Constitutional public notice should be provided, as well as an analysis for consistency with the provisions of Article VIII of the Alaska Constitution. The following demonstrate the functional irrevocability of Teck's activities and proposed activities: (a) The pollution of groundwater by the toxic waste that already has been, or will be, disposed of on the land, by acid rock drainage; (b) the continuing physical presence of the concrete and steel encased bore holes; (c) the thermal degradation as a result of vegetative clearing for pads; (d) use and removal of extracted material for pad construction from state land; and (e) the permanent destruction of cultural resources.

ATTACHMENT A: F20229339 Public Comment and Responses

DMLW Response: The regulatory chapter under which MLUPs are granted provides that permits may be revoked at will or for cause. This condition is incorporated into the language of all MLUP authorizations, in Section 10, Violations, which states that the authorization is revocable immediately upon violation of any of its terms, conditions, stipulations, nonpayment of fees, or upon failure to comply with any other applicable laws, statutes, and regulations (State and Federal).

In the recent past, the Division has revoked authorizations for violation and has required immediate reclamation. Teck American's MLUP for this project would authorize limited, targeted exploratory drilling. The Department is confident that any revocation for violation, if justified, would not be financially destructive to Tech American's investment such that the MLUP would be functionally irrevocable.

In response to the commenter's specific assertions of function irrevocability, by **topic**;

“(a). The pollution of groundwater by the toxic waste that already has been, or will be, disposed of on the land, by acid rock drainage;”

During adjudication of the APMA F20179339#1 amendment request in 2019, the Division reviewed Department records to identify any potential evidence of the pollution of groundwater by any modality, including toxic waste by acid rock drainage. The Division found no record of incidents at the project site which would indicate past, active, or future pollution of groundwater by acid rock drainage. Division staff conducted a site inspection in July 2019 and affirmed no visual indication of a past or active acid rock drainage leaching event across the project site. Division staff did not find conditions on site which would facilitate the future contamination of groundwater by acid rock drainage as a result from mineral exploration activity. Because there is a small, finite amount of such drill cuttings associated with past boreholes, the acid that may be generated from even extremely highly mineralized drill cuttings is a finite, small, and localized amount¹⁹, and there is little potential for drainage of any kind.

“(b) the continuing physical presence of the concrete and steel encased bore holes;”

The mere presence of boreholes does not constitute functional irrevocability. At the termination of the project or the revocation or termination of the permit, whichever may come first, the applicant will be required to properly abandon and reclaim drill holes to meet State of Alaska reclamation law and regulation as defined in AS 27.19 and 11 AAC 97.

“(c) the thermal degradation as a result of vegetative clearing for pads”;

During an inspection in July 2019, no thermal degradation or other erosional feature was observed as a result of clearing vegetation for drilling pads. Locations with past drilling activity are stable, reclaimed and supporting vegetative re-growth.

“(d) use and removal of extracted material for pad construction from state land, and core sampling from state land”

¹⁹ See DMLW Response on “Issue Topic: Geochemistry” above.

ATTACHMENT A: F20229339 Public Comment and Responses

The application includes no indication or inference of the intention to harvest or any current use of material extracted from state land for the purpose of pad construction. By observation, the vegetative mat is peeled back and retained for reclamation use while the drill pad is constructed on dunnage timbers above the vegetative mat. Upon demobilizing the drilling rig, the drill pad is removed, and the vegetative mat is replaced. Drill pad construction materials are shipped by barge to the Red Dog Port Facility and transferred to a staging area before being slung by helicopter to the drill site.

Teck American's physical act to remove drill core derived from the exploration of mineral deposits on for offsite assessment does not constitute a disposal of an interest in state lands, as the locator of a state mining claim has already acquired exclusive right of possession and extraction of locatable minerals²⁰. As the locator of the mining claim, Teck American has a vested property interest in the minerals and the right to possess and extract them.

(e) the permanent destruction of cultural resources.

The Division has no records of the destruction of cultural resources within the project area. The Office of History and Archeology has noted that cultural resources survey work has identified several artifacts in the greater region that were not found at their previously documented location. However, there's no indication that activities under the prior issued MLUPs caused the permanent destruction of cultural resources, or that activities under the new MLUP will cause destruction.

In its comment, Kivalina discusses *Sullivan v. Resisting Env. Destruction on Indigenous Lands* ("REDOIL"). REDOIL involved a Department of Natural Resources "best interest finding" regarding an oil and gas lease sale. The court explained that after commencement of the project the Department must continue to take a "hard look" and critically analyze the cumulative effects of the project related to the lease. The court also stated that after the lease sale stage the Department did not need to make repeated, new best interest findings during each phase of oil and gas development. REDOIL did not analyze the ongoing "hard look" principle in the context of a five year mining exploratory MLUP that is still at the permit issuance stage.

To the extent the continuous "hard look" principle applies at all to the Department's evaluation of Teck American's MLUP application, the Department is satisfied that it has carefully scrutinized the application.

²⁰ AS 38.05.195