

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MINING, LAND AND WATER
DAM SAFETY AND CONSTRUCTION UNIT



Certificate of Approval to Operate a Dam

The **State of Alaska** under AS 46.17, and the regulations adopted under this statute, grants to:

Teck Alaska Incorporated

The approval to operate the following structure on **Red Dog Creek** in accordance with the terms and conditions contained in this certificate:

Red Dog Tailings Main Dam (NID ID# AK00201)

The location of this project is: S19, T31N, R18W, Kateel River Meridian

The holder of this certificate shall:

- Operate, monitor, inspect and maintain the Red Dog Tailings Main Dam and appurtenant works in accordance with best practices and the document titled, "Operations and Maintenance Manual Revision 13, Tailings Main Dam, (NID ID# AK00201), Red Dog Mine, Alaska" and dated November 5, 2020 with the exceptions described in Special Conditions 1 and 3 in Attachment A.
- Except for claims or losses arising from negligence of the State, defend and indemnify the State against, and hold it harmless from any and all claims, demands, legal actions, loss, liability and expense for injury or death of persons, and damages to or loss of property, arising out of or connected with the exercise of the approval granted by this certificate.
- Comply with all applicable laws, regulations and conditions.
- Allow representatives of the Department to inspect the work and records covered by this certificate at all times determined necessary by the Commissioner.
- Follow special conditions that apply to the operation of this dam as found in Attachment A, attached hereto and made a part hereof.

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CERTIFICATE OF APPROVAL TO OPERATE A DAM
Red Dog Tailings Main Dam

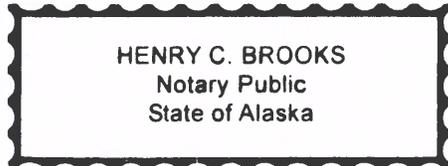
This *Certificate of Approval to Operate a Dam* supersedes any other *Certificate of Approval to Operate a Dam* for the Red Dog Tailings Main Dam, and shall become invalid on the expiration date specified in Attachment A.

This *Certificate of Approval to Operate a Dam* is granted subject to the pertinent statutory provisions in AS 46.17 and administrative regulations in Article 3 of 11 AAC 93.

APPROVED BY: Charles F. Cobb, P. E.
TITLE: State Dam Safety Engineer
Division of Mining, Land and Water
SIGNATURE: *Charles F. Cobb*
DATE: *March 26, 2021*

State of Alaska)
) SS.
Third Judicial District)

This is to certify that on *March 26*, 2021, before me appeared Charles F. Cobb, known by me to be the Authorized Representative of the Division of Mining, Land and Water, Alaska Department of Natural Resources, and acknowledged to me that this Certificate of Approval was voluntarily executed on behalf of the State of Alaska.



Henry C. Brooks
Notary Public in and for the State of Alaska
My Commission expires: *with office*



CERTIFICATE OF APPROVAL TO OPERATE A DAM
Red Dog Tailings Main Dam

Attachment A – Special Conditions

1. The Red Dog Tailings Main Dam (AK00201) is approved to operate as a Class I (High) hazard potential dam as defined in 11 AAC 93.157 at a nominal seal zone elevation of 991 feet. The maximum surface water level in the tailings storage facility is elevation 986 feet. Tailings may be placed adjacent to the dam up to nominal elevation 990 feet for purposes of beach construction during active mine operations without additional authorization from the Department.
2. The Red Dog Tailings Main Dam and appurtenant works include the main embankment, the wing section extended on the east abutment, the seepage collection system and dam, and other related features.
3. Except for the freeboard allowance for water and tailings provided in special condition 1, operate, monitor, inspect and maintain the Red Dog Tailings Main Dam in accordance with best practices and the procedures described in the "Operations and Maintenance Manual Revision 13, Tailings Main Dam, (NID ID# AK00201), Red Dog Mine, Alaska" dated November 5, 2020 (O&M Manual). Inspect the dam and appurtenant works after all significant seismic or precipitation events. Maintain records of all inspections, monitoring data, and routine maintenance.
4. Seepage water quality monitoring must be conducted for the Red Dog Tailings Main Dam. A monitoring data report shall be submitted by March 31 of each year. Within 90 days of the date of this certificate, submit an addendum or revision to the O&M Manual to describe water quality tests, locations, frequency, quality control and reporting.
5. Document any routine operations and maintenance procedures that deviate from or are not included in the current version of the O&M Manual. Review the O&M Manual concurrent with each subsequent Periodic Safety Inspection and revise as necessary.
6. Perform a Periodic Safety Inspection on the dam and appurtenant works as required by 11 AAC 93.159. The next PSI is due by August 3, 2023 and must be performed by an engineer qualified in accordance with 11 AAC 93.193(b). Approval of the engineer and the scope of the inspection must be obtained from the Department in advance of the inspection. Submit the proposed scope of the inspection and qualified engineer 60 days prior to the scheduled date of the inspection. In exception of 11 AAC 93.159 (c), submit the respective PSI report to the Department for review within 60 days of the visual inspection of the dam.
7. An Emergency Action Plan (EAP) shall be maintained for dams at the Red Dog Mine in accordance with the requirements of 11 AAC 93.164. The EAP shall be reviewed, exercised, and revised in accordance with the following schedule:

Frequency	Year Required	Action
Annually	2021, 2022, 2023	Internal review
Annually	2021, 2022, 2023	Orientation exercise with all responsible parties
Annually	2021, 2022, 2023	Revise as needed and distribute updated pages
Biennially	2022	Drill exercise (Internal responsible parties)
Triennially	2023	Table top exercise with all responsible parties
Triennially	2023	Revise and distribute to all responsible parties

CERTIFICATE OF APPROVAL TO OPERATE A DAM
Red Dog Tailings Main Dam

The drill exercise is not required in the same year as the table top exercise. EAP exercises must include responsible parties listed in the plan and as indicated in the schedule. Provide written notice to the Department within 14 days after every EAP exercises.

8. Notify the Department immediately if the EAP is activated, or within 24 hours for any significant issues that may develop with the dam or appurtenant works which could affect the safety of the dam. An incident report shall be completed and submitted to the Department in accordance with 11 AAC 93.177 within 14 days after the conclusion of the incident.
9. An annual instrumentation report shall be submitted to the Department which shall include, but not be limited to, thermistor, piezometer, inclinometer, water level, seepage pumpback, and survey data. The report shall be in summary form and in a format acceptable to the Department. The annual instrumentation report is due by March 31 of each year.
10. An annual water management plan shall be submitted to the Department by April 30 of each year during active mine operations which shall include, but not be limited to:
 - a description of the accumulated tailings, the amount of water discharged in the preceding year, and the remaining storage capacity of the tailings storage facility
 - an updated water balance graph based on the most current actual data available that includes the historic and projected water levels in the TSF pond, a comparison to the remaining stages of the dam, and the current estimated construction schedule for those stages
 - a current input file for the computer water balance model
 - other information pertinent to the operation and performance of the tailings storage facility and dam
11. An annual dam performance report prepared by an engineer qualified in accordance with 11 AAC 93.193(b) shall be submitted to the Department by October 31 of each year during active mine operations. At a minimum, the report shall include:
 - the findings of a visual inspection of the dam when it is clear of snow
 - photographs of key features of the dam and appurtenant works and other observations during the visual inspection
 - a review and evaluation of routine inspection and maintenance reports
 - a review and evaluation of monitoring data included in the instrumentation report required under Special Condition 9 and any additional monitoring data available at the time of the site visit

The report shall be in summary form and in a format acceptable to the Department. This requirement is waived for each year that a PSI is conducted, but the PSI must include the above listed information in addition to meeting the other requirements of 11 AAC 93.159.

12. An application for a certificate of approval must be submitted to the Department for any modifications, including raising the dam and mine closure modifications; or major repairs that may affect the safety of the dam; or for removal or abandonment of the dam; or for transfer of ownership during mine operations.
13. By December 31, 2021, the financial assurance required by 11 AAC 93.171(f)(2)(C) and 11 AAC 93.172(a)(6)(C) must be demonstrated for the following:
 - Modification of the Red Dog Tailings Main Dam and appurtenant works to a final, post-closure operating configuration including consideration for premature closure

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Red Dog Tailings Main Dam

- Post-closure monitoring, operation, maintenance, and inspection of the dam and appurtenant works

The specific tasks and cost estimates may be included as discrete line items in the reclamation and closure plan required under 11 AAC 97.310. The methods of financial assurance, the proposed final, post-closure configuration, the post-closure monitoring, operation, maintenance and inspection requirements, the respective cost estimates and the schedule for posting the financial assurance are subject to approval by the Department. The Department's approval may be withdrawn, and additional financial assurance may be required, if the Department determines that circumstances at the mine or otherwise so require.

14. This *Certificate of Approval to Operate a Dam* expires on October 2, 2023.

End of Attachment A

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