

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MINING, LAND AND WATER

DAM SAFETY AND CONSTRUCTION UNIT



Certificate of Approval to Modify 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 modify the following structure at the **Red Dog Mine** 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, T30N, R18W, Kateel River Meridian

The holder of this certificate shall:

- Modify the dam and appurtenant works in accordance with construction documents listed 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 listed in Attachment B, attached hereto and made a part hereof.

ORIGINAL

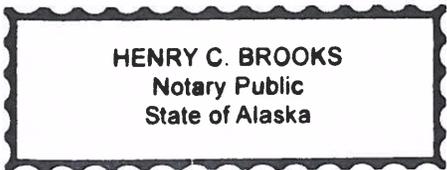
CERTIFICATE OF APPROVAL TO MODIFY A DAM
Red Dog Tailings Main Dam

This *Certificate of Approval to Modify a Dam* is granted subject to the pertinent statutory provisions in AS 46.17 and the Administrative Regulations in 11 AAC 93. This certificate is valid only for the time period indicated in Attachment B.

APPROVED BY: Charles F. Cobb
TITLE: State Dam Safety Engineer
Division of Mining, Land and Water
SIGNATURE: Charles F. Cobb
DATE: May 19, 2020

State of Alaska)
) SS.
Third Judicial District)

This is to certify that on May 19, 2020, 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 MODIFY A DAM
Red Dog Tailings Main Dam

Attachment A – Construction Documents

DRAWINGS

Teck Alaska Incorporated
Tailings Main Dam
Stage XI Raise Detailed Design Drawings
Stage XI-A Interim Raise to EL. 991 Ft
Red Dog Mine, Alaska (28 Drawings)
Marked "Issued For Construction"
Dated May 18, 2020

SPECIFICATIONS

Specifications for Construction of
Tailings Main Dam Stage XI Raise
Red Dog Mine – Alaska
Marked "Issued For Construction"
Dated May 18, 2020

CQA PLAN

Tailings Main Dam Stage XI Raise
Red Dog Mine Alaska
Construction Quality Assurance Plan
Marked "Issued For Construction"
Dated May 18, 2020

End of Attachment A



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

Attachment B – Special Conditions

1. The Red Dog Tailings Main Dam (AK00201) is currently approved at a nominal crest elevation of 986 feet. This certificate approves raising the crest of the Red Dog Tailings Main Dam to the nominal crest elevation of 991 feet, to be operated as a Class I (high) hazard potential classification dam as defined in 11 AAC 93.157. The Red Dog Tailings Main Dam includes the main embankment and extended wing section on the east abutment.
2. Prior to raising the main dam section above the nominal crest elevation of 986 feet, the widening of the dam approved under *Certificate of Approval to Modify a Dam* number FY2019-30-AK00201 must be substantially completed to elevation 986 feet. Work on the wing dam section and the main dam section may occur independently.
3. Prior to raising the dam above elevation 991 feet or other modifications that may affect the safety of the dam, including mine closure modifications or abandonment of the dam, submit to the Department an application for a *Certificate of Approval to Modify a Dam* in accordance with the requirements of 11 AAC 93.171.
4. Any fill containing more than 5% fines passing the #200 sieve may not be placed under freezing conditions.
5. Any foundation area exposed under the dam or in the cut-off trenches shall be inspected and approved by a qualified geologist or geological engineer after the preparation described in Section 0200 - Excavation, of the approved construction specifications listed in Attachment A, and prior to the placement of any fill or geosynthetic materials. A geologic map containing bedrock types, fractures, faults, and other pertinent information that describes the foundation must be prepared by the qualified geologist or geological engineer, reviewed and approved by the design engineer, and included in the construction completion report required under Special Condition 9.
6. Any existing instrumentation potentially affected by this modification must be preserved and remain operational, or be replaced, unless specifically approved for removal or abandonment by the design engineer and the Department.
7. If any conditions are encountered which require substantial clarification, deviation or change in the design from the approved drawings and specifications, the clarification, deviation or change must be approved in writing by the design engineer and submitted to the Department. Any clarification, deviation or change that could affect the safety of the dam must be approved in writing by the Department before continuing that aspect of construction. The design engineer shall maintain a sequentially numbered record of all clarifications, deviations and changes in the design and construction for inclusion in the construction completion report required under Special Condition 9.
8. Within 14 days of the date of this certificate, submit a construction schedule to the Department.
9. No water may be impounded against or tailings discharged from the raised section of the Red Dog Tailings Main Dam until a current *Certificate of Approval to Operate a Dam* is

**CERTIFICATE OF APPROVAL TO MODIFY A DAM
Red Dog Tailings Main Dam**

issued by the Department. The Department will issue a current *Certificate of Approval to Operate a Dam* including any other pertinent terms and conditions, upon review and approval of the following submittals:

- Construction completion report prepared in accordance with the requirements of 11 AAC 93.171(f)(6)(A) including design change details and approvals
 - A current operation and maintenance manual prepared in accordance with the requirements of 11 AAC 93.197
 - A current emergency action plan developed in accordance with the requirements of 11 AAC 93.164.
10. Notify the Department within one week after the date of substantial completion of the approved modification. Submit the post-construction documentation listed under Special Condition 9 within approximately 60 days of substantial completion.
11. Commence construction by the first day of June of the second calendar year after the date of this certificate. If construction does not begin by this date, an updated application must be submitted in accordance with 11 AAC 93.171 for review and approval by the Department, including application fees required under 11 AAC 05.101.
12. This certificate shall expire December 31, 2021

End of Attachment B

D/F:J:/damsafe/dam projects/reddog/certificates/COAMOD FY2020-23-AK00201 - Stage XI-A raise.docx

ORIGINAL