

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 Alaska Statute Title 46 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 Back Dam (NID ID# AK00303)

The location of this project is: S31, T31N, R18W, Kateel River Meridian

The holder of this certificate shall:

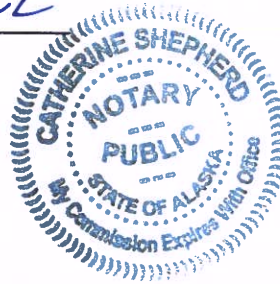
- Modify the dam and appurtenant works in accordance with the construction documents listed in Attachment A.
- Except for claims or losses arising from negligence of the State, defend and indemnify the State against, and hold it harmless from any and all claims, demands, legal actions, loss, liability 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.

CERTIFICATE OF APPROVAL TO MODIFY A DAM
Red Dog Tailings Back 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, P.E.
TITLE: State Dam Safety Engineer
Division of Mining, Land and Water
SIGNATURE: Charles F. Cobb
DATE: May 17, 2022

State of Alaska)
) SS.
Third Judicial District)



This is to certify that on May 17, 2022, 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.

Catherine Shepherd
Notary Public in and for the State of Alaska

My Commission expires: with office

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

Attachment A – Approved Construction Documents

DRAWINGS

Teck Alaska Incorporated
Tailings Back Dam Stage V Raise
Red Dog Mine, Alaska
Stage V Raise to Elevation 1007.4 FT
Marked “REVISED TO NEW LDP
COORDINATE SYSTEM”

<i>Drawing Number</i>	<i>Revision</i>	<i>Title</i>	<i>Date</i>
001	2	Cover Sheet	5/6/2022
002	2	Initial Construction Conditions	5/6/2022
003	2	Stage V Excavation Plan	5/6/2022
004	2	Stage V Embankment Grading Plan (1 of 2)	5/6/2022
005	2	Stage V Embankment Grading Plan (2 of 2)	5/6/2022
006	2	Typical Embankment Section	5/6/2022
007	2	Stage V Cut-Off Wall Profile	5/6/2022
008	2	Cut-Off Wall Details	5/6/2022

SPECIFICATIONS

Specifications for
Construction of Tailings Back Dam
Stage V Raise
Red Dog Mine – Alaska
Rev. 1, dated 5/6/2022
Marked “REVISED FOR LDP
COORDINATE SYSTEM”

**CONSTRUCTION
QUALITY
ASSURANCE PLAN**

Tailings Back Dam Stage V Raise
Red Dog Mine Alaska
Construction Quality Assurance Plan
Rev. 1, dated 5/6/2022
Marked “REVISED FOR LDP
COORDINATE SYSTEM”

End of Attachment A

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

Attachment B – Special Conditions

1. The Red Dog Tailings Back Dam (AK00303) cut-off wall and embankment is currently approved at a nominal crest elevation of 997.6 feet. This certificate approves raising the crest of the Red Dog Tailings Back Dam to the crest elevation of 1007.4 feet in NAVD88 (GEOID12B) vertical datum in two stages referred to as Stage V-A and Stage V-B, plus insulation and limited cover fill. The work must be completed as indicated in the construction documents listed in Attachment A.
2. During the modification and after construction is complete, the Red Dog Tailings Back Dam is to be operated as a Class I (high) hazard potential classification dam as defined in 11 AAC 93.157.
3. All work associated with the modification of the dam and appurtenant works must be observed and inspected by an engineer qualified in accordance with 11 AAC 93.193(c) for compliance with the approved drawings, specifications and construction quality assurance/quality control documents listed in Attachment A, and for developing the construction completion report required under Special Condition 6.
4. Any fill containing more than 5% fines passing the #200 sieve may not be placed under freezing conditions.
5. 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 6.
6. No water or tailings may be impounded or deposited against the raised section of the Red Dog Tailings Back Dam until a *Certificate of Approval to Operate a Dam* is issued by the Department. The Department will issue a *Certificate of Approval to Operate a Dam* including any 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 for each stage of completion
 - A current operation and maintenance manual prepared in accordance with the requirements of 11 AAC 93.197 for each stage of operation
 - A current emergency action plan developed in accordance with the requirements of 11 AAC 93.164(e).
7. Notify the Department within one week after the date of substantial completion of each stage of completion. Submit the post-construction documentation listed under Special Condition 6 within approximately 60 days of substantial completion.
8. 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.

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

9. 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 for review and approval by the Department, including application fees required under 11 AAC 05.010.
10. Requirements for post-closure operation including seepage management and instrumentation monitoring must be included in the financial assurance required under Special Condition 11.
11. No later than September 23, 2026, adequate 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 Back Dam and appurtenant works to a final, post-closure operating configuration including consideration for premature closure
 - Post-closure monitoring, operation, maintenance, and inspection of the dam and appurtenant works, as necessary

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.

12. Unless completed under provisions for design changes in Special Condition 5, no later than July 30, 2022, submit a plan and schedule to address outstanding recommendations of the engineer of record included in the report *Detailed Design Tailings Back Dam Stage V—Crest Elevation 1,006 Feet* by Golder Associates dated April 12, 2021. This includes additional seepage collection wells described and recommended in Appendix C and instrumentation described and recommended in Appendix G of the cited report.
13. This certificate of approval expires on June 2, 2025.

End of Attachment B