

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.

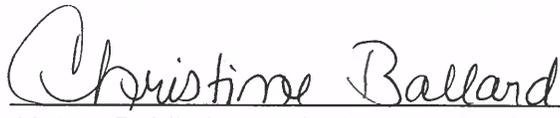
**CERTIFICATE OF APPROVAL TO MODIFY A DAM
Red Dog Tailings Back Dam**

This *Certificate of Approval to Modify a Dam* is granted subject to the pertinent statutory provisions in AS 46.15 and 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: 
DATE: May 14, 2018

State of Alaska)
) SS.
Third Judicial District)

This is to certify that on May 14th, 2018, 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.


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 Inc.
Tailings Back Dam, Red Dog Mine
Stage IV Design Crest Elevation 996 Feet
Marked "ISSUED FOR CONSTRUCTION"

<i>Drawing Number</i>	<i>Revision</i>	<i>Title</i>	<i>Date</i>
T1	0	Title Sheet	3/31/2018
C1	0	Stage III (Existing Conditions) Plan View	3/31/2018
C2	0	Stage IV Excavation Plan and Crest Profile	3/31/2018
C3	0	Stage IV Back Dam Embankment Grading (1 of 2)	3/31/2018
C4	0	Stage IV Back Dam Embankment Grading (2 of 2)	3/31/2018
C5	0	Stage IV Back Dam Cut-off Wall Profile	3/31/2018
C6	0	Typical Embankment Section	3/31/2018
C7	0	Instrumentation Plan	3/31/2018
D1	0	Abutment Details	3/31/2018
D2	0	Cut-off Wall Raise Details	3/31/2018
D3	0	Instrumentation Details (1 of 2)	3/31/2018
D4	0	Instrumentation Details (2 of 2)	3/31/2018

SPECIFICATIONS

Specifications for
Construction of Tailings Back Dam
Stage IV Raise
Red Dog Mine – Alaska
Rev. 0, dated 3/31/2018
Marked "ISSUED FOR CONSTRUCTION"

CONSTRUCTION QUALITY ASSURANCE PLAN

Red Dog Tailings Back Dam Stage IV Raise
Construction Quality Assurance Plan
March 2018 Rev. 0

End of Attachment A

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

Attachment B – Special Conditions

1. This certificate approves the modification of the Red Dog Tailings Back Dam cut-off wall and embankment from its current nominal crest elevation at 986 feet to a nominal crest elevation of 996.5 feet as indicated in the drawings 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 II (significant) hazard potential classification dam as defined in 11 AAC 93.157. The hazard potential classification will increase to Class I (high) hazard potential classification commensurate with the respective raise of the Red Dog Tailings Main Dam (AK00201).
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 7.
4. 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 7.
5. By June 15, 2018 submit a construction schedule to the Department including the geotechnical investigation proposed in 2018.
6. Submit the results of the 2018 geotechnical investigation and hydrogeological studies no later than March 31, 2019.
7. 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
 - 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(e).

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

8. Notify the Department within 14 days after the date of substantial completion of the approved modification. Submit the post-construction documentation listed under Special Condition 6 within approximately 60 days of substantial completion.
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. 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 provided 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.

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 operating configuration, the post-closure monitoring, operation, maintenance and inspection requirements and the respective cost estimates 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.

End of Attachment B

D/F:daminfo/projects/reddog/backdam/certificates/COAMOD FY2018-21-AK00303