

DISTRIBUTION

Docket File 40-8084

PDR

WMUR r/f

WMUR w/f

NMSS r/f

NRC Region IV

RTWoolsey

HJPettengill

DEMartin

JJLinehan

RDSmith

REBrowning

JBMartin

BFisher

SEP 30 1982

WMUR:RTW
Docket No. 40-8084
04008084150E
04008084100S

MEMORANDUM FOR: Docket File No. 40-8084
FROM: Roger T. Woolsey, Project Manager
Operating Facility Section II, WMUR, NMSS
SUBJECT: REVIEW OF TWO CONSTRUCTION REPORTS FOR A FIFTEEN (15)
FOOT EMBANKMENT RAISE IN RIO ALGOM CORPORATION'S
(RAC'S) LOWER TAILINGS DAM PERFORMED BY DAMES & MOORE
(D&M) AND REGION IV, I&E

Dames and Moore Inspection

By letter dated June 4, 1982, RAC submitted to the NRC the construction report required by License Condition No. 42 of License No. SUA-1119 covering the construction, quality control methods and test results associated with the recent 15 foot raise of the lower tailings embankment to a Stage I dam crest elevation of 6651.0 ft. msl by constructing a downstream embankment addition at the location and to the specifications indicated on the design drawings. This inspection was covered by an experienced geotechnical engineer on a full time basis during the entire time that construction was in progress and also included the placement of the spillway (flood-control) structure in the upper dam.

D&M stated that their full time inspection and materials testing program which was maintained during the construction activities included the following:

1. Approval of stripping operations.
2. Testing and approval of the proposed borrow materials.
3. Material placement gradation and compaction of fill materials including materials testing relative to required density gradation and moisture content.
4. Approval of the installation of pore pressure transducers.
5. Monitoring placement and construction of the spillway structure at the Upper Dam Embankment.

40-8084/mab/82/09/15/2

20513
20168

8210210515 820930
PDR ADOCK 04008084
OFC : C PDR

NAME :
DATE : 82/09/15

OFFICIAL DOCKET COPY

SEP 30 1982

6. Discussions on modifications that developed during construction and how they were resolved.

This report included as-built drawings, typical installation details, and summaries of quality control testing and demonstrated that the embankment raise had been constructed in accordance with the design specifications.

Design Modification

During the construction of the 15 foot embankment addition it was necessary to implement one minor change (see pages 3 & 4 of the D&M construction inspection report). Instead of extending the graded sand chimney to the level of the embankment crest, as originally proposed, the chimney was terminated five feet below the crest. Since this modification increases the amount of fine silt material covering the sand zone and thus reduces the potential occurrence of seepage through the upper most area of the upstream slope, I have no objection to this modification.

T. L. Johnson reviewed modifications to the hydraulic design of the spillway structure installed to pass water from the upper to the lower impoundments, which D&M stated had been essential to the construction and placement of the spillway structure. T. L. Johnson stated, that based on his review of these modifications they would have no effect on the hydraulic safety or the storage capacity of the overall tailings impoundment system. In addition, Mr. Johnson inspected the as-built spillway pipes during a site visit to the facility on April 13, 1982, and concluded that the modification has been acceptably constructed. The following reasons were given by D&M for these changes.

1. Tilting the axis of the arch pipe culverts into a slightly more east to west orientation provided a better flow direction for the discharge.
2. Shifting of the arch pipe culverts upstream approximately 7.5 feet oriented the mid-length of the pipe culverts below the embankment crest centerline and eliminated an otherwise vertical drop at the pipe discharge.

40-8084/mab/82/09/15/2

OFC	:	:	:	:	:	:	:
NAME	:	:	:	:	:	:	:
DATE	:	:	:	:	:	:	:

OFFICIAL DOCKET COPY

SEP 30 1982

3. Constructing the inlet structure to the arch pipe culverts using compacted, fine silt soils, maintained the high pond level from a recent storm outside the construction area.
4. It was necessary to reduce the 10 foot inlet dimension to approximately 6 to 7 feet due to unstable foundation support conditions for even relatively light construction equipment.
5. Extending the seepage collars to bedrock which ranged from 6.0 to 24.0 inches below the pipe invert grade.
6. Raising grade at the inlet structure from elevation 6683.5 feet to 6683.7 feet to account for anticipated settlement.

Region IV I&E Inspection Report

This post construction inspection was performed by two NRC inspectors who reviewed Technical Specifications and records of tests performed in the field on January 6, 1982. The I&E inspection report was dated January 21, 1982.

Observation

The inspectors observed the general structure of the completed embankment but could not perform a more detailed observation due to snow coverage over the entire dam.

The inspectors reviewed the following records and noted that all accepted tests were in compliance with the Technical Specifications contained in the license.

- A. Compaction Tests
- B. Gradation Tests
- C. Field Engineer Daily Log
- D. Review of Drawings and Details

40-8084/mab/82/09/15/2

OFC	:	:	:	:	:	:
NAME	:	:	:	:	:	:
DATE	:	:	:	:	:	:

OFFICIAL DOCKET COPY

Docket File No. 40-8084
04008084150E
04008084100S

- 4 -

SEP 30 1982

My review of these reports indicated that the requirements of License Condition Nos. 39 and 45 have been met and no further action is required by the licensee.

Original signed by

Roger T. Woolsey, Project Manager
Operating Facility Section II
Uranium Recovery Licensing Branch

Original signed by

Approved by:

H. J. Pettengill, Section Leader
Operating Facility Section II
Uranium Recovery Licensing Branch

Cases Closed: 04008084150E
04008084100S

40-8084/mab/82/09/15/2

OFC	: WMUR/	: WMUR	: WMUR	: WMUR	:	:
NAME	: RTWoolsey:ag	: HJPettengill	: BFisher	: TLJohnson	:	:
DATE	: 82/09/25	: 9/29/82	: 9/29/82	: 9/28/82	:	:

OFFICIAL DOCKET COPY