

Rio Algom Mining Corp.

June 13, 1994

Certified Mail
Return Receipt Requested Z 147 271 307

Mr. Joe Holonich, Branch Chief
Uranium Recovery Branch
Division of Low-Level Waste Management and Decommissioning, NMSS (5 E2)
Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20850

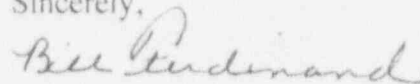
Re: Lisbon Facility
License SUA-1119, Docket No. 40-8084
Tailings Technical Evaluation

Dear Mr. Holonich:

Enclosed pursuant to license condition #44 (E), is the annual technical evaluation for Lisbon's upper and lower tailings impoundment and the Bisco Lake embankment. The findings indicate continued stability and safety of the impoundments.

If you have any questions or need further information in this regards, please call at (405) 842-1773.

Sincerely,



Bill Ferdinand, Manager
Radiation Safety, Licensing &
Regulatory Compliance

Attachments: as stated

xc: F. Fossey/T. Warner
M. Freeman
NRC - Division of Radiation Safety and Safeguards (Arlington)
file

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PDR ADOCK 04008084
C PDR

6305 Waterford Boulevard, Suite 325, Oklahoma City, Oklahoma 73118 • (405) 848-1190 • FAX (405) 848-1208

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NHOS



EarthFax

EarthFax
Engineering Inc.
Engineers/Scientists
7324 So. Union Park Ave.
Suite 100
Midvale, Utah 84047
Telephone 801-561-1555
Fax 801-561-1861

May 26, 1994

Mr. Frank G. Fossey
Rio Algom Mining Corp.
LaSal Route
Moab, Utah 84532

Subject: Bisco Lake Dam Inspection
Upper Tailings Dam Inspection
Lower Tailings Dam Inspection

Dear Frank:

On May 2, 1994, I made a visual inspection of the Subject dams and structures at the Lisbon facility. Enclosed are the reports of my inspections (three copies of each report are enclosed). I also reviewed and evaluated the inspection program for Rio Algom Mining Corp.'s Lisbon Facility.

Areas included in the inspection, review and evaluation, are evaporation cell freeboard records, piezometer records, inspection reports, summary of construction activities, and the results of my physical inspection and evaluation of the structures at the Lisbon facility.

Evaporation Cells

A review of weekly freeboard data for the upper tailings evaporation cell during the period March 1, 1993 through April 30, 1994 were found to be complete and in order. The maximum water surface elevation during the period was 6693.61 feet (MSL).

A review of the weekly freeboard data for the new lower tailings evaporation cell, since construction, through April 30, 1994, were found to be complete and in order. The maximum water surface elevation during the period was 6648.04 feet (MSL).

Piezometers

The piezometers for the Upper Tailings Dam, U3 and U4, were sampled quarterly and found to be dry during each sampling event. Review of past results indicate piezometers U3 and U4 have been historically dry. The review documented each had been performance tested as part of the annual check to ensure proper functioning. Both piezometers were found to be functioning properly.

Piezometers #1 and #2 for the Lower Tailings Dam were tested during all quarters. Results for all quarters for piezometers #1 and #2 showed the wells continue to be dry.

Inspection Reports

A review of the required documentation regarding the weekly freeboard checks on the upper tailings evaporation cell and on the lower tailings evaporation cell was performed, and it was found the inspections had been conducted as required by NRC. All necessary information had been recorded and graphed. All weekly inspections indicated acceptable freeboard.

On a monthly basis, each evaporation cell is inspected for erosion formed gullies on the outslope, wave form notches and benches on the inslope, signs of structural stress, seepage, ruts in the crest and rodent activity. The inspection reports performed by the Rio Algom staff were complete and found to be acceptable. Some wave erosion has occurred on the inside slopes at both the upper and lower evaporation cell berms. The erosion has not yet progressed to a point where any berm is unstable. It is my understanding that Rio Algom plans to repair the eroded areas.

The monthly embankment inspection reports for the Upper Tailings Impoundment, Lower Tailings impoundment, and Bisco Lake berm were reviewed and also found to be complete. The inspections examined; the downstream face of the abutments, embankment slopes and toes, embankment structure contacts, downstream areas for evidence of existing or past seepage, protective cover and rodent activity. Other than minor rills which present no risk to embankment stability, no significant areas of concerns were noted. Additionally, records indicate Bisco Lake had remained dry throughout the reporting period with the exception of minor precipitational run-on water.

Also reviewed were the quarterly inspections and documentation conducted by the Rio Algom staff. The quarterly inspection reports are a repetitive examination of all monthly reports on the structures to ensure timely actions are implemented on those areas needing corrective action. A review of the quarterly inspections documented they were complete with no areas requiring corrective actions.

Finally, the review of the quarterly inspections for the diversion channel from the Lower Tailings impoundment and the main diversion channel were examined and found to be complete and in order. The inspection includes channel bank erosion, bed aggradation or degradation and siltation, undesirable vegetation obstructions, and any unusual or inadequate operational behavior. No significant items of concerns were noted.

During the review period, March 1993 through April 1994, three items of construction were accomplished. An evaporation cell was built over a portion of the lower tailings pond and part of the berm is presently being widened on the evaporation cell on the upper tailings. Also, a portion of the outslope on the lower tailings dam was modified from a 3H:1V slope to a 5H:1V slope.

Observation of the evaporation cell on the lower tailings, and review of the 11-15-93 construction report submitted by Rio Algom to the U.S. Nuclear Regulatory Commission indicates that this construction meets standards. I understand Rio Algom plans to repair some wave erosion that has occurred on the inside face of the berm.

The widening of part of the berm on the evaporation pond on the upper tailing appears to be following good engineering practice. Again, I understand Rio Algom plans to repair some wave erosion that has occurred on the inside face of the berm.

It is my understanding that the work on the outslope of the lower tailings dam followed good engineering practice, and that the quality of construction, materials used, and testing accomplished, was similar to that used while building the evaporation cell over part of the lower tailings.

Physical Inspection and Evaluation of Facility Structures

Please refer to the attached dam inspection reports for results of my physical inspection and evaluation of the facility structures.

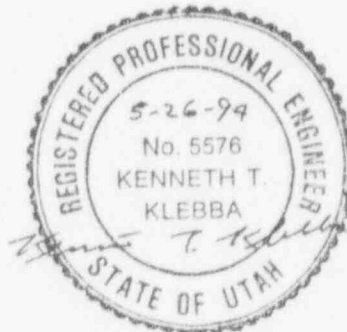
Let me know if I can be of further help to you.

Respectfully yours,

Kenneth T. Klebba

Kenneth T. Klebba
Civil Engineer

Enclosures



DAM NAME: BISCO LAKE - RIO ALGOM

HAZARD RATING: LOW COUNTY: SAN JUAN FOREST: BLM

INSPECTOR'S SIGNATURE: Kenneth T. Klebba DATE: 5-2-94

Government personnel at Inspection: NONE

Owner's Representative at Inspection: FRANK FOSSEY

Storage Level at Time of Inspection: NO WATER IN RESERVOIR

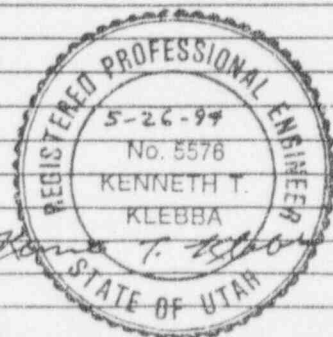
Outflow: Outlet: NONE Spillway: NONE

Weather: CLEAR, 40°F, LIGHT NW BREEZE

Note: A [No] in the Not Applicable column means not observed due to current field conditions.

EMBANKMENT	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
	* NO DESIGN AVAILABLE				
Meets Design*	[]	[]	[]	[]	[]
Settling	[]	[✓]	[]	[]	[]
Slumps/Sloughing	[]	[✓]	[]	[]	[]
Cracking	[]	[✓]	[]	[]	[]
Erosion	[]	[✓]	[]	[]	[]
Seepage	[]	[✓]	[]	[]	[]
Drains	[]	[✓]	[]	[]	[]
Riprap	[✓]	[]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Rodents	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]

Comments and Photographs: SEE PAGE 5/13 FOR PHOTO LOCATIONS



ABUTMENTS AND FOUNDATION	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
Settling	[]	[✓]	[]	[]	[]
Cracking	[]	[✓]	[]	[]	[]
Slumps	[]	[✓]	[]	[]	[]
Bulging	[]	[✓]	[]	[]	[]
Seepage	[]	[✓]	[]	[]	[]
Ponding	[]	[✓]	[]	[]	[]
Sinkholes	[]	[✓]	[]	[]	[]
Erosion	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]

Comments and Photographs: SEE PG. 5/13 FOR PHOTO LOCATIONS

SPILLWAY	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
* DESIGN NOT AVAILABLE					
Meets Design *	[]	[]	[]	[]	[]
Freeboard *	[]	[]	[]	[]	[]
Control Operation	[]	[✓]	[]	[]	[]
Leakage					
From Spillway	[]	[✓]	[]	[]	[]
Into Spillway	[]	[✓]	[]	[]	[]
Erosion	[]	[✓]	[]	[]	[]
Siltation	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Outfall Channel	[]	[✓]	[]	[]	[]
Concrete Structure					
Settlement	[✓]	[]	[]	[]	[]
Cracks & Spalls	[✓]	[]	[]	[]	[]
Waterstops	[✓]	[]	[]	[]	[]
Undercutting	[✓]	[]	[]	[]	[]
Weep Holes/Drains	[✓]	[]	[]	[]	[]

Comments and Photographs: SEE PG. 5/13 FOR PHOTO LOCATIONS

RESERVOIR BASIN	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
Fractures	[]	[✓]	[]	[]	[]
Sinkholes	[]	[✓]	[]	[]	[]
Sedimentation	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Shore Stability	[]	[✓]	[]	[]	[]
Storage Gage	[]	[✓]	[]	[]	[]

Comments and Photographs: SEE PG. 5/13 FOR PHOTO LOCATIONS.
IF THE WATER DEPTH IN THE BASIN APPROACHES APPROXIMATELY
5', REGULATIONS REQUIRE THAT MORE FREQUENT
MONITORING BE ACCOMPLISHED.

OUTLET	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
* DESIGN NOT AVAILABLE					
Meets Design*	[]	[]	[]	[]	[]
Controls					
Access w/ Spill	[]	[✓]	[]	[]	[]
Operation	[]	[✓]	[]	[]	[]
Measuring Device	[✓]	[]	[]	[]	[]
Intake					
Siltation	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]
Trash Rack	[✓]	[]	[]	[]	[]
Conduit					
Displacement	[]	[✓]	[]	[]	[]
Deterioration	[]	[✓]	[]	[]	[]
Joints	[]	[✓]	[]	[]	[]
Blockage	[]	[✓]	[]	[]	[]
Leakage	[]	[✓]	[]	[]	[]
Camber	[]	[✓]	[]	[]	[]
Downstream Channel					
Pooling	[]	[✓]	[]	[]	[]
Backcutting	[]	[✓]	[]	[]	[]
Erosion	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]

Comments and Photographs: SEE PG. 5/13 FOR PHOTO LOCATIONS

DAM NAME:

BISCO LAKE - RIO ALGOM

PAGE 5/13

SKETCH - Indicate North, downstream, seeps, leaks, sinkholes etc.



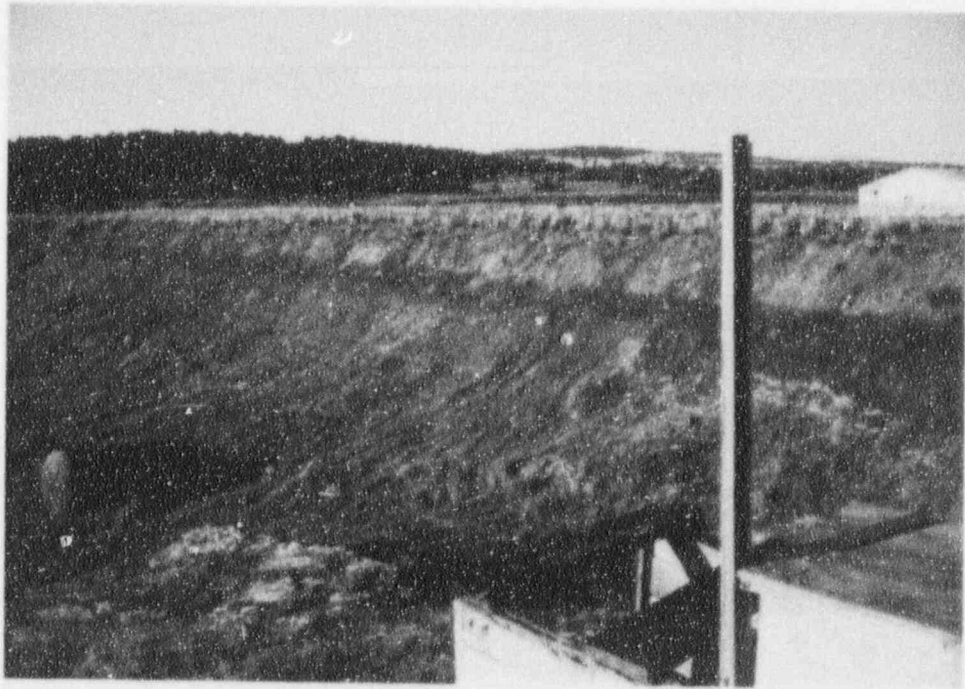


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BISCO LAKE - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



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BISCO LAKE - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



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BISCO LAKE - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94

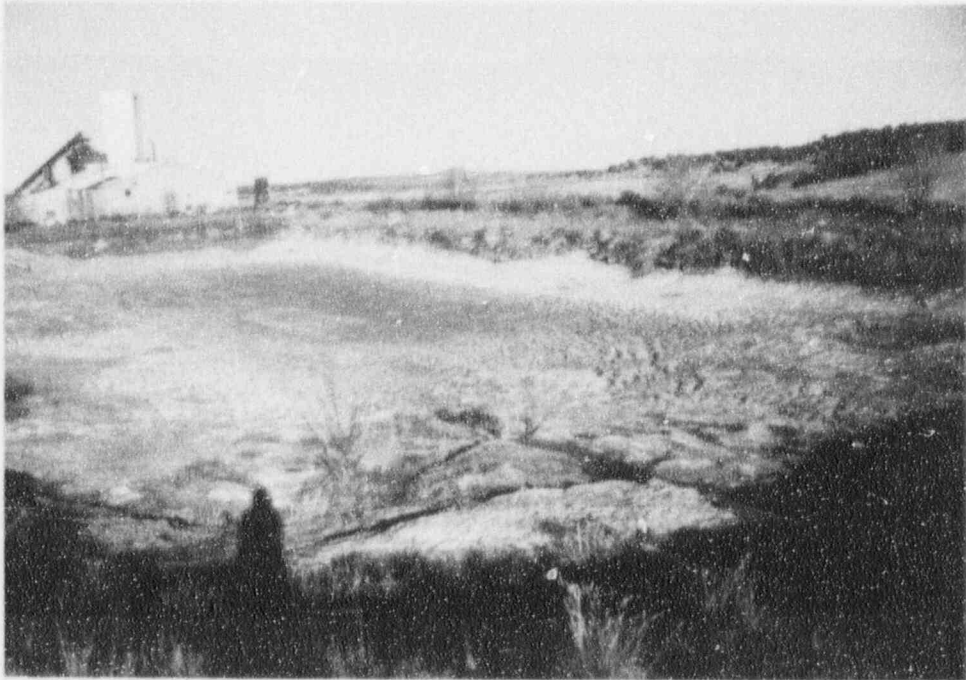


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BISCO LAKE - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94

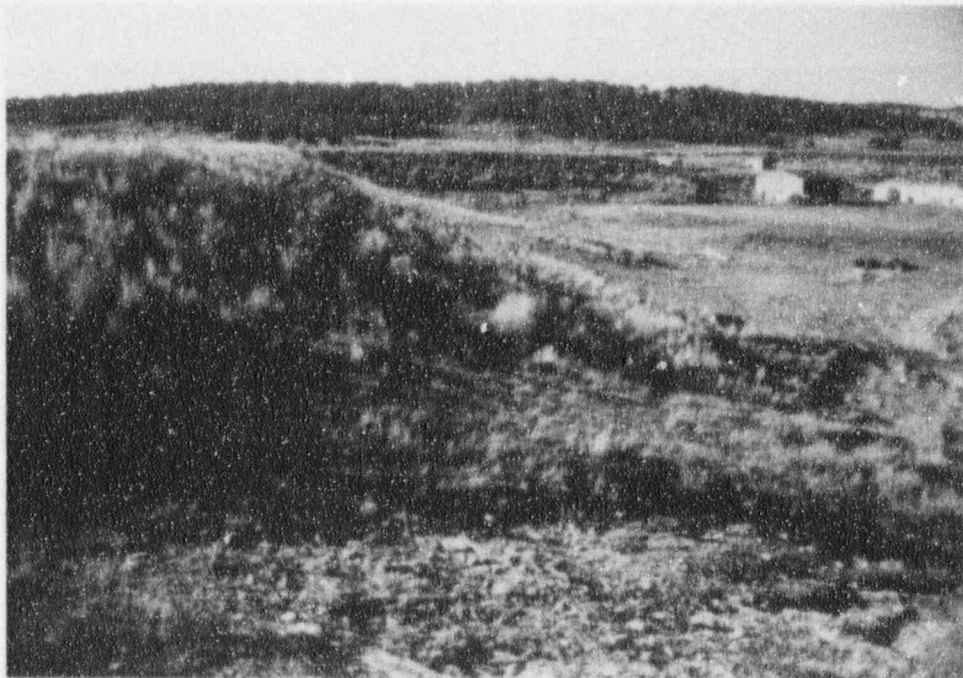


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BISCO LAKE - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



11



12

BISCO LAKE - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



13



14

BISCO LAKE - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



(15)

BISCO LAKE - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94

EARTHPAX ENGINEERING, INC.

DAM NAME: UPPER TAILINGS - RIO ALGOM

HAZARD RATING: LOW COUNTY: SAN JUAN FOREST: BLM

INSPECTOR'S SIGNATURE: Kenneth T. Klebba DATE: 5-2-94

Government personnel at Inspection: NONE

Owner's Representative at Inspection: FRANK FOSSEY

Storage Level at Time of Inspection: TAILINGS IN RESERVOIR ARE COVERED WITH A SOIL CAP AND PART OF THE AREA HAS AN EVAPORATION CELL APPROX. 3' DEEP ON TOP OF THE SOIL CAP

Outflow: Outlet: NONE Spillway: NONE

Weather: CLEAR, 45°F, LIGHT NW BREEZE

Note: A [No] in the Not Applicable column means not observed due to current field conditions.

EMBANKMENT	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
Meets Design	[]	[✓]	[]	[]	[]
Settling	[]	[✓]	[]	[]	[]
Slumps/Sloughing	[]	[✓]	[]	[]	[]
Cracking	[]	[✓]	[]	[]	[]
Erosion	[]	[]	[]	* [✓]	[]
Seepage	[]	[✓]	[]	[]	[]
Drains	[✓]	[✓]	[]	[]	[]
Riprap	[✓]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Rodents	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]



Comments and Photographs: SEE PAGE 5/14 FOR PHOTO LOCATIONS.

* WAVE EROSION HAS OCCURRED ON THE INSIDE FACE OF THE EVAPORATION CELL BERM. RIO ALGOM IS PRESENTLY WIDENING THE BERM ON THE OUTSIDE, AND IT IS MY UNDERSTANDING THAT RIO ALGOM PLANS TO REPAIR THE ERODED AREA. IN MY OPINION, THIS EROSION HAS NOT YET PROGRESSED TO A POINT WHERE THE BERM IS STRUCTURALLY UNSTABLE.

ABUTMENTS AND FOUNDATION	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
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Settling	[]	[✓]	[]	[]	[]
Cracking	[]	[✓]	[]	[]	[]
Slumps	[]	[✓]	[]	[]	[]
Bulging	[]	[✓]	[]	[]	[]
Seepage	[]	[✓]	[]	[]	[]
Ponding	[]	[✓]	[]	[]	[]
Sinkholes	[]	[✓]	[]	[]	[]
Erosion	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]

Comments and Photographs: SEE PAGE 5/14 FOR PHOTO LOCATIONS

SPILLWAY	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
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Meets Design	[]	[✓]	[]	[]	[]
Freeboard	[]	[✓]	[]	[]	[]
Control Operation	[✓]	[]	[]	[]	[]
Leakage					
From Spillway	[]	[✓]	[]	[]	[]
Into Spillway	[]	[✓]	[]	[]	[]
Erosion	[]	[]	[✓]	[]	[]
Siltation	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Outfall Channel	[]	[✓]	[]	[]	[]
Concrete Structure					
Settlement	[✓]	[]	[]	[]	[]
Cracks & Spalls	[✓]	[]	[]	[]	[]
Waterstops	[✓]	[]	[]	[]	[]
Undercutting	[✓]	[]	[]	[]	[]
Weep Holes/Drains	[✓]	[]	[]	[]	[]

Comments and Photographs: SEE PG. 5/14 FOR PHOTO LOCATIONS

RESERVOIR BASIN	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
Fractures	[]	[✓]	[]	[]	[]
Sinkholes	[]	[✓]	[]	[]	[]
Sedimentation	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Shore Stability	[]	[✓]	[]	[]	[]
Storage Gage	[✓]	[]	[]	[]	[]

Comments and Photographs: SEE PAGE 5/14 FOR PHOTO LOCATIONS

OUTLET	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
Meets Design Controls	[✓]	[]	[]	[]	[]
Access w/ Spill Operation	[✓]	[]	[]	[]	[]
Measuring Device	[✓]	[]	[]	[]	[]
Intake					
Siltation	[✓]	[]	[]	[]	[]
Debris	[✓]	[]	[]	[]	[]
Trash Rack	[✓]	[]	[]	[]	[]
Conduit					
Displacement	[✓]	[]	[]	[]	[]
Deterioration	[✓]	[]	[]	[]	[]
Joints	[✓]	[]	[]	[]	[]
Blockage	[✓]	[]	[]	[]	[]
Leakage	[✓]	[]	[]	[]	[]
Camber	[✓]	[]	[]	[]	[]
Downstream Channel					
Pooling	[✓]	[]	[]	[]	[]
Backcutting	[✓]	[]	[]	[]	[]
Erosion	[✓]	[]	[]	[]	[]
Vegetation	[✓]	[]	[]	[]	[]
Debris	[✓]	[]	[]	[]	[]

Comments and Photographs: SEE PG. 5/14 FOR PHOTO LOCATIONS

SEEPAGE	location	gpm	sediment	comments
	1	[]	[]	SLIGHT SEEPAGE INTO THE EVAPORATION CELL
	2	[]	[]	DIKE WHERE WAVE EROSION HAS OCCURRED,
	3	[]	[]	
	4	[]	[]	

SLUMPS AND SINKHOLES	location	comments
	A	[NO SLUMPS OR SINKHOLES]
	B	
	C	[]

OVERALL COMMENTS AND RECOMMENDATIONS

1. VERY MINOR SURFACE EROSION HAS OCCURRED ON THE OUTSIDE LOWER FACE OF THE DAM WHERE THE VEGETATION IS NOT YET ESTABLISHED. IN MY OPINION, THIS CREATES NO L OVE RISK TO STABILITY

2. WAVE EROSION HAS OCCURRED ON THE INSIDE FACE OF THE EVAPORATION CELL BERM. RIO ALGOM IS PRESENTLY WIDENING THE BERM ON THE OUTSIDE, AND IT IS MY UNDERSTANDING THAT RIO ALGOM PLANS TO REPAIR THE ERODED AREA. IN MY OPINION, THE EROSION HAS NOT YET PROGRESSED TO A POINT WHERE THE BERM IS STRUCTURALLY UNSTABLE.

DAM NAME:

① UPPER TAILINGS - RIO ALGOM

SKETCH - Indicate North, downstream, seeps, leaks, sinkholes etc.

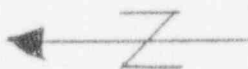
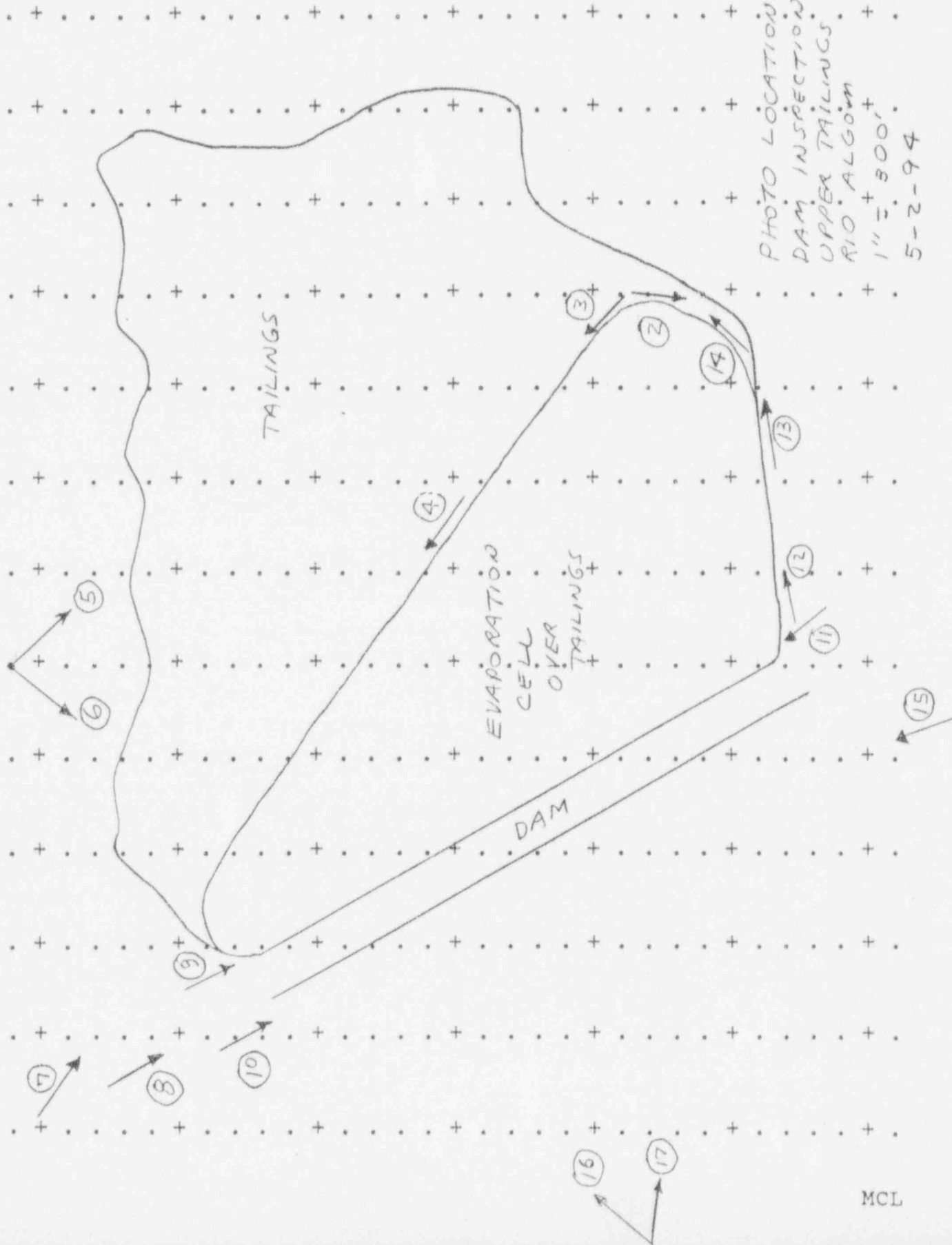


PHOTO LOCATIONS
DAM INSPECTION
UPPER TAILINGS
RIO ALGOM
1" = 500'
5-2-94





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UPPER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



3

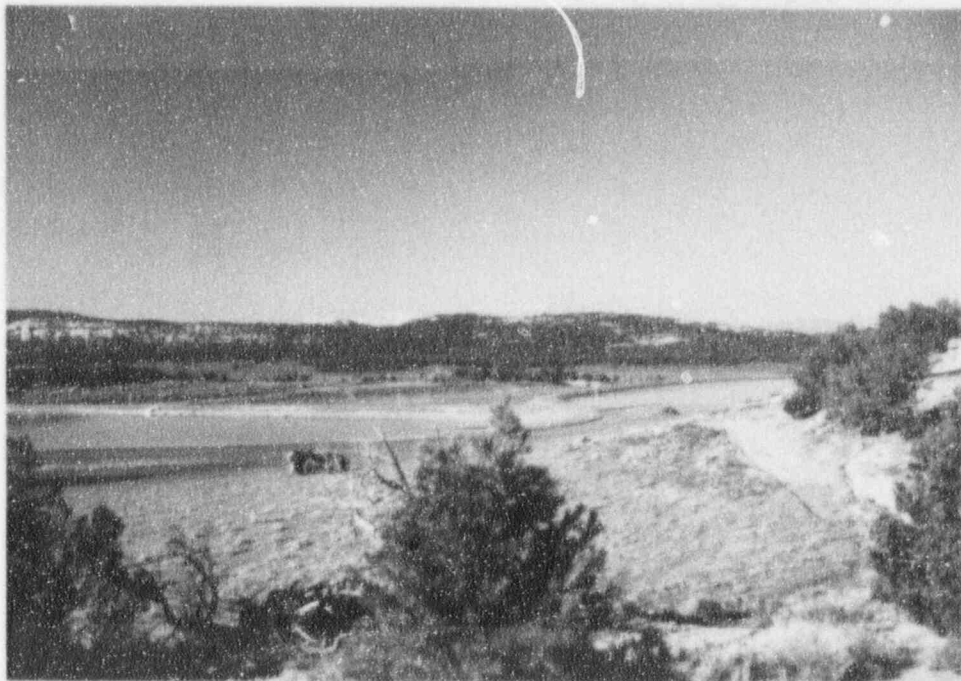


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UPPER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



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UPPER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



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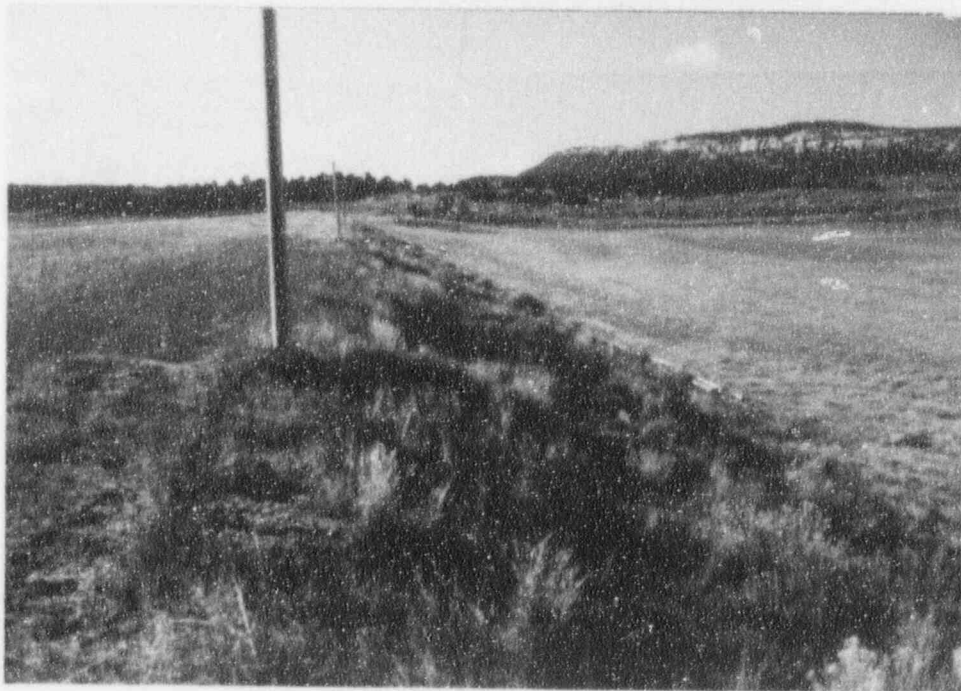


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UPPER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



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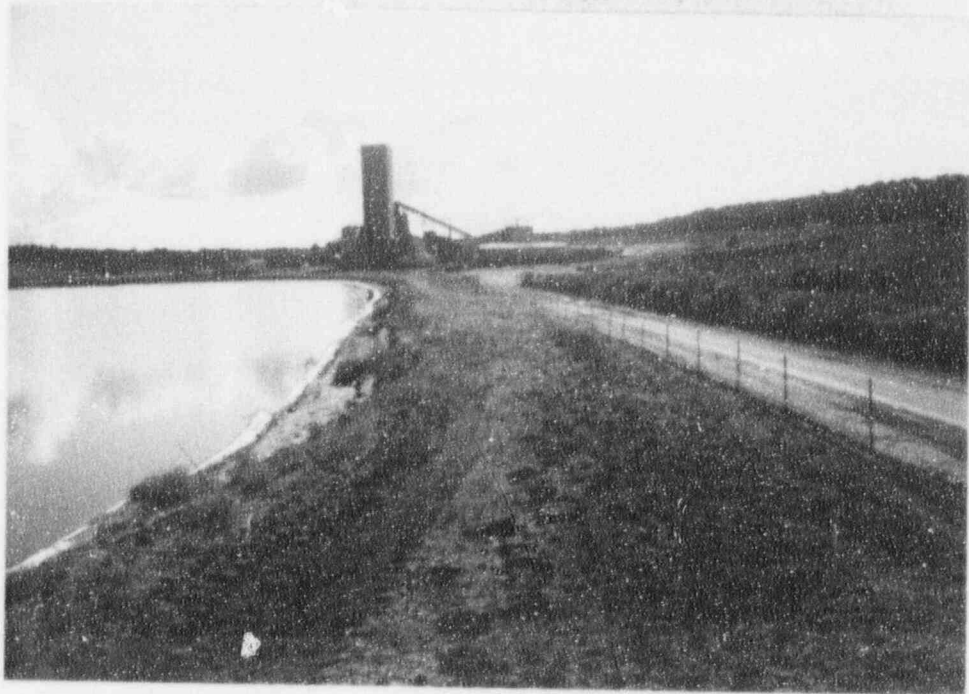


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UPPER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



11



12

UPPER TAILINGS - DAM INSPECTION PHOTOS
RID ALGOM
5-2-94



(13)



(14)

UPPER TAILINGS - DAM INSPECTION PHOTOS
RID ALGOM
5-2-94



15



16

UPPER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



17

UPPER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94

EARTHFAX ENGINEERING, INC.

DAM NAME: LOWER TAILINGS - RIO ALGOM

HAZARD RATING: LOW COUNTY: SAN JUAN FOREST: BLM

INSPECTOR'S SIGNATURE: Kenneth T. Keelba DATE: 5-2-94

Government personnel at Inspection: NONE

Owner's Representative at Inspection: FRANK FOSSEY

Storage Level at Time of Inspection: TAILINGS IN RESERVOIR ARE COVERED WITH A SOIL CAP, AND PART OF THE AREA HAS AN EVAPORATION CELL APPROX. 3' DEEP ON TOP OF THE SOIL CAP

Outflow: Outlet: NONE Spillway: NONE

Weather: CLEAR, 55°F, LIGHT NW BREEZE

Note: A [No] in the Not Applicable column means not observed due to current field conditions.

EMBANKMENT	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
Meets Design	[]	[✓]	[]	[]	[]
Settling	[]	[✓]	[]	[]	[]
Slumps/Sloughing	[]	[✓]	[]	[]	[]
Cracking	[]	[✓]	[]	[]	[]
Erosion	[]	[✓]	[]	[]	[]
Seepage	[]	[✓]	[]	[]	[]
Drains	[]	[✓]	[]	[]	[]
Riprap	[✓]	[]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Rodents	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]



Comments and Photographs: SEE PAGE 5/18 FOR PHOTO LOCATIONS.

* WAVE EROSION HAS OCCURRED ON THE INSIDE FACE OF THE NEW EVAPORATION CELL (BUILT DURING THE SUMMER OF 1993) BERM, IT IS MY UNDERSTANDING THAT RIO ALGOM PLANS TO REPAIR THE ERODED AREA. IN MY OPINION, THIS EROSION HAS NOT PROGRESSED TO A POINT WHERE THE BERM IS STRUCTURALLY UNSTABLE.

ABUTMENTS AND FOUNDATION Not Applicable No Problem Minor Problem Needs Repair Critical

Settling	[]	[✓]	[]	[]	[]
Cracking	[]	[✓]	[]	[]	[]
Slumps	[]	[✓]	[]	[]	[]
Bulging	[]	[✓]	[]	[]	[]
Seepage	[]	[✓]	[]	[]	[]
Ponding	[]	[✓]	[]	[]	[]
Sinkholes	[]	[✓]	[]	[]	[]
Erosion	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]

Comments and Photographs: SEE PG. 5/18 FOR PHOTOS

SPILLWAY Not Applicable No Problem Minor Problem Needs Repair Critical

Meets Design	[]	[✓]	[]	[]	[]
Freeboard	[]	[✓]	[]	[]	[]
Control Operation	[✓]	[]	[]	[]	[]
Leakage					
From Spillway	[]	[✓]	[]	[]	[]
Into Spillway	[]	[✓]	[]	[]	[]
Erosion	[]	[]	[✓]	[]	[]
Siltation	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Outfall Channel	[]	[✓]	[]	[]	[]
Concrete Structure					
Settlement	[✓]	[]	[]	[]	[]
Cracks & Spalls	[✓]	[]	[]	[]	[]
Waterstops	[✓]	[]	[]	[]	[]
Undercutting	[✓]	[]	[]	[]	[]
Weep Holes/Drains	[✓]	[]	[]	[]	[]

Comments and Photographs: SEE PG. 5/18 FOR PHOTO LOCATIONS

RESERVOIR BASIN	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
Fractures	[]	[✓]	[]	[]	[]
Sinkholes	[]	[✓]	[]	[]	[]
Sedimentation	[]	[✓]	[]	[]	[]
Debris	[]	[✓]	[]	[]	[]
Vegetation	[]	[✓]	[]	[]	[]
Shore Stability	[]	[✓]	[]	[]	[]
Storage Gage	[✓]	[]	[]	[]	[]

Comments and Photographs: SEE PAGE 5/18 FOR PHOTO LOCATIONS

OUTLET	Not Applicable	No Problem	Minor Problem	Needs Repair	Critical
Meets Design Controls	[✓]	[]	[]	[]	[]
Access w/ Spill Operation	[✓]	[]	[]	[]	[]
Measuring Device	[✓]	[]	[]	[]	[]
Intake					
Siltation	[✓]	[]	[]	[]	[]
Debris	[✓]	[]	[]	[]	[]
Trash Rack	[✓]	[]	[]	[]	[]
Conduit					
Displacement	[✓]	[]	[]	[]	[]
Deterioration	[✓]	[]	[]	[]	[]
Joints	[✓]	[]	[]	[]	[]
Blockage	[✓]	[]	[]	[]	[]
Leakage	[✓]	[]	[]	[]	[]
Camber	[✓]	[]	[]	[]	[]
Downstream Channel					
Pooling	[✓]	[]	[]	[]	[]
Backcutting	[✓]	[]	[]	[]	[]
Erosion	[✓]	[]	[]	[]	[]
Vegetation	[✓]	[]	[]	[]	[]
Debris	[✓]	[]	[]	[]	[]

Comments and Photographs: SEE PAGE 5/18 FOR PHOTO LOCATIONS

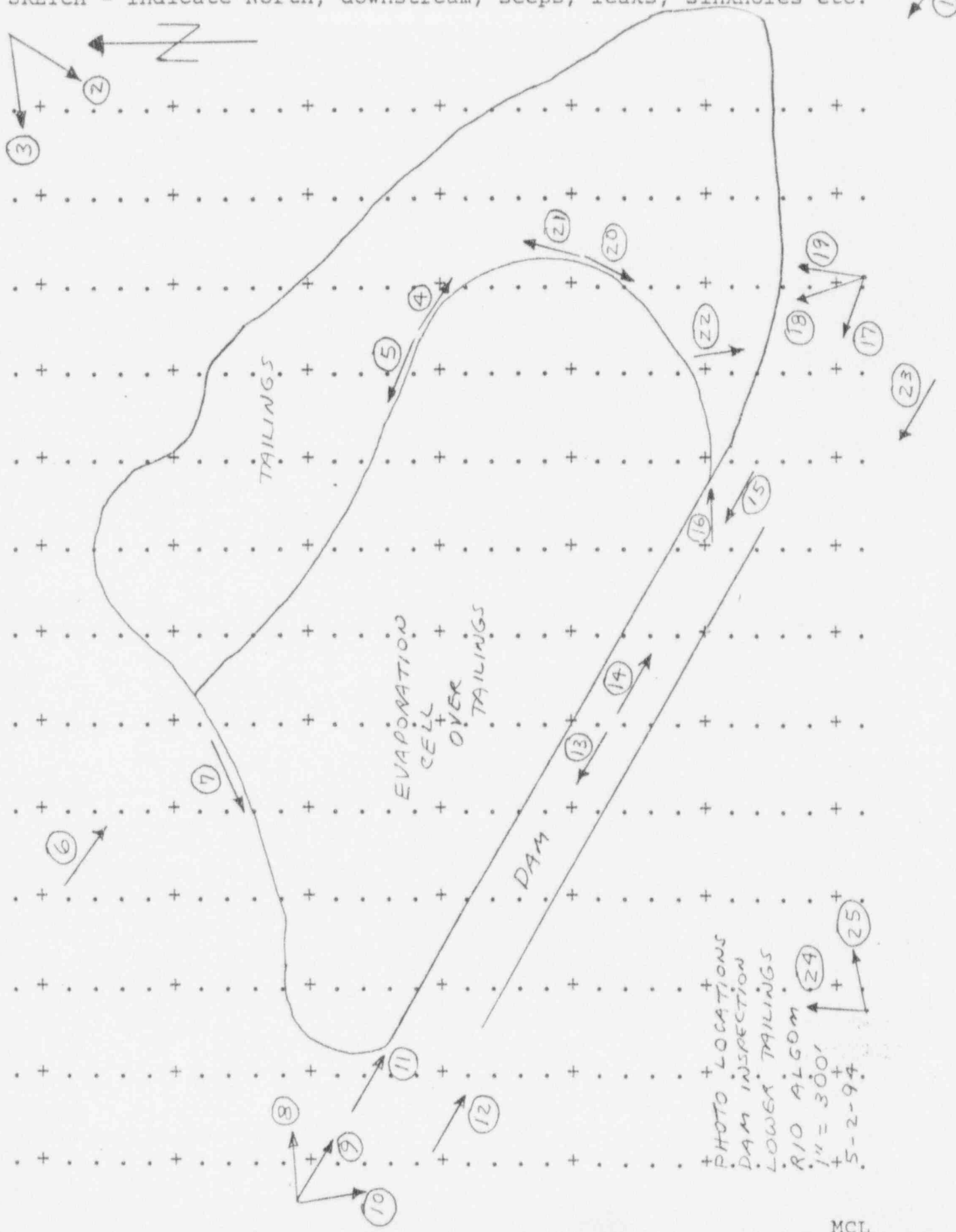
SEEPAGE	location	gpm	sediment	comments
	1	[]	[]	[NO OBSERVABLE SEEPAGE]
	2	[]	[]	[]
	3	[]	[]	[]
	4	[]	[]	[]

SLUMPS AND SINKHOLES	location	comments
	A	[NO SLUMPS OR SINKHOLES]
	B	[]
	C	[]

OVERALL COMMENTS AND RECOMMENDATIONS

1. VERY MINOR SURFACE EROSION HAS OCCURRED ON THE DAM WHERE VEGETATION HAS NOT YET BEEN ESTABLISHED, BUT THIS POSES NO RISK TO STABILITY
2. DURING THE SUMMER OF 1993, AN EVAPORATION CELL WAS BUILT OVER PART OF THE LOWER TAILINGS ON TOP OF THE SOIL CAP COVERING THE TAILINGS. OBSERVATION OF THIS EVAPORATION CELL AND BERMS, AND REVIEW OF THE 11-15-93 CONSTRUCTION REPORT SUBMITTED BY RIO ALGOM TO THE U.S. NUCLEAR REGULATORY COMMISSION INDICATES THIS EVAPORATION CELL CONSTRUCTION MEETS STANDARDS. SOME WAVE EROSION HAS OCCURRED ON THE INSIDE FACE OF THE BERM. IT IS MY UNDERSTANDING THAT RIO ALGOM PLANS TO REPAIR THIS ERODED AREA. IN MY OPINION, THIS EROSION HAS NOT PROGRESSED TO A POINT WHERE THE BERM IS STRUCTURALLY UNSTABLE.
3. DURING THE SUMMER OF 1993, A PORTION OF THE OUTSLOPE ON THE LOWER TAILINGS DAM WAS MODIFIED FROM A 3H:1V SLOPE TO A 5H:1V SLOPE. IT IS MY UNDERSTANDING THAT THE QUALITY OF CONSTRUCTION, MATERIALS USED, AND TESTING ACCOMPLISHED, WAS SIMILAR TO THAT USED WHILE BUILDING THE EVAPORATION CELL OVER PART OF THE LOWER TAILINGS.

SKETCH - Indicate North, downstream, seeps, leaks, sinkholes etc.





①



②

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-14



3



4

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



5



6

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



7

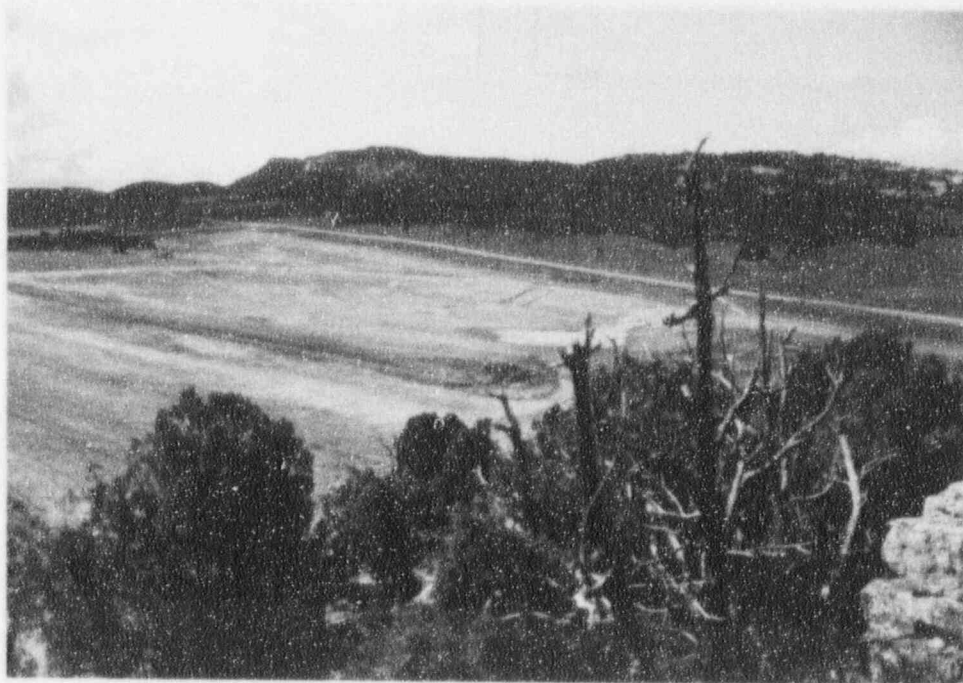


8

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



9

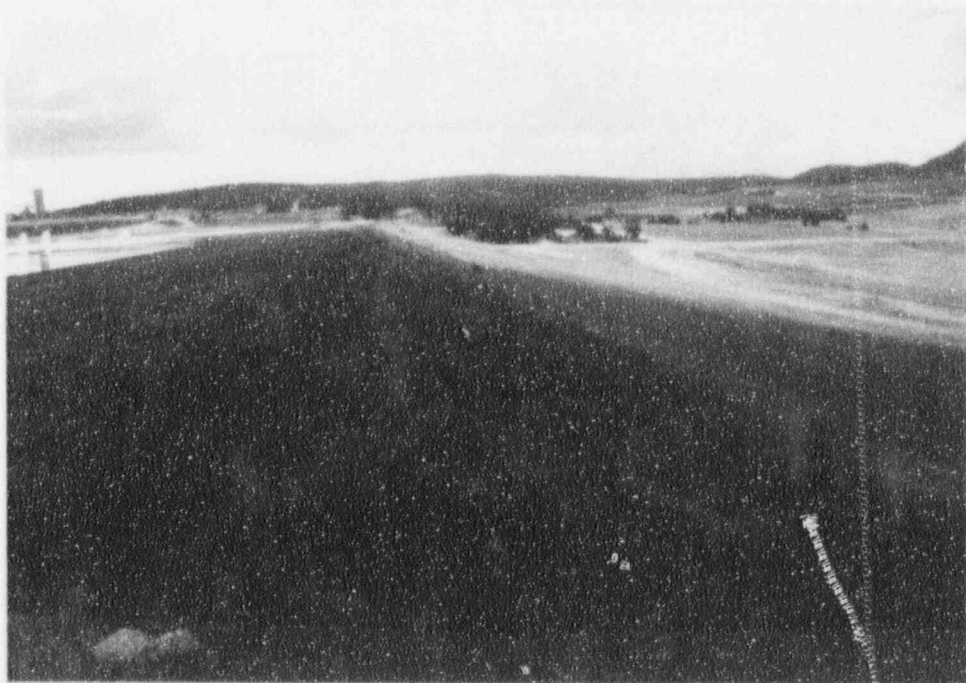


10

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94

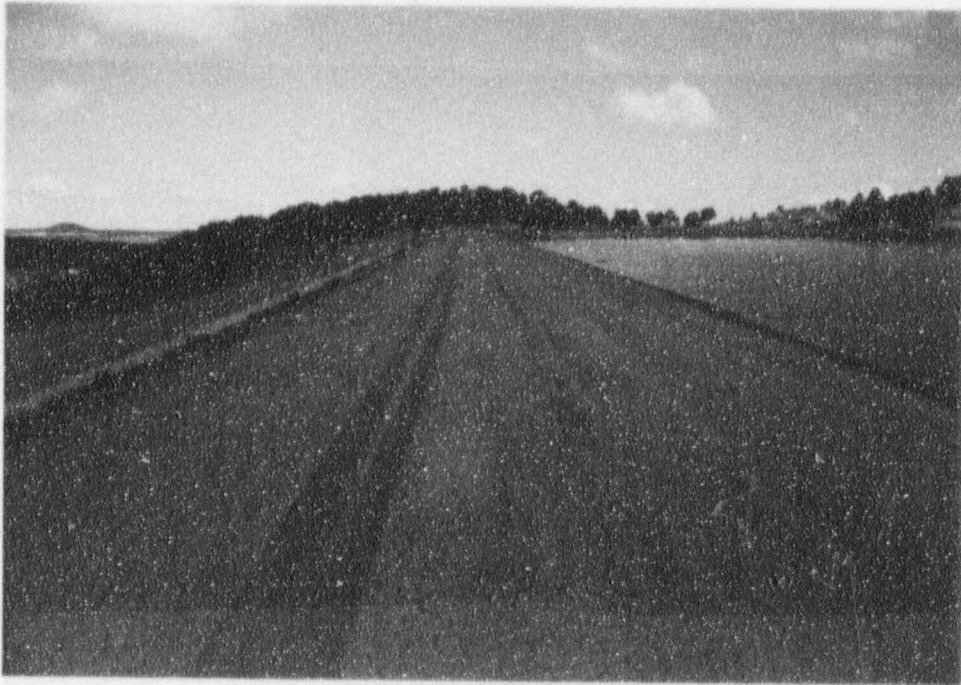


11



12

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



13



14

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



15



16

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



17

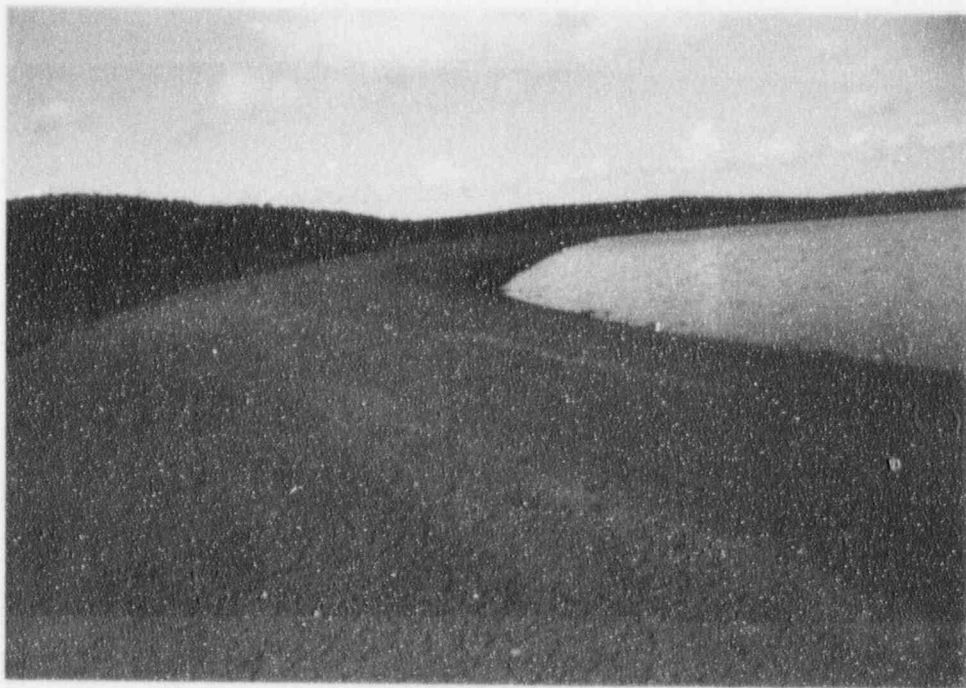


18

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94

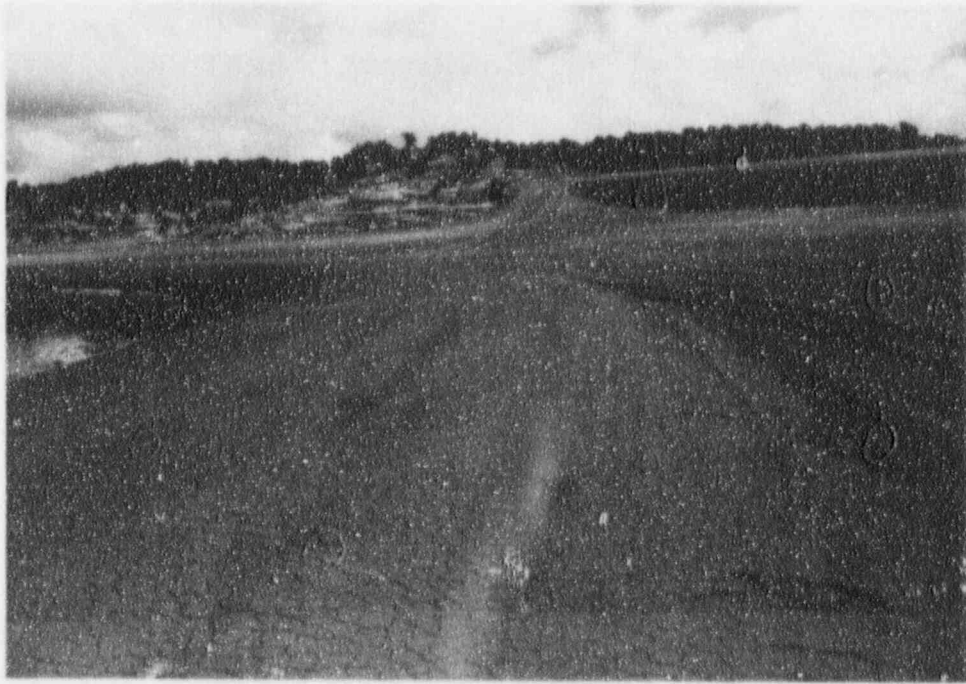


19



20

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



21



22

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



23



24

LOWER TAILINGS - DAM INSPECTION PHOTOS
RIO ALGOM
5-2-94



25

LOWER TAILINGS - DAM INSPECTION PHOTOS
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5-2-94