Golder Associates Ltd.

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September 20, 2007 06-1118-063-7

Rio Algom Limited
Elliot Lake Division
P.O. Box 38
Elliot Lake, Ontario
P5A 2J6

Attention: Ms. Debbie Berthelot, Reclamation Manager

RE: 2006 TAILINGS DAM INSPECTION
LACNOR-NORDIC TAILINGS MANAGEMENT AREA AND BUCKLES CREEK

Dear Debbie:

Goler Associates (Golder) completed a visual inspection of the Lacnor and Nordic Tailings Management Areas (TMA) and the Buckles Creek on October 19, 2006. The inspection was carried out by Shiu Kam and Peter Merry from our Mississauga office. This report presents the results of the inspection with recommendations for follow-up actions.

As part of the care, maintenance and surveillance program Golder has conducted annual tailings inspections for the Lacnor and Nordic TMAs since the early 1990s. Beginning in 2006 the inspection will also include the newly constructed Buckles Creek channel.

Denison Environmental Services (DES) has been retained by Rio Algom to maintain and operate all of Rio Algom's tailings management facilities in Elliot Lake. Their responsibilities include operating the treatment plants, conducting routine surveillance and maintenance and performing environmental monitoring of the various tailings management areas. The visual inspection is supplemented with a review of dam instrumentation and other relevant operational and maintenance data provided by DES.

This report should be read in conjunction with the previous inspection reports which detailed the historical performance of the facility and maintenance/upgrades carried out.

The weather was cloudy with occasional drizzles on October 19 following periods of heavy rainfall on October 17.

BACKGROUND

Lacnor and Nordic TMAs contain historical uranium mill tailings. The Lacnor TMA is situated within a rock rimmed basin about 500 m north and up gradient of the Nordic TMA (Figure 1). The Lacnor TMA effluent drains to the Nordic TMA where it is collected and treated. Buckles Creek was the receptor of treated effluent from Nordic Mine prior to the commissioning of the existing treatment system that utilizes the North Nordic Lake for sludge settling. Tailings and some radium sludge are present along the Buckles Creek, in particular along the reach south of the Nordic Road.

The Lacnor-Nordic TMAs employ the Nordic Mine Datum for elevations. The Geodetic Datum is related to the Nordic Mine Datum by the following relationship:

Geodetic Elevation (m) = [Nordic Elevation (ft.) – 7.53 (ft.)]/3.281

Lacnor TMA

The Lacnor TMA (Figure 2) contains 2.7 million tonnes of tailings. The 27 ha TMA is flanged by bedrock ridges on the east, north and the west sides. Dam A and Dam B saddle two bedrock valleys on the southern perimeter of the TMA. The tailings surface dips gently in the easterly direction towards a tailings pond where water overflows a rock channel into a valley downstream of Dam A. The drainage from the Lacnor TMA reports to the Main Tailings Area of the Nordic TMA.

Rehabilitation of the Lacnor TMA was completed between 1998 and 1999 during which an engineered soil cover was placed over part of the tailings surface, the drainage improved and the dams stabilized. Existing instrumentation on the dams was put down in 1999 following dam construction.

Nordic TMA

The Nordic TMA comprises the Main Tailings Area and the West Arm Tailings Area with a total area of 109 ha. (Figure 3). The West Arm Tailings Area is contained within east-west trending rock ridges with Dam A providing containment at the west end. The Main Tailings Area is contained by a series of rockfill dykes along the east and south side. Dam C is an internal dam that separates the West Arm Tailings Area from the elevated Main Tailings Area.

Drainage from the Main Tailings Area reports to an Effluent Collection Ditch that runs along the toe of the perimeter dams. The effluent is treated with lime and discharged into the Nordic Settling Pond. Surface runoff from the eastern half of the West Arm Tailings Area drains by gravity to the effluent treatment plant. The remaining portion of the tailings area drains towards Pond A with water intercepted as seepage and returned to the Nordic Settling Pond.

The treated effluent from the Nordic Settling Pond is discharged into the lower reach of Buckles Creek and eventually into Nordic Lake. The effluent treatment system operates year round as there is no holding facility within the Nordic TMA.

Rehabilitation of the Nordic TMA was completed between 1998 and 1999. This work involved principally the stabilization of the perimeter dams, improvement to the Effluent Collection Ditch and modification of the Nordic Settling Pond outlet structure. A new effluent treatment plant was constructed in 1997.

In 2003 a beaver dam at the outlet of the Westner Lake downstream of the Nordic TMA West Arm failed causing the lake level to drop by about 2m. The lower lake level adversely affected the operation of the ski hill which obtained water from the lake for snow making and negatively impacted the aesthetic of the lake. In addition, some historical tailings were discovered in a bay downstream of the East Seepage Collection Pond. Rio Algom excavated the historical tailings from the lake bottom and constructed the Westner Lake Outlet Berm in the fall of 2004. The lake level was subsequently restored in the spring of 2005. The Westner Lake Outlet Berm will be maintained for the long term.

Buckles Creek

Significant improvements to the Buckles Creek Channel were made in 2005. The original, unlined channel that was constructed in the 1970's had deteriorated due to erosion and beaver activities. In the summer of 2005 Rio Algom re-constructed a 1.4 km long section of the channel to effectively divert water away from the Buckles Creek wetland that has been impacted by historical tailings. The new channel was designed to enhance its flow capacity and reduce the requirements for maintenance. The construction also included a berm to maintain the wetland in a saturated state. As well, berms were added to divert water away from the historical precipitate pond and to stabilize an existing beaver dam upstream of the Nordic Mine Road.

INSPECTION PROCEDURES

The visual inspection was intended to assess the general condition of the facility and the adequacy of maintenance that had been carried out. Where deficiencies are noted, recommendations for remedial actions are provided.

The results of the inspection together with photographic records are summarized on the attached inspection Forms A and B for dams and ancillary works, respectively.

DES provided piezometers monitoring data for our review following the inspection. Dam instruments were monitored in May and in September. Records of instrumentation monitoring in September are shown on Form C.

CONDITION OF FACILITIES

Lacnor TMA

The Lacnor TMA has remained in good condition with no noticeable change since 2005 except for minor vegetative growth on the dam faces. DES reported no maintenance required during the preceding year.

Both Dam A and Dam B continue to perform well. Dam seepage is normal. The measured piezometric water levels are normal. The data show that the phreatic surface in the dam could vary by up to 1 m seasonally between the spring and fall measurements. Overall there seems to be a slight increasing trend in the phreastic surface since the placement of the soil cover in 1999.

The vegetative cover on the tailings is good. The tailings pond spillway is operating well. A 1 ha area of exposed tailings at the northeast corner adjacent to Lacnor Pond will be covered with rockfill during the winter of 2007 and capped with till from the Milliken till pit during the Stanleigh construction period. Seeding will follow in the fall of 2007.

Nordic TMA

No significant maintenance issues were identified during the site visit. The overall condition of the Nordic TMA is good. The dams have remained relatively unchanged from the 2005 inspection. The Seepage Collection system is functioning normally. There is a self-sustaining vegetative cover on the tailings. An area of approximately 1 ha of sparse growth at the northeast corner of the TMA was fertilized and reseeded in Fall of 2006.

DES indicated that no unusual maintenance was required for the Nordic TMA in the previous one year period. Clearing of vegetation on dams however, has not been carried out. It is recommended that the overgrown vegetation on Dam C and Dam F be removed.

The Westner Lake Outlet Dam is operating satisfactory. The lake level has been restored.

Buckles Creek

The Buckles Creek Channel is operating well with no issues of maintenance identified during the inspection. The improvement to the original creek has resulted in a slight increase in the creek level upstream of Nordic Road. This will have a beneficial effect in further inhibiting the migration of the Nordic Seepage Plume.

CONCLUSIONS AND RECOMMENDATIONS

The Lacnor-Nordic and Buckles TMAs are operating well. The dams are stable and overall site drainage is good. The overgrown vegetation on the Dams C and F at Nordic TMA should be cleared in 2007.

We trust that this report provides the information that you require. If you have any questions on the report, please feel free to contact us.

Yours very truly,

GOLDER ASSOCIATES LTD.

Original signed by:

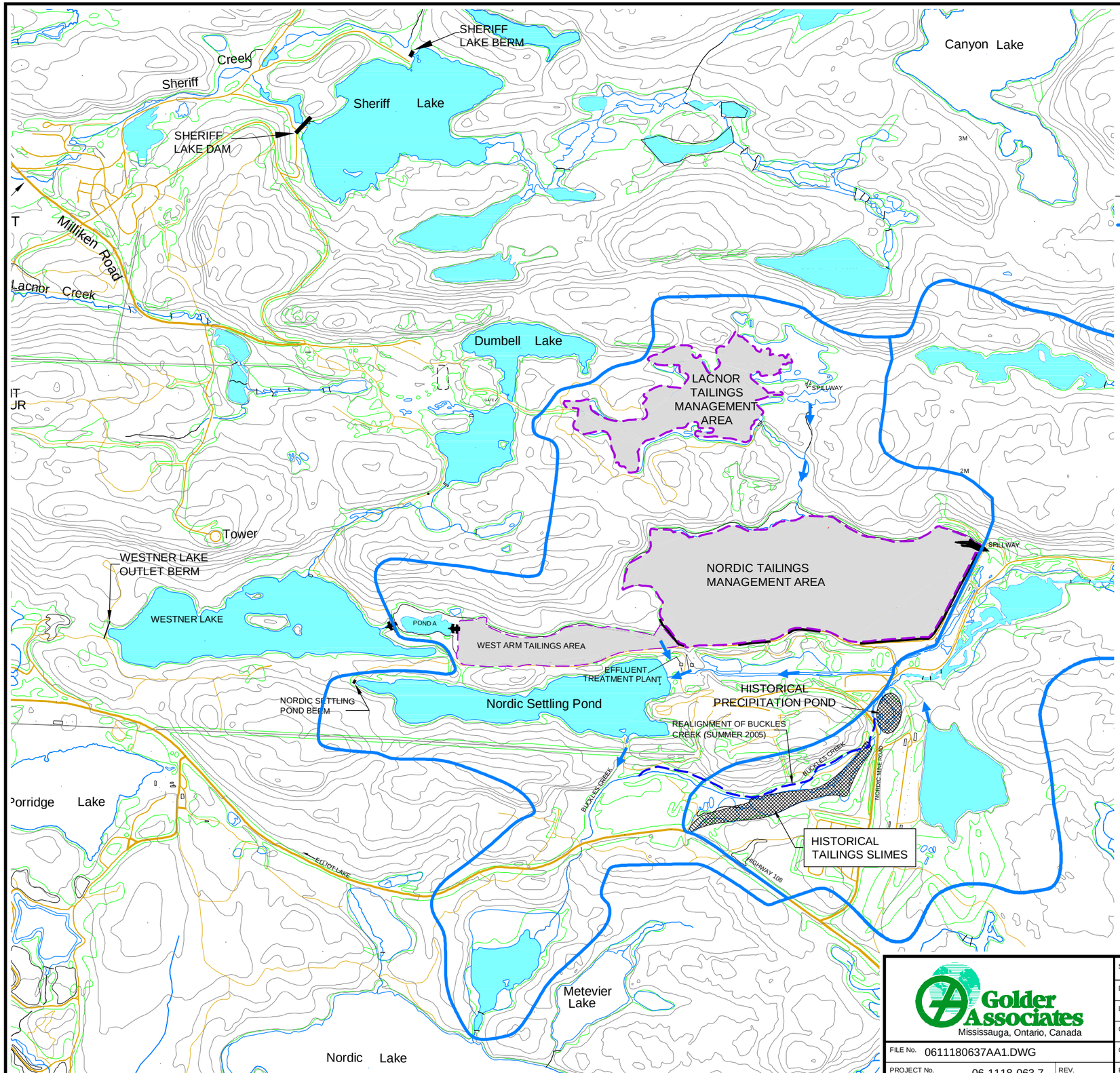
Peter Merry, P. Eng.

Original signed by:

Shiu N. Kam, P. Eng.
Principal

SNK/dh

Att.: Figure 1 – General Site Plan, Lacnor and Nordic TMA
Figure 2 – General Arrangement Plan, Lacnor TMA
Figure 3 – General Arrangement Plan. Nordic TMA
Appendix A – Site Inspection Forms, Nordic TMA
Appendix B – Site Inspection Forms, Lacnor TMA
Appendix C – Site Inspection Forms, Buckles Creek Channel



LEGEND

- INFERRED WATERSHED BOUNDARY
- SPILLWAY
- ROAD
- CREEK/DRAINAGE DITCH AND FLOW DIRECTION
- DAM
- **TAILINGS MANAGEMENT AREA**

400 0 400 800

SCALE 1:20000 METRES

Golder Associates
Mississauga, Ontario, Canada

FILE No.	0611180637AA1.DWG
PROJECT No.	06-1118-063-7
REV.	-
SCALE	AS SHOWN
DATE	SEPT. 2007
DESIGN	YKM
CAD	TDR
CHECK	YKM
REVIEW	SNK

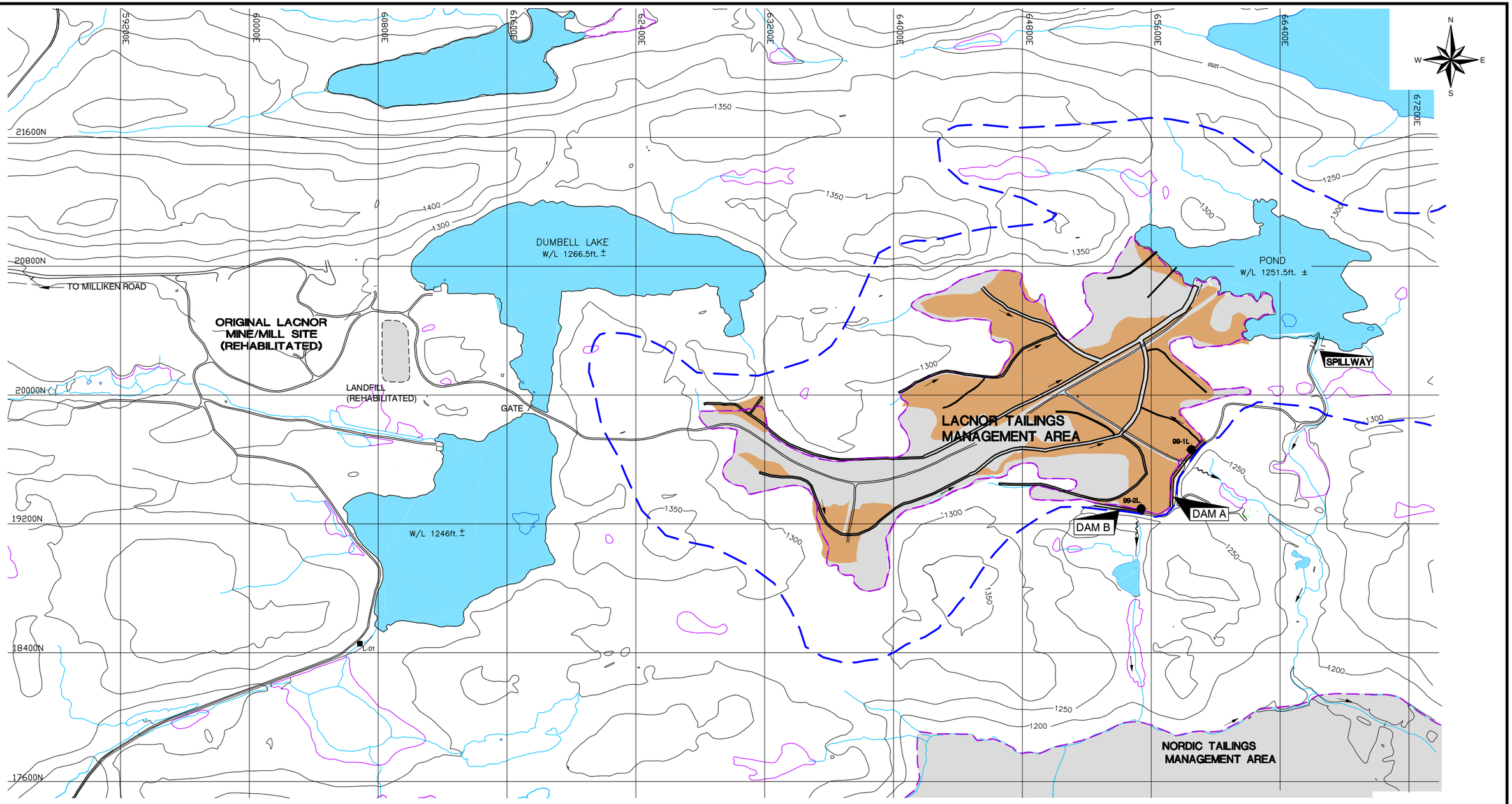
TITLE

GENERAL SITE PLAN LACNOR AND NORDIC TAILINGS MANAGEMENT AREAS

2006 ANNUAL INSPECTION

FIGURE 1

PLOT DATE: September 20, 2007
FILENAME: T:\Projects\2006\06-1118-063 (RAL, Elliot Lake)\--oo--\0611180637AA1.DWG



LEGEND:

- 99-1L — BOREHOLE LOCATION IN PLAN, 1999 INVESTIGATION
- ROAD
- SPILLWAY
- CREEK/DRAINAGE DITCH AND FLOW DIRECTION
- SEEPAGE
- WATERSHED BOUNDARY
- TAILINGS
- SOIL COVER
- DRAINAGE DITCH
- DAM
- SWAMP AREA
- POND/LAKE

600 0 600 1200

SCALE 1" to 600' FEET

Golder Associates
Mississauga, Ontario, Canada

SCALE	AS SHOWN
DATE	SEPT. 2007
DESIGN	YKM
CAD	TDR
CHECK	YKM
REVIEW	SNK
FILE No.	0611180637AA2.DWG
PROJECT No.	06-1118-063-7
REV.	-

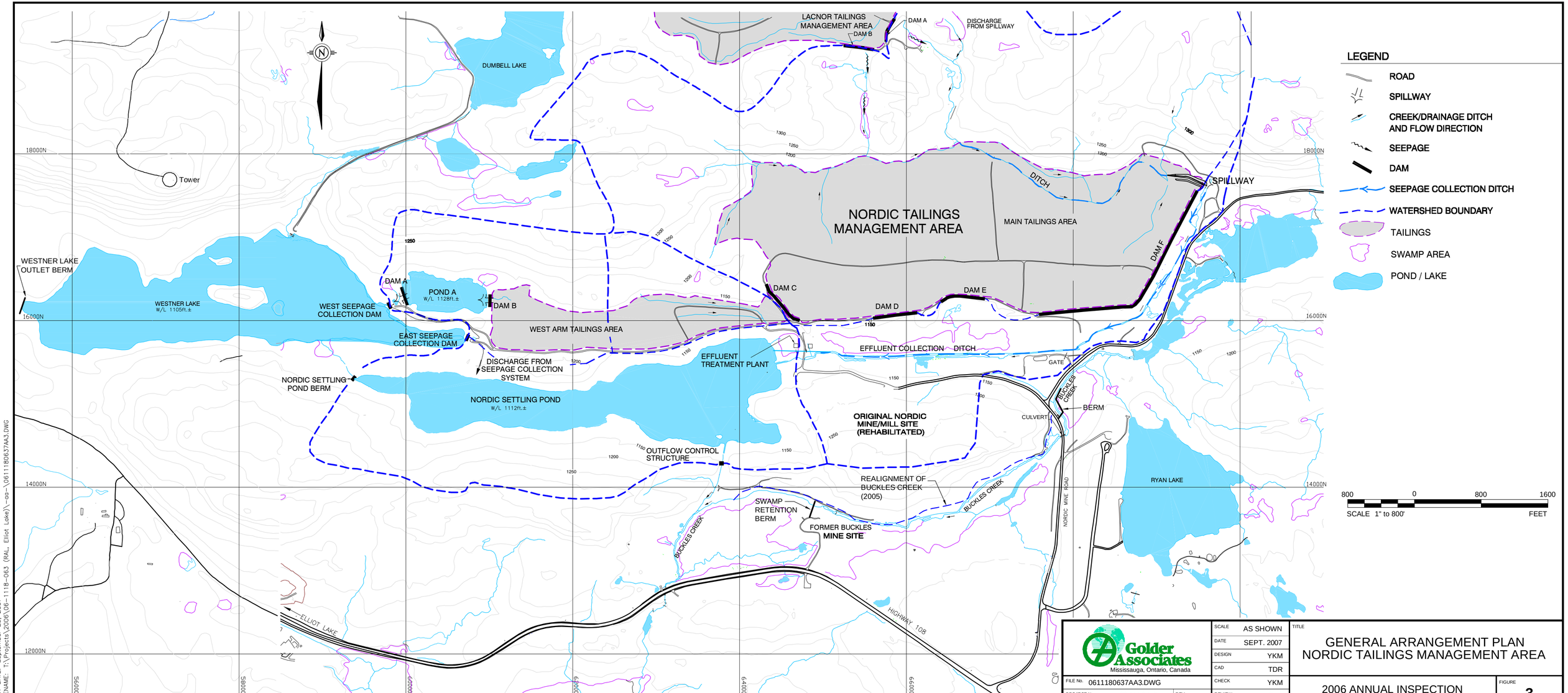
TITLE

GENERAL ARRANGEMENT PLAN LACNOR TAILINGS MANAGEMENT AREA

2006 ANNUAL INSPECTION

FIGURE 2

PLOT DATE: September 20, 2007
FILENAME: T:\Projects\2006\06-1118-063 (RAL, Elliot Lake)\-aa-\0611180637AA2.DWG



PLOT DATE: September 20, 2007
FILENAME: T:\Projects\2006\06-1118-063 (RAL, Elliot Lake)\ca-\0611180637AA3.DWG

Golder Associates
Mississauga, Ontario, Canada

SCALE	AS SHOWN
DATE	SEPT. 2007
DESIGN	YKM
CAD	TDR
CHECK	YKM
REVIEW	SNK

FILE No. 0611180637AA3.DWG
PROJECT No. 06-1118-063-7 REV. -

TITLE
GENERAL ARRANGEMENT PLAN
NORDIC TAILINGS MANAGEMENT AREA

2006 ANNUAL INSPECTION

FIGURE
3

LACNOR TAILINGS MANAGEMENT AREA
FACILITY INSPECTION SUMMARY REPORT

Inspecting Officer: ***Shiu Kam, Peter Merry (Golder)*** Report No.: ***06-7*** Inspection Date: ***19/10/2006*** (DD/MM/YR)

WEATHER:

Temperature: ***15*** °C Description: ***Cloudy***

	Current	Last 3 Days	Other Comments:
dry	☒	☐	
frost	☐	☐	
rain	☐	☒	Rain on Oct 17 and 18.
snow	☐	☐	

FACILITIES INSPECTED: (A separate report sheet Form A or Form B to be prepared for each structure)

Structure	Dam/Dyke	Spillway/Flow Control
Dam A	☒	
Dam B	☒	
Tailings Pond Spillway & Miscellaneous		☒

Review Officer: _____ Review Agency: _____ Date Reviewed: _____ (DD/MM/YR)

ACTION REQUIRED: ☐ none

LACNOR TAILINGS MANAGEMENT AREA
FIELD INSPECTION FORM A
DAM/DYKE INSPECTION REPORT

Inspecting Officer: ***Shiu Kam, Peter Merry*** Report No.: ***06-7*** Inspection Date: ***19/10/2006***
(Golder) (DD/MM/YR)

Structure: ***Dam A***
Crest Elevation: ***1263 ft.*** Head Pond Elevation: - Tail Pond Elevation: -

A) Crest

cracking	☒ none	☐	
settlement	☒ none	☐	
erosion	☒ none	☐	
other movement	☒ none	☐	
crest vegetation	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	
settlement	☒ none	☐	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
slope vegetation	☒ none	☐	
animal burrows	☒ none	☐	
seepage	☐ none	☒	location 1: ***Multiple locations along dam toe***
			rate: ☐ damp ☐ trickle ☒ steady (L/s)
			clarity: ☒ clear ☐ muddy
			sample taken: ☐ yes ☒ no
			location 2:
			rate ☐ damp ☐ trickle ☐ steady (L/s)
			clarity ☐ clear ☐ muddy
			sample taken ☐ yes ☐ no
toe vegetation	☐ none	☒	sparse ☐ moderate ☐ heavy
			type:
sand boils	☒ none	☐	location(s)

LACNOR TAILINGS MANAGEMENT AREA
FIELD INSPECTION FORM A
DAM/DYKE INSPECTION REPORT

Structure: ***Dam A***

C) Upstream Slope

erosion	☒ none	☐	wave induced ☐ surface runoff location(s): _____ degree ☐ minor ☐ moderate ☐ severe	
settlement	☒ none	☐		
bulging	☒ none	☐		
sloughing	☒ none	☐		
slope protection	☒ good	☐		
slope vegetation	☒ none	☐		
animal burrows	☒ none	☐		
whirlpool	☒ none	☐		
sinkholes	☒ none	☐		
tailings surface	☐ water covered	☒	***Capped with soil***	

SPILLWAY / FLOW CONTROL STRUCTURES

Type:

☒ none ☐ spillway ☐ decant ☐ other _____

Flow: ☐ none ☐ clear ☐ muddy

Rate of discharge _____ (L/s) ☐ estimated ☐ measured Gauge Reading _____

CONDITIONS AT DISCHARGE STRUCTURE

☐ good					
	☐ blockage of inlet	☐ debris	_____	corrective action:	☐ taken
		☐ beaver dam	_____		☐ to follow
		☐ siltation	_____		_____
	☐ blockage of outlet	☐ debris	_____	corrective action:	☐ taken
		☐ beaver dam	_____		☐ to follow
		☐ siltation	_____		_____
	☐ erosion	☐ channel	_____	corrective action:	☐ taken
		☐ side slope	_____		☐ to follow
		☐ at discharge	_____		_____

Comments:

LACNOR TAILINGS MANAGEMENT AREA
FIELD INSPECTION FORM A
DAM/DYKE INSPECTION REPORT

Structure: ***Dam A***

DAM / BERM INSTRUMENTATION: (plot any newly installed instrumentation on relevant plans and cross-sections)

	Operational	Damaged	Measurement Taken
☐ none			
☒ piezometers	☒ BH 99-1L, 99-2L	☐	☒ By DES
☐ monitoring well	☐	☐	☐
☐ survey stakes	☐	☐	☐
☐ other ____	☐	☐	☐

COMMENTS AND RECOMMENDATIONS:

Dam A is in good condition. Piezometric water levels observed in dam are consistent with historical trend.

Action Required: ☒ none ☐ further monitoring ☐ remediation

☐ Plan or Sketch Attached

☒ Photographs (number) ***1 - 3*** (locate all photographs on plan)

Review Officer: _____ Date Reviewed: _____ (DD/MM/YR)

REVIEW COMMENTS: ☐ none

Photo 1: Tailings pond spillway inlet – Lacnor TMA

Photo 2: Dam A – Lacnor TMA

Photo 3: Dam A downstream slope – Lacnor TMA

LACNOR TAILINGS MANAGEMENT AREA
FIELD INSPECTION FORM A
DAM/DYKE INSPECTION REPORT

Inspecting Officer: ***Shiu Kam, Peter Merry*** Report No.: ***06-7*** Inspection Date: ***19/10/2006***
(Golder) (DD/MM/YR)

Structure: ***Dam B***
Crest Elevation: ***1263 ft.*** Head Pond Elevation: - Tail Pond Elevation: -

A) Crest

cracking	☒ none	☐	
settlement	☒ none	☐	
erosion	☒ none	☐	
other movement	☒ none	☐	
crest vegetation	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	
settlement	☒ none	☐	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
slope vegetation	☒ none	☐	
animal burrows	☒ none	☐	
seepage	☒ none	☐	location 1:
			rate: ☐ damp ☐ trickle ☐ steady (L/s)
			clarity: ☐ clear ☐ muddy
			sample taken: ☐ yes ☐ no
			location 2:
			rate ☐ damp ☐ trickle ☐ steady (L/s)
			clarity ☐ clear ☐ muddy
			sample taken ☐ yes ☐ no
toe vegetation	☐ none	☒	sparse ☐ moderate ☐ heavy
			type:
sand boils	☒ none	☐	location(s)

LACNOR TAILINGS MANAGEMENT AREA
FIELD INSPECTION FORM A
DAM/DYKE INSPECTION REPORT

Structure: ***Dam B***

C) Upstream Slope

erosion	☒ none	☐	wave induced ☐ surface runoff location(s): _____ degree ☐ minor ☐ moderate ☐ severe	
settlement	☒ none	☐		
bulging	☒ none	☐		
sloughing	☒ none	☐		
slope protection	☒ good	☐		
slope vegetation	☒ none	☐		
animal burrows	☒ none	☐		
whirlpool	☒ none	☐		
sinkholes	☒ none	☐		
tailings surface	☐ water covered	☒	***Tailings capped with soil***	

SPILLWAY / FLOW CONTROL STRUCTURES

Type:

☒ none ☐ spillway ☐ decant ☐ other _____

Flow: ☐ none ☐ clear ☐ muddy

Rate of discharge _____ (L/s) ☐ estimated ☐ measured Gauge Reading _____

CONDITIONS AT DISCHARGE STRUCTURE

☐ good					
	☐ blockage of inlet	☐ debris	_____	corrective action:	☐ taken
		☐ beaver dam	_____		☐ to follow
		☐ siltation	_____		_____
	☐ blockage of outlet	☐ debris	_____	corrective action:	☐ taken
		☐ beaver dam	_____		☐ to follow
		☐ siltation	_____		_____
	☐ erosion	☐ channel	_____	corrective action:	☐ taken
		☐ side slope	_____		☐ to follow
		☐ at discharge	_____		_____

Comments:

LACNOR TAILINGS MANAGEMENT AREA
FIELD INSPECTION FORM A
DAM/DYKE INSPECTION REPORT

Structure: ***Dam B***

DAM / BERM INSTRUMENTATION: (plot any newly installed instrumentation on relevant plans and cross-sections)

	Operational	Damaged	Measurement Taken
☐ none			
☒ piezometers	☒ 99-2L	☐	☒ DES
☐ monitoring well	☐	☐	☐
☐ survey stakes	☐	☐	☐
☐ other ____	☐	☐	☐

COMMENTS AND RECOMMENDATIONS:

Dam B is in good condition.

Action Required: ☒ none ☐ further monitoring ☐ remediation

☐ Plan or Sketch Attached

☒ Photographs (number) ***1*** (locate all photographs on plan)

Review Officer: _____ Date Reviewed: _____ (DD/MM/YR)

REVIEW COMMENTS: ☐ none

Photo 1: Dam B – Lacnor TMA

FIELD INSPECTION FORM C
WATER LEVEL MEASUREMENT RECORDING FORM
LACNOR TAILINGS MANAGEMENT AREA

Date (dd/mm/yr): 9/5/2006 Inspecting Officer: Robert Hobbs

Report No.: 06-1118-063 Inspecting Agency: Denison Environmental Services

Location	Borehole Number	Piezometer Number	Depth to Water (ft.)	Total Depth (ft)	Piezometric Water Level* (ft)	Comments
Dam A	BH-99-1L	A	22.35	46.30	1,234.96	inclined at 80 degrees to horizontal
		B	19.50	32.90	1,237.72	
Dam B	BH-99-2L	A	28.70	40.80	1,229.95	inclined at 80 degrees to horizontal
		B	21.55	30.75	1,236.79	

* Nordic Mine Datum.

Review Officer: _____ Date Reviewed: _____

Review Agency: _____ (DD/MM/YR)

ACTION REQUIRED: none

NORDIC TAILINGS MANAGEMENT AREA
FACILITY INSPECTION SUMMARY REPORT

Inspecting Officer: ***Shiu Kam, Peter Merry (Golder)*** Report No.: ***06-7*** Inspection Date: ***19/10/06*** (DD/MM/YR)

WEATHER:

Temperature: ***15*** °C Description: Cloudy, cool

	Current	Last 3 Days	Other Comments:
dry	☒	☐	
frost	☐	☐	
rain	☐	☒	Rain on Oct 17 and 18
snow	☐	☐	

FACILITIES INSPECTED: (A separate report sheet Form A or Form B to be prepared for each structure)

Structure	Dam/Dyke	Spillway/Flow Control
Dam A	☒	☒
Dam B	☒	☒
Dam C	☒	
Dam D	☒	
Dam E	☒	
Dam F	☒	☒
West Seepage Collection Dam	☒	☒
East Seepage Collection Dam	☒	☒
Nordic Settling Pond Berm	☒	
Effluent Collection Ditch & Miscellaneous	☒	☒
West Arm Culvert		☒
Nordic Settling Pond Control Structure		☒
Buckles Creek Channel		☒
Westner Lake Outlet Berm	☒	

Review Officer: _____ Review Agency: _____ Date Reviewed: _____ (DD/MM/YR)

ACTION REQUIRED: ☐ none

Photo 1: Dam A upstream view – Nordic TMA. Decant installed in 2006.

Photo 2: Downstream slope of Dam A – Nordic TMA

Photo 1: Dam B – Nordic TMA

Photo 2: Spillway on Dam B – Nordic TMA

Photo 1: Dam C upper slope and toe buttress – Nordic TMA

Photo 2: Dam C downstream slope – Nordic TMA

Photo 1: Dam D – Nordic TMA

Photo 1: Dam E - Nordic TMA

Photo 1: Dam F south arm – Nordic TMA

Photo 2: Dam F downstream slope looking from spillway – Nordic TMA

Photo 3: Dam F spillway flow control structure – Nordic TMA

Photo 4: Dam F spillway outlet channel – Nordic TMA

Photo 1: West Seepage Collection Pond Dam – Nordic TMA

Photo 1: East Seepage Collection Pond Dam – Nordic TMA

Photo 1: East Seepage Collection Pond Dam – Nordic TMA

Photo 2: Downstream slope of dam – Nordic TMA

Photo 1: Nordic Settling Pond Berm – Nordic TMA

Photo 1: Nordic Settling Pond control structure

Photo 1: Cofferdam on Buckles Creek in placement of an old beaver dam

Photo 2: Looking upstream towards cofferdam

Photo 3: Buckles Creek Channel looking from Nordic Road.

Photo 1: Upstream view of Westner Lake Outlet Berm

Photo 2: Rip rap lined spillway

Photo 3: Water overflowing spillway on crest of dam

FIELD INSPECTION FORM C
WATER LEVEL MEASUREMENT RECORDING FORM
NORDIC TAILINGS MANAGEMENT AREA

Date (dd/mm/yr): 9/5/2006 Inspecting Officer: Robert Hobbs

Report No.: 06-1118-063 Inspecting Agency: Denison Environmental Services

Location	Borehole Number	Piezometer Number	Depth to Water (ft.)	Total Depth (ft)	Piezometric Water Level (ft)	Comments
Dam C	1		21.8	37.2	1136.1	
Dam E	2	A	37.7	46.7	1128.4	
		B	DRY	29.6	DRY	
Dam F	5	A	42.6	78.6	1118.7	
		C	35.5	36.2	1125.8	

Review Officer: _____ Date Reviewed: _____

Review Agency: _____ (DD/MM/YR)

ACTION REQUIRED: none