Geotechnical Inspection
Waste & Water Management Facilities

Ketza River Mine, Yukon Territory

Prepared for:

Government of Yukon, Department of Environment
Room 310, Elijah Smith Building
300 Main Street
Whitehorse, YT Y1A 2C6

Prepared by:

SRK Consulting
Engineers and Scientists

Project Reference Number
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September 2005

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1 Introduction

At the request of the Government of Yukon (YTG), Mr. Peter Healey of SRK Consulting (Canada) Inc. completed an inspection of the waste and water management facilities at the Ketza River Mine. The inspection was conducted on August 3, 2005. The purpose of this inspection was to evaluate the geotechnical performance and stability of the following structures:

- Open Pits and Waste Dumps;
- Subsidiary Creek Diversion;
- Northwest Interceptor Ditch;
- Cache Creek Diversion; and
- North and South Tailings Dam.

A vicinity map of the Ketza Mine property is provided in Figure 1. A general arrangement plan of the Ketza River Mine site and the above components are shown in Figure 2. Photographs taken during the inspections are presented in Appendix A of this report.

This report presents a summary of our observations made during the site visit and provides recommendations, where appropriate.

2 Observations

2.1 Open Pits and Waste Dumps

2.1.1 Break Zone Pit and Dump

No inspection of the Break Zone Pit and dump was possible during the site visit because of restricted road access.

2.1.2 Ridge Pit Dump

In a previous inspection by SRK in 1998, we observed circular tension cracks at the crest of the Ridge Pit waste dump that extended about 15m back from the edge of the dump. These cracks were evidence of an old failure. However, during this inspection, there was no evidence of any recent subsidence (Photo 1).

2.1.3 Gully, Knoll and Tarn Zones

No inspection of the Gully, Knoll and Tarn Pits was possible during the site visit because of restricted road access.

2.2 Water Management

2.2.1 Subsidiary Creek

Upstream Diversion

During the development of the mine, the upper reach of Subsidiary Creek (see Figure 2) was diverted into Cache Creek above the Mill site. Flow in the lower reach of Subsidiary Creek was diverted around the tailings impoundment and into Cache Creek. The upper diversion was achieved by directing the flow into an open ditch, which runs in a north-south direction at right angles to the original creek alignment. Flow in the ditch discharges through a 0.9m dia. culvert located beneath an access road which crosses over the ditch. The culvert entrance is shown in Photo 2. It was noted that water pools around the entrance of the culvert suggesting that the culvert may have settled over time or the culvert is partially silted up with debris.

The diversion ditch is founded in a loose weathered bedrock and was apparently constructed as a cut and fill operation. The sideslopes of the channel are approximately 2:1 (Horizontal to Vertical) and the base of the channel is about 2m wide. The sideslopes are relatively stable despite the lack of any riprap or erosion protection (Photo 3).

Lower Diversion

Runoff from the catchment below the upper Subsidiary Creek diversion is diverted around the southern perimeter of the tailings impoundment as shown in Figure 3. Flow in the diversion joins up with diverted runoff from Northwest Interceptor ditch (NID) (Figure 3) and passes through two 0.6 m dia. CMP culverts (Photos 4 and 5). At the southwest corner of the tailings impoundment, the flow discharges through a 0.3m dia. corrugated metal pipe (CMP) before finally entering Cache Creek (Photo 6 and 7).

The outlet at the two 0.6m dia culverts are partially silted up caused by subsidence and accumulated debris. This causes water to pool not only just upstream of the culverts but also into the Northwest Interceptor ditch.

2.2.2 Northwest Interceptor Ditch

The Northwest Interceptor ditch (Photo 8) diverts runoff from the catchment north of the tailings impoundment. The ditch directs the flow partly to the west where it joins up with lower Subsidiary Creek diversion and partly to the east where it discharges into Cache Creek downstream of the tailings dam. We observed that in sections of the ditch, debris has accumulated in a number of places (Photo 9 and 10) and where the flow crossed beneath the main access road to the mine, the culvert is partially blocked (Photo 11).

2.2.3 Cache Creek Diversion

During construction of the tailings impoundment, Cache Creek was diverted around the southern perimeter of the impoundment and joined up with Oxo Creek, prior to rejoining the original Cache Creek channel.

In the upper reaches of the channel (Photo 7), the base is about 5m wide, the sideslopes are about 2:1 (H:V) and the channel slope is about 1 percent. Very little erosion of the existing riprap was observed during both visits along this reach and the banks remain stable. The riprap along this section varies from about 50mm to 1.2m in diameter with a D_{50} of about 450mm.

In the middle reach of the diversion (Photo 12), the riprap protection extends about 1.2m above the base of the channel. The riprap in most places has remained intact. However, there is one location on the north bank, as shown in Photo 13 where the riprap protection has been disturbed and the bank has started to erode.

The lower reach of the diversion is relatively steep varying from 16 to 20 percent over a distance of about 60m (Photos 13). This section of the channel had previously been reconstructed by YGC to train the flow directly into Oxo Creek.

On the south side of the channel adjacent to the steep section, is an area that has previously had a history of creep and instability (Photo 14). This area is believed to be prone to permafrost. During the 1996 inspection by SRK, it was noted that a 1m deep cavity had formed in behind the riprap at a location several metres downstream of the creep area. It was thought that this cavity had occurred during spring runoff where ice build up had forced flow in the creek to wash out the finer material. SRK recommended to YGC at the time that the saturated soil in the slide area be removed, geotextile filter fabric be placed over the exposed area and then backfilled with riprap. It was also recommended that the cavity downstream be backfilled with riprap. This work was completed in accordance with SRK's recommendations in August, 1996. During both the 1997 and 1998 inspections by SRK, further creep of the area was noted and some of the material had moved down the slope partially covering the newly placed riprap. Evidence of this previous movement was noted during this year's inspection. However, there appears to have been no significant additional creep or movement.

2.3 Tailings Impoundment

2.3.1 Tailings

At the time of the 1998 inspection, the water level in the tailings pond was at about El. 1310.5m or about 4 metres below the crest level. Records indicate over the 1990 to 1998, the pond had consistently been in the range of 1310.5m to 1309.2m. Furthermore, in the southeast corner of the impoundment, dry tailings had remained exposed to a maximum height above the water level of about 2m. SRK understands that over the last 4 years, the pond level has risen to its current level of 1311.6m or about 2.4 metres below the crest (Photo 19). No tailings are currently exposed.

2.3.2 North and South Dams

During the August 2005 visit, SRK inspected the two tailings dams at the impoundment for evidence of instability, cracking, settlement or bulging (Photos 15 and 16). The emergency spillway was also examined (Photo 17 and 18).

No cracks were observed along the crest of either dams and no visible settlement was detected. The upstream and downstream faces of the dams showed no signs of erosion or bulging.

The major outflow from the tailings pond is seepage water passing through or under the dams into two separate drainages. The seepage from the North Dam has historically been monitored using a 60 degree V-Notch weir (KR-04, N3) located about 180m below the downstream toe of the dam (Figure 3). However, during this August 2005 inspection, it was noted that the weir had been damaged and was not functional (Photo 22). Although most of this seepage discharges about 40m from the toe, there is some seepage that discharges right at the toe (Photo 20). This seepage has the potential to degrade the material in the discharge zones at the toe of the dam and in the long-term, may impact the stability of the dam. It was observed during the site visit that the ground adjacent to the toe is wet and soft. However, there were no signs of soil loss, discoloration or movement of soil.

Seepage at the South Dam discharges well below the toe of the dam just above the second weir at KR-05 (S2). Flow rates at both these weirs are monitored by the mine during spring through fall.

The flows recorded at both weirs were fairly consistent ranging from 2 to 5 L/s. No recent flow data was available for review.

A series of piezometers is located within the tailings impoundment embankment as shown on Figure 3. Piezometers P89-1, 3, 4, 5, 6A and 6B consist of 19mm dia. PVC pipe and were installed by Golder Associates in September, 1989. Piezometers P90-7, 8, 9 and 10 consist of 50mm PVC pipe and were installed by SRK in January, 1990.

In August of 1996, SRK installed six new monitoring wells in the tailings dams as part of a five year monitoring program to determine potential for arsenic migration pathways below the tailings pond and dam. Three wells were installed in each of the North and South dams. The locations of the wells are shown on Figure 3. A detailed discussion on the installation and water quality results to date are presented in a report entitled "1996 Groundwater Monitoring Program, Ketza River Mine Tailings Management Facility, Yukon Territory, January 1997", (SRK, 1997)

Water levels in the piezometers located along the crest of the embankment have been recorded since 1990. It is our understanding that the last set of readings prior to the August site visit was taken in 1998. YGC Resources Ltd (the current property owner) recently contracted EBA engineering to obtain a set of readings from some of the piezometers. The readings were taken on August 1, 2005. During the August 3, 2005 site inspection, second set of readings were taken. Results of the historical readings and the recent data set are shown on Table A-1.

Comparing the 1998 readings with the 2005 data, the levels in the 1996 piezometers (96-12A, B and C) indicate a rise in the phreatic surface of about 1m which is consistent with the current level of the pond. These levels indicate a relatively low phreatic surface within the dam. (See Figures 4 and 5)

2.3.3 Emergency Spillway

The existing emergency spillway is located in original ground between the North and South dams. The spillway was designed to handle overflow from the tailings impoundment in the event that the free storage was insufficient to accommodate a flood event. The invert of the spillway at the centreline of the dam was recently surveyed (August 2, 2005) by Yukon Engineering Services (YES) at about El 1312.20m or 1.7m below the dam crest. The spillway channel has a base width of about 4m with a relatively shallow depth of about 0.5m. The slope of channel averages about 3 percent for a distance of 54m from the invert of the spillway then steepens to about 6 percent as it approaches Cache Creek Diversion. The spillway channel is lined with broken rock with about 50 percent of the rock less than 75mm in diameter. During the life of the tailings impoundment this spillway has never been used.

3 Conclusions and Recommendations

The following conclusions and recommendations were made based on our site inspections.

3.1 Open Pits and Dumps

As discussed in the July 26, 1994 "Geotechnical Mine Review - Ketza River Mine" report by SRK, there are two main areas where potential slides may impact the tailings impoundment. The two areas are the over steepened waste rock dump at the Break Zone Portal and the main wall of the Break Zone pit. As discussed in SRK's report "Assessment of Risks Associated with Tailings Dams" December, 1994, preliminary risk estimates indicate that the direction of a failure of the Break Zone dump would probably pass in front of the tailings dam, but failure of the Break Zone pit wall would likely release rock towards the centre of the tailings pond. SRK concluded in their risk assessment that it was unlikely that a dam breach or massive failure would occur as a results of the pit wall failure.

However, to better assess the situation, SRK recommends that monitoring devices such as survey prisms be installed on the Break Zone pit wall. Annual surveys of the prism would indicate any pit wall movement.

3.2 Water Management

3.2.1 Culverts

SRK recommends that all culverts be inspected regularly. Any debris or loose material that has accumulated at the entrance and outlet of the culverts should be cleaned out. It is also recommended that the twin culverts at the confluence with Subsidiary creek and NID be hosed out to remove internal debris.

3.2.2 Diversion and Interceptor Ditches

The debris that has accumulated in the NID should be removed. It is believed that the silt build-up in the NID has contributed to the increased inflow into the tailings pond causing the pond to be consistently at its current level for the last 3 to 4 years.

3.3 Tailings Dams

3.3.1 North Dam Toe Berm

The continued seepage at the toe of the North Dam has the potential to degrade the material in the discharge zones at the toe of the dam and in the long-term, may impact the stability of the dam. It is recommended that a toe berm be constructed across the zone of discharge. The toe berm should be constructed with a crest width of about 4m and a downstream slope of 2.5:1 (H:V). The berm should extend to a height of about 1.5m above the toe of the discharge zone. The berm should be constructed of riprap with 50 percent of the rock size greater than 300mm (D_{50}). A geotextile filter fabric should be placed on the slope of the embankment prior to placing the rock to prevent fines migration.

SRK recommends that the discharge zone at the toe of the North dam be monitored, on a monthly basis, for any change in flow rate, colour change or sign of soil loss. These observations should be compiled every month during April to November and a copy forwarded to YTG.

3.3.2 Piezometric Levels Water Quality and Seepage Flow

Water levels in the piezometers and monitoring wells within both the North and South dams should be monitored regularly. The water levels should be measured and recorded monthly from April through to November. SRK also recommends that an internal examination of all the wells (89, 90 and 96 series) be carried out by a qualified hydrogeologist. During the inspection it was found that many of the wells were either plugged or broken. Furthermore, the location of some of the wells is incorrectly located on available maps.

3.3.3 Pond Level Management

Based on the original design of the TMF, the maximum operating level of the tailings pond is El 1312.00. As shown on Figure 6, both dams under these conditions would have a theoretically acceptable factor of safety against failure under static conditions. However, leaving the water level at El 1311.6 or 0.4m below the maximum operation level is exposing the dam to unnecessary risk. Furthermore, the factor of safety against shear failure under seismic loading conditions would likely not meet current earthquake design criteria for this dam which is expected to have a high consequence category in accordance with the Canadian Dam Safety Guidelines. Therefore, SRK recommends that the current pond water level be lowered to at least 1.5 to 2m below the spillway elevation or in the elevation range of 1310.7 to 1310.2. The lowering should commence as soon as possible.

3.4 Cache Creek Diversion

Monthly monitoring of the area on the south side of Cache Creek diversion should be initiated for movement or subsidence. The channel bank on the north side of Cache Creek Diversion where rip rap has been washed away, should be repaired.

This report, **"Geotechnical Inspection, Waste & Water Management Facilities, Ketza River Mine, Yukon Territory"**, has been prepared by SRK Consulting (Canada) Inc.

Peter Healey, P.Eng.
Principal Engineer

Figures

SRK Consulting
Engineers and Scientists
Denver, Colorado

Yukon
Environment

Government of Yukon,
Department of Environment

Vicinity Map

SRK JOB NO.: 1CY001.003

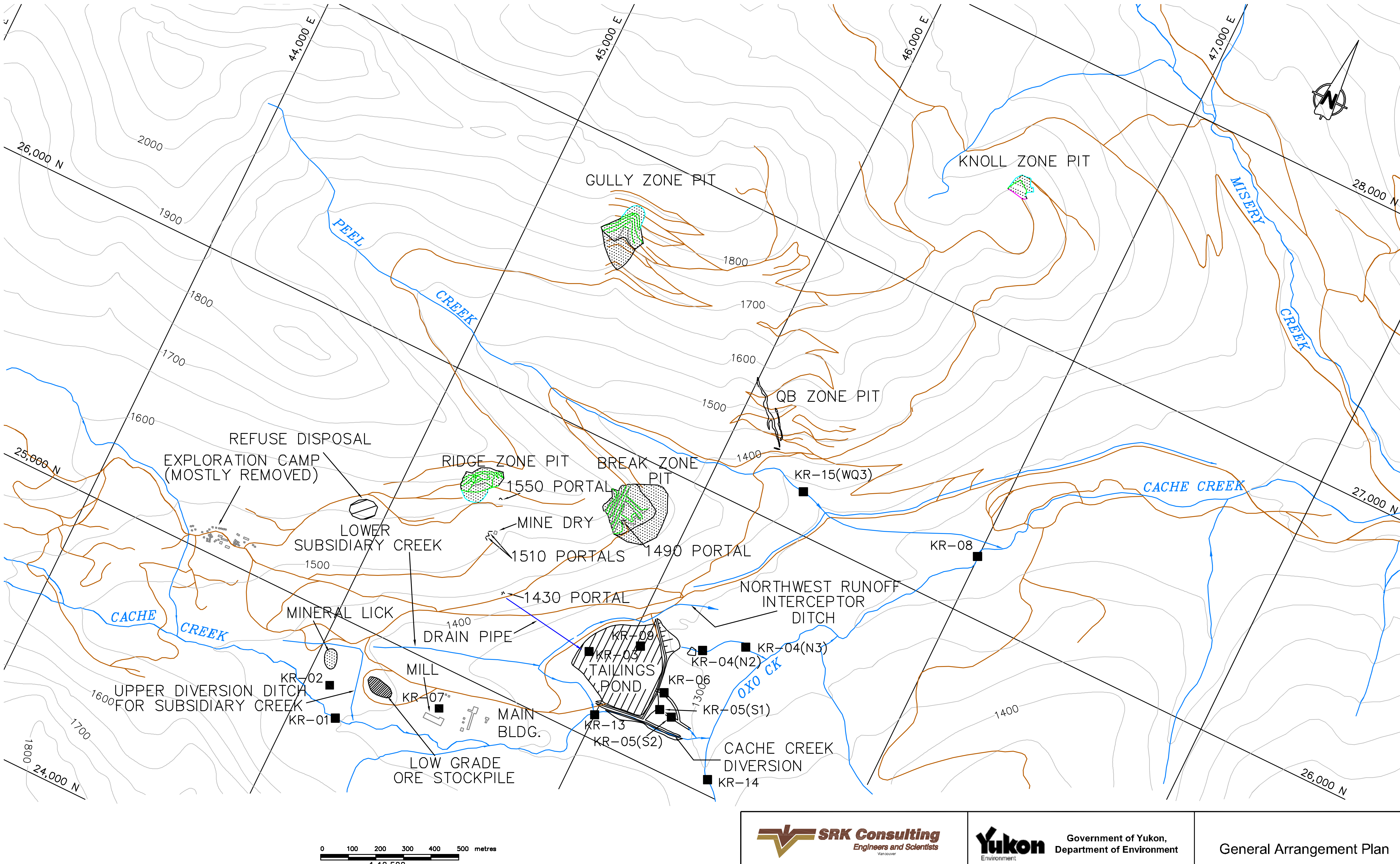
FILE NAME: Location Map.DWG

Ketza River Mine

DATE: Sept, 05

APPROVED:

FIGURE: 1



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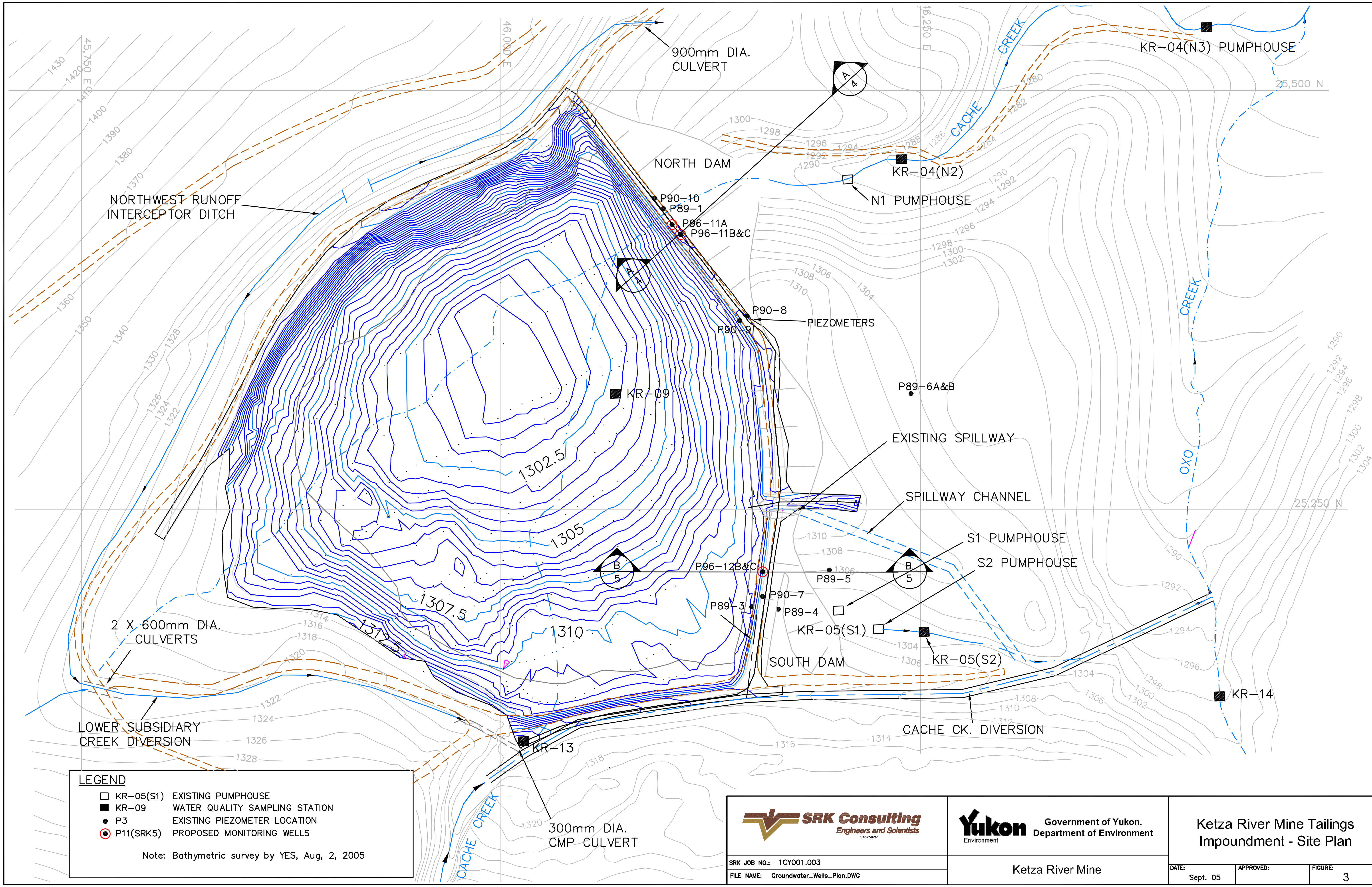
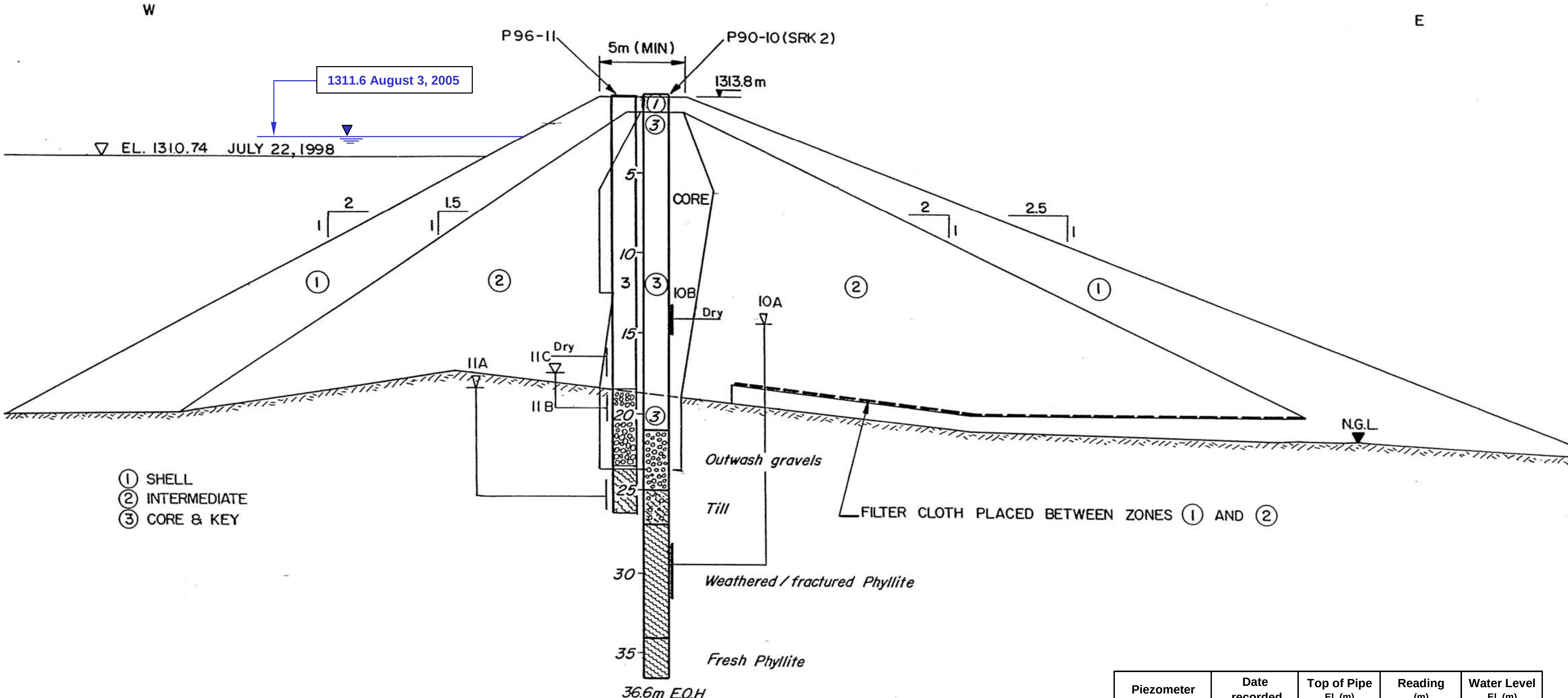
General Arrangement Plan

SRK JOB NO.: 1CY001.003	Ketza River Mine	DATE: Sept. 05	APPROVED:
FILE NAME: N1061005.DWG			FIGURE: 2



900mm DIA. CULVERT
NORTH DAM
KR-04(N3) PUMPHOUSE
KR-04(N2)
N1 PUMPHOUSE
CACHE CREEK
OXO CREEK
25,500 N
25,250 N
45,750 E
46,000 E
46,250 E
NORTHWEST RUNOFF INTERCEPTOR DITCH
P90-10
P89-1
P96-11A
P96-11B&C
P90-8
P90-9
PIEZOMETERS
P89-6A&B
KR-09
1302.5
1305
1307.5
1310
1312.5
EXISTING SPILLWAY
SPILLWAY CHANNEL
S1 PUMPHOUSE
S2 PUMPHOUSE
P96-12B&C
P89-5
P90-7
P89-3
P89-4
KR-05(S1)
KR-05(S2)
SOUTH DAM
KR-14
2 X 600mm DIA. CULVERTS
LOWER SUBSIDIARY CREEK DIVERSION
CACHE CK. DIVERSION
KR-13
300mm DIA. CMP CULVERT
CACHE CREEK
LEGEND
KR-05(S1) EXISTING PUMPHOUSE
KR-09 WATER QUALITY SAMPLING STATION
P3 EXISTING PIEZOMETER LOCATION
P11(SRK5) PROPOSED MONITORING WELLS
Note: Bathymetric survey by YES, Aug, 2, 2005
SRK Consulting
Engineers and Scientists
Vancouver
Yukon
Environment
Government of Yukon, Department of Environment
Ketza River Mine Tailings Impoundment - Site Plan
SRK JOB NO.: 1CY001.003
FILE NAME: Groundwater_Wells_Plan.DWG
Ketza River Mine
DATE: Sept. 05
APPROVED:
FIGURE: 3



Piezometer	Date recorded	Top of Pipe El. (m)	Reading (m)	Water Level El. (m)
11A	22-Jul-98	1315.16	*nr*	*nr*
	03-Aug-05	1315.16	18.984	1296.18
11B	22-Jul-98	1315.18	18.759	1296.40
	03-Aug-05	1315.18	*dry*	-
11C	22-Jul-98	1315.15	*dry*	-
	03-Aug-05	1315.15	*dry*	-
10A	22-Jul-98	1314.08	13.584	1300.50
	03-Aug-05	1314.08	*nr*	*nr*
10B	22-Jul-98	1314.08	*dry*	-
	03-Aug-05	1314.08	*dry*	-

nr = no reading

Approx. Scale 1:250

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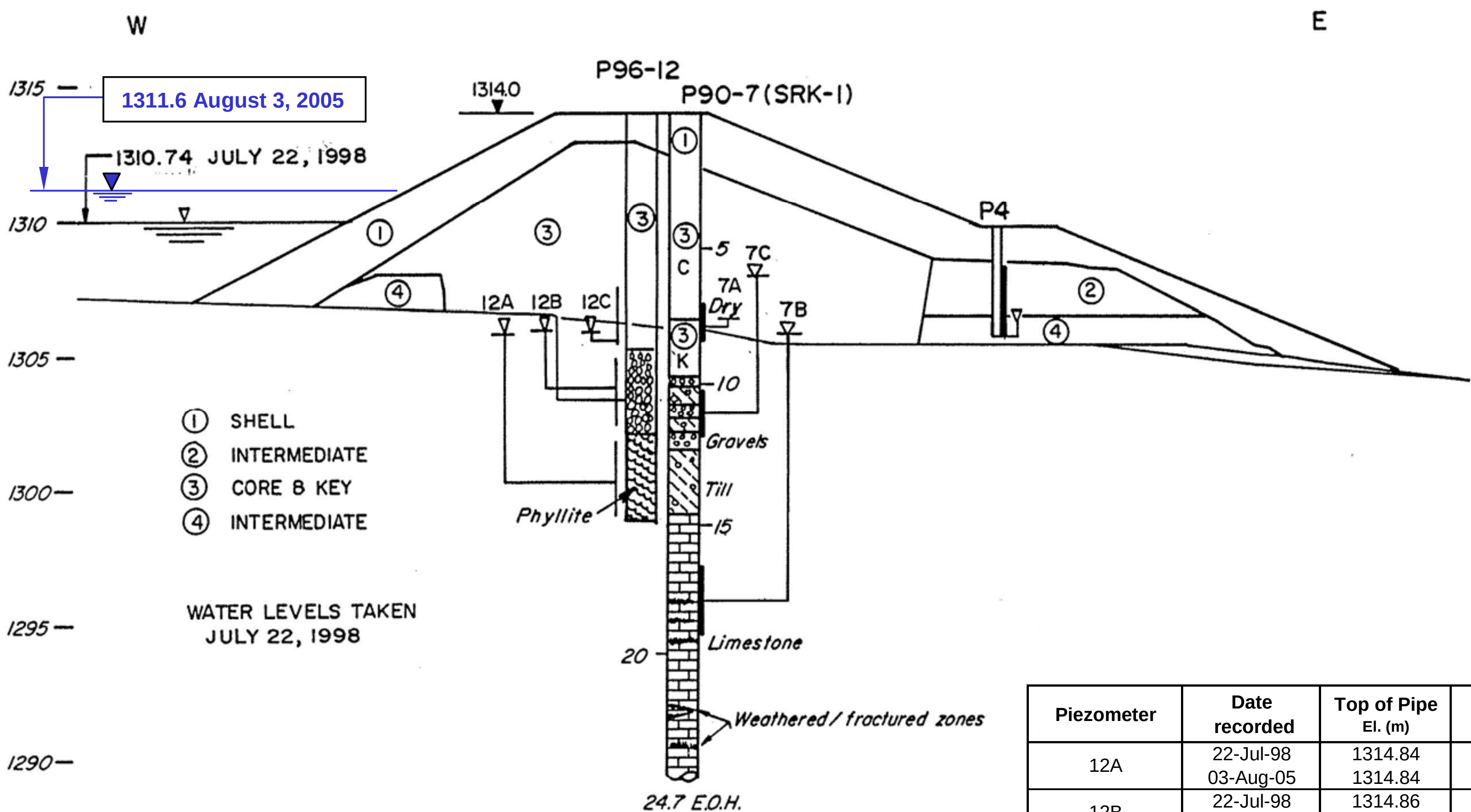
North Dam
Section A- A

Job No: 1CY001.003

Filename: Fig 4_North Dam_20050902.ppt

Ketza River Mine

Date: Sept. 2005 | Approved: | Figure: 4



Piezometer	Date recorded	Top of Pipe El. (m)	Reading (m)	Water Level El. (m)
12A	22-Jul-98	1314.84	8.860	1305.98
	03-Aug-05	1314.84	7.65	1307.19
12B	22-Jul-98	1314.86	8.635	1306.23
	03-Aug-05	1314.86	7.49	1307.37
12C	22-Jul-98	1314.86	*dry*	-
	03-Aug-05	1314.86	*dry*	-
7A	22-Jul-98	1313.88	*dry*	-
	03-Aug-05	1313.88	7.75	1306.13
7B	22-Jul-98	1313.88	8.768	1305.11
	03-Aug-05	1313.88	*plugged*	-
7C	22-Jul-98	1313.88	6.203	1307.68
	03-Aug-05	1313.88	8.36	1305.52
P4	22-Jul-98	1310.53	*dry*	-
	03-Aug-05	1310.53	4.98	1305.55

Approx. Scale 1:250

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South Dam
Section B - B

Job No: 1CY001.003

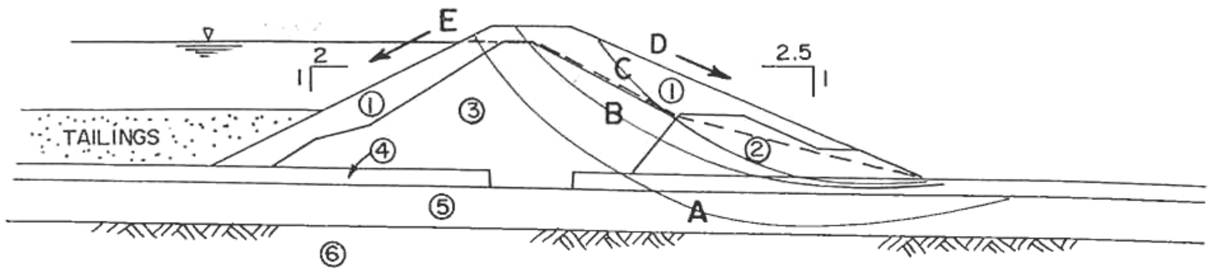
Filename: Fig 5_South Dam Section_20050901.ppt

Ketza River Mine

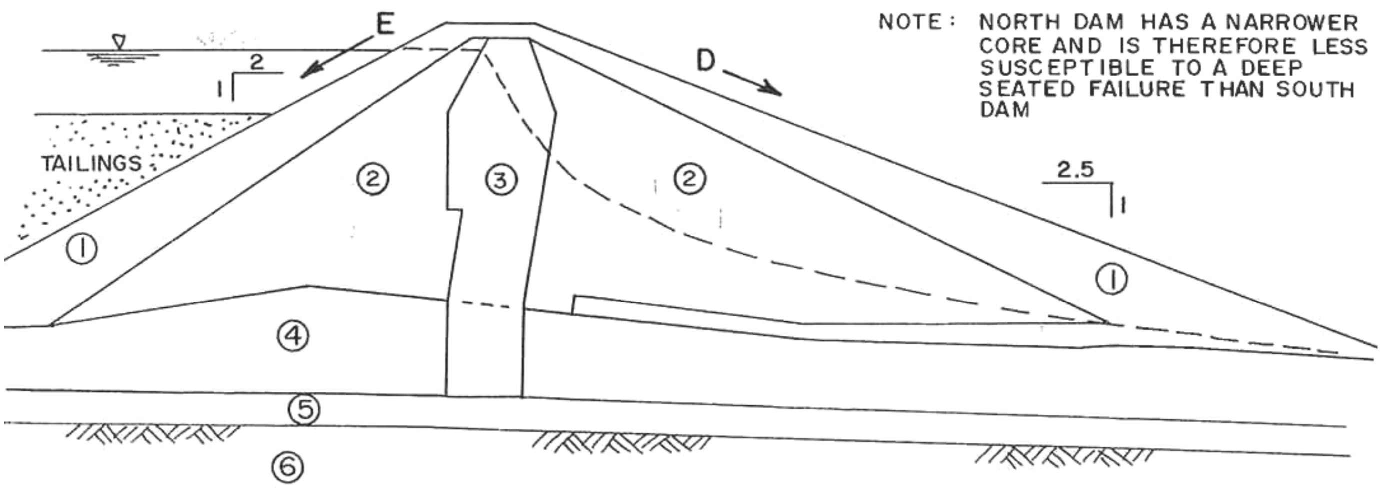
Date: Sept. 2005

Approved:

Figure: 5



SOUTH DAM



NORTH DAM

Approx. Scale - 1:500

ASSUMED MATERIAL PROPERTIES			
MATERIAL	NO.	COHESION	Ø
GRAVEL	1	0	34°
SAND & GRAVEL	2	0	39°
TILL CORE	3	0	35°
OUTWASH SAND & GRAVEL	4	0	39°
IN SITU TILL	5	0	37°
BEDROCK	6	—	—

RESULTS OF STABILITY ANALYSES		
FACTOR OF SAFETY		
CIRCLE	STATIC	DYNAMIC
A	1.5	1.2
B	1.7	1.2
C	1.6	1.3
INFINITE SLOPE		
D	1.6	1.4
E	1.3	1.1

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Department of Environment

Summary of Dam Stability

Job No: 1CY001.003	Ketza River Mine	Date: Sept. 2005	Approved:	Figure: 6
Filename: Fig 6_Stability Analysis_20050902.ppt				

Appendix A – Photos

Photo 1 – Ridge Zone Dump (August 3, 2005).

Photo 2 - Subsidiary Creek Diversion above road crossing (August 3, 2005).

Photo 3 - Subsidiary Creek Diversion (upper) below road crossing.

Photo 4 - Twin culverts at confluence of Subsidiary Creek Diversion and Northwest Interceptor Ditch (August 3, 2005).

Photo 5 – Outlet of Twin Culverts at Lower Subsidiary Creek Diversion.

Photo 6 - Inlet of 0.3m diameter culvert which takes flow from Northwest Interceptor Ditch and Subsidiary Creek Diversion to Cache Creek.

Photo 7 – Cache Creek Diversion (August 3, 2005).

Photo 8 – View East along Northwest Interceptor Ditch (August 3, 2005).

Photo 9 – View West along Northwest Interceptor Ditch

Photo 10 – Sediment buildup in Northwest Interceptor Ditch.

Photo 11 – Entrance of culvert which diverts flow from NID to below Tailings Dam.

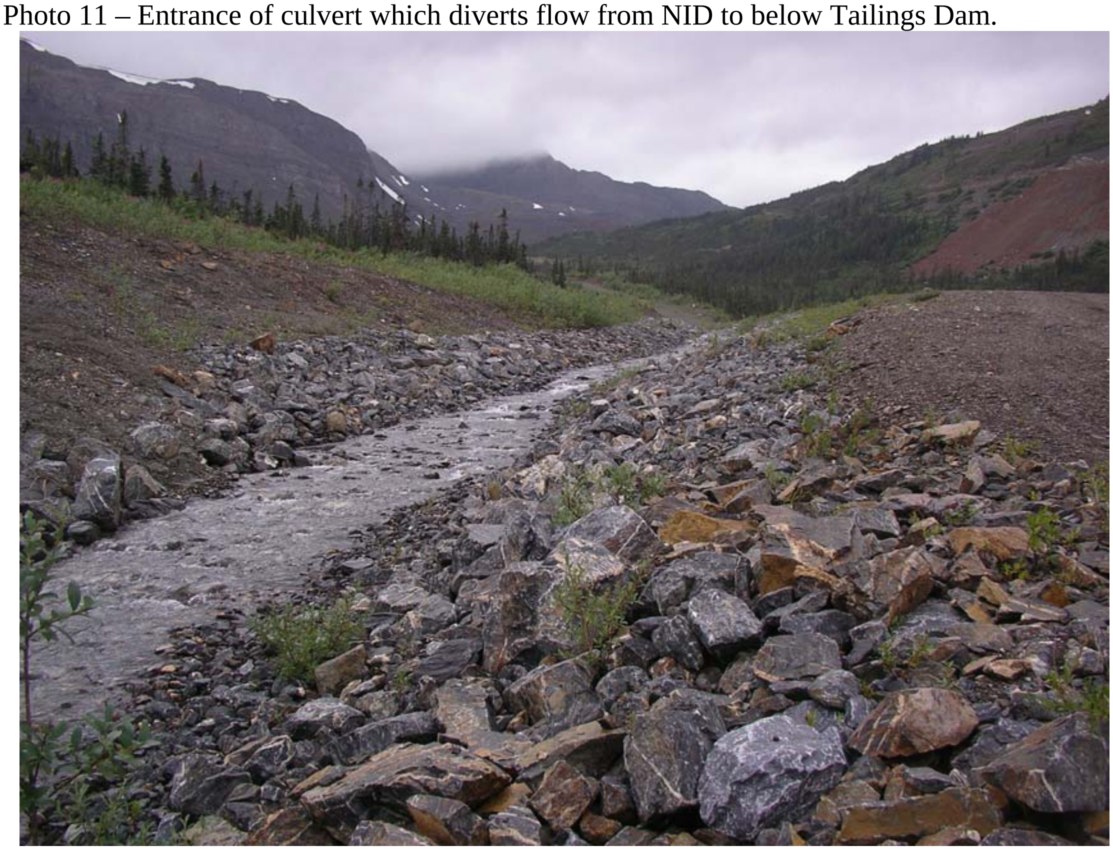

Photo 12 – Middle reach of Cache Creek Diversion.

Photo 13 - Lower-reach of Cache Creek diversion

Photo 14 - Creep area above south side of Cache Creek Diversion (August 3, 2005).

Photo 15 – View south along crest of South Dam.

Photo 16 – View north along crest of North Dam.

Photo 17 – View looking north of the existing Emergency Spillway

Photo 18 – View along Emergency Spillway perpendicular to Dam Crest

Photo 19 – Pond Level (EL 1311.57m) August 3, 2005

Photo 20 – Seepage from toe of North Dam (August 3, 2005)

Photo 21 – Pumphouse at N1 below North Dam

Photo 22: Broken V-notch Weir at KR-04

Appendix B - Piezometers Readings

TABLE B - 1 Piezometric Levels Tailings Dam

Piezometer	P89 - 1		P89 - 3		P89 - 4		P89 - 5		P89 - 6A		P89 - 6B		P90 - 7A		P90 - 7B		P90 - 7C		P90 - 8	
Alternative Well ID	P1		P3		P4		P5		P6A		P6B		SRK 1		SRK 1		SRK 1		SRK 4	
Collar Elev. (m)	1314.00		1314.10		1310.00		1309.70		1302.50		1302.50		1313.88		1313.88		1313.88		1313.99	
Casing Stickup above ground (m)	0.00		0.00		0.53		1.35		0.46		0.64		0.00		0.00		0.00		0.00	
Constructed depth of casing below collar (m)	15.10		7.80		5.20		6.00		23.80		6.60		8.61		19.20		11.90		9.90	
Date	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)
20-Nov-90	12.61	1301.39	7.76	1306.34	5.47	1305.06	6.27	1304.78	8.20	1294.76	Dry		7.52	1306.36	6.62	1307.26	8.65	1305.23	7.70	1306.29
11-Dec-90	12.94	1301.06	7.79	1306.31	4.95	1305.58	5.35	1305.70	8.01	1294.96	Dry		7.93	1305.95	6.71	1307.17	8.71	1305.18	7.82	1306.17
24-Dec-90																				
1-Jan-91																				
7-Jan-91	13.08	1300.93	Dry		5.54	1304.99	5.44	1305.61	7.72	1295.24	Dry		Dry		6.81	1307.08	8.77	1305.12	7.89	1306.11
3-Feb-91	13.16	1300.85	7.81	1306.29	5.09	1305.44	5.48	1305.57	7.31	1295.65	Dry		Dry		6.86	1307.03	8.77	1305.12	7.85	1306.14
2-Mar-91	13.19	1300.81	Dry		5.07	1305.47	5.50	1305.55	7.64	1295.32	Dry		Dry		6.85	1307.03	8.78	1305.11	7.85	1306.14
5-Apr-91	13.29	1300.71	8.85	1305.25	5.62	1304.91	6.86	1304.19	Can't Find		Can't Find		Dry		6.86	1307.02	8.78	1305.10	7.84	1306.15
3-May-91																				
11-May-91																				
14-May-91	13.39	1300.61	Frozen		5.08	1305.45	6.63	1304.42	Can't Find		Can't Find		Dry		6.50	1307.38	Frozen		Frozen	
31-May-91	13.36	1300.64	Frozen		5.00	1305.53	6.34	1304.71	7.76	1295.20	Dry		Dry		6.02	1307.86	8.11	1305.77	Frozen	
6-Jun-91																				
11-Jun-91																				
1-Jul-91	13.41	1300.59	7.69	1306.41	5.39	1305.14	6.65	1304.40	8.14	1294.82	Dry		Dry		6.67	1307.21	8.54	1305.34	Frozen	
14-Jul-91																				
29-Jul-91																				
4-Aug-91	11.90	1302.10	7.61	1306.49	5.35	1305.18	6.99	1304.06	8.65	1294.31	Dry		7.95	1305.93	7.33	1306.55	8.94	1304.94	8.54	1305.45
2-Sep-91	12.52	1301.48	7.66	1306.44	5.37	1305.16	6.95	1304.10	8.80	1294.16	Dry		6.74	1307.14	7.39	1306.49	9.09	1304.79	8.53	1305.46
1-Oct-91	12.46	1301.54	7.32	1306.78	5.61	1304.92	6.85	1304.20	8.85	1294.11	Dry		5.97	1307.91	7.30	1306.58	9.06	1304.82	8.40	1305.59
12-Nov-91	12.55	1301.45	7.74	1306.36	5.71	1304.82	6.86	1304.19	9.10	1293.86	Dry		7.23	1306.65	7.35	1306.53	9.02	1304.86	8.31	1305.68
3-Jan-92	13.08	1300.92	Dry		Plugged		7.00	1304.05	11.20	1291.76	Dry		7.10	1306.78			Dry		8.40	1305.59
5-Jan-92															7.32	1306.56				
6-Mar-92	Plugged		Orange Cap Frozen on		Plugged		7.12	1303.93	11.31	1291.65	Dry		6.22	1307.66	7.56	1306.32	Dry		8.62	1305.37
31-May-92	1.12 Plugged		Plugged		Plugged		6.72	1304.33	10.95	1292.01	Dry		Plugged		6.86	1307.02	Dry		8.40	1305.59
15-Jun-92																				
19-Jul-92																				
3-Aug-92																				
10-Sep-92																				
8-Jun-93	13.85	1300.15	Dry		4.99	1305.54	6.26	1304.79	11.25	1291.71	Dry		8.32	1305.56	9.00	1304.88	Dry		7.79	1306.20
26-Aug-93	13.87	1300.13	Dry		4.87	1305.66	6.18	1304.87	9.98	1292.98	Dry		8.31	1305.57	8.58	1305.30			7.77	1306.22
13-Apr-94																				
23-May-94																				
6-Jun-94																				
16-Jun-94	13.80	1300.21	Dry		5.07	1305.46	6.34	1304.71	11.85	1291.11	Dry		8.40	1305.48	6.08	1307.80	Dry		ice 5'	
6-Aug-94																				
1-Jun-95	13.95	1300.05	Dry		5.11	1305.42	6.40	1304.65	11.66	1291.30	Dry		Dry		6.05	1307.83	8.43	1305.45	Plugged	
8-Jul-95	13.75	1300.26	Dry		5.25	1305.28	6.54	1304.51	12.23	1290.73	Dry		8.67	1305.21	6.19	1307.69	8.12	1305.76	7.90	1306.09
14-Aug-95	13.49	1300.51	Dry		5.36	1305.18	6.67	1304.39	11.78	1291.18	Dry		8.81	1305.07	6.37	1307.52	Dry		7.95	1306.04
19-Sep-95	12.80	1301.20	6.47	1307.64	5.32	1305.21	6.59	1304.46	11.53	1291.44	Dry		7.74	1306.15	6.19	1307.69	8.73	1305.15	7.82	1306.17
25-May-96	14.07	1299.93	Dry		Frozen?		6.85	1304.20	10.88	1292.08	Dry		Dry		7.16	1306.73	9.05	1304.83	7.28	1306.71
15-Jul-96																				
14-Sep-96	12.29	1301.71	6.62	1307.48	4.27	1306.27	6.52	1304.53	11.38	1291.58	Dry		6.31	1307.58	8.66	1305.22	8.14	1305.74	6.67	1307.32
29-Sep-96																				
14-May-97	14.05	1299.96	Dry		5.03	1305.50	6.35	1304.70	10.76	1292.20	Dry		Plugged		Plugged		8.16	1305.72	8.15	1305.84
24-Jul-97																				
22-Jul-98	14.00	1300.00	Dry		Dry		6.66	1304.39	11.41	1291.55	Dry		Dry		8.77	1305.11	6.20	1307.68	6.50	1307.49
3-Aug-05	-		-		4.98	1305.55	6.07	1304.98	12.86	1290.10	-		6.33	1307.55	Plugged		8.39	1305.49	7.00	1306.99

TABLE B-1 - Piezometric Levels Tailings Dam (continued)

Piezometer	P90 - 9		P90 - 10A		P90 - 10B		P96 - 11A		P96 - 11B		P96 - 11C		P96 - 12A		P96 - 12B		P96 - 12C		Tailings Pond
Alternative Well ID	SRK 3		SRK 2		SRK 2		--		--		--		--		--		--		--
Collar Elev. (m)	1313.96		1314.08		1314.08		1314.24		1314.25		1314.25		1313.93		1313.95		1313.95		--
Casing Stickup above ground (m)	0.00		0.00		0.00		0.92		0.93		0.90		0.91		0.91		0.91		--
Constructed depth of casing below collar (m)	7.60		32.20		15.20		25.84		20.33		17.00		14.75		11.83		8.30		--
Date	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Depth to Water (m)	Water Elev. (m)	Water Elev. (m)
20-Nov-90	6.80	1307.16	13.34	1300.74	Dry														1310.53
11-Dec-90	6.91	1307.05	13.44	1300.64	Dry														
24-Dec-90																			
1-Jan-91																			1310.36
7-Jan-91	7.02	1306.94	13.53	1300.55	Dry														
3-Feb-91	7.00	1306.96	13.57	1300.52	Dry														1310.35
2-Mar-91	7.00	1306.96	13.56	1300.52	Dry														1310.40
5-Apr-91	7.00	1306.96	13.66	1300.42	Dry														1310.37
3-May-91																			1310.54
11-May-91																			1310.27
14-May-91	6.64	1307.32	13.26	1300.82	Dry														
31-May-91	Frozen		13.39	1300.69	Dry														1310.71
6-Jun-91																			1310.47
11-Jun-91																			1310.32
1-Jul-91	7.19	1306.77	13.90	1300.18	Dry														1309.63
14-Jul-91																			1309.24
29-Jul-91																			1308.75
4-Aug-91	7.46	1306.50	14.39	1299.69	Dry														1308.56
2-Sep-91	7.50	1306.46	14.36	1299.72	Dry														
1-Oct-91	Dry		14.36	1299.72	Dry														
12-Nov-91	Dry		14.43	1299.65	Dry														1309.26
3-Jan-92	Dry		14.36	1299.72	Dry														1309.16
5-Jan-92																			1309.17
6-Mar-92	Dry		14.91	1299.17	Dry														1309.17
31-May-92	Dry		Plugged																1309.21
15-Jun-92																			1309.74
19-Jul-92					Dry														1310.06
3-Aug-92					Dry														1310.05
10-Sep-92																			1310.08
8-Jun-93	7.00	1306.96	14.04	1300.04	Dry														1310.01
26-Aug-93	7.00	1306.96	14.08	1300.00	Dry		18.29	1296.87	Dry		Dry		8.02	1306.82	7.88	1306.98	7.90	1306.05	1310.01
13-Apr-94																			1309.01
23-May-94																			1309.21
6-Jun-94																			1309.74
16-Jun-94	Ice 5'		13.83	1300.25	Plugged 5'														1309.69
6-Aug-94																			1309.71
1-Jun-95	Plugged		13.30	1300.78	Dry														1309.63
8-Jul-95	6.95	1307.01	13.36	1300.73	Dry @ 15.10														1309.70
14-Aug-95	7.00	1306.97	13.37	1300.72	Dry														1309.69
19-Sep-95	6.70	1307.26	13.22	1300.86	Dry														
25-May-96	8.26	1305.71	13.40	1300.68	Dry														1309.66
15-Jul-96					Dry 14.89														1309.84
14-Sep-96	7.76	1306.20	12.94	1301.14	14.89	1299.19	19.09	1296.07	21.15	1294.03	Dry		8.83	1306.01	8.66	1306.20	8.73	1305.22	1309.66
29-Sep-96							18.08	1297.08	Dry		Dry		7.92	1306.92	7.75	1307.11	Dry		
14-May-97	6.85	1307.11	12.98	1301.10	14.83	1299.25													Iced Over
24-Jul-97																			1310.98
22-Jul-98	7.94	1306.02	13.58	1300.50	15.03	1299.05	-	-	18.76	1296.42	Dry		8.86	1305.98	8.64	1306.23	Dry		
3-Aug-05	6.06	1307.91	-		15.00	1299.08	18.98	1296.18	Dry		Dry		7.65	1307.19	7.49	1307.37	Dry		1311.60