Jericho Diamond Mine
2006 Waste Rock Seepage Monitoring Report

Prepared for:

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1 Introduction

The Jericho Diamond Mine commenced mining operations in early 2006. Environmental monitoring requirements for the Jericho Diamond Mine are set out in Water Licence NWB1JER0410 Type "A", issued to Tahera Diamond Corporation on December 22, 2004 by the Nunavut Water Board (NWB).

To fulfill the condition set out in Part L, Item 9 of Water Licence NWB1JER0410, a waste rock storage area seepage survey was carried out on July 25 and July 29, 2006. This document provides a summary and results of the 2006 waste rock storage area seepage survey.

Seepage from the waste rock dumps is collected and pumped to the PKCA, where it is allowed to mix with other inflows from the mine prior to discharge. The discharges from the PKCA must meet the effluent discharge criteria outlined in the Water Licence. The seepage surveys are not intended to determine regulatory compliance, rather, they are used to monitor changes in the chemistry of seeps that are in close proximity to the waste rock, ore storage, and coarse processed kimberlite stockpiles. The seepage data are used to improve long-term estimates of water quality from the facility for use in ongoing water management and closure planning, and are an important input to the adaptive management plans. By monitoring close to the source, the operator can anticipate potential changes to the PKCA water quality and implement additional management measures as required to ensure that the PKCA discharges meet the effluent discharge criteria.

2 Scope

SRK Consulting (Canada) Inc. was contracted by Tahera to assist with the design and reporting of the 2006 waste rock storage area seepage survey. SRK's responsibilities consisted of:

- a site visit to identify and map potential waste rock seepage locations;
- selection of sites for establishment of seepage monitoring stations;
- providing guidance on sampling methods;
- interpretation of monitoring results; and
- preparation of the 2006 waste rock seepage monitoring report.

Sampling of recommended seepage stations and submission of samples to the analytical laboratory was carried out by Tahera's environmental staff.

In preparing this report, SRK also reviewed the routine monitoring data for the Pit Sump and the East Sump, which represent seepage from the waste rock dumps and coarse processed kimberlite (PK) stockpile.

3 Sampling Methods

Kelly Sexsmith of SRK and George Aitok of Tahera inspected the site on July 19 and 20, 2006 to identify and map potential stations for waste rock seepage monitoring. Stations were identified by walking the toes of all waste rock dumps where waste rock rests on original ground and looking for any flowing seeps that emerged from the waste rock or ponded water that could have been associated with the waste rock. In general, flowing seeps are preferred for seep surveys because the source of the water is more clearly defined and if necessary a chemical load can be calculated. Stagnant pools may also be subject to evaporation which may affect water chemistry. The toe of the waste rock pad housing the temporary crushed ore stockpile was also inspected for potential seep sampling locations.

Sites selected for follow-up sampling were either actively flowing, or were inferred to have been recently flowing based on observations of moisture along flow paths or of ponded water surfaces at or near the spill elevation. Sites where surface runoff appeared to be the only source of water were eliminated from further consideration. A total of three priority sites were selected by SRK and Tahera for sampling. Of these, only two were still flowing when the actual sampling was completed 5 and 10 days after the initial site visit. The third site (Seep-09) could not be sampled because it was flowing through a boulder field and the water was inaccessible from surface.

Samples were collected for analyses of routine parameters, nutrients, and dissolved metals (dissolved metals by ICP-OES), as shown in Table 1. The samples were collected at each sample station and then were shipped to the analytical laboratory for filtration, preservation, and analysis. Total metals samples were not collected at waste rock seepage stations due to the potential for entrainment of bottom sediments in these small flows during sampling.

Field pH, conductivity, oxidation-reduction potential, dissolved oxygen, and temperature measurements were taken at each station using a YSI 556 MPS meter. Flow volumes were estimated visually, as flows were very low and there were no opportunities for quantitative measurements.

The sampling locations were marked for later reference with flagging tape and were surveyed using a hand-held GPS. Sample locations are shown in Figure 1. Photographs were taken to document the general appearance of the station, and any precipitates along the flow paths.

Table 1: Water Quality Parameters

Test Group	Analytical Parameters	Measurement Units
Routine - R	Alkalinity, acidity, hydroxide, carbonate, bicarbonate	mg $CaCO_3$/L
	Chloride, fluoride, sulphate, total hardness Total suspended solids (TSS), Total dissolved solids (TDS), Total organic carbon (TOC), Total inorganic (TIC)	mg/L
	pH (field and lab)	pH units
	ORP (field)	mV
	Conductivity (field and lab)	uS/cm
	Temperature (field)	$^{\circ}$C
	Turbidity	NTU
	Dissolved Oxygen (field)	mg/L
ICP-D (ICP Dissolved Metals Scan)	Ca, Mg, Na, K, Ag, Al, As, Ba, B, Be, Cd, Cr, Co, Cu, Fe, Hg, Li, Mn, Mo, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Ti, Tl, U, V, Zn	mg/L
Nutrients – N	Ammonia-N, Nitrate-N,	mg N/L
	Nitrite-N	
	Orthophosphate-P	mg P/L

4 Monitoring Results and Discussion

4.1 July 2006 Waste Rock Seepage Survey

4.1.1 Results

Two waste rock seepage monitoring stations were identified and sampled at the locations shown in Figure 1. Seep-05 represents a flowing seep located in the middle of the waste rock pile, while Seep -13 was located in the area downgradient of the ore storage and crusher pad area. No seeps were found in the vicinity of the coarse processed kimberlite stockpile. A summary of key results is shown in Table 2, and complete field and laboratory results are included in Appendix A.

4.1.2 Discussion

Water quality from various site components was estimated as part of the Environmental Impact Assessment (SRK 2003). Data from the seep survey were compared to the original predictions to assess the validity of the original predictions and to determine whether any modifications to the current waste management plan are required to ensure that concentrations in the PKCA discharge will be able to meet the effluent quality criteria specified in the water licence. Comparisons to the PKCA discharge criteria are also provided to demonstrate that waste rock seepage inputs will not compromise Tahera's ability to achieve acceptable discharge water quality from the PKCA.

The comparisons of the results from the 2006 waste rock seepage survey to the original water quality estimates and discharge criteria are provided in Table 2.

In general, waste rock seepage quality was consistent with expectations. pHs were in the neutral pH range (>6), and sulphate concentrations were very low (<41 mg/L). Ammonia concentrations approached the predicted concentrations at one station (Seep-05), but were well below the allowable criteria for discharges from the PKCA. Nitrate and nitrite concentrations also exceeded the original predictions. Concentrations of these parameters are expected to decrease due to biochemical reactions and uptake by plants or microbial activity occurring within the mine water management system.

Metal concentrations were generally less than the predicted concentrations. The exception was chromium, which exceeded the predicted concentration by a factor of two at both stations. However, chromium concentrations in both seeps were still an order of magnitude below the allowable chromium concentration for discharges from the PKCA.

Seep-13 was located upgradient of Lake C1 and was not contained within the current water collection system. However, flow volume at Seep-13 was very low- the seep was observed to be barely trickling over the spill point.

4.2 Results from Related Routine Monitoring Stations

4.2.1 Results

Two of the routine monitoring stations provide additional insight into the seepage chemistry of the waste rock and coarse processed kimberlite (coarse PK):

- Routine monitoring station JER-SW2 monitors water quality at the pit sump, which currently collects all of the seepage from the waste rock dumps.
- Routine monitoring station JER-SW8 monitors water quality at the East Sump, which receives drainage from the coarse PK stockpile. The East Sump also acts as an intermediate repository and settling pond for pit sump waters.

Results for these two stations are provided in Table 3.

4.2.2 Discussion

JER-SW2 (Pit Sump)

Monitoring results for samples collected in June and July 2006 indicate that, in comparison to the original predictions, ammonia-N and nitrate-N concentrations are higher than expected. Copper, nickel, uranium and zinc were also elevated compared to the original predictions, possibly due to a relatively greater amount of contact with kimberlite in this early stage of pit development. Although the concentrations were higher than expected, all parameters except ammonia were less than the PKCA discharge criteria.

Pit sump water is pumped to the East Sump and does not report directly to the receiving environment. East Sump discharge reports directly to the PKCA. Mixing and degradation of ammonia in the East Sump and the PKCA is expected to reduce the ammonia contributed by the pit sump. The elevated ammonia concentrations indicate that blasting practices need to be monitored closely. However, it is common in the early stages of any pit development to have initially higher concentrations due to generally wetter conditions in the upper portions of the pit.

JER-SW8 (East Sump)

Comparison of JER-SW8 results with predicted coarse PK runoff (Table 3) shows that JER-SW8 has slightly higher nitrate, copper, and aluminum concentrations compared to the original coarse PK predictions. This may be due in part to use of this collection pond as a transfer point for water from the pit sump, which in turn receives water from the waste rock dumps. Concentrations of all parameters were well below the allowable criteria for discharges from the PKCA.

Station JER-SW8 also receives pit sump discharge and natural runoff from adjacent areas. Water quality at this station reflects mixing of natural surface runoff and pit water with runoff and seepage from coarse PK. This water is pumped to the PKCA, and does not discharge directly to the receiving environment.

Table 2: Selected Water Quality from 2006 Waste Rock Seepage Monitoring

Station Name	Date	Field pH	Sulphate	Chloride	Diss. P	TDS	TSS	Ammonia - N	Nitrate - N	Nitrite - N	Diss. Al	Diss. As	Diss. Cd	Diss. Cr	Diss. Cu	Diss. Fe	Diss. Pb	Diss. Mo	Diss. Ni	Diss. U	Diss. Zn
		s.u.	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Seep-05	**7/25/2006**	7.13	41	57	0.022	616	4	2.23	65.9	1.89	0.015	0.0018	<0.00005	0.0099	0.0032	<0.10	<0.00005	0.0329	0.00494	0.101	0.001
Seep-13	**7/25/2006**	6.42	4.9	19	0.107	212	21	1.04	<0.05	1.91	0.226	0.0015	0.00008	0.0087	0.0147	<0.10	0.00035	0.00740	0.00718	0.00674	0.007
Pre-mining Estimates	**average**	na	29	77	0.01	667	na	2.9	7.3	0.21	0.23	0.0016	0.0006	0.0038	0.06	0.32	0.0005	0.03800	0.019	0.27	0.024
for WR & Overburden	**max**	na	47	261	0.01	1394	na	5.8	14.6	0.42	0.5	0.0031	0.0006	0.0038	0.06	1.54	0.0006	0.07800	0.04	2.3	0.085
PKCA Discharge	**Max avg.**	6-8.8	na	500	0.2	2000	15	6	28	2.5	1	0.05	0.0012	0.087	0.02	na	0.01	0.73000	0.05	0.5	0.25
Criteria	**Max grab.**	6-8.8	na	1000	0.4	4000	25	12	56	5	2	0.1	0.0024	0.17	0.04	na	0.02	1.50000	0.1	1	0.5

Notes: - Grey shading presents estimated dissolved concentrations from pre-mine characterization or allowable discharge criteria for discharges from the PKCA for comparison purposes only.
- ‘na’ = not applicable

Table 3: Selected Predicted and Observed Water Quality at Routine Monitoring Stations JER-SW2 and JER-SW8

Station Name	Date	Field pH	Sulphate	Chloride	Diss. P	TDS	TSS	Ammonia - N	Nitrate - N	Nitrite - N	Diss. Al	Diss. As	Diss. Cd	Diss. Cr	Diss. Cu	Diss. Fe	Diss. Pb	Diss. Mo	Diss. Ni	Diss. U	Diss. Zn
		s.u.	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
JER-SW2	**6/21/2006**	7.73	13.1	25	-	340	15	20.3	45.9	0.77	0.123	0.0007	<0.00005	0.0003	0.0142	<0.10	0.00196	0.00648	0.0144	0.115	<0.001
JER-SW2	**7/11/2006**	7.15	19.6	30	<0.005	552	14	8.1	57.6	1.8	0.013	0.001	<0.00005	0.0011	0.0160	<0.10	0.00029	0.0103	0.0342	0.122	0.026
JER-SW8	**6/21/2006**	7.68	9.3	13	-	210	12	3.42	14.3	0.24	0.344	0.0006	<0.00005	0.0009	0.0051	0.26	0.00108	0.00216	0.00983	0.0107	<0.001
JER-SW8	**7/11/2006**	7.7	12.1	14.7	<0.005	240	<2	2.67	20.8	0.48	0.035	0.0006	<0.00005	0.0011	0.0047	<0.10	0.00007	0.00386	0.00632	0.0158	0.009
Pre-mining Estimates	**average**	na	29	77	0.01	667	na	2.9	7.3	0.21	0.23	0.0016	0.0006	0.0038	0.06	0.32	0.0005	0.03800	0.019	0.27	0.024
for WR & Overburden	**max**	na	47	261	0.01	1394	na	5.8	14.6	0.42	0.5	0.0031	0.0006	0.0038	0.06	1.54	0.0006	0.07800	0.04	2.3	0.085
PKCA Discharge	**Max avg.**	6-8.8	na	500	0.2	2000	15	6	28	2.5	1	0.05	0.0012	0.087	0.02	na	0.01	0.73000	0.05	0.5	0.25
Criteria	**Max grab.**	6-8.8	na	1000	0.4	4000	25	12	56	5	2	0.1	0.0024	0.17	0.04	na	0.02	1.50000	0.1	1	0.5

Notes: - Grey shading presents estimated dissolved concentrations from pre-mine characterization or allowable discharge criteria for discharges from the PKCA for comparison purposes only.
- ‘-‘ indicates parameter not measured
- ‘na’ = not applicable

5 Conclusions and Recommendations

In general, waste rock seepage at Jericho is within the range expected from the pre-mining predictions. Field reconnaissance identified seepage at only three locations from waste rock and ore stockpiles, and no seepage was identified during the survey of the coarse processed kimberlite facility. In addition, no evidence of previously-flowing seepage paths was observed, which supports the overall conclusion that there is very little seepage occurring from these facilities.

Slightly higher than expected nutrient release rates, as recorded at the pit sump and East Sump, are typical of conditions found in the early stages of open pit mining when wet ground conditions are more likely to occur. With close management of the blasting and drier conditions as the pit advances, nutrient concentrations in the pit sump are expected to decline over time. Metals are generally present at lower concentrations than predicted, and are all well below the allowable discharge criteria for the PKCA.

The primary reason for conducting seepage surveys is to provide an indication of how water quality from the waste rock changes over time from a variety of locations downgradient of the waste rock pile. The current water licence indicates that the seep surveys should be completed in July or August. Given the relatively dry conditions observed during our site visit on July 19th and 20th, and when samples were collected, consideration should be given to completing the seep surveys in early July when wetter conditions and more seeps are likely to be present.

Consideration should be given to developing a sampling station at the location of Seep-09 to enable collection of high quality seepage samples from this site. This location is ideally suited for long term monitoring because the final footprint of the dump has been established and it is one of the larger flows observed during our survey.

In this early stage of mine development, the configuration of the waste rock dumps is likely to change substantially prior to next year's seep survey. Therefore, the stations established during this survey will need to be reassessed, and new stations are likely to be added during the next survey. In addition, until the final footprint of the waste rock piles has been established, the program should include a detailed survey on foot to locate suitable sampling sites.

This report, **1CT004.010 Jericho Diamond Mine- 2006 Waste Rock Seepage Monitoring Report** has been prepared by SRK Consulting (Canada) Inc.

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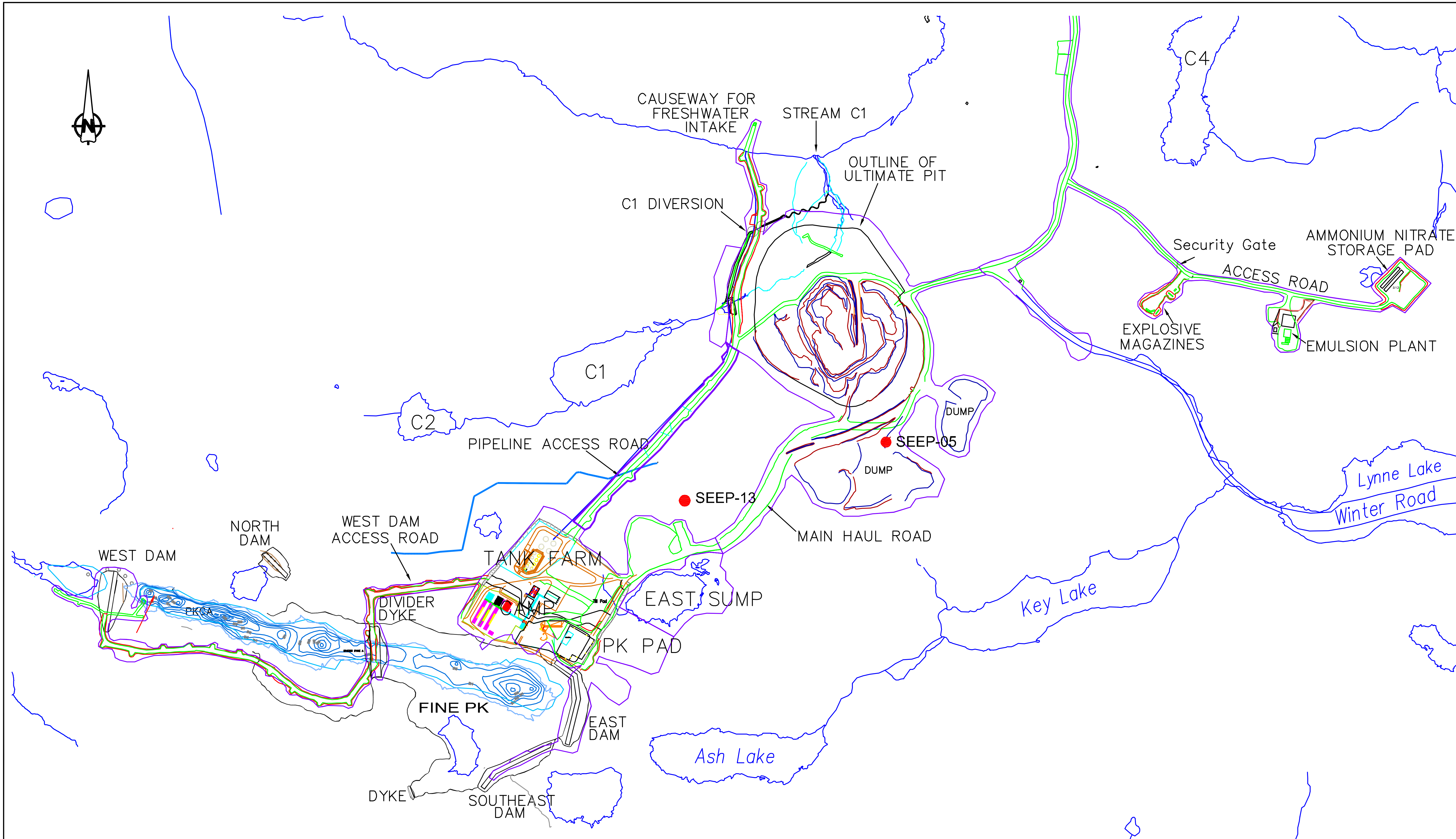
6 References

Nunavut Water Board. 2004. Water Licence NWB1JER0410 Type "A", issued to Tahera Diamond Corporation on December 22, 2004.

SRK Consulting, 2003. Technical Memorandum I - Estimates of Source Concentrations, Jericho Project, Nunavut. Report prepared for Tahera Corporation as Supplemental Information to the Jericho FEIS. October 2003.

Figures



Legend

● Seep Sample Location

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SRK JOB NO.: 1CT004.010

FILE NAME: SitePlan_Seep_2006.dwg

Tahera Diamond Corporation

JERICHO DIAMOND MINE

2006 Waste Rock Seepage Monitoring

2006 Seep Locations

DATE:	APPROVED:	FIGURE:
Oct. 06		1

Appendix A

2006 Waste Rock Seepage Monitoring Results

Station Name		Seep-05	Seep-13
Collect Date/Time		7/25/2006	7/25/2006
Sample No.		06-9507	06-9508
Parameter	**Units**		
Field Dissolved Oxygen	mg/L	14.98	1.37
Water Temperature	Deg C	5.56	8.34
Field Conductivity	us/cm	810	240
Field pH	pH	7.13	6.42
Oxidation Reduction Potential	mV	345.00	270.10
Dissolved Silver	mg/L	<0.00005	<0.00005
Dissolved Aluminum	mg/L	0.015	0.226
Dissolved Arsenic	mg/L	0.0018	0.0015
Dissolved Barium	mg/L	0.194	0.0624
Dissolved Beryllium	mg/L	<0.0001	<0.0001
Dissolved Boron	mg/L	0.029	0.017
Dissolved Calcium	mg/L	80.3	22.9
Dissolved Cadmium	mg/L	<0.00005	0.00008
Dissolved Cobalt	mg/L	0.00113	0.0193
Dissolved Chromium	mg/L	0.0099	0.0087
Dissolved Copper	mg/L	0.0032	0.0147
Dissolved Iron	mg/L	<0.10	<0.10
Dissolved Mercury	mg/L	<0.00005	<0.00005
Dissolved Potassium	mg/L	8.1	1.4
Dissolved Lithium	mg/L	0.0094	<0.0010
Dissolved Magnesium	mg/L	35.7	8.8
Dissolved Manganese	mg/L	0.187	0.049
Dissolved Molybdenum	mg/L	0.0329	0.00740
Dissolved Sodium	mg/L	27	13.4
Dissolved Nickel	mg/L	0.00494	0.00718
Dissolved Lead	mg/L	<0.00005	0.00035
Dissolved Phosphorus	mg/L	0.022	0.107
Dissolved Antimony	mg/L	0.00072	0.00023
Dissolved Selenium	mg/L	0.0017	0.0006
Dissolved Silicon	mg/L	4.20	14.6
Dissolved Tin	mg/L	0.0028	<0.0001
Dissolved Strontium	mg/L	0.206	0.0807
Dissolved Titanium	mg/L	0.0020	0.0024
Dissolved Thallium	mg/L	<0.00005	<0.00005
Dissolved Uranium	mg/L	0.101	0.00674
Dissolved Vanadium	mg/L	0.0047	0.0052
Dissolved Zinc	mg/L	0.001	0.007
Acidity as CaCO3	mg/L	4	19
T-Alkalinity as CaCO3	mg/L	86	77
Balance (+ions/-ions)	Ratio	0.92	1.08
Chloride	mg/L	56.6	18.6
Carbonate	mg/L	<1	<1
Conductivity @ 25°C	us/cm	921	236
Fluoride	mg/L	0.22	0.05
T-Hardness as CaCO3	mg/L	348	93.4
Bicarbonate	mg/L	105	94
Nitrite - Nitrogen	mg/L	1.89	1.91
Nitrate - Nitrogen	mg/L	65.9	<0.05
Hydroxide (as CaCO3)	mg/L	<1	<1
pH @ 25°C	pH	7.90	7.31
Phosphate - Ortho - Phosphoru	mg/L	<0.20	<0.20
Sulphate	mg/L	41	4.9
T-Dissolved Solids180°C	mg/L	616	212
Total Suspended Solids @105°C	mg/L	4	21
Turbidity	NTU	8	11
Ammonia - Nitrogen	mg/L	2.23	1.04
Carbon (Total Organic)	mg/L	9.0	35.1
Carbon (Total Inorganic)	mg/L	12.3	23.8