Golder Associates Ltd.

500 - 4260 Still Creek Drive
Burnaby, British Columbia, Canada V5C 6C6
Telephone 604-296-4200
Fax 604-298-5253

E/08/0043
06-1413-026

February 4, 2008

Mackenzie Valley Land
& Water Board
File
FEB 1 4 2008
Application # MV2007L8-0025
Copied To KG/Reg

Miramar Con Mine, Ltd.
P. O. Box 2000
75 Con Road
Yellowknife, NT
X1A 2M1

Attention: Mr. Ron Connell
Environmental Superintendent

**RE: INTERIM RESULTS OF THE KINETIC TESTS
CLOSURE PLAN - WATER TREATMENT PREDICTIONS
MIRAMAR CON MINE
YELLOWKNIFE, NT**

Dear Mr. Connell:

1.0 OBJECTIVES

Golder Associates Ltd. (Golder) submits the following summary of the interim results of kinetic tests conducted using two composite samples of mine tailing from the Upper and Middle Pud Tailing Containment Area (TCAs). The tests have been operating since March 2006 for a total of 95 weeks and, based upon the current plan, will be continued for an additional 9 weeks until early March, 2008. The tests are being conducted by Canadian Environmental and Metallurgical, Inc. (CEMI) under Golder's supervision.

The testing program is designed to simulate, under laboratory conditions, the effects of natural precipitation on tailing or processed ore as the precipitation percolates through the tailing column. The current tests are intended to supplement similar testing completed by URS (2003). The URS program was designed to simulate oxidizing conditions in the unsaturated zone of the tailings pile while the present program is intended to simulate the anoxic conditions in tailings under a vegetated cover.

2.0 TEST DESIGN

Two composite samples were constructed using samples collected from a) Upper Pud Lake (samples UP01-01, UP01-02, UP02-01, and UP02-02), to make Composite #1, which were specifically selected for the tests due to their high concentrations of sulphur, arsenic, iron, and copper and b) Neil Lake (NL-01 and NL-02), to make Composite #2, which were specifically selected because of their relatively low sulphur and arsenic concentrations. The two composite samples were placed in acrylic leaching cells and subjected to continuous irrigation with NanoPure water (the lixiviant, a liquid medium used to assist in the leaching of metals from rock). In order to minimize contact of the tailings with oxygen and to maintain an anoxic environment in the cell, each cell and the NanoPure water reservoir were sealed and purged with nitrogen gas to minimize the effects of dissolved oxygen. The NanoPure water irrigation rate was set to allow one pore volume of lixiviant to be applied every two to three days resulting in a flow rate of 3 pore volumes, or three "test cycles" per week.

A review of the test program suggests that the initial test design allowed atmospheric oxygen to displace the NanoPure water withdrawn from the reservoir. A nitrogen reservoir was added to the water reservoir to reduce the dissolved oxygen in the NanoPure which resulted in a decrease in dissolved oxygen in the leachate from roughly 5 mg/L to 0.3 mg/L. The change in redox conditions in the two cells did not appear to impact the chemistry within the cells, or the dissolved metal concentrations, because the decrease in dissolve oxygen was insufficient to maintain reducing conditions in the cells without an active reducing agent.

3.0 RESULTS

The pH and dissolved ion concentrations in the leachate derived from the two test cells (Composite #1 and Composite #2) show changes over time as the tailings equilibrate with the pore water. Figures 3-1 to 3-7 are time series plots of pH, chloride and Metal Mining Effluent Regulation (MMER) metals (arsenic, copper, lead, nickel, and zinc) for the two kinetic tests. Where appropriate, the figures include the respective Water License and MMER guidelines for Maximum Average and Maximum Grab Sample concentrations.

pH

The leachate pH remains neutral to slightly alkaline during the entire test period for both cells (Figure 3-1). Composite #1 leachate has an initial pH of 7.5 which held through the first quarter of the test period. Following a brief decline to near 6.5, the pH quickly rebounded to near 8 and the last measured pH was over 7.9. The leachate from

Composite #2 showed a similar overall pattern with a slightly higher initial pH. The initial pH of the Composite #2 leachate was 7.5 however the pH quickly rose to near 8 and remained near 8, with a brief dip to near 7. The last measured pH of the Composite #2 leachate was 7.8.

Chloride

The chloride concentration in the leachate from the kinetic tests was initially controlled by the presence of soluble salts precipitated on the tailings grains or residual process water retained in the pores. From an initial chloride concentration of 3,850 mg/L and 3,280 mg/L for Composite #1 and #2 leachates, respectively, the concentrations declined by over three orders of magnitude to around 1 mg/L in the first eight cycles of the test and eventually to below the detection limit by cycle 12 (Figure 3-2). The missed analyses in Figure 3-2 are generally instances where the there was apparent analytical error and insufficient sample for re-analysis.

MMER metals

The metals concentrations changed over time as the individual minerals in the tailings solids dissolved, or precipitated, in response to reactions with the pore water. The dissolved concentrations of the regulated metals, arsenic, copper, lead, nickel, and zinc appear to have stabilized in the later weeks of the test, however the additional planned test cycles will be required to confirm the steady state concentrations of the metals in the leachate solutions.

Arsenic concentrations in the leach solution appear to have increased over time in proportion to the arsenic concentration in the tailings solids (Figure 3-3). The leachate from Composite #1 (Upper Pud) containing 5980 ppm arsenic in the tailings solids rose from an initial concentration of 0.463 mg/L, below the Maximum Average concentration of 0.5 mg/L, to 0.511 mg/L by cycle 8 (March 20, 2006) and stabilized at roughly 0.6 mg/L for the remainder of the first quarter of the test. During the second quarter of the test, the arsenic concentration in the Composite #1 (Upper Pud) leachate rose to roughly 2 mg/L, exceeding the Maximum Grab Sample limit of 1.0 mg/L and stabilized at roughly 2 mg/L (ranging between 1.69 and 2.08 mg/L). The leachate from Composite #2 (Neil Lake) containing 1260 ppm arsenic in the tailings solids rose from an initial dissolved arsenic concentration of 0.222 mg/L to above the Maximum Average concentration by cycle 16 (April 12, 2006) and remained at roughly 0.5 mg/L for the first half of the test period. During the remainder of the test program (i.e. to date) the arsenic concentration in the Composite #2 leachate rose gradually to near the Maximum Grab sample concentration of 1.0 mg/L (ranging between 0.809 and 1.14 mg/L).

Copper concentrations remain below the minimum regulatory guidelines for both test cells, thus far (Figure 3-4). Composite #1 initial copper concentration of 0.021 mg/L declined to below the detection limit of 0.001 mg/L and is now stabilized to between 0.001 and 0.01 mg/L. This value is over an order of magnitude below the Maximum Average concentration of 0.3 mg/L. The leachate for the Composite #2 test cell dropped from an initial copper concentration of 0.028 mg/L to 0.005 mg/L and then briefly rose to 0.024 mg/L. By the end of the first quarter of the test (cycle 70, August 18, 2006), the copper concentration in the Composite #2 leachate declined to below 0.01 mg/L (ranging between 0.0029 and 0.0142 mg/L).

Lead concentrations for both test cell have declined over time and have stabilized near 0.0001 mg/L, over three orders of magnitude below the Maximum Average guidelines for lead (0.02 mg/L) (Figure 3-5). The lead concentration in the leachate from Composite #1 declined from an initial 0.0006 mg/L to a stable concentration of around 0.0001 mg/L (ranging from 0.00002 to 0.0004 mg/L). The Composite #2 leachate lead concentration showed a similar decline from an initial concentration of 0.0018 mg/L to a range of concentrations between 0.00001 to 0.0009 mg/L but centered on an average of approximately 0.0001 mg/L.

Nickel concentrations, within the first quarter of testing, declined from 0.051 mg/L and 0.034 mg/L for the Composite #1 and #2 leachate samples, respectively, below the Maximum Average guideline of 0.5 mg/L to near or below the method detection limit (0.0005 mg/L) (figure 3-6). The nickel concentration in Composite #1 leachate stabilized over the last portion of the tests to near 0.001 mg/L and ranging between the detection limit and 0.0065 mg/L. The long term nickel concentration in the leachate sample from Composite #2 has stabilized between the detection limit and 0.0008 mg/L.

Zinc concentrations in the leachate samples rapidly stabilized at concentrations between 0.001 and 0.01 mg/L from an initial concentration of 0.027 mg/L and 0.101 mg/L for Composite #1 and #2, respectively (Figure 3-7). A single analysis from Composite #1 leachate exceeded the Water License Maximum Average concentration of 0.2 mg/L however, the zinc concentration in the following sample declined to below the method detection limit (0.005 mg/L) for the analyses.

Time equivalence

The kinetic tests using the tailings samples from the Con Mine are conducted at an accelerated rate to compress years of field conditions into weeks and months of laboratory time in order to simulate percolation of precipitation through the tailings pile under naturally occurring conditions. Using the predicted annual infiltration rates from groundwater models for the Con Mine site, the irrigation rates for the two test cells can been converted to real time equivalent estimates of tailings pore water and TCA discharge water volumes. The Table 3-1 summarizes the application rates, test duration, and annual precipitation rates. A rough estimate of the actual time equivalence of the two kinetic tests is in excess of 200 years. The actual time equivalence will depend upon many factors including the TCA closure design, hydrogeology, and site climatic conditions over time.

TABLE 3-1: Summary of Approximate Duration in Real Time of the Kinetic Tests Through December 10, 2007

Cell	Duration of test	Leachate volume	Average daily application rate	Actual model predicted infiltration rate	Conversion factor of test results to actual time	Actual years for the tests to date
	Days	mL	cm/test day	cm/actual year	Test days/actual year	Years
#1	640	69,045	1.06	2.64	2.5	250
#2	642	72,290	1.10	2.64	2.40	260

4.0 CONCLUSIONS

The review of the results of the Con Mine kinetic testing to date suggests that the pH and concentrations of regulated metals may have stabilized at least over later weeks of the test, although additional test cycles for another 20 to 30 cycles are warranted to confirm the final steady state metal concentrations. The pH of the leachate from both cells remained near neutral for the entire test period, which is similar to the results of the URS test work. Chloride concentrations declined to below the detection limits and the concentrations of copper, lead, nickel, and zinc declined to concentrations that were several orders of magnitude below the respective regulatory guidelines. Only arsenic, of the regulated metals, exceeds the applicable standards.

Results of the Con Mine kinetic testing do not directly predict the actual discharge water chemistry of the tailing containment facilities; a rigorous geochemical model that incorporates predicted infiltration rates, flow paths, and discharge rates coupled with water and rock chemical reactions is needed to make those predictions. Laboratory kinetic testing provides the input data for the geochemical model simulations and empirical evidence on the reactivity of the tailings material. The kinetic tests data suggest: 1) the arsenic concentration of the tailings pore water will approach and potentially exceed the Water License and MMER Maximum Grab Sample (1.0 mg/L) guidelines and 2) the arsenic concentrations in the tests to date have stabilized between 1 and 2 mg/L and show no evidence to exceed 2 mg/L for the term of the kinetic testing.

Yours very truly,

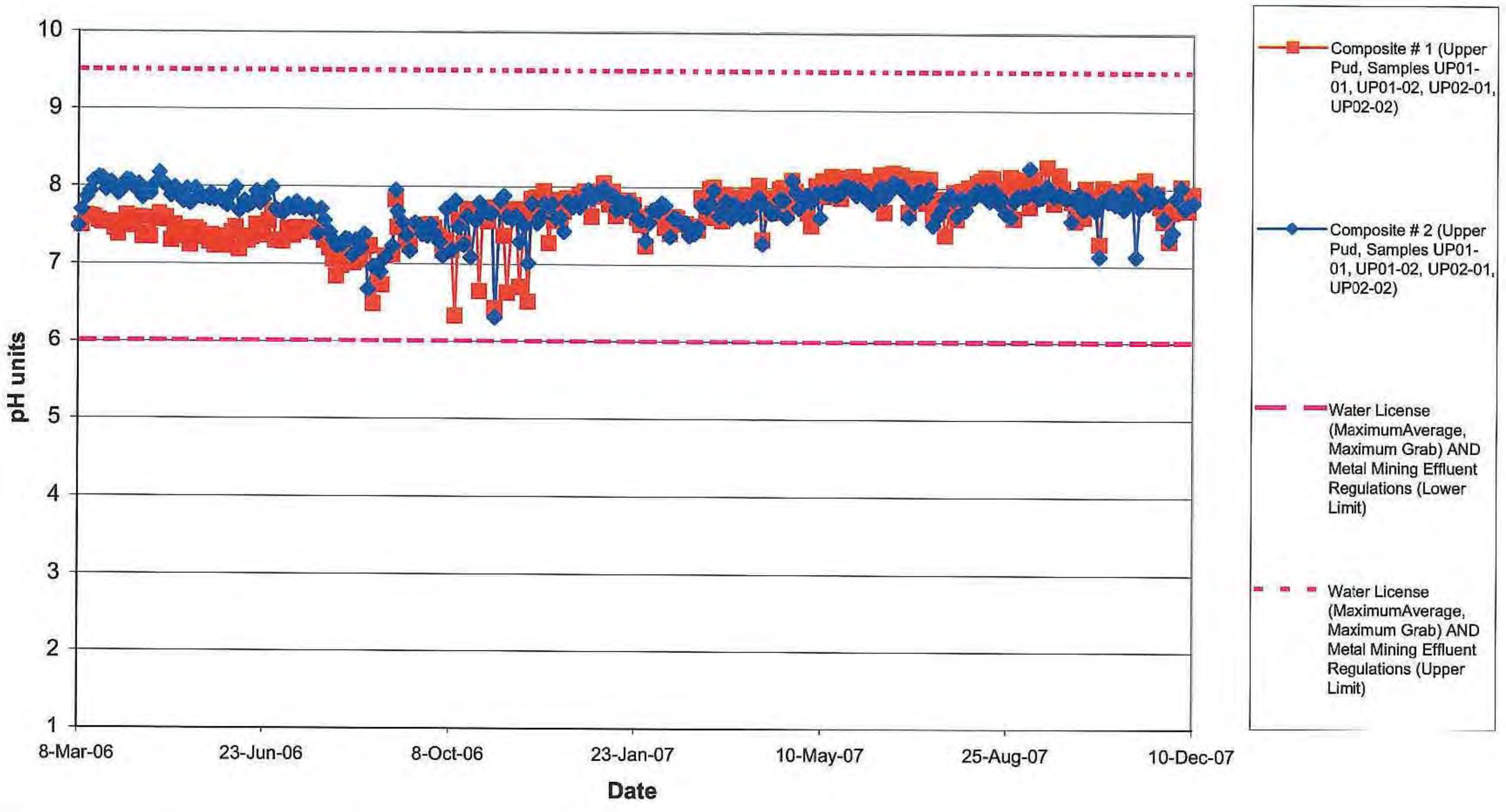
GOLDER ASSOCIATES LTD.

Steve Atkin, Ph.D.
Geochemistry Specialist

John Hull, P.Eng.
Principal

Attachments

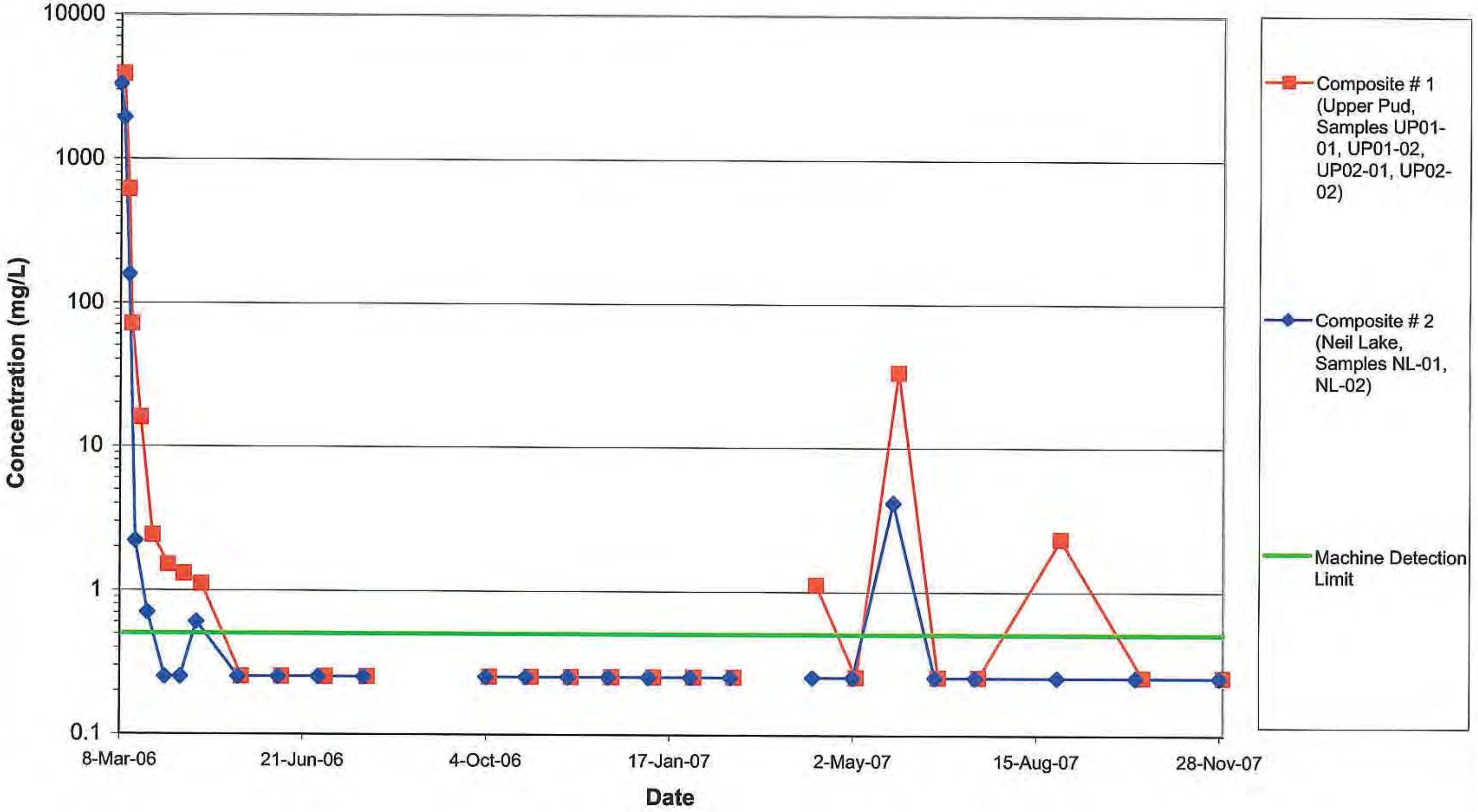
SAA/JAH/mrb/gs
o:\final\2006\1413\06-1413-026\let-0204_08 final intrim kinetic tests results\let-0204_08 miramar- interim results of the kinetic tests closue plan.doc



Golder Associates

TITLE	**Laboratory pH**				
DRAWN	SA	DATE	December 2007	JOB NO.	06-1413-026
CHECKED	LL	SCALE	na	DWG. NO.	
REVIEWED		FILE NO.		FIGURE NO.	3-1

Con Mine
Tailings Kinetic Testing



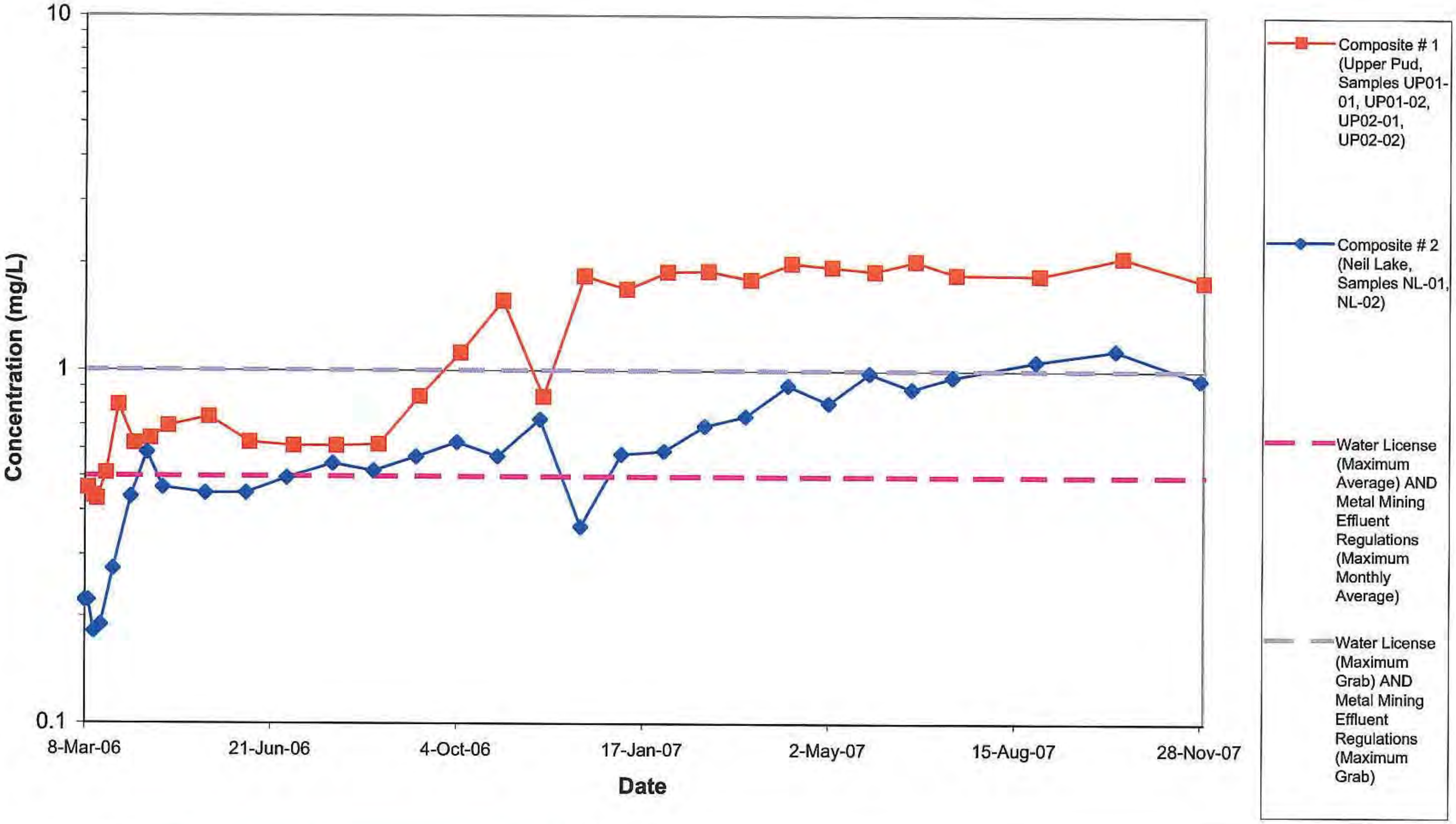
Golder Associates

Con Mine
Tailings Kinetic Testing

TITLE

Chloride

DRAWN	SA	DATE	December 2007	JOB NO.	05-1413-026
CHECKED	LL	SCALE	na	DWG. NO.	
REVIEWED		FILE NO.		FIGURE NO.	3-2



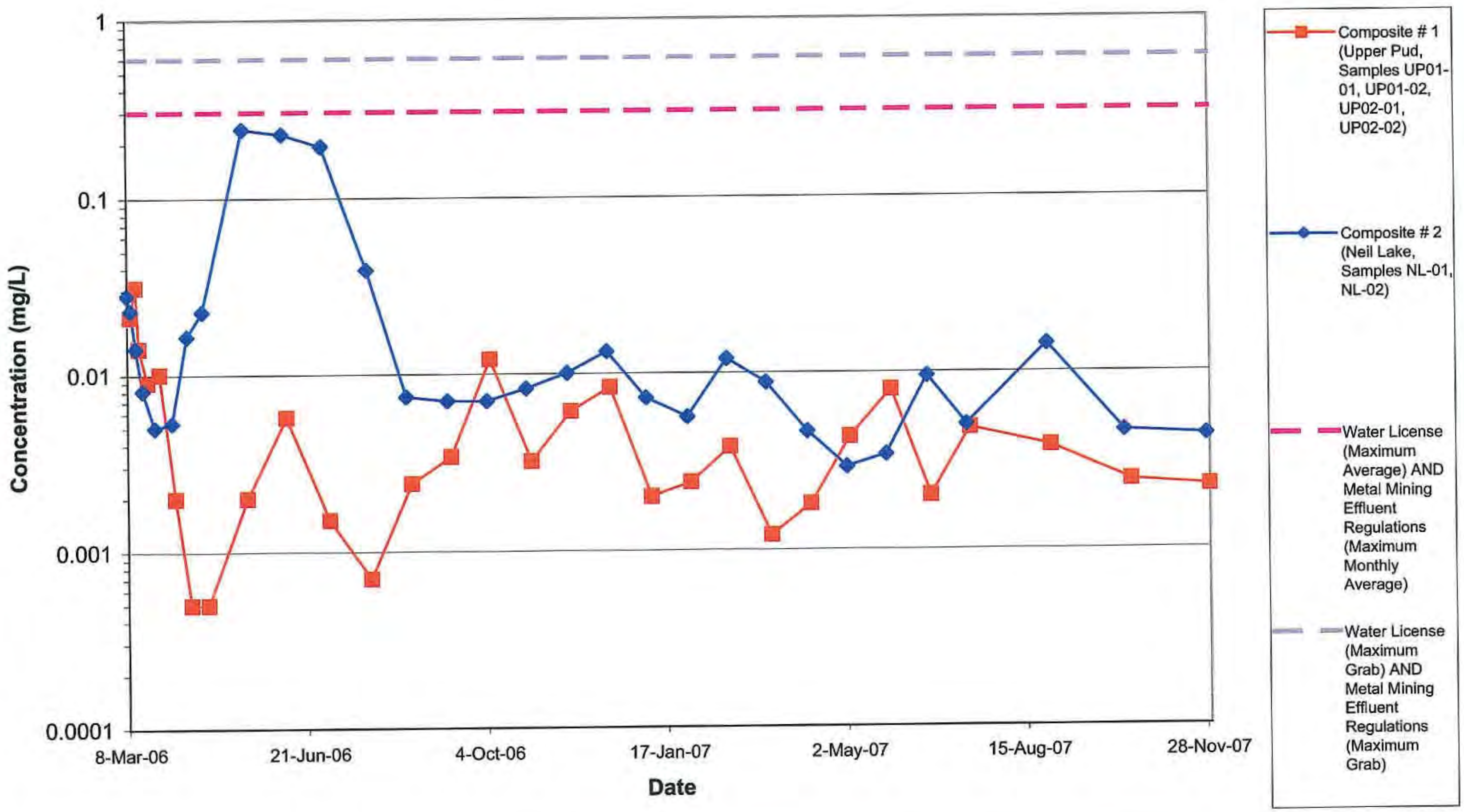
Golder Associates

Con Mine
Tailings Kinetic Testing

TITLE

Dissolved Arsenic

DRAWN	SA	DATE	December 2007	JOB NO.	06-1413-026
CHECKED	LL	SCALE	na	DWG. NO.	
REVIEWED		FILE NO.		FIGURE NO.	3-3



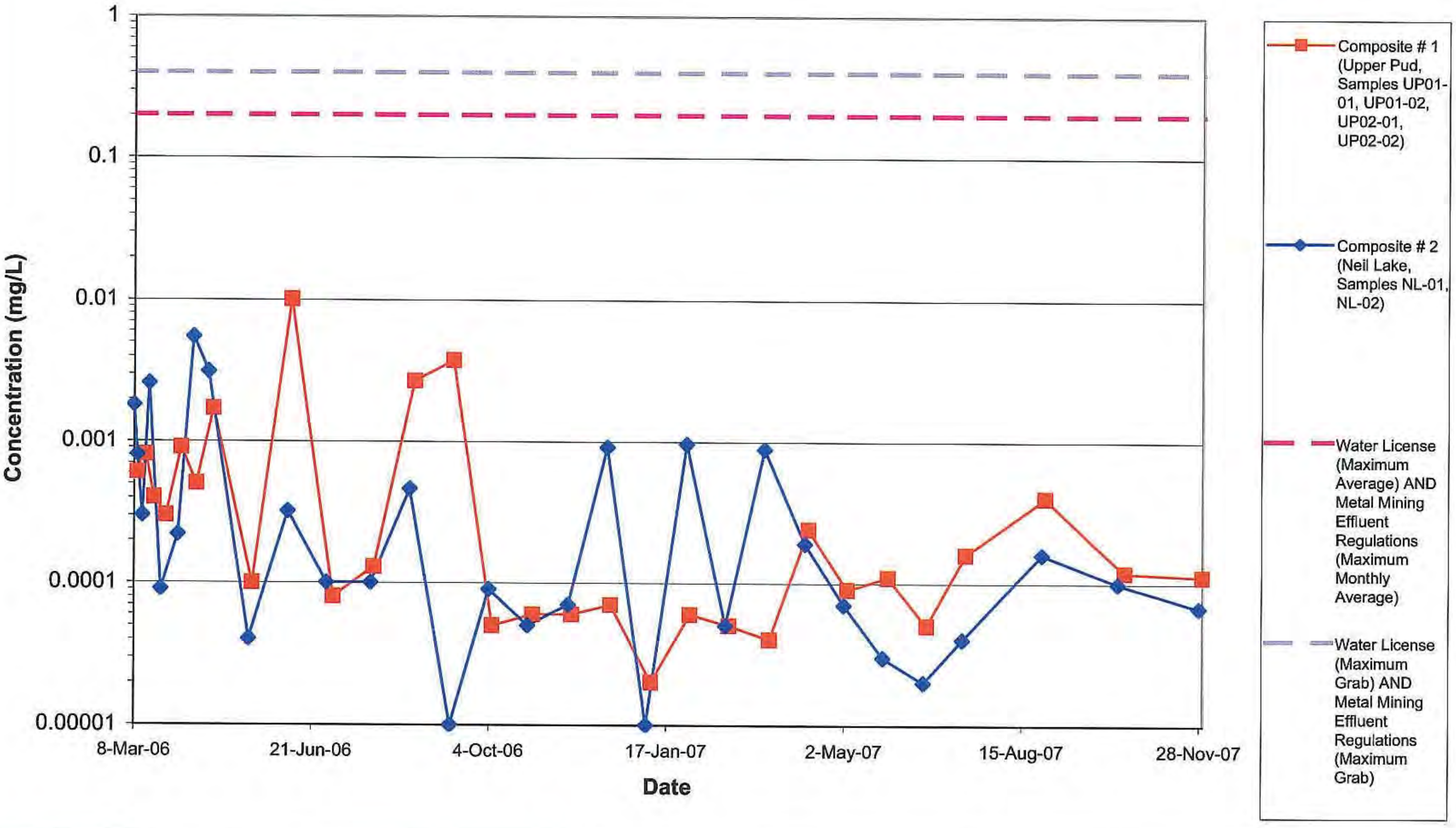
Golder Associates

TITLE

Dissolved Copper

DRAWN	SA	DATE	December 2007	JOB NO.	06-1413-026
CHECKED	LL	SCALE	na	DWG. NO.	
REVIEWED		FILE NO.		FIGURE NO.	3-4

Con Mine
Tailings Kinetic Testing



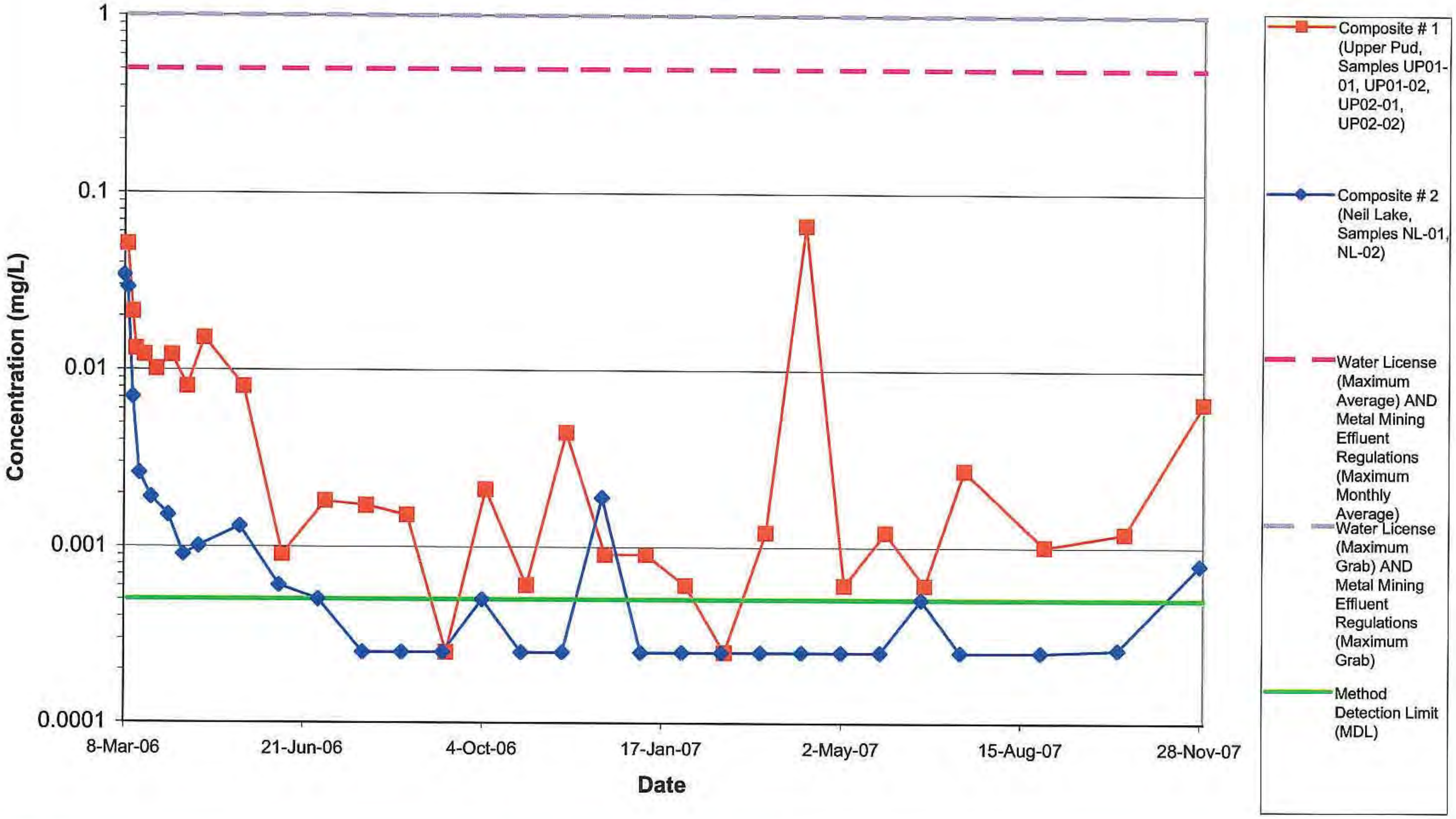
Golder Associates

Con Mine
Tailings Kinetic Testing

TITLE

Dissolved Lead

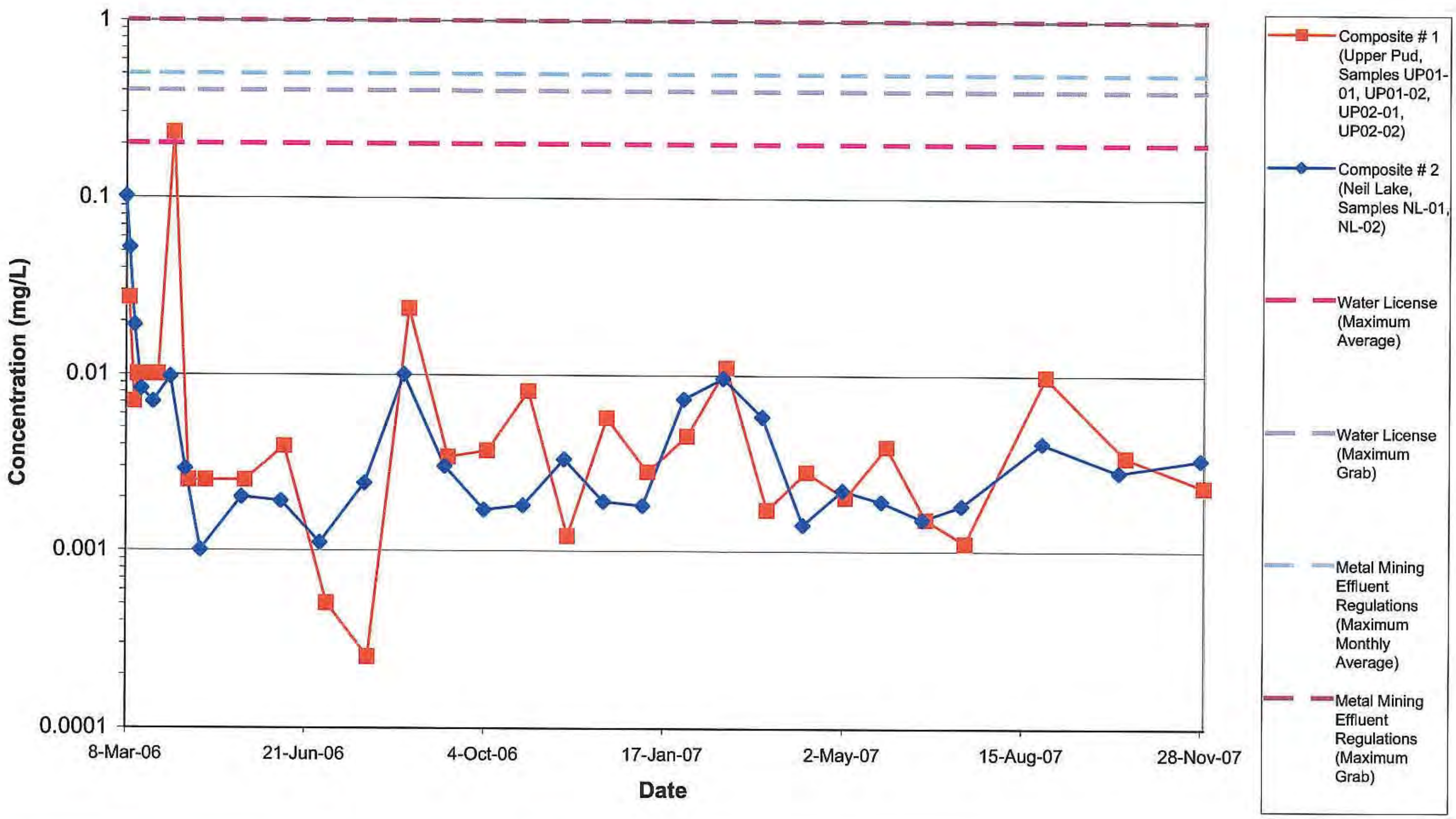
DRAWN	SA	DATE	December 2007	JOB NO.	06-1413-026
CHECKED	LL	SCALE	na	DWG. NO.	
REVIEWED		FILE NO.		FIGURE NO.	3-5



Golder Associates

TITLE	**Dissolved Nickel**				
DRAWN	SA	DATE	December 2007	JOB NO.	06-1413-026
CHECKED	LL	SCALE	na	DWG. NO.	
REVIEWED		FILE NO.		FIGURE NO.	3-6

Con Mine
Tailings Kinetic Testing



Golder Associates	TITLE **Dissolved Zinc**		
Con Mine **Tailings Kinetic Testing**	DRAWN SA	DATE December 2007	JOB NO. 06-1413-026
	CHECKED LL	SCALE na	DWG. NO.
	REVIEWED	FILE NO.	FIGURE NO. **3-7**

PROJECT

Con Mine
Tailings Kinetic Testing

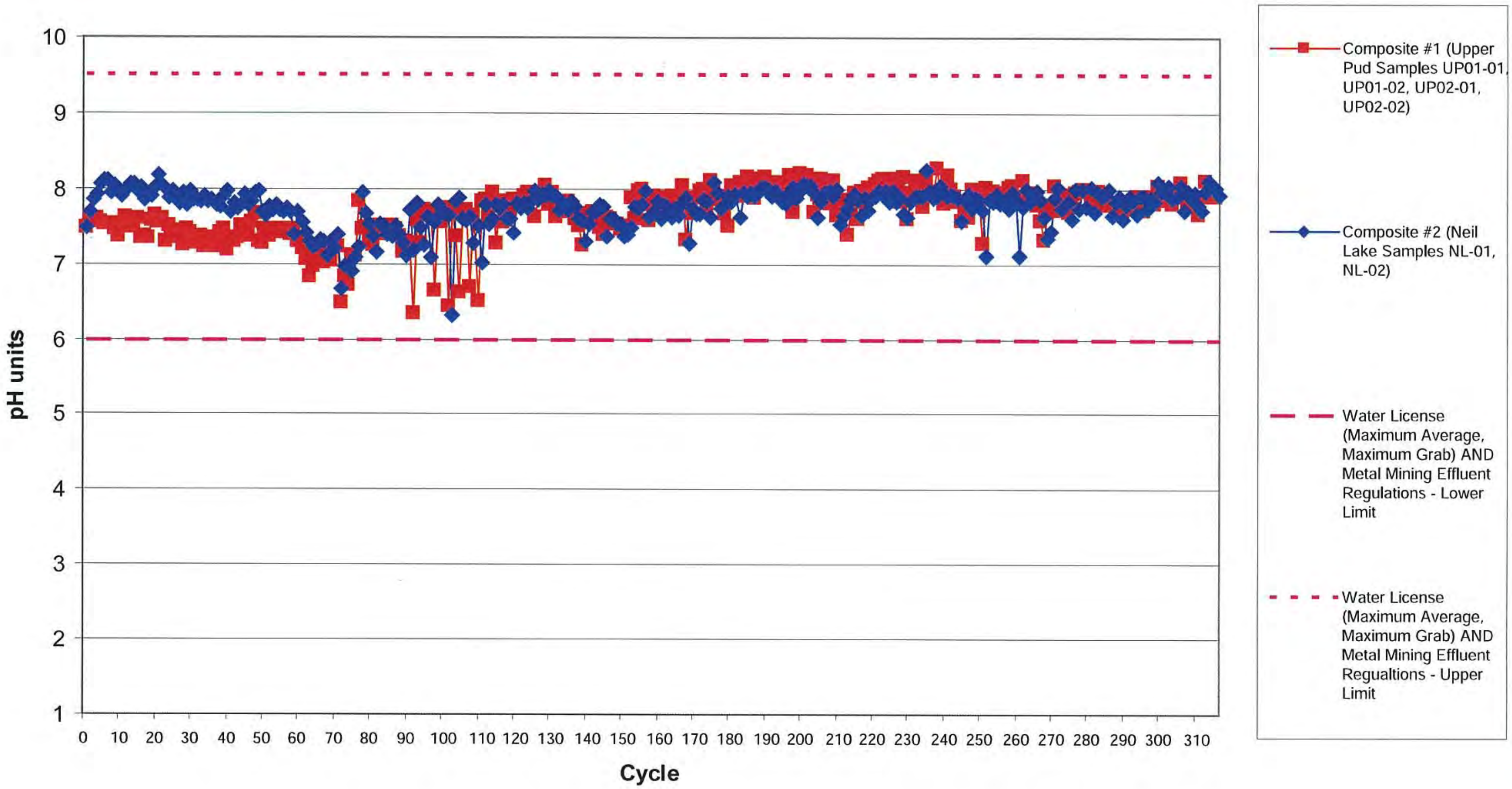
TITLE

Test Cell Design

Golder Associates

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD				
CHECK				
REVIEW				

FIGURE 2-1



PROJECT

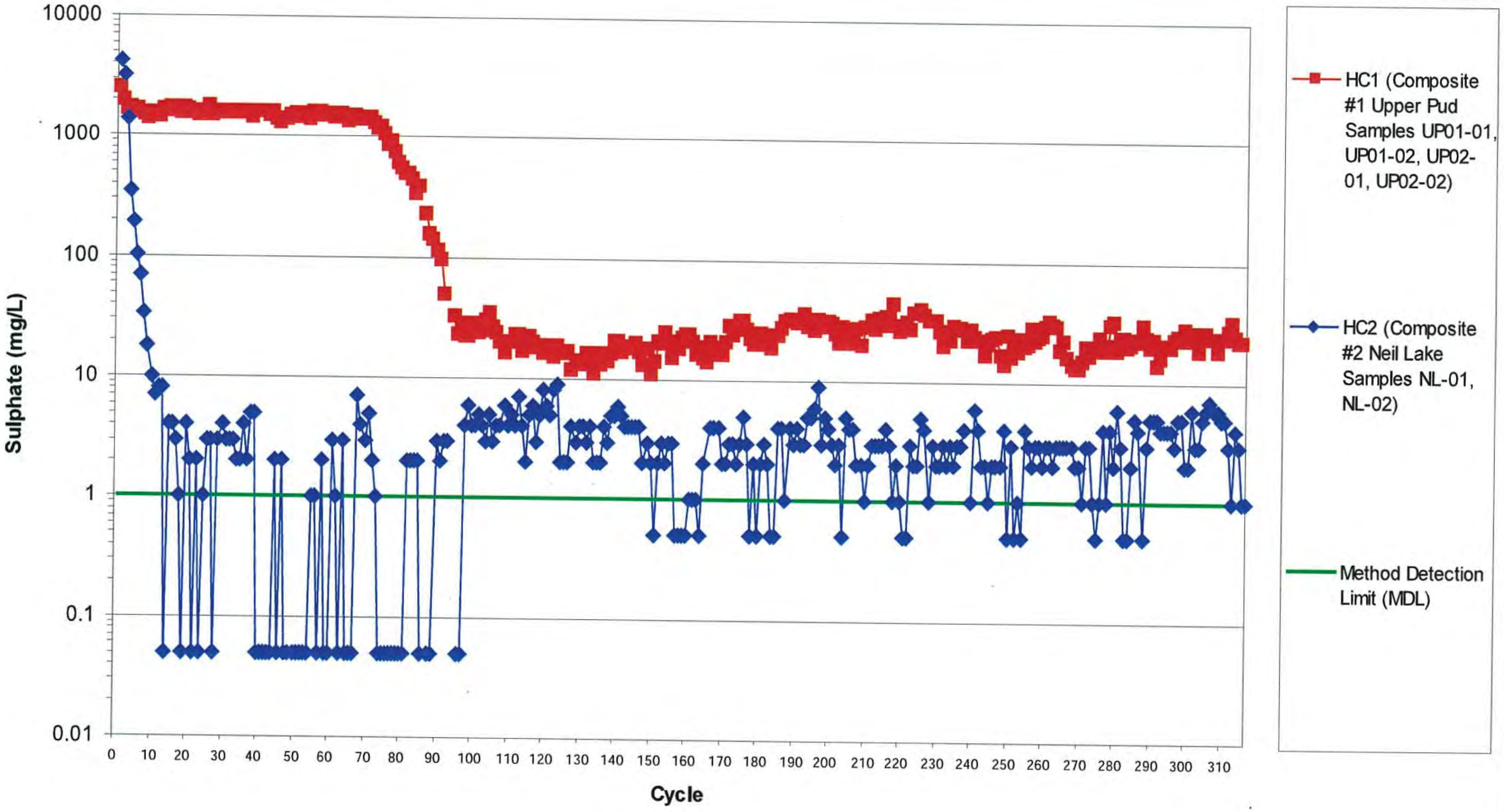
Con Mine
Tailings Kinetic Testing

TITLE

pH Time Series

Golder Associates

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE 3-1**	
CHECK				
REVIEW				



PROJECT

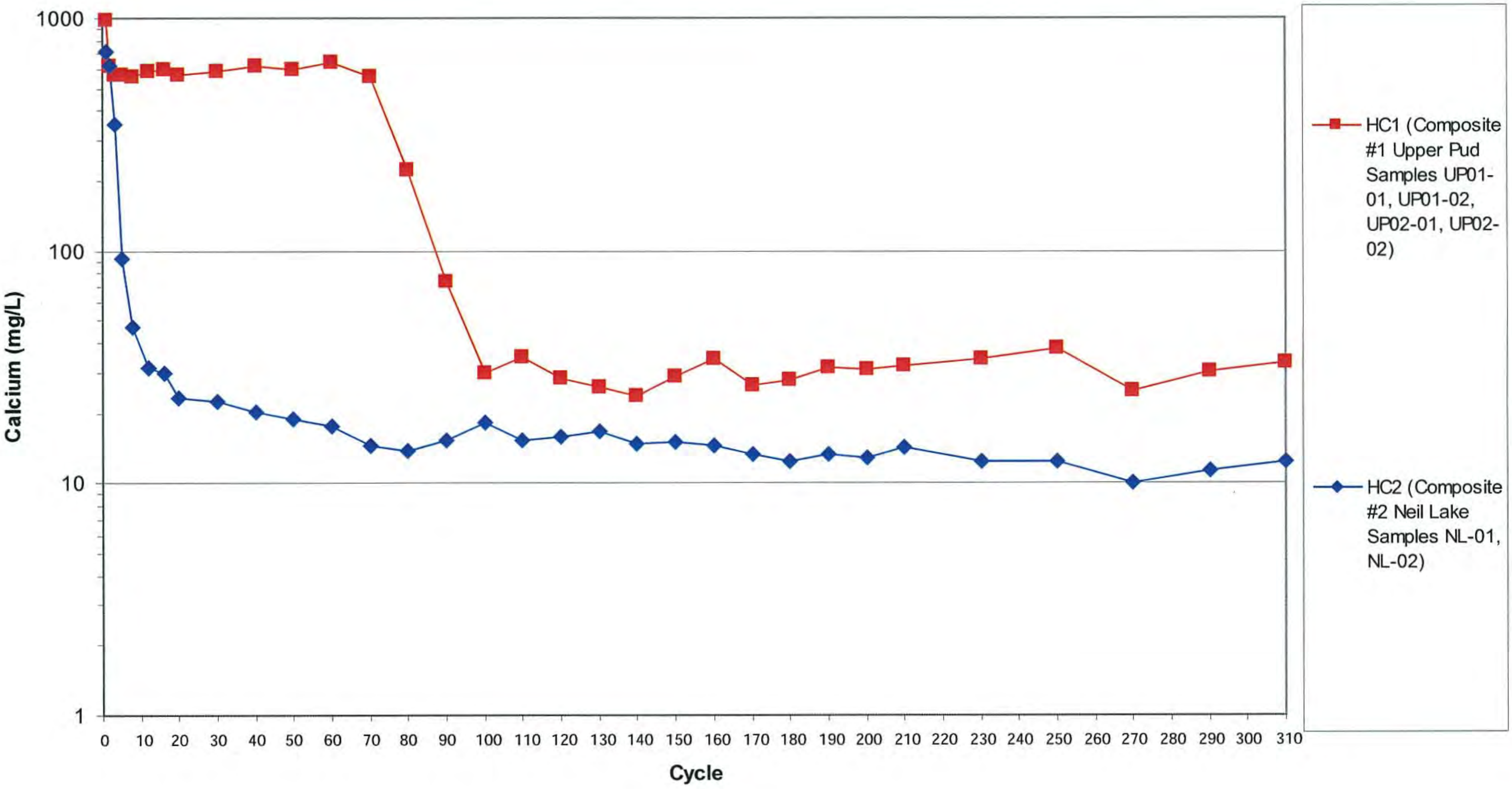
Con Mine
Tailings Kinetic Testing

TITLE

Sulphate (mg/L) Time Series

Golder Associates

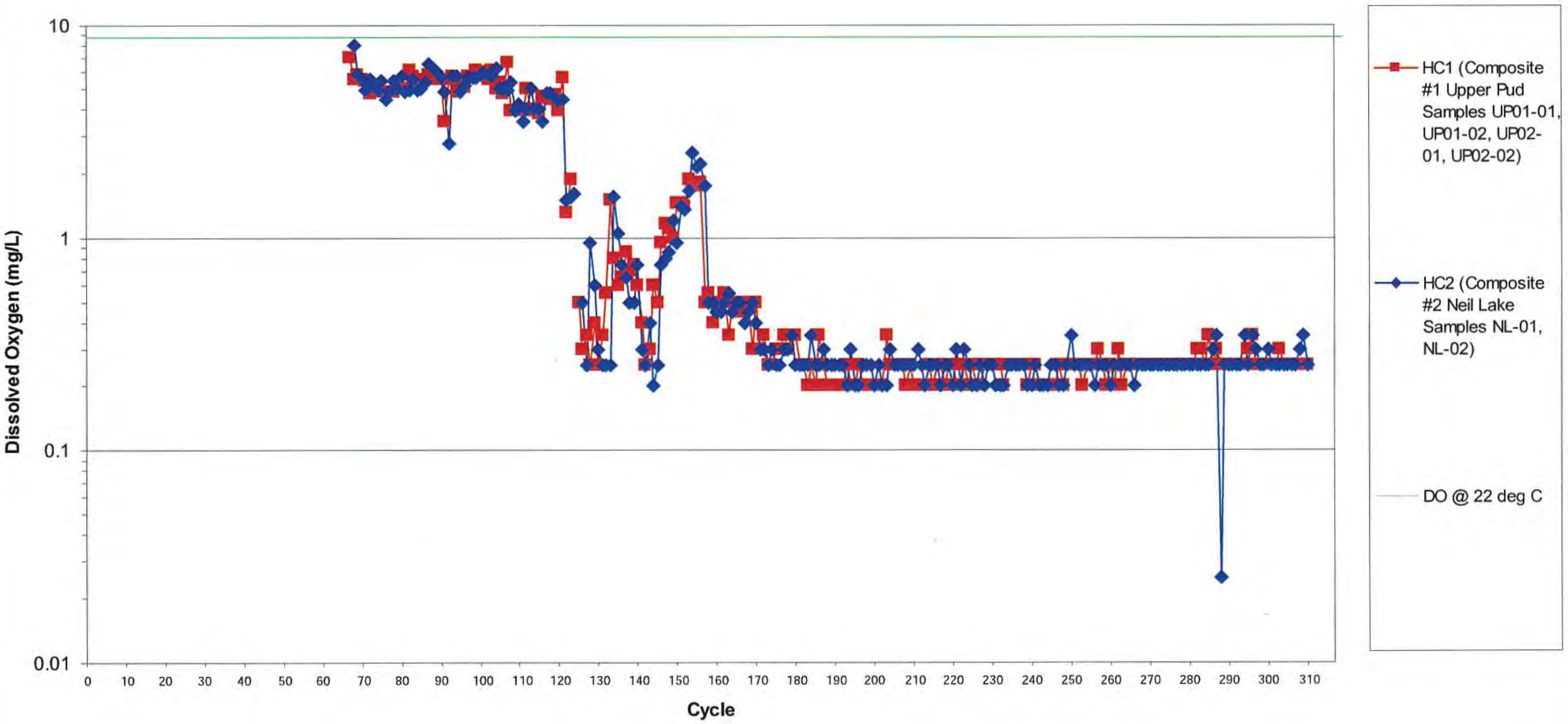
PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE 3-2**	
CHECK				
REVIEW				



PROJECT
Con Mine
Tailings Kinetic Testing

TITLE
Calcium (mg/L) Time Series

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE 3-3**	
CHECK				
REVIEW				



PROJECT

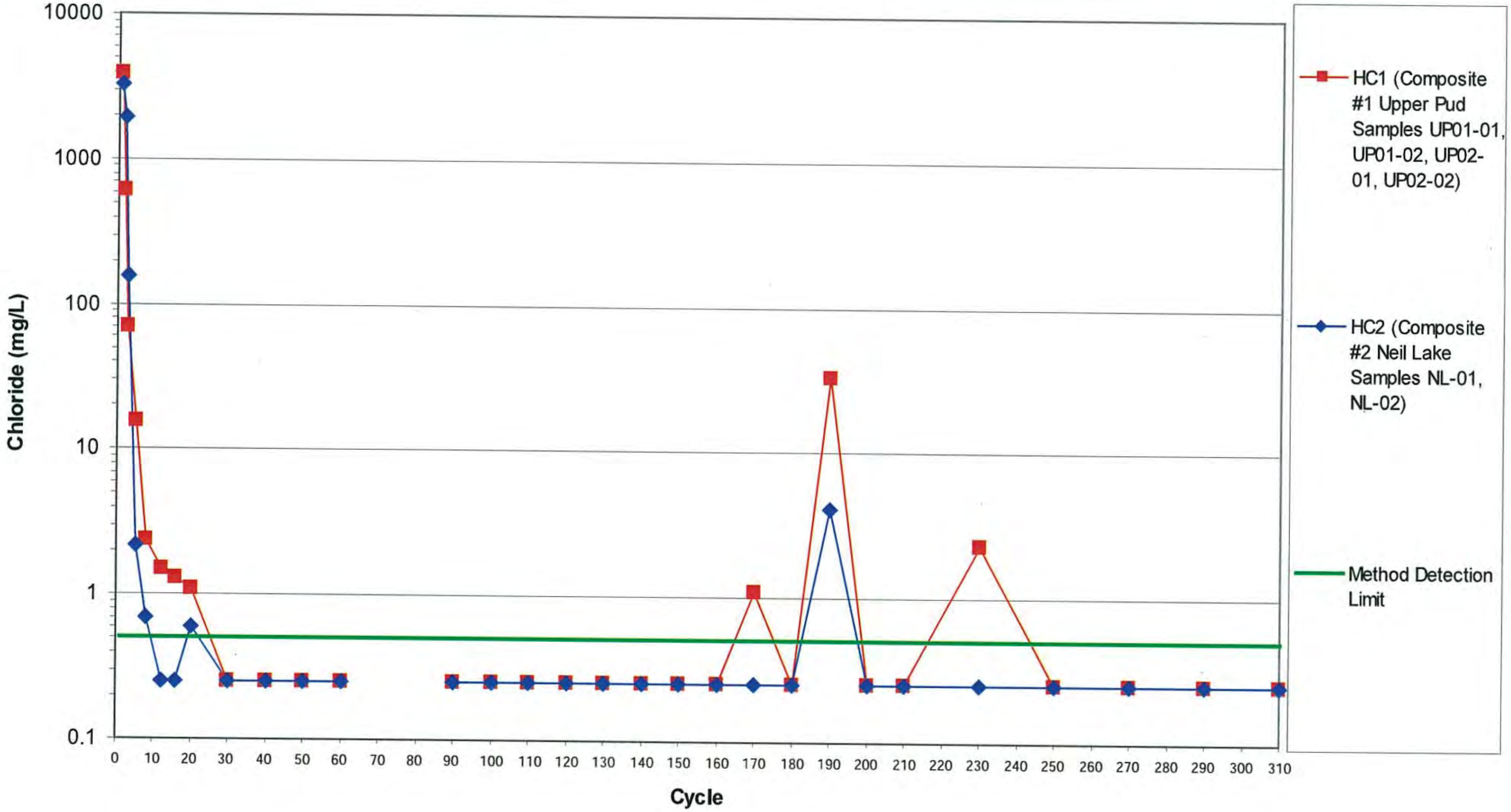
Con Mine
Tailings Kinetic Testing

TITLE

Dissolved Oxygen (mg/L)
Time Series

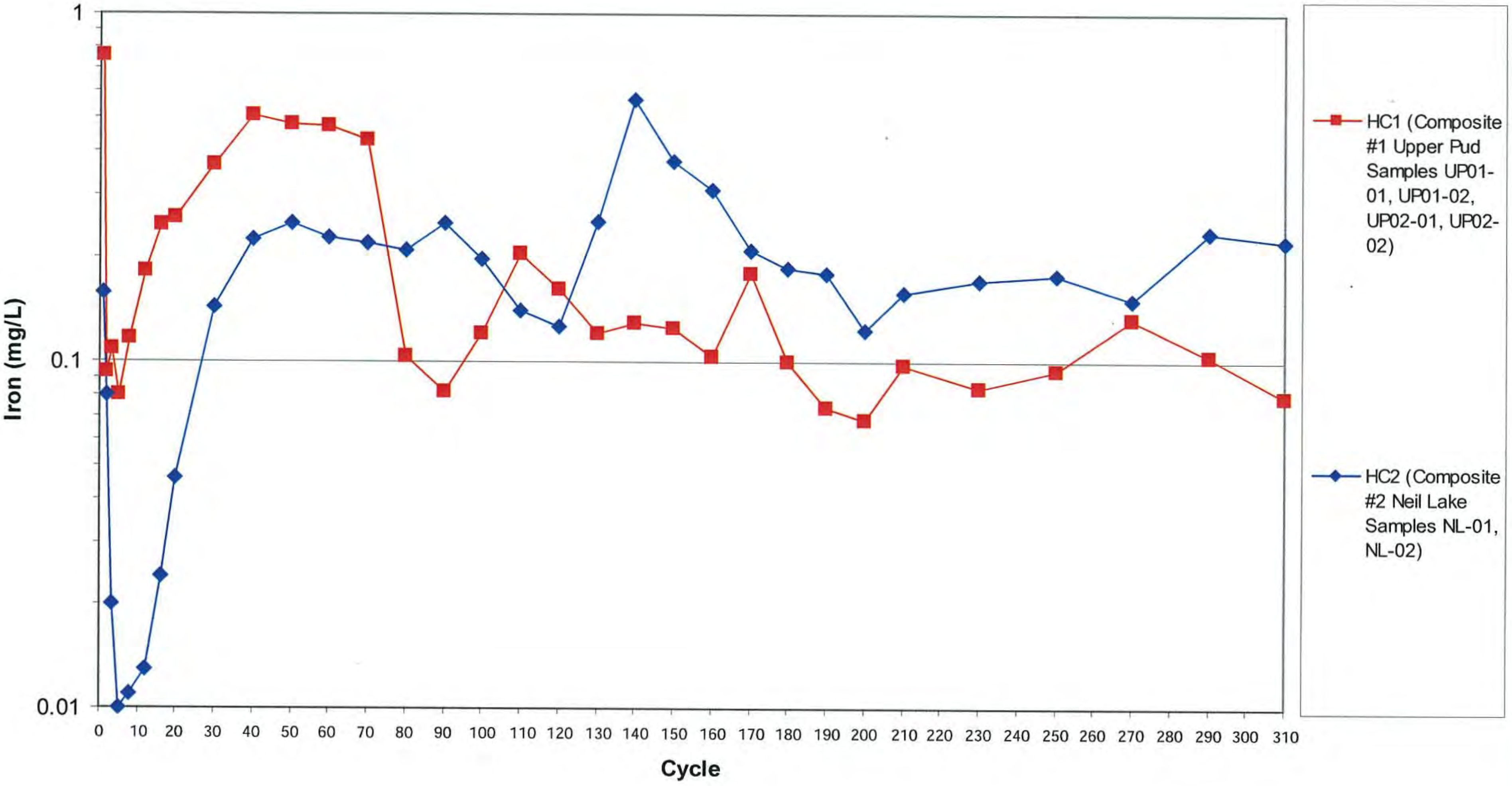
Golder Associates

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE 3-4**	
CHECK				
REVIEW				



PROJECT	Con Mine Tailings Kinetic Testing		
TITLE	Chloride (mg/L) Time Series		
PROJECT No.	06-1413-026	FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			FIGURE 3-5
CHECK			
REVIEW			

Golder Associates

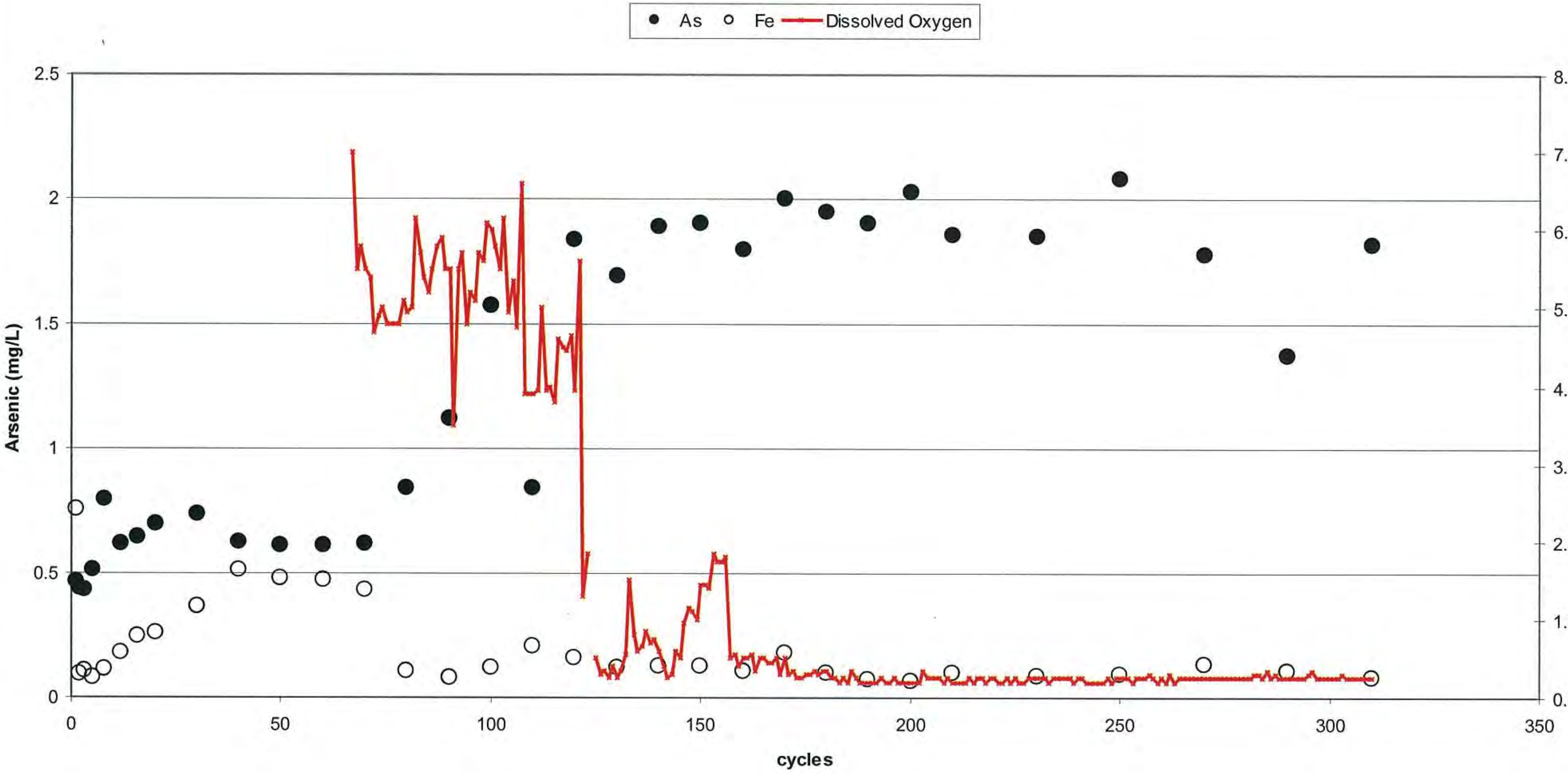


PROJECT
Con Mine
Tailings Kinetic Testing

TITLE
Iron (mg/L) Time Series

Golder Associates

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE 3-6**	
CHECK				
REVIEW				

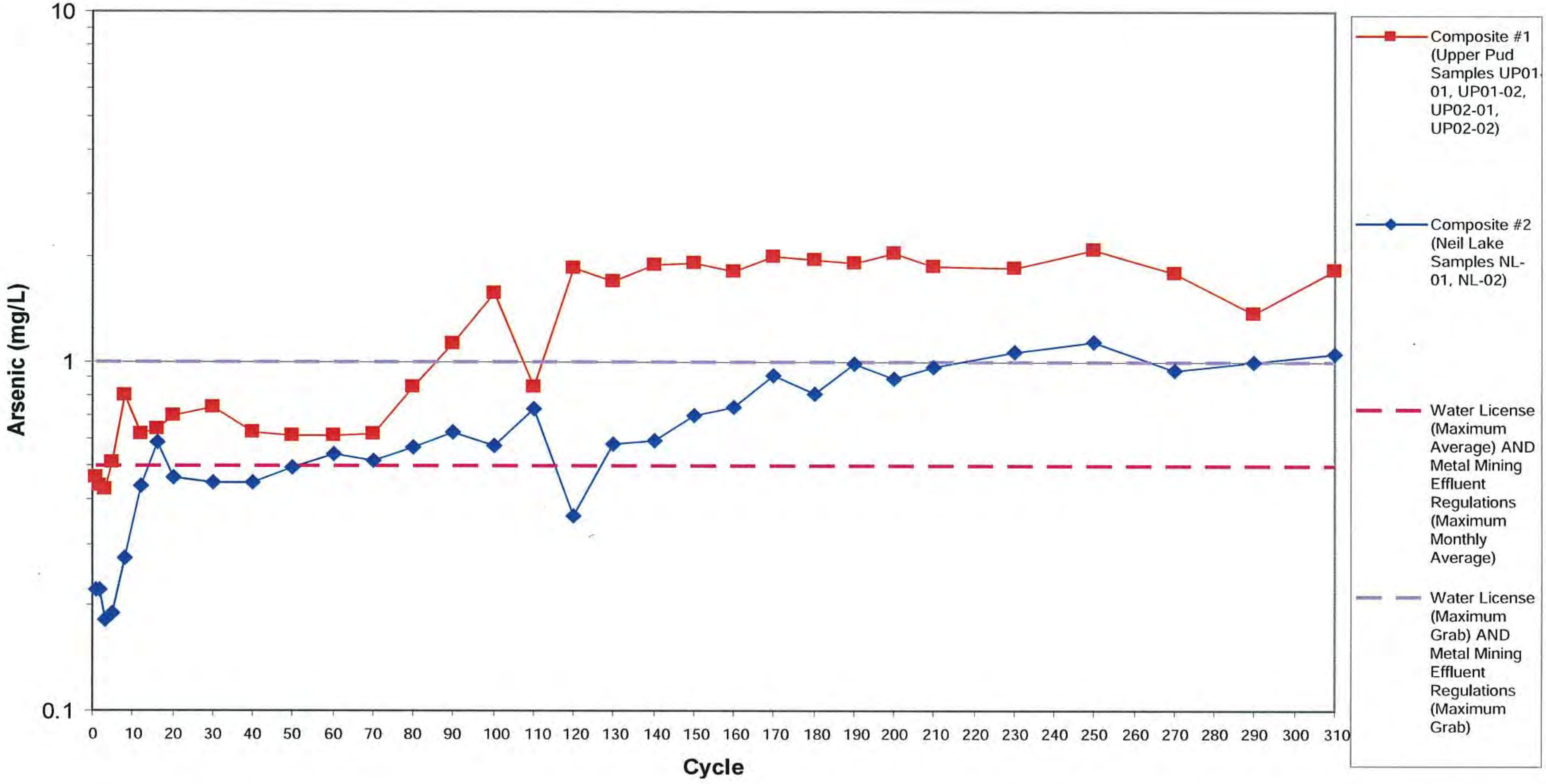


PROJECT
Con Mine
Tailings Kinetic Testing

TITLE
HC-1 Arsenic, Iron, and DO (mg/L) Time Series

Golder Associates

PROJECT No.	06-1413-026		FILE No.
DESIGN	LL	10JUN08	SCALE N/A REV. —
CADD			FIGURE 3-7
CHECK			
REVIEW			



PROJECT

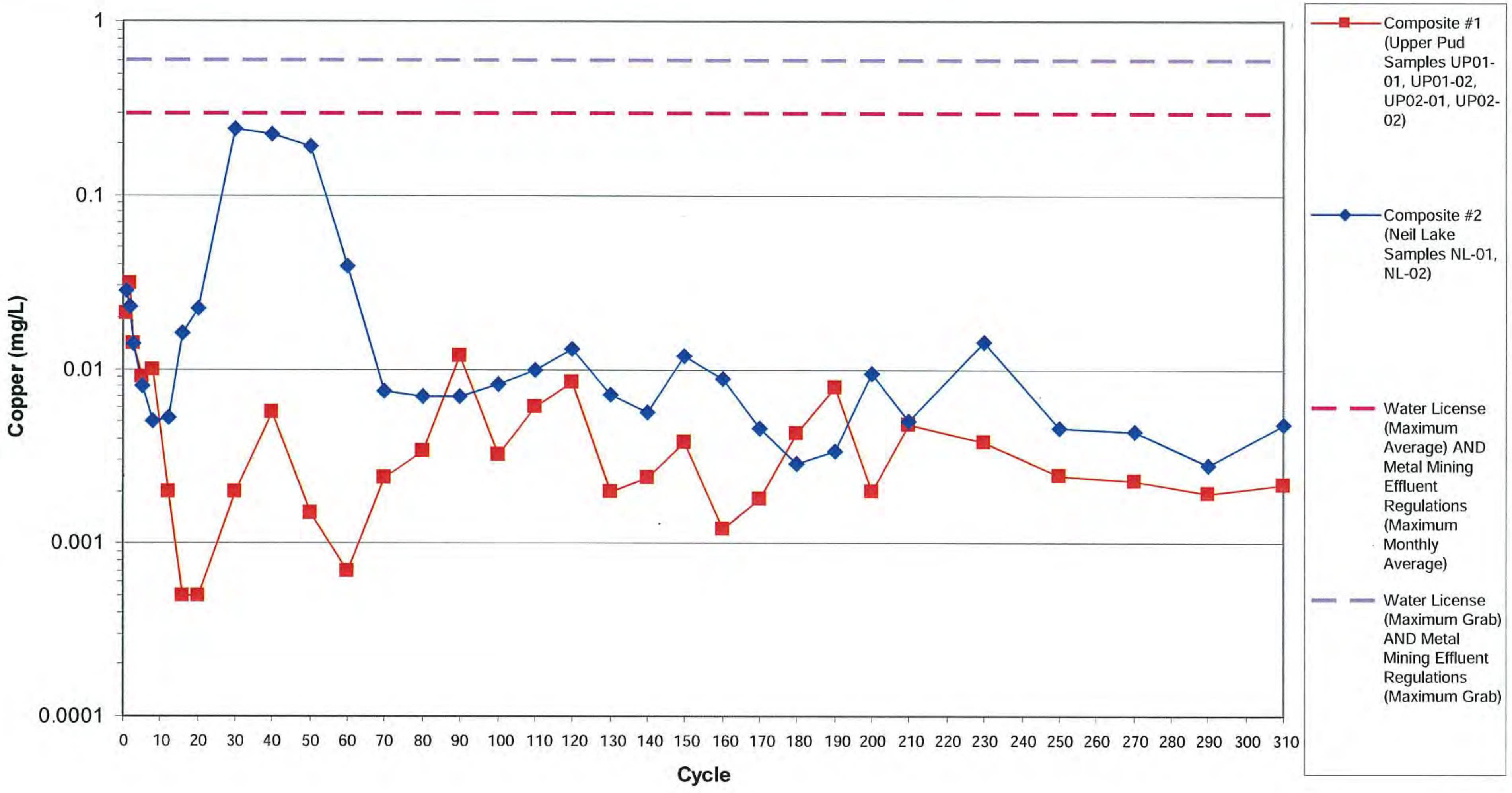
Con Mine
Tailings Kinetic Testing

TITLE

Arsenic (mg/L) Time Series

Golder Associates

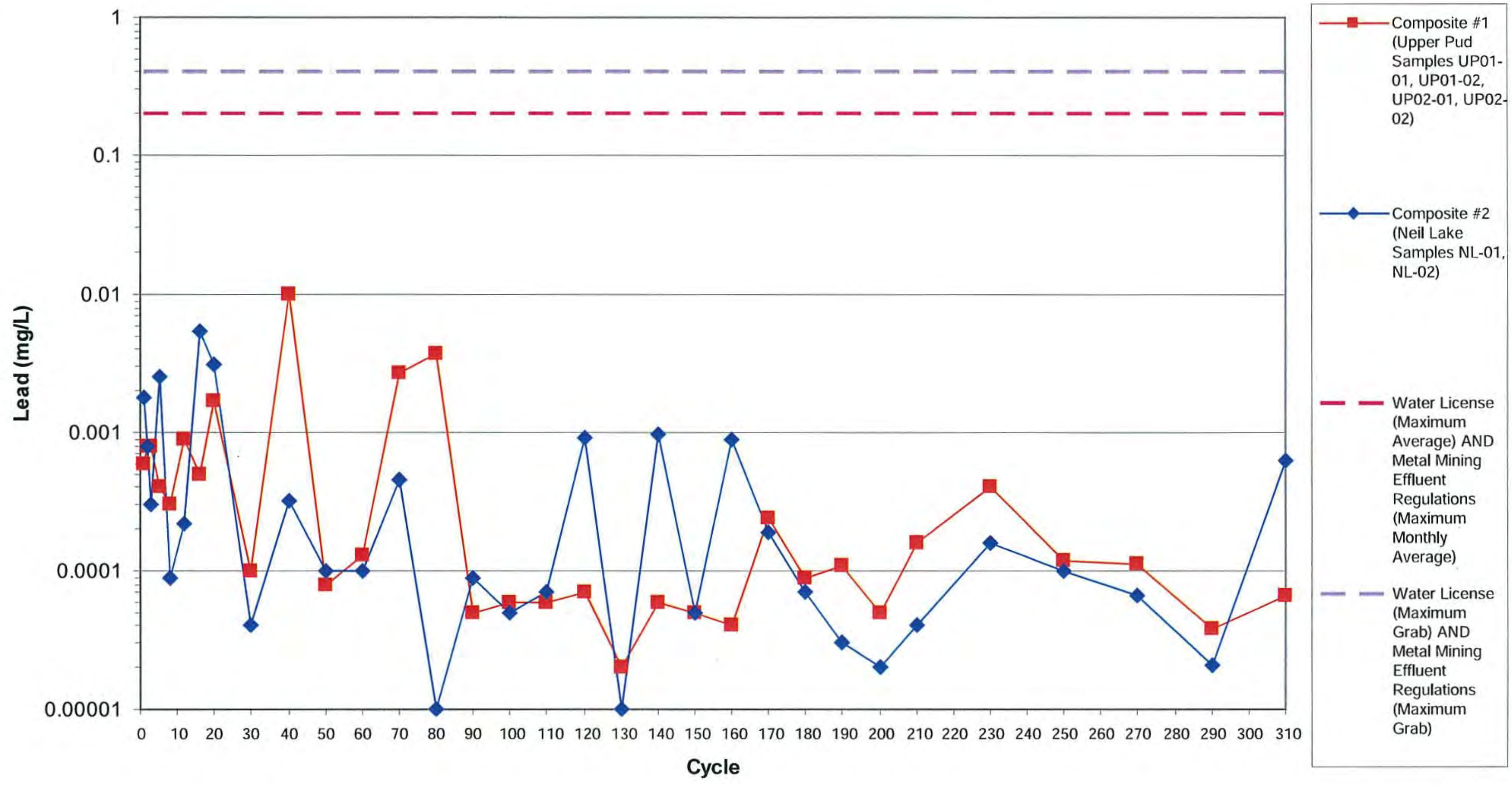
PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE 3-8**	
CHECK				
REVIEW				



PROJECT	Con Mine Tailings Kinetic Testing
TITLE	Copper (mg/L) Time Series

Golder Associates

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE 3-9**	
CHECK				
REVIEW				



PROJECT

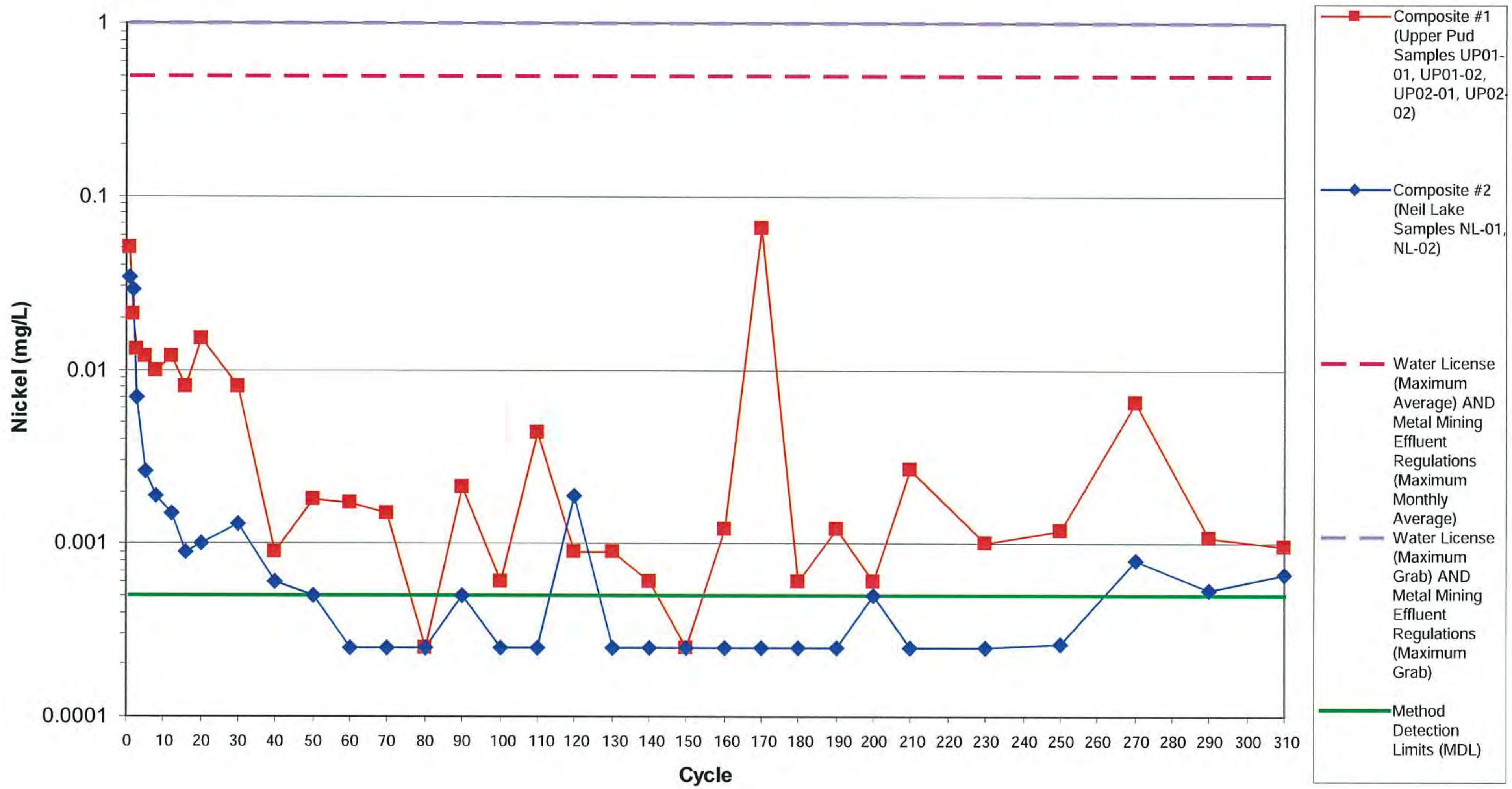
Con Mine
Tailings Kinetic Testing

TITLE

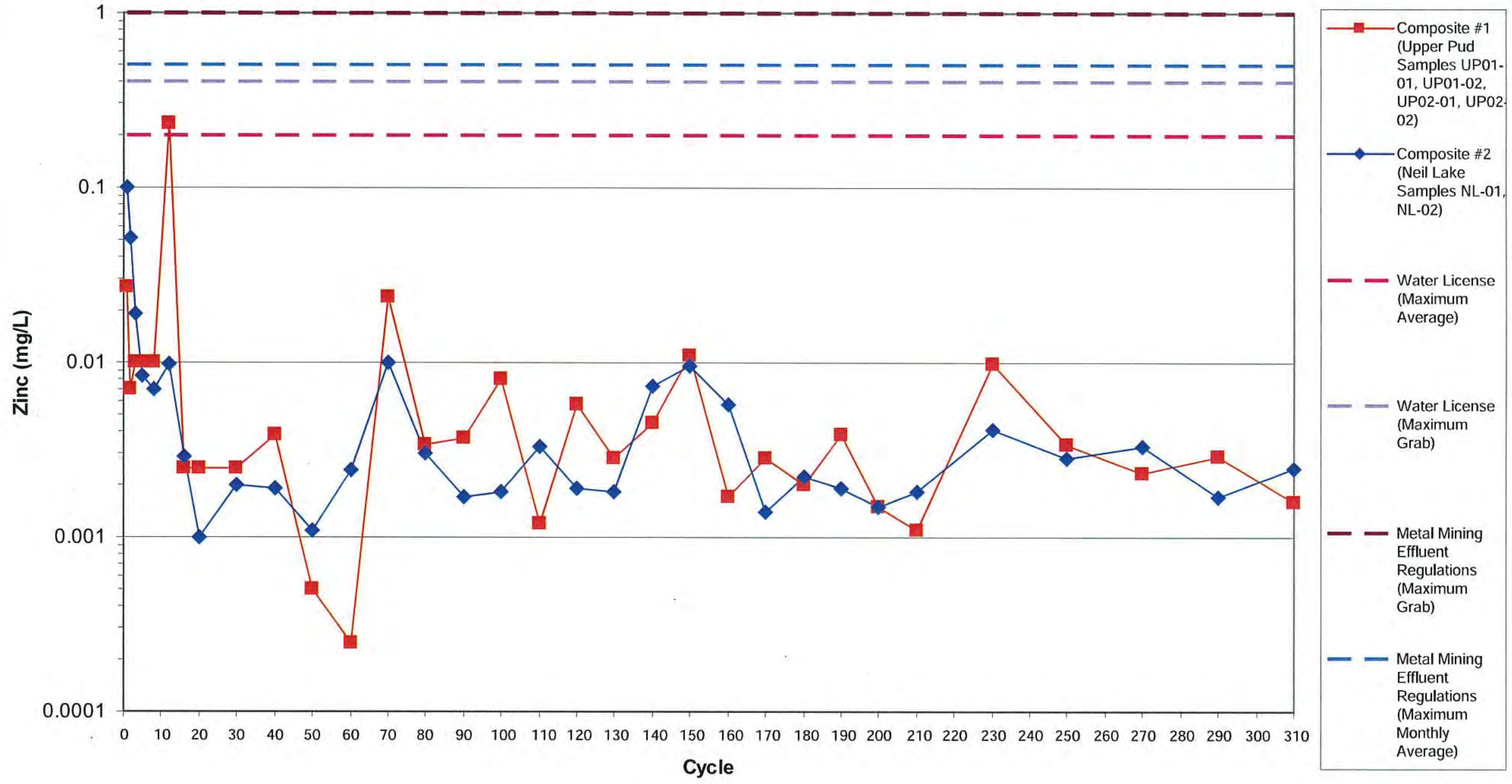
Lead (mg/L) Time Series

Golder Associates

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE 3-10**	
CHECK				
REVIEW				



PROJECT	Con Mine Tailings Kinetic Testing		
TITLE	Nickel (mg/L) Time Series		
Golder Associates	PROJECT No. 06-1413-026	FILE No.	
	DESIGN LL 10JUN08	SCALE N/A	REV. —
	CADD	**FIGURE 3-11**	
	CHECK		
	REVIEW		



PROJECT	Con Mine Tailings Kinetic Testing
TITLE	Zinc (mg/L) Time Series

Golder Associates

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD				
CHECK			**FIGURE 3-12**	
REVIEW				

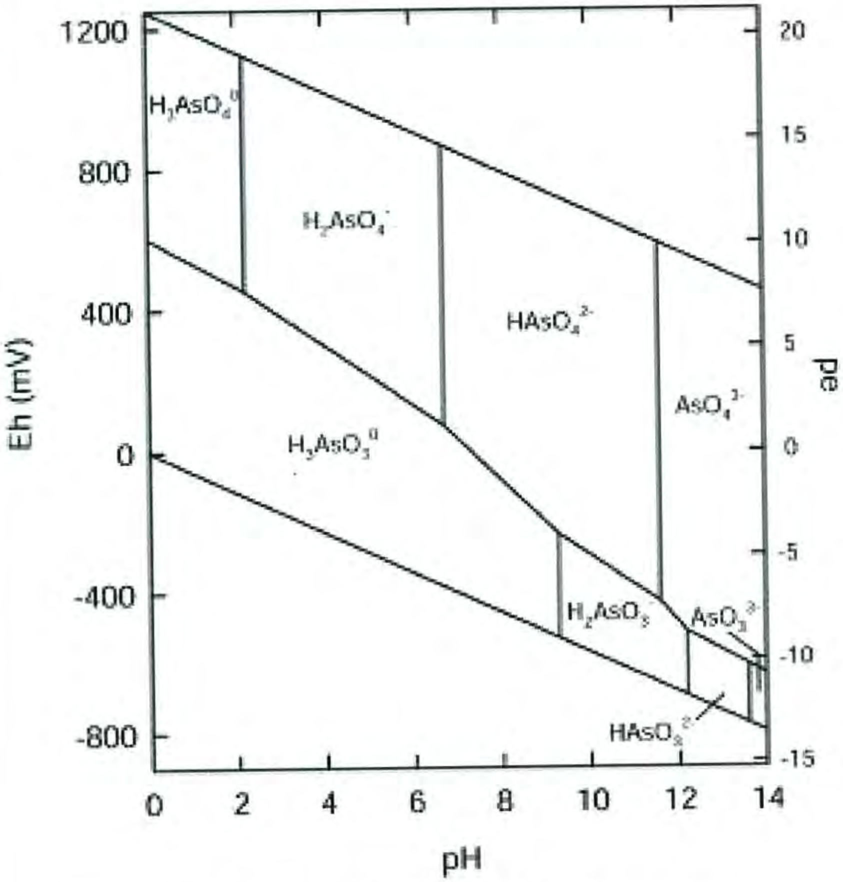


Figure 3-13a: The stability fields of arsenic.
Smedley (2002)

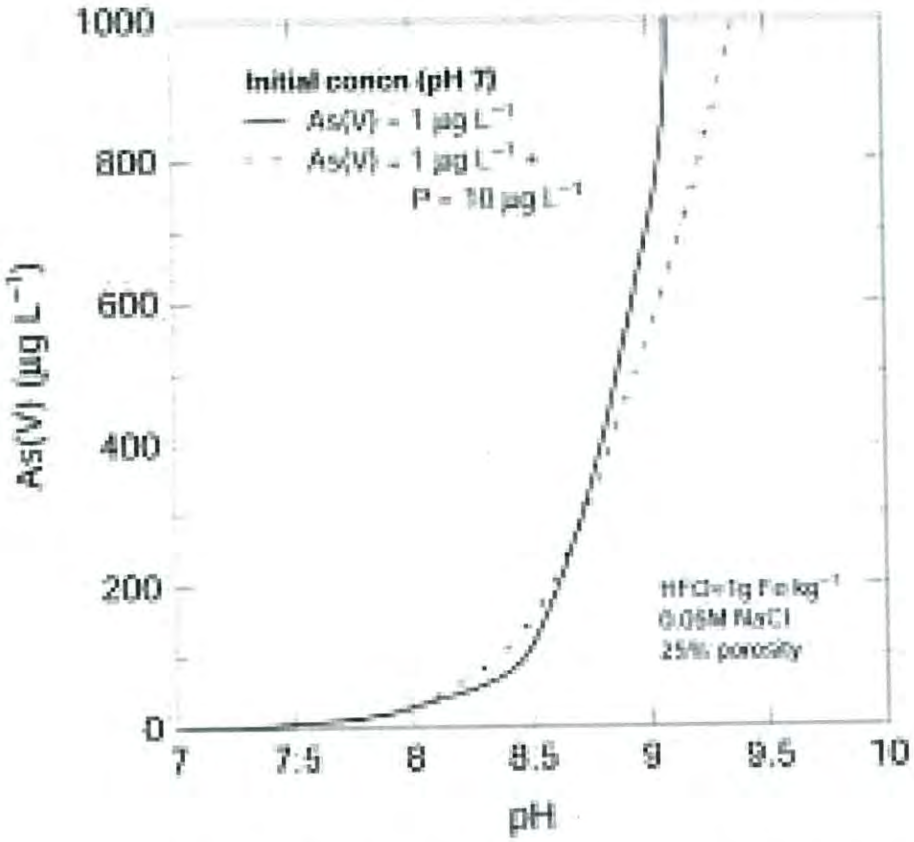
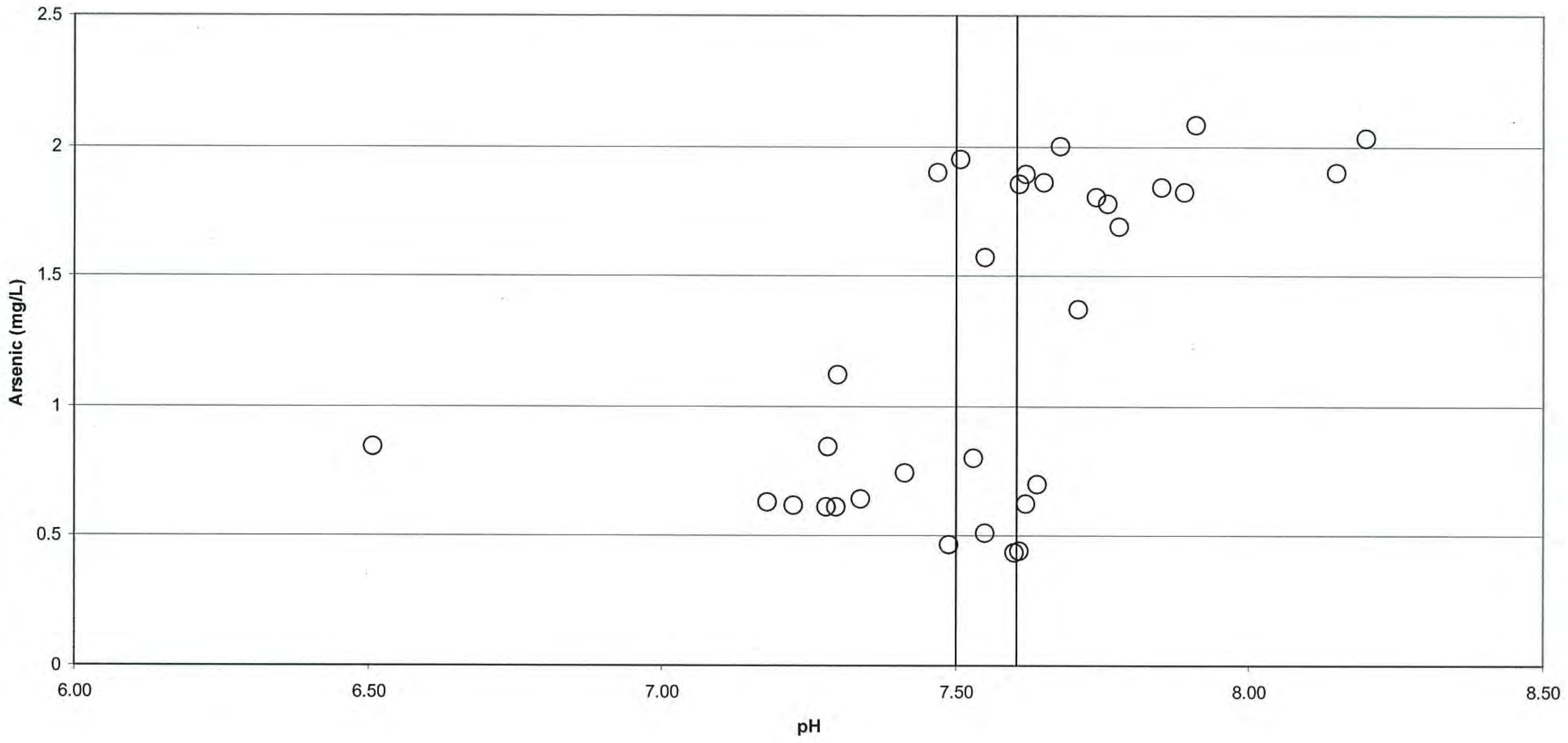


Figure 3-13b: The solubility of arsenic with pH.
Smedley (2002)

PROJECT	Con Mine Tailings Kinetic Testing			
TITLE	Arsenic Stability and Solubility Diagrams			
Golder Associates	PROJECT No.	06-1413-026	FILE No.	
	DESIGN	LL 10JUN08	SCALE N/A	REV. –
	CADD		FIGURES 3-13	
	CHECK			
	REVIEW			



PROJECT

Con Mine
Tailings Kinetic Testing

TITLE

Arsenic (mg/L) vs. pH

Golder Associates

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE 3-14**	
CHECK				
REVIEW				

APPENDIX I

Depletion Rates

APPENDIX I
Depletion Rates

Depletion Rate Calculations

The depletion rate for the tailings samples in the cell is the time required for a solute (*e.g.,* arsenic, copper, lead, nickel, or zinc) to be leached from the sample and by analogy, the rate by which the solute can be removed from the TCA. The depletion rate is derived from the cell release rate which is the mass of solute dissolved in the volume of water discharged from a cell in a unit of time (*e.g.,* mg of solute/kg of sample/unit time). In the case of the test cells, the unit of time is one cycle (*i.e.,* mg/kg/cycle). Knowing how rapidly a solute is dissolved and knowing the amount of soluble solute that is present in the sample within the cell (or tonnes tailings in the TCF) gives an estimate of the time required for the solute to be completely dissolved from the sample.

Cell Release Rates

The concentrations of solute (*e.g.,* arsenic) in the leachate from the cells are reported by the laboratory in units of mg/L. In a typical humidity cell, a known volume of solution (typically 500 mL) is applied to a fixed mass of solid in the cell (commonly 1 kg) per week. Release rates are calculated by multiplying the concentration (mg/L) by the rate of solution application (L/week) divided by the mass of the sample (kg) (*e.g.,* mg/kg/week = mg/L x L/week x 1/kg of samples).

In the case of the test cells, solution was applied continuously and the volume of solution was measured at the end of each cycle. Figures I-1 and I-2 are plots of the measured volumes of solution recovered per cycle from HC-1 and HC-2, respectively. The measured volume of solution varies dramatically between cycles because the pump was operating at a minimum speed and as a result, the pumping rates varied daily as well as in cycles of 220 to 250 days. Figures I-1 and I-2 also show the average volumes between sampling events, the actual volume measured at the time the samples were collected for metal analyses, and the average volume calculated for the entire length of the test (310 cycles).

Figures I-3 through I-5 show the release rates for arsenic, sulphate, and alkalinity for HC-1 and HC-2, respectively. The plots show the arsenic and sulphate release rates from the three URS humidity cell tests and the two Golder test cells. The figures have been converted to units of years (mg/kg/year) based upon the cycles of the URS and Golder tests (*e.g.,* the URS weekly cycle is seven days and the Golder cycle is roughly 2.3 days). The release rates for the Golder data are based upon a dry weight of sample of 1.54 kg in HC-1 and a dry weight of 1.72 kg in HC-2. Each figure shows the average annual release rate over the stable intervals (solid and dashed lines). Table I-1 lists the average annual release rates shown in Figure I-3 through I-5 and for the URS testing.

Table I-1: Steady State Leaching Rates for Current Test Program and the URS Tests

	Golder (2008)		URS (2003)			
	HC-1	**HC-2**	**TL-01**	**TL-07**	**TL-34**	**TL-01**
	mg/kg/yr	**mg/kg/yr**	**mg/kg/yr**	**mg/kg/yr**	**mg/kg/yr**	**mg/kg/yr**
Alkalinity	2007	1204	na	na	na	Na
Sulphide	na	na	na	na	na	Na
Sulphate	590	67.1	na	na	na	Na
As	47.6	23.8	5.512	4.524	5.356	5.512

Table I-2 summarizes the expected time for depletion of pyrite, carbonate alkalinity and selected metals under laboratory conditions (after Price, 1997). The depletion rate for the alkalinity is based upon several alternative methods of calculation (refer to footnotes Table I-2). Ankerite ($Ca(Fe,Mg,Mn)(CO_3)_2$) has been reported in the tailings but because of the presence of iron in ankerite, the neutralizing capacity of ankerite is not considered a significant source of acid neutralizing capacity. The presence of ankerite is consistent with the carbonate NP being consistently higher than the bulk NP. The sulphide depletion rate assumes that pyrite is the dominant source of acidity in the tailings from the Con Mine. Results of the URS mineralogical analyses show that pyrite is between 0.8 and 4.3% of the tailings and other sulphide minerals arsenopyrite and pyrrhotite are volumetrically insignificant. URS assumed that the release of arsenic was mineralogically controlled and based the estimates for the time for depletion upon rates for arsenopyrite (FeAsS) and ferric arsenate ($Fe(AsO_4)\cdot 2H_2O$). The attached estimate assumes that all of the arsenic leaches at the rate outlined in Table I-1.

Table I-2: Depletion Estimates for Pyrite and Carbonate Alkalinity and Selected Metals

Parameter	HC-1	HC-2
	Time to Depletion (Years)	**Time to Depletion (Years)**
	Laboratory Scale Loading Rates	**Laboratory Scale Loading Rates**
	Average of Steady State[3]	**Average of Steady State[3]**
	Average Test Volume[6]	**Average Test Volume[6]**
ABA Components		
Sulphide	64	60
NP (emp)[8]	66	186
CaNP (emp)[8]	82	160
NP (SO4)[9]	285	3,224
CaNP (SO4)[9]	350	2,769
NP (Ca)[10]	93	266
CaNP (Ca)[10]	113	229
NP (alkalinity)[11]	93	186
CaNP (alkalinity)[11]	112	159
Metals		
Arsenic (As)	123	52

3) Depletion calculations are based on average steady state loading rates observed under lab conditions Table I-1.

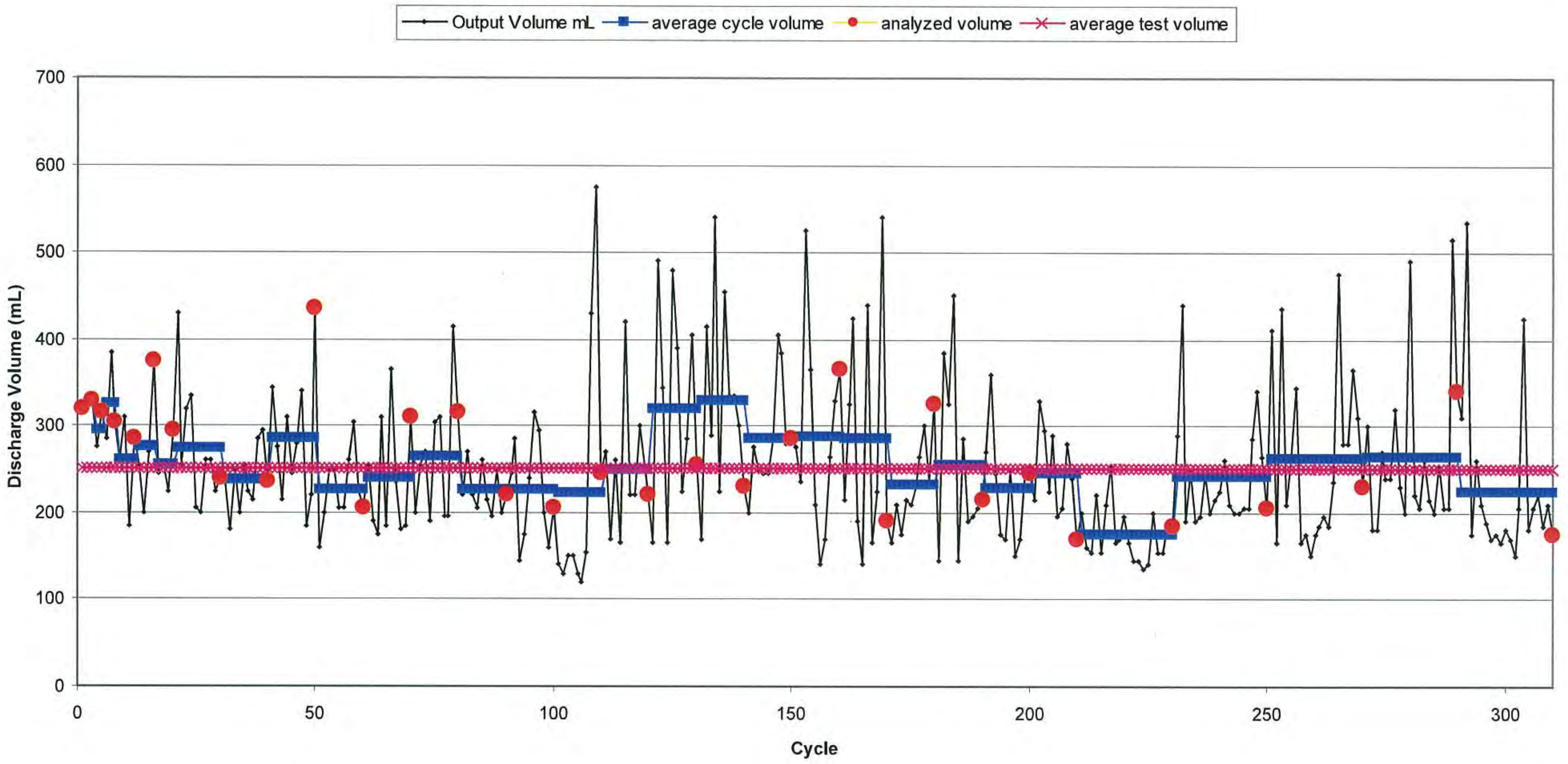
6) Average measured volumes for the entire test period were used in loading rate determinations.

8) Neutralization depletion rate is calculated as follows: Theoretical NP Consumption (determined from the SO_4 production rate) + Alkalinity Production Rate - Acidity Production Rate.

9) Neutralization depletion rate is based on theoretical NP consumption (determined from the SO_4 production rate).

10) Neutralization depletion rate is based on theoretical alkalinity consumption (determined from the calcium production rate).

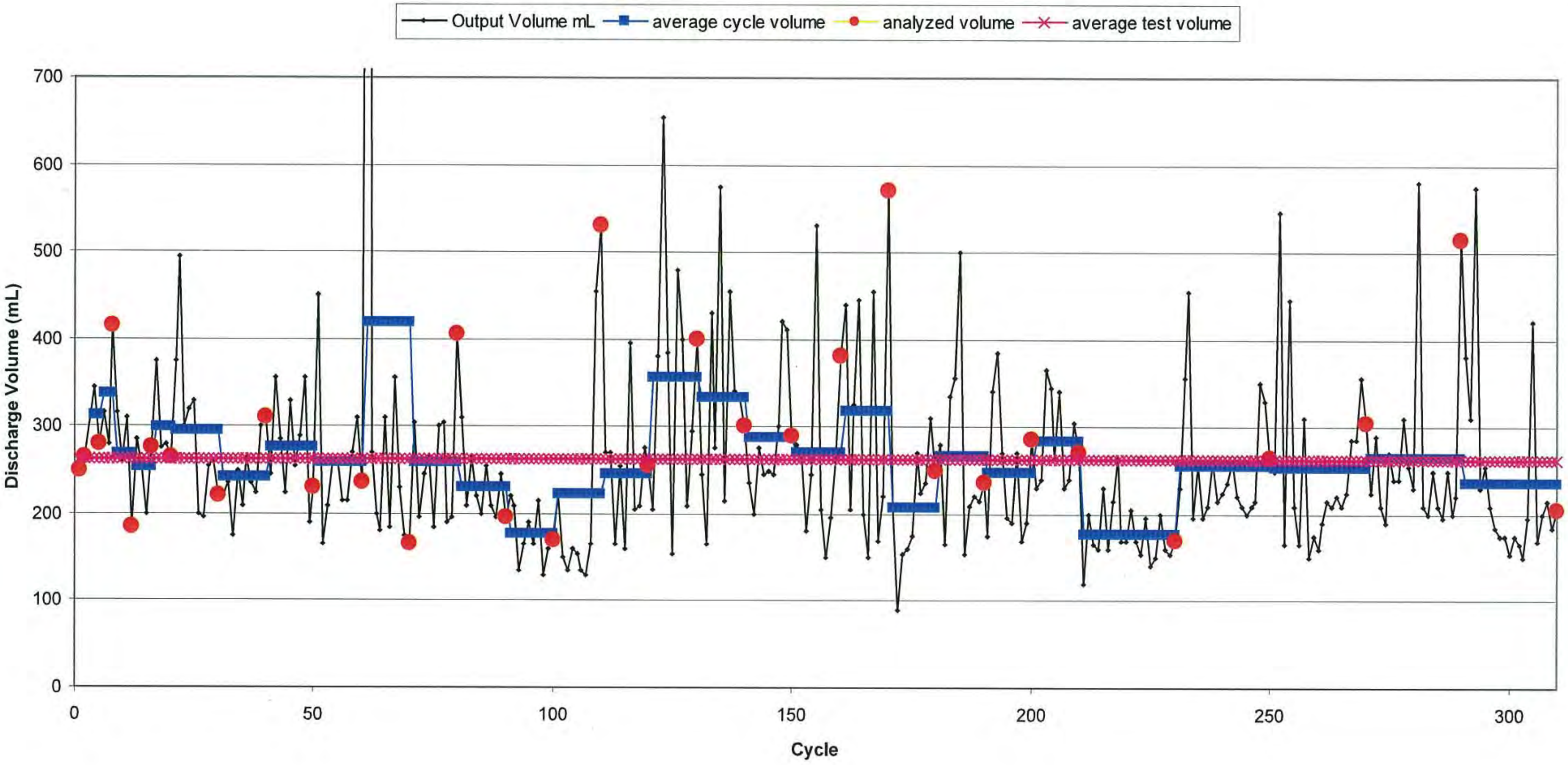
11) Neutralization depletion rate is based on the observed alkalinity production rate.



PROJECT
Con Mine
Tailings Kinetic Testing

TITLE
Discharge Volumes for HC1

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE I-1**	
CHECK				
REVIEW				



PROJECT

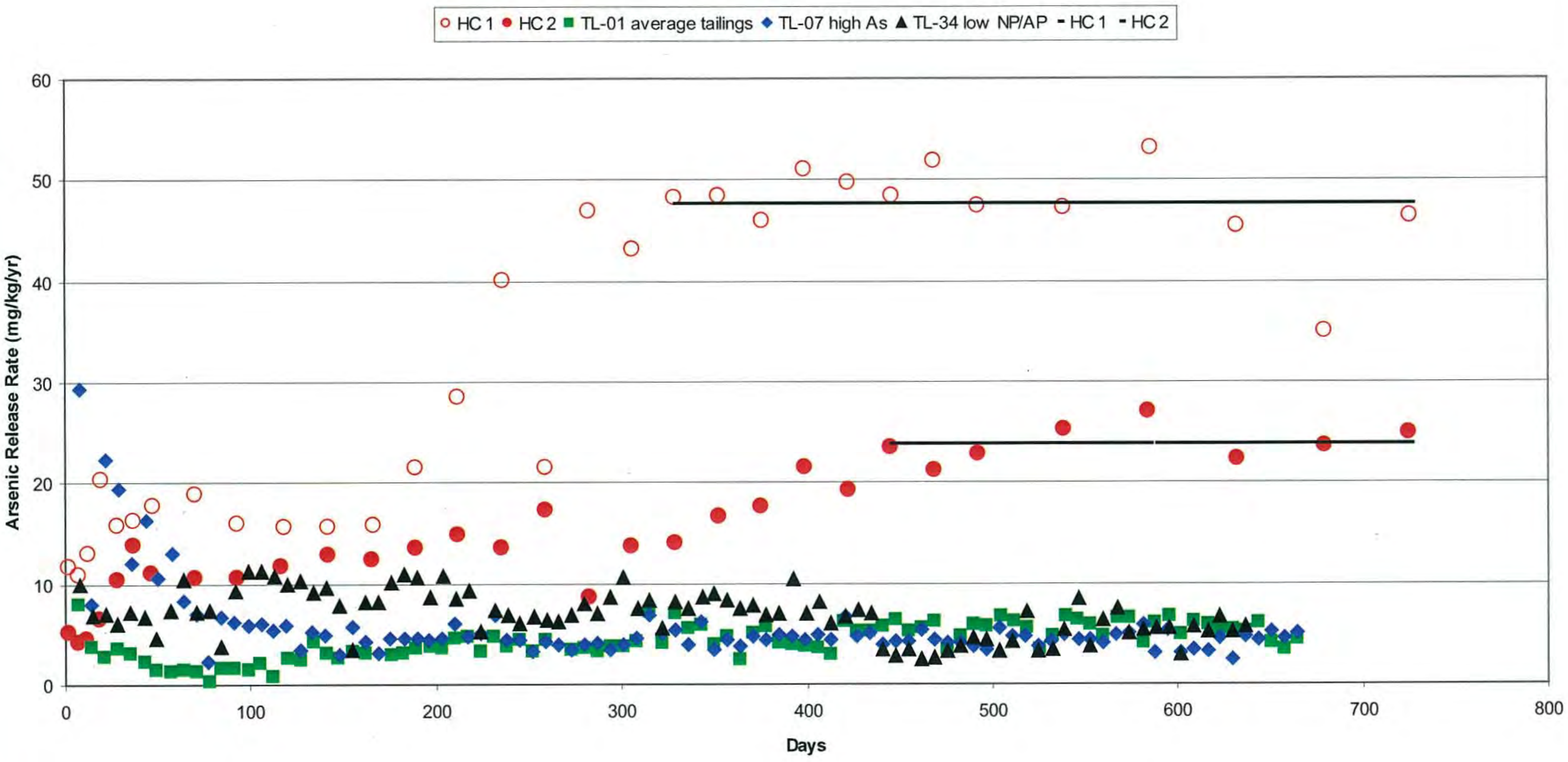
Con Mine
Tailings Kinetic Testing

TITLE

Discharge Volumes for HC2

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE I-2**	
CHECK				
REVIEW				

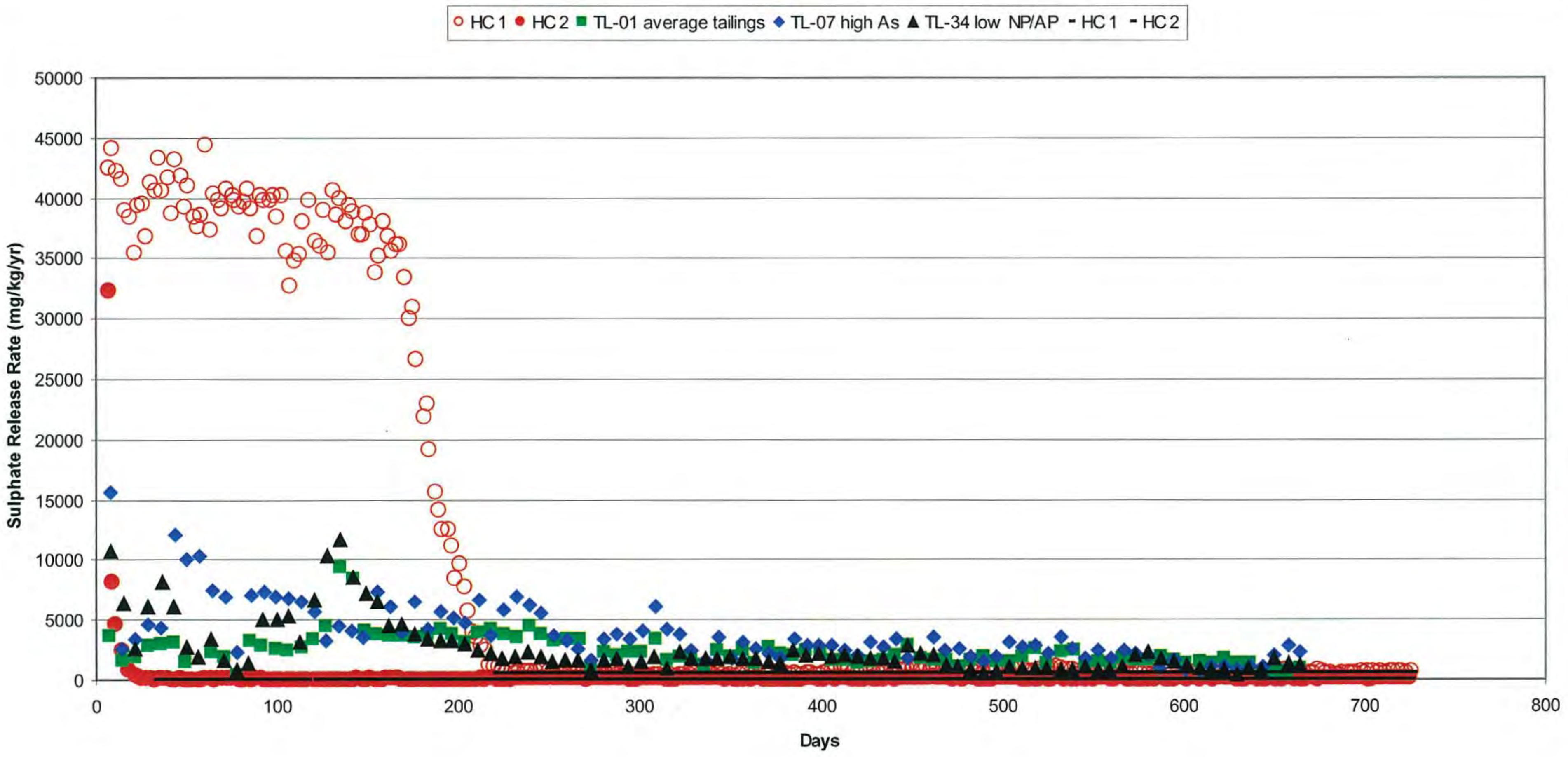
Golder Associates



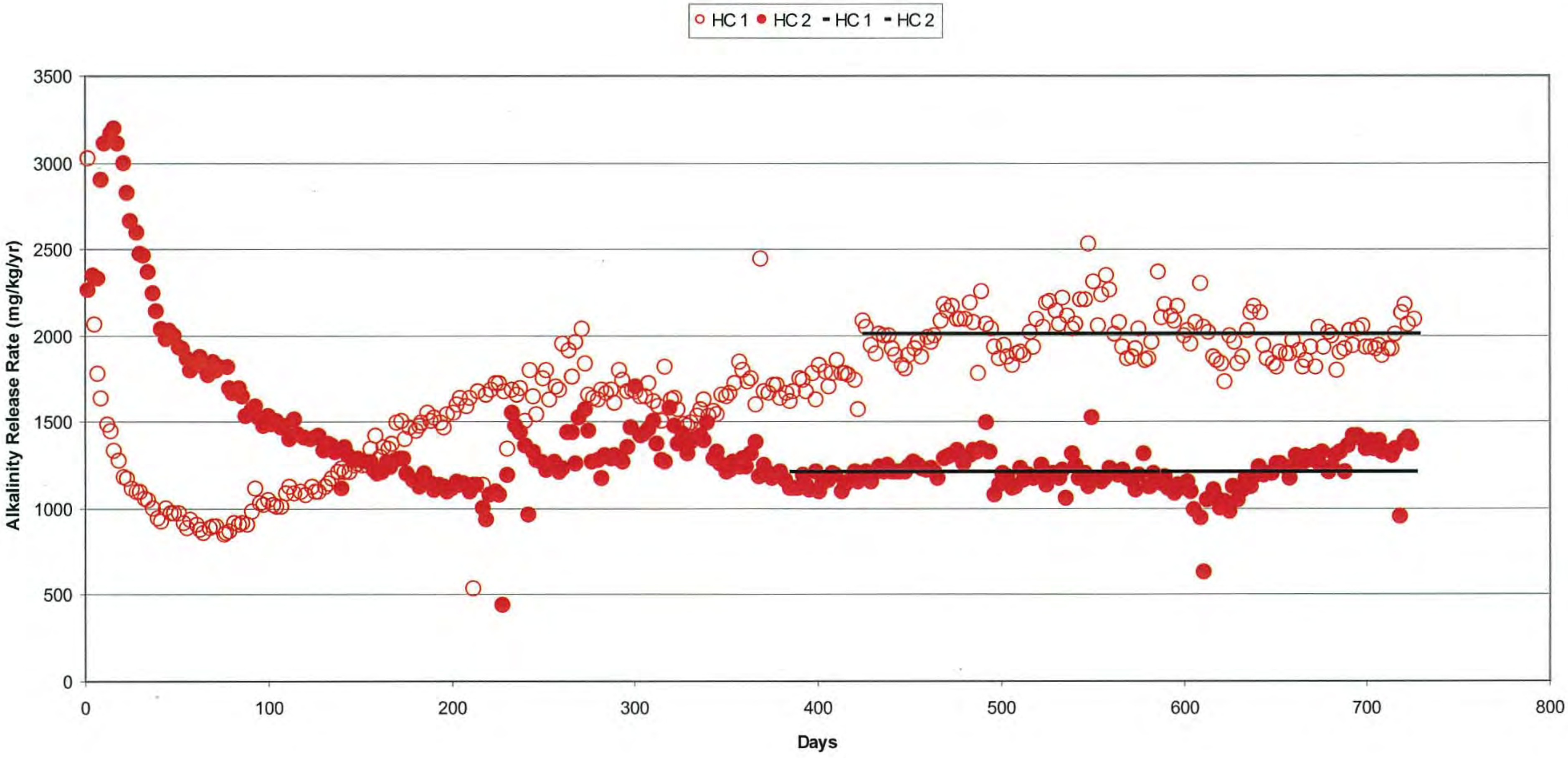
PROJECT	Con Mine Tailings Kinetic Testing
TITLE	Arsenic Release Rates (mg/kg/yr)

Golder Associates

PROJECT No.	06-1413-026		FILE No.	
DESIGN	LL	10JUN08	SCALE N/A	REV. —
CADD			**FIGURE I-3**	
CHECK				
REVIEW				



PROJECT	Con Mine Tailings Kinetic Testing			
TITLE	Sulphate Release Rate (mg/kg/yr)			
Golder Associates	PROJECT No. 06-1413-026		FILE No.	
	DESIGN LL	10JUN08	SCALE N/A	REV. —
	CADD		**FIGURE I-4**	
	CHECK			
	REVIEW			



PROJECT	Con Mine Tailings Kinetic Testing			
TITLE	Alkalinity Release Rate (mg/kg/yr)			
Golder Associates	PROJECT No.	06-1413-026	FILE No.	
	DESIGN LL	10JUN08	SCALE N/A	REV. —
	CADD		**FIGURE I-5**	
	CHECK			
	REVIEW			

APPENDIX II

Humidity Cell Results

Table II-1
Humidity Cell 1 (HC1)
Upper Pud (Composite #1)
Analytical Results
Con Mine
Yellowknife, NT

Date	Cycle No.	Output Volume mL	pH	Redox mV	Cond umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/L	Sulphate mg/L	Dissolved Oxygen mg/L	Cl mg/L	F mg/L	Redox in N2 atmosphere	Hardness (CaCO3) mg/L
10-Mar-06	1	320	7.5	455	15140	#N/A	23	119	2492		8850.00	0.39		6300
13-Mar-06	2	#N/A	7.6	422	5160	#N/A	10	61	1959		812.00	0.27		2500
15-Mar-06	3	330	7.6	356	2970	#N/A	8	70	1665		70.70	0.35		1700
17-Mar-06	4	275	7.6	357	2780	#N/A	8	64	1732					
20-Mar-06	5	315	7.6	350	2650	#N/A	9	56	1655		15.60	0.33		1600
22-Mar-06	6	285	7.6	360	2650	#N/A	8	57	1626					
24-Mar-06	7	385	7.5	318	2650	#N/A	8	52	1526					
27-Mar-06	8	305	7.6	341	2450	#N/A	6	50	1506		2.40	0.33		1500
29-Mar-06	9	260	7.5	341	2420	#N/A	8	48	1390					
31-Mar-06	10	310	7.4	355	2375	#N/A	7	46	1545					
03-Apr-06	11	185	7.5	437	2420	#N/A	8	44	1547					
05-Apr-06	12	285	7.6	358	2625	#N/A	4	43	1440		1.50	0.39		1600
07-Apr-06	13	255	7.5	356	2620	#N/A	5	43	1620					
10-Apr-06	14	200	7.8	393	2500	#N/A	6	42	1591					
12-Apr-06	15	275	7.6	378	2350	#N/A	5	41	1690					
14-Apr-06	16	375	7.3	388	2280	#N/A	6	38	1592		1.30	0.38		1600
17-Apr-06	17	245	7.4	415	2240	#N/A	6	37	1634					
19-Apr-06	18	255	7.3	403	2410	#N/A	6	39	1615					
21-Apr-06	19	225	7.6	369	2520	#N/A	5	39	1594					
24-Apr-06	20	395	7.6	404	2290	#N/A	3	38	1641		1.10	0.37		1500
26-Apr-06	21	430	7.6	408	2310	#N/A	4	38	1540					
28-Apr-06	22	250	7.6	369	2300	#N/A	4	38	1606					
01-May-06	23	320	7.3	158	2275	#N/A	6	36	1504					
03-May-06	24	335	7.5	156	2263	#N/A	4	34	1479					
05-May-06	25	205	7.4	148	2280	#N/A	5	36	1514					
08-May-06	26	200	7.5	167	2277	#N/A	5	35	1743					
10-May-06	27	260	7.4	136	2276	#N/A	6	34	1483					
12-May-06	28	260	7.2	160	2260	#N/A	6	34	1579					
15-May-06	29	225	7.4	166	2261	#N/A	5	35	1561					
17-May-06	30	240	7.4	165	2263	#N/A	5	35	1535		<0.5	0.34		1500
19-May-06	31	235	7.3	130	2272	#N/A	6	35	1595					
23-May-06	32	180	7.3	165	2279	#N/A	6	33	1575					
24-May-06	33	250	7.4	150	2234	#N/A	6	34	1567					
26-May-06	34	200	7.2	164	2291	#N/A	7	34	1537					
29-May-06	35	295	7.3	130	2279	#N/A	5	36	1504					
31-May-06	36	225	7.3	162	2221	#N/A	7	35	1590					
02-Jun-06	37	215	7.2	171	2240	#N/A	7	35	1531					
05-Jun-06	38	285	7.4	169	2238	#N/A	8	35	1444					
07-Jun-06	39	293	7.5	126	2215	#N/A	6	38	1575					
09-Jun-06	40	235	7.2	158	2249	#N/A	8	44	1582		<0.5			1600
12-Jun-06	41	345	7.3	164	2289	#N/A	6	40	1502					
14-Jun-06	42	275	7.3	165	2244	#N/A	8	40	1575					
16-Jun-06	43	215	7.3	165	2235	#N/A	7	41	1507					
19-Jun-06	44	310	7.5	160	2296	#N/A	5	40	1574					
21-Jun-06	45	245	7.4	161	2178	#N/A	7	40	1365					
23-Jun-06	46	280	7.4	166	2218	#N/A	8	38	1264					
26-Jun-06	47	340	7.5	162	2082	#N/A	5	43	1360					
28-Jun-06	48	185	7.7	163	2162	#N/A	5	44	1363					
30-Jun-06	49	220	7.3	165	2267	#N/A	7	42	1486					
04-Jul-06	50	435	7.5	169	2247	0	8	42	1599		<0.5			1500
07-Jul-06	51	180	7.5	177	2207	#N/A	8	42	1424					
10-Jul-06	52	200	7.4	184	2267	#N/A	8	44	1468					
12-Jul-06	53	250	7.5	166	2266	#N/A	7	43	1527					
14-Jul-06	54	250	7.4	158	2169	#N/A	7	43	1391					
17-Jul-06	55	205	7.5	164	2275	#N/A	7	44	1584					
19-Jul-06	56	205	7.5	162	2184	#N/A	8	45	1510					
21-Jul-06	57	260	7.4	166	2128	#N/A	8	46	1666					
24-Jul-06	58	305	7.4	154	2254	#N/A	7	47	1480					
26-Jul-06	59	225	7.4	168	2162	#N/A	8	48	1544					
28-Jul-06	60	205	7.3	173	2105	#N/A	9	47	1520		<0.5			1600
31-Jul-06	61	285	7.2	182	2261	#N/A	8	47	1445					
02-Aug-06	62	180	7.1	174	2160	#N/A	8	40	1448					
04-Aug-06	63	175	6.8	195	2140	#N/A	10	49	1516					
07-Aug-06	64	310	7.0	179	2234	#N/A	10	49	1476					
09-Aug-06	65	180	7.1	168	2201	#N/A	8	49	1223					
11-Aug-06	66	355	7.1	184	2162	#N/A	8	52	1378					
14-Aug-06	67	230	7.0	113	2147	#N/A	7	55	1480	7				
16-Aug-06	68	180	7.1	190	2115	#N/A	10	51	1444	6.6				
18-Aug-06	69	185	7.0	201	2033	#N/A	9	63	1393	5.8				
21-Aug-06	70	310	7.2	177	1958	#N/A	10	50	1410	6.60	<0.5			1400
23-Aug-06	71	200	7.2	194	1850	#N/A	8	54	1416	5.4				
25-Aug-06	72	255	6.5	266	1747	#N/A	16	58	1308	4.7				
28-Aug-06	73	270	6.6	214	1967	#N/A	16	59	1176	4.5				
30-Aug-06	74	190	6.7	288	1639	#N/A	14	55	1212	5				
01-Sep-06	75	305	7.1	220	1545	#N/A	14	58	1044	4.8				
05-Sep-06	76	310	7.1	213	1575	#N/A	10	56	857	4.8				
07-Sep-06	77	195	7.5	212	1448	#N/A	3	58	808	4.8				
08-Sep-06	78	190	7.5	225	1180	#N/A	5	58	748	4.8				
11-Sep-06	79	415	7.5	217	1116	#N/A	7	61	611	5.1				
13-Sep-06	80	315	7.5	236	986	#N/A	8	59	551	4.92	<0.5			570
15-Sep-06	81	220	7.2	276	922	#N/A	7	59	491	5				
18-Sep-06	82	275	7.5	240	869	#N/A	5	59	401	5.10				
20-Sep-06	83	220	7.5	353	873	#N/A	4	57	435	5.7				
22-Sep-06	84	205	7.5	313	751	#N/A	5	60	331	5.4				
25-Sep-06	85	200	7.4	274	718	#N/A	5	61	379	5.2				
27-Sep-06	86	210	7.5	206	564	#N/A	5	60	no sample	5.5				
29-Sep-06	87	195	7.5	246	502	#N/A	7	64	225	5.8				
02-Oct-06	88	250	7.4	258	451	#N/A	7	62	154	5.8				
04-Oct-06	89	200	7.2	364	391	#N/A	10	64	139	5.5				
06-Oct-06	90	220	7.3	312	363	#N/A	4	21	112	5.60	<0.5			200
09-Oct-06	91	245	7.2	290	323	#N/A	8	68	87	3.5				
11-Oct-06	92	285	8.3	401	229	#N/A	2	44	50	5.5				
13-Oct-06	93	145	7.6	298	197	#N/A	5	65	IF	5.7				
16-Oct-06	94	175	7.3	257	212	#N/A	7	56	IF	4.8				
18-Oct-06	95	240	7.7	294	164	#N/A	5	68	32	5.2				
20-Oct-06	96	315	7.7	339	176	#N/A	5	68	23	5.1				
23-Oct-06	97	295	7.7	376	180	#N/A	4	66	28	5.7				
25-Oct-06	98	200	8.6	422	173	#N/A	5	52	22	5.6				
27-Oct-06	99	180	7.7	356	169	#N/A	4	60	22	6.1				
30-Oct-06	100	205	7.5	409	180	#N/A	4	60	28	6.00	<0.5			81
01-Nov-06	101	140	7.7	291	177	#N/A	4	66	25	5.6				
03-Nov-06	102	120	8.4	427	175	#N/A	3	50	24	5.8				
06-Nov-06	103	150	7.7	201	201	#N/A	3	70	23	6.15				
08-Nov-06	104	150	7.4	194	197	#N/A	2	64	30	4.95				
10-Nov-06	105	130	8.6	274	198	#N/A	4	60	35	5.35				
13-Nov-06	106	120	7.6	200	200	#N/A	5	86	28	4.75				
15-Nov-06	107	155	7.7	201	201	#N/A	3	70	34	5.6			195	

Date	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L	Cd mg/L	Ca mg/L	Cr mg/L	Co mg/L	Cu mg/L	Fe mg/L	Pb mg/L	Li mg/L	Mg mg/L	Mn mg/L	Hg ug/L	Mo mg/L	Ni mg/L	P mg/L	K mg/L	Se mg/L	Si mg/L	Ag mg/L	Na mg/L	Sr mg/L	S mg/L	Tl mg/L	Sn mg/L	Ti mg/L	U mg/L	V mg/L	Zn mg/L	Zr mg/L	Major Anions	Major Cations	Diff	Diff (%)
10-Mar-06	0.01	0.13	0.45	0.0445	<0.0005	<0.0005	0.83	0.00540	990.00000	0.0060	1.0400	0.0210	0.798	0.00080	0.00090	927.0000	1.38	<0.05	0.0362	0.0510	<0.1	44.5000	0.0610	4.3900	0.00480	1020.0000	18.00	881.00	<0.0005	<0.0005	0.00600	0.00110	<0.0005	0.02730	0.0080	182.91	188.55	-5.64	-0.02
13-Mar-06	0.01	0.10	0.44	0.0179	<0.0005	<0.0005	0.51	0.00100	627.00000	<0.0030	0.2760	0.0310	0.392	0.00060	0.00090	235.0000	0.61	<0.05	0.0332	0.0210	<0.1	12.3000	0.0140	3.6400	0.00160	169.0000	7.62	555.00	<0.0005	<0.0005	<0.005	0.00160	<0.0005	0.00750	0.0060	59.92	57.95	1.95	0.02
15-Mar-06	0.02	0.09	0.43	0.0128	<0.0005	<0.0005	0.33	0.00060	569.00000	0.0030	0.0709	0.0140	0.108	0.00080	0.00000	88.5000	0.39	<0.05	0.0220	0.0150	<0.1	4.9100	<0.005	3.3300	0.00030	24.2000	5.34	532.00	<0.0005	<0.0005	<0.005	0.00130	0.001300	0.01000	<0.008	38.00	34.82	3.17	0.04
20-Mar-06	0.02	0.08	0.51	0.0127	<0.0005	<0.0005	0.24	0.00040	587.00000	<0.003	0.0446	0.0080	0.080	0.00040	0.00400	36.0000	0.81	<0.05	0.0172	0.0120	<0.1	3.5600	<0.005	3.1700	0.00020	8.77000	3.50	473.00	<0.0005	<0.0005	0.01200	0.00120	<0.0005	0.01000	<0.005	35.64	31.80	3.84	0.06
27-Mar-06	0.02	0.02	0.80	0.0116	<0.0005	<0.0005	0.16	<0.0001	550.00000	0.0020	0.0264	0.0100	0.118	0.00030	<0.002	24.1000	0.27	<0.05	0.0107	0.0100	<0.1	2.0150	<0.005	2.7960	<0.0001	3.06000	2.08	474.00	<0.0005	<0.0005	0.01300	0.00090	<0.0005	0.01000	<0.005	32.38	30.01	2.36	0.04
05-Apr-06	0.04	0.02	0.63	0.0107	<0.0005	<0.0005	0.11	0.00010	592.00000	0.0030	0.0243	0.0020	0.182	0.00090	0.00200	20.9000	0.30	<0.05	0.0072	0.0120	<0.1	1.6500	<0.005	2.7500	<0.0001	2.01000	1.22	498.00	<0.0005	<0.0005	0.00600	0.00070	<0.0005	0.23000	<0.005	30.88	31.35	-0.48	-0.01
14-Apr-06	0.05	0.03	0.54	0.0104	<0.0005	<0.0005	0.07	0.00010	602.00000	0.0020	0.0167	<0.001	0.247	0.00050	<0.002	17.8000	0.27	<0.05	0.0063	0.0080	<0.1	1.3000	<0.005	2.7200	<0.0001	1.41000	1.14	492.00	<0.0005	<0.0005	0.00600	0.00060	<0.0005	<0.005	<0.005	33.88	31.84	2.41	0.04
24-Apr-06	0.02	0.03	0.70	0.0120	<0.0005	<0.0005	0.09	0.00010	576.00000	0.0020	0.0181	<0.001	0.299	0.00170	0.00600	14.2000	0.26	<0.05	0.0050	0.0150	<0.1	1.0150	<0.005	2.8600	<0.0001	1.10000	0.85	501.00	<0.0005	<0.0005	0.01700	0.00060	0.015500	<0.005	<0.005	34.95	30.86	4.09	0.06
17-May-06	0.02	0.04	0.74	0.0106	<0.0005	<0.0005	0.03	<0.0001	593.00000	0.0040	0.0138	0.0020	0.366	<0.0002	<0.002	16.8000	0.27	<0.05	0.0099	0.0080	<0.1	0.9240	<0.005	2.7650	<0.0001	1.17000	0.71	655.00	<0.0005	<0.0005	0.01200	0.00040	<0.0005	<0.003	<0.005	32.68	30.94	1.74	0.03
09-Jun-06	0.03	0.04	0.83	0.0091	<0.00005	<0.00005	0.01	0.00005	627.00000	<0.0002	0.0114	0.0057	0.510	0.00090	0.00140	9.5600	0.23	<0.05	0.0033	0.0500	<0.1	0.4800	0.0011	2.6700	0.00090	0.51000	0.65	506.00	<0.00005	0.000200	0.00130	0.00034	<0.00005	0.00390	<0.005	33.41	32.10	1.32	0.02
04-Jul-06	0.03	0.04	0.81	0.0080	<0.00005	<0.00005	0.01	0.00001	606.00000	<0.0002	0.0156	0.0015	0.480	0.00009	0.00270	8.4600	0.29	<0.05	0.0029	0.0016	<0.1	0.4560	0.0008	2.5800	0.00002	0.41000	0.27	455.00	<0.00005	0.000090	0.00290	0.00020	0.000160	<0.001	<0.005	33.34	30.65	2.68	0.04
28-Jul-06	0.02	0.03	0.81	0.0082	<0.00005	<0.00005	0.01	0.00001	641.00000	<0.0002	0.0122	0.0007	0.472	0.00013	0.00280	7.3300	0.33	<0.1	0.0039	0.0017	<0.1	0.3560	0.0006	2.9800	0.00002	0.33000	0.57	438.00	<0.00005	0.000120	0.00610	0.00030	0.000180	<0.0003	<0.005	32.81	32.80	0.01	0.00
21-Aug-06	0.02	0.02	0.82	0.0063	<0.00005	<0.00005	0.01	0.00006	584.00000	<0.0002	0.0064	0.0034	0.430	0.00260	0.00170	4.8000	0.25	<0.05	0.0028	<0.003	<0.1	0.2800	<0.0005	2.0200	0.00002	0.51000	0.48	441.00	<0.00005	<0.00005	0.00270	0.00038	<0.00005	0.02380	<0.005	30.03	28.86	1.67	0.03
13-Sep-06	0.02	0.03	0.84	0.0043	<0.00005	<0.00005	0.01	0.00004	222.00000	<0.0002	0.0041	0.0034	0.102	0.00372	0.00100	3.0600	0.10	<0.05	0.0022	<0.0005	<0.1	0.1720	<0.0005	1.9000	0.00006	0.28000	0.24	158.30	<0.00005	<0.00005	0.00075	0.00016	0.000070	0.00340	<0.005	12.66	11.34	1.32	0.05
06-Oct-06	0.04	0.04	1.12	0.0060	<0.00005	<0.00005	<0.005	0.00002	73.50000	0.0007	0.0028	0.0120	0.082	0.00005	0.00100	3.8900	0.03	<0.05	0.0028	0.0021	<0.1	0.0880	<0.0005	2.0600	0.00001	0.30000	0.08	98.50	<0.00005	0.000050	0.00290	0.00006	0.000100	0.00370	<0.005	2.75	4.05	-1.25	-0.18
30-Oct-06	0.04	0.04	1.57	0.0010	<0.00005	<0.00005	<0.005	0.00004	29.60000	<0.0002	0.0024	0.0032	0.120	0.00005	0.00110	4.1100	0.02	<0.05	0.0029	0.0006	<0.1	0.1300	<0.0005	1.6600	0.00002	0.22000	0.05	7.40	<0.00005	0.000180	<0.0005	0.00009	<0.00005	0.05810	<0.005	1.83	1.83	0.00	0.01

Table II-1
Humidity Cell 1 (HC1)
Upper Pud (Composite #1)
Analytical Results
Con Mine
Yellowknife, NT

Date	Cycle No.	Output Volume mL	pH	Redox mV	Cond. umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/L	Sulphate mg/L	Dissolved Oxygen mg/L	Cl mg/L	F mg/L	Redox in N2 atmosphere
17-Nov-06	108	430	8.7	371	182	#N/A	5	64	20	3.9			185
20-Nov-06	109	575	7.7	160	184	#N/A	4	67	16	3.9			110
22-Nov-06	110	245	8.5	224	199	#N/A	5	68	20	3.90	<0.5		260
24-Nov-06	111	270	7.8	198	189	#N/A	8	76	20	3.95			225
27-Nov-06	112	170	7.9	250	204	#N/A	6	78	23	5			205
29-Nov-06	113	260	7.6	325	191	#N/A	7	80	33	3.95			240
01-Dec-06	114	165	7.9	345	173	#N/A	#N/A	77	17	4			285
04-Dec-06	115	420	7.3	321	180	#N/A	#N/A	80	19	3.8			285
06-Dec-06	116	220	7.8	358	173	#N/A	2	72	22	4.6			275
08-Dec-06	117	220	7.6	291	171	#N/A	4	65	20	4.5			285
11-Dec-06	118	300	7.6	357	178	#N/A	4	64	18	4.45			265
13-Dec-06	119	255	7.7	334	173	#N/A	4	64	18	4.65			140
15-Dec-06	120	220	7.9	295	184	#N/A	3	58	18	3.95	<0.5		225
18-Dec-06	121	165	7.8	353	166	#N/A	3	65	19	3.6			125
20-Dec-06	122	490	7.9	295	184	#N/A	3	66	18	1.3			170
22-Dec-06	123	345	7.9	356	176	#N/A	2	63	15	1.65			140
25-Dec-06	124	165	7.0	360	186	#N/A	2	70	19	insufficient sample			115
27-Dec-06	125	480	7.6	323	167	#N/A	2	58	17	0.5			178
29-Dec-06	126	390	7.6	378	168	#N/A	4	60	16	0.3			165
01-Jan-07	127	225	7.9	342	173	#N/A	2	66	17	0.35			140
03-Jan-07	128	265	7.9	343	170	#N/A	2	66	12	0.25			105
05-Jan-07	129	405	8.1	372	162	#N/A	1	64	14	0.4			180
08-Jan-07	130	255	7.8	262	172	#N/A	2	64	13	0.26	<0.5		105
10-Jan-07	131	170	7.9	330	168	#N/A	2	67	14	0.35			230
12-Jan-07	132	415	7.6	367	162	#N/A	4	64	19	0.55			179
15-Jan-07	133	290	7.7	251	165	#N/A	2	62	13	1.5			280
17-Jan-07	134	540	7.7	306	153	#N/A	2	59	11	0.8			217
19-Jan-07	135	225	7.8	349	181	#N/A	3	71	18	0.6			233
22-Jan-07	136	455	7.8	326	173	#N/A	3	64	13	0.65			324
24-Jan-07	137	335	7.6	367	162	#N/A	5	64	16	0.85			260
26-Jan-07	138	305	7.5	363	154	#N/A	8	62	14	0.7			245
29-Jan-07	139	300	7.2	375	160	#N/A	8	58	19	0.75			265
31-Jan-07	140	230	7.6	373	158	#N/A	6	58	21	0.60	<0.5		240
02-Feb-07	141	205	7.7	366	162	#N/A	4	58	21	0.4			243
05-Feb-07	142	275	7.7	380	154	#N/A	4	60	17	0.28			178
07-Feb-07	143	290	7.6	400	170	#N/A	4	61	16	0.3			235
09-Feb-07	144	245	7.5	384	170	#N/A	11	64	18	0.6			233
12-Feb-07	145	245	7.4	385	178	#N/A	5	60	18	0.8			335
14-Feb-07	146	265	7.6	396	172	#N/A	4	61	20	0.95			248
16-Feb-07	147	405	7.6	396	165	#N/A	4	60	17	1.15			290
19-Feb-07	148	385	7.5	404	169	#N/A	5	65	13	1.1			252
21-Feb-07	149	280	7.5	391	165	#N/A	5	66	19	1			270
23-Feb-07	150	285	7.5	339	175	#N/A	5	60	11	1.45	<0.5		295
26-Feb-07	151	275	7.5	370	171	#N/A	5	68	14	1.45			265
28-Feb-07	152	235	7.5	315	188	#N/A	5	72	21	1.4			215
02-Mar-07	153	525	7.8	369	172	#N/A	3	70	20	1.60			335
05-Mar-07	154	305	7.6	366	160	#N/A	4	69	20	1.75			375
07-Mar-07	155	210	8.0	344	153	#N/A	7	68	21	1.75			210
09-Mar-07	156	140	8.0	445	169	#N/A	1	63	18	1.6			300
12-Mar-07	157	170	7.8	393	182	#N/A	16	66	20	0.5			260
14-Mar-07	158	265	7.6	412	173	#N/A	4	56	18	0.50			325
16-Mar-07	159	330	7.9	456	174	#N/A	4	66	22	0.4			210
19-Mar-07	160	365	7.7	333	186	#N/A	4	67	24	0.50	<0.5		315
21-Mar-07	161	315	7.9	379	165	#N/A	3	67	24	0.8			340
23-Mar-07	162	325	7.6	281	179	#N/A	3	64	21	0.65			325
26-Mar-07	163	425	7.7	282	175	#N/A	3	66	16	0.35			325
28-Mar-07	164	180	7.8	281	168	#N/A	2	63	19	0.6			330
30-Mar-07	165	140	7.7	303	165	#N/A	4	66	15	0.5			300
02-Apr-07	166	440	7.8	352	165	#N/A	2	65	14	0.45			243
04-Apr-07	167	165	8.0	359	169	#N/A	2	66	21	0.45			300
06-Apr-07	168	225	7.3	300	187	#N/A	7	65	19	0.5			265
09-Apr-07	169	540	7.6	386	191	#N/A	4	70	16	0.3			165
11-Apr-07	170	190	7.7	305	171	#N/A	3	64	16	0.80	1.10		150
13-Apr-07	171	165	7.9	303	203	#N/A	3	71	21	0.3			200
16-Apr-07	172	210	8.0	366	200	#N/A	2	70	28	0.35			175
18-Apr-07	173	175	8.0	360	189	#N/A	2	67	24	0.25			180
20-Apr-07	174	215	7.7	405	198	#N/A	4	70	28	0.25			215
23-Apr-07	175	210	8.1	283	203	#N/A	2	73	31	0.3			165
25-Apr-07	176	230	8.0	336	189	#N/A	2	70	31	0.3			215
27-Apr-07	177	265	7.9	282	177	#N/A	3	70	28	0.35			225
30-Apr-07	178	300	7.9	296	177	#N/A	3	60	22	0.3			225
02-May-07	179	235	7.7	339	200	#N/A	3	68	20	0.35			212
04-May-07	180	325	7.5	381	189	#N/A	4	82	20	0.35	<0.5		165
07-May-07	181	145	8.0	311	209	#N/A	2	82	25	0.25			185
09-May-07	182	365	7.9	336	181	#N/A	4	80	24	0.25			240
11-May-07	183	225	8.1	348	172	#N/A	2	76	20	0.2			235
14-May-07	184	450	7.9	253	185	#N/A	3	74	19	0.25			215
16-May-07	185	145	8.2	349	214	#N/A	2	79	24	0.2			195
18-May-07	186	265	8.0	358	197	#N/A	3	78	24	0.35			250
21-May-07	187	190	7.9	354	197	#N/A	5	78	27	0.25			230
23-May-07	188	195	8.1	328	217	#N/A	2	75	31	0.2			234
25-May-07	189	205	8.1	358	212	#N/A	1	74	32	0.2			250
28-May-07	190	215	8.2	335	200	#N/A	2	72	31	0.20	#N/A		210
30-May-07	191	270	8.0	331	190	#N/A	3	71	30	0.3			260
01-Jun-07	192	380	8.1	355	217	#N/A	2	74	33	0.2			260
04-Jun-07	193	245	8.1	297	204	#N/A	2	75	30	0.25			270
06-Jun-07	194	175	7.9	361	196	#N/A	3	77	28	0.2			267
08-Jun-07	195	170	7.9	337	187	#N/A	3	73	29	0.2			332
11-Jun-07	196	250	8.1	275	187	#N/A	2	78	26	0.25			245
13-Jun-07	197	190	8.2	271	181	#N/A	2	77	33	0.2			267
15-Jun-07	198	170	7.7	387	216	#N/A	4	78	29	0.2			262
18-Jun-07	199	245	8.2	288	218	#N/A	1	82	28	0.2			200
20-Jun-07	200	245	8.2	320	226	#N/A	1	85	31	0.20	<0.5		250
22-Jun-07	201	215	8.1	333	225	#N/A	2	84	30	0.3			225
25-Jun-07	202	330	8.3	353	207	#N/A	2	88	35	0.2			228
27-Jun-07	203	295	8.1	354	202	#N/A	2	82	31	0.35			206
29-Jun-07	204	225	7.7	356	189	#N/A	6	82	29	0.26			215
02-Jul-07	205	290	7.9	318	203	#N/A	4	82	28	0.25			255
04-Jul-07	206	195	8.1	321	207	#N/A	3	86	26	0.25			250
06-Jul-07	207	305	8.0	#N/A	202	#N/A	4	81	21	0.26			270
09-Jul-07	208	280	7.8	346	146	#N/A	3	70	27	0.2			245
11-Jul-07	209	340	8.1	377	184	#N/A	10	88	30	0.25			260
13-Jul-07	210	170	7.7	308	213	#N/A	6	81	28	0.20	<0.5		232
16-Jul-07	211	200	7.8	348	218	#N/A	8	80	29	0.2			230
18-Jul-07	212	160	7.8	381	205	#N/A	4	76	33	0.3			200
20-Jul-07	213	155	7.4	341	205	#N/A	3	73	27	0.2			280
23-Jul-07	214	220	7.7	357	224	#N/A	5	76	34	0.25			240
25-Jul-07	215	155	8.0	373	215	#N/A	5	73	28	0.3			256
27-Jul-07	216	210	7.6	#N/A	213	#N/A	5	71	28	0.26			245

Date	Hardness (CaCO3) mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L	Cd mg/L	Ca mg/L	Cr mg/L	Co mg/L	Cu mg/L	Fe mg/L	Pb mg/L	Li mg/L	Mg mg/L	Mn mg/L	Hg ug/L	Mo mg/L	Ni mg/L	P mg/L	K mg/L	Se mg/L	Si mg/L	Ag mg/L	Na mg/L	Sr mg/L	S mg/L	Tl mg/L	Sn mg/L	Ti mg/L	U mg/L	V mg/L	Zn mg/L	Zr mg/L	Major Anions	Major Cations	Diff	Diff (%)
17-Nov-06																																								
20-Nov-06																																								
22-Nov-06	110	0.08	0.21	3.64	0.0020	<0.00005	<0.00005	<0.008	0.00002	35.10000	<0.0002	0.0029	0.0081	0.203	0.00006	0.00100	4.7900	0.02	<0.05	0.0079	0.0044	<0.1	0.1680	<0.0005	1.5200	0.00002	0.40000	0.09	8.60	<0.00005	0.000410	<0.0005	0.00031	0.000860	0.00120	<0.005	1.74	2.16	-0.43	-0.11
24-Nov-06																																								
27-Nov-06																																								
29-Nov-06																																								
01-Dec-06																																								
04-Dec-06																																								
06-Dec-06																																								
08-Dec-06																																								
11-Dec-06																																								
13-Dec-06																																								
15-Dec-06	99	0.05	0.04	1.84	0.0014	<0.00005	<0.00005	<0.008	0.00001	28.10000	<0.0002	0.0020	0.0083	0.161	0.00007	0.00090	4.5700	0.02	<0.05	0.0023	0.0009	<0.1	0.1570	<0.0005	1.8800	<0.00001	0.30000	0.08	7.60	<0.00005	0.000110	<0.0005	0.00009	0.000170	0.00870	<0.005	1.65	1.79	-0.14	-0.04
18-Dec-06																																								
20-Dec-06																																								
22-Dec-06																																								
25-Dec-06																																								
27-Dec-06																																								
29-Dec-06																																								
01-Jan-07																																								
03-Jan-07																																								
05-Jan-07																																								
08-Jan-07	84	0.06	0.03	1.69	0.0011	<0.00005	<0.00005	<0.008	0.00002	26.00000	<0.0002	0.0018	0.0026	0.121	0.00002	0.00090	4.5700	0.02	<0.05	0.0021	0.0009	<0.1	0.1160	<0.0005	1.8300	<0.00001	0.26000	0.08	8.40	<0.00005	0.001300	<0.0005	0.00009	0.000260	0.00260	<0.005	1.56	1.69	-0.13	-0.04
10-Jan-07																																								
12-Jan-07																																								
15-Jan-07																																								
17-Jan-07																																								
19-Jan-07																																								
22-Jan-07																																								
24-Jan-07																																								
26-Jan-07																																								
29-Jan-07																																								
31-Jan-07	76	0.05	0.03	1.89	0.0013	<0.00005	<0.00005	0.01	0.00004	23.70000	0.0002	0.0019	0.0024	0.135	0.00006	0.00060	4.1400	0.02	<0.05	0.0015	0.0006	<0.1	0.1380	<0.0005	1.5300	0.00002	0.11000	0.08	6.20	<0.00005	0.000310	<0.0005	0.00003	0.000270	0.00450	<0.005	1.59	1.52	0.07	0.02
02-Feb-07																																								
05-Feb-07																																								
07-Feb-07																																								
09-Feb-07																																								
12-Feb-07																																								
14-Feb-07																																								
16-Feb-07																																								
19-Feb-07																																								
21-Feb-07																																								
23-Feb-07	83	0.05	0.03	1.90	0.0016	<0.00005	<0.00005	0.01	0.00001	26.80000	<0.0002	0.0014	0.0028	0.125	0.00005	0.00100	5.1500	0.02	<0.05	0.0016	<0.0005	<0.1	0.1130	<0.0005	2.0700	0.00003	0.29000	0.04	8.60	<0.00005	0.000070	<0.0005	0.00005	0.000060	0.01100	<0.005	1.54	1.86	-0.33	-0.10
26-Feb-07																																								
28-Feb-07																																								
02-Mar-07																																								
05-Mar-07																																								
07-Mar-07																																								
09-Mar-07																																								
12-Mar-07																																								
14-Mar-07																																								
16-Mar-07																																								
19-Mar-07	108	0.05	0.07	1.80	0.0020	<0.00005	<0.00005	<0.008	0.00003	34.10000	<0.0002	0.0021	0.0013	0.104	0.00004	0.00110	5.9800	0.04	<0.05	0.0024	0.0012	<0.1	0.0940	<0.0005	2.1100	<0.00001	0.18000	0.05	10.10	<0.00005	0.000050	<0.0005	0.00007	0.000380	0.00170	<0.005	1.84	2.20	-0.36	-0.09
21-Mar-07																																								
23-Mar-07																																								
26-Mar-07																																								
28-Mar-07																																								
30-Mar-07																																								
02-Apr-07																																								
04-Apr-07																																								
06-Apr-07																																								
09-Apr-07																																								
11-Apr-07	88	0.03	0.02	2.00	0.0014	<0.00005	<0.00005	0.01	0.00003	26.30000	<0.0002	0.0024	0.0016	0.180	0.00034	0.00100	5.4100	0.03	<0.05	0.0022	#N/A	<0.1	0.1610	0.0006	1.9200	0.00005	0.06000	0.05	7.70	<0.00005	0.000060	<0.0005	0.00006	0.000080	0.00380	<0.005	1.61	1.76	-0.16	-0.04
13-Apr-07																																								
16-Apr-07																																								
18-Apr-07																																								
20-Apr-07																																								
23-Apr-07																																								
25-Apr-07																																								
27-Apr-07																																								
30-Apr-07																																								
02-May-07																																								
04-May-07	94	0.04	0.02	1.95	0.0019	<0.00005	<0.00005	<0.008	0.00003	27.90000	<0.0002	0.0012	0.0043	0.100	0.00009	0.00110	5.7800	0.04	<0.05	0.0025	0.0006	<0.1	0.1520	<0.0005	2.0400	<0.00001	0.23000	0.06	7.80	<0.00005	<0.00005	<0.0005	0.00005	<0.00005	0.00200	<0.005	1.65	1.88	-0.23	-0.06
07-May-07																																								
09-May-07																																								
11-May-07																																								
14-May-07																																								
16-May-07																																								
18-May-07																																								
21-May-07																																								
23-May-07																																								
25-May-07																																								
28-May-07	104	0.03	0.02	1.80	0.0022	<0.00005	<0.00005	<0.008	0.00005	31.20000	<0.0002	0.0014	0.0075	0.074	0.00011	0.00130	6.2100	0.04	<0.05	0.0056	0.0012	<0.1	0.2130	<0.0005	2.0200	0.00001	0.35000	0.06	9.70	<0.00005	0.000050	<0.0005	0.00010	0.000140	0.00380	<0.005	2.08	2.09	-0.01	0.00
30-May-07																																								
01-Jun-07																																								
04-Jun-07																																								
06-Jun-07																																								
08-Jun-07																																								
11-Jun-07																																								
13-Jun-07																																								
15-Jun-07																																								
18-Jun-07																																								
20-Jun-07	103	0.03	0.02	2.03	0.0034	<0.00005	<0.00005	<0.008	0.00002	30.70000	<0.0002	0.0013	0.0032	0.068	0.00005	0.00120	6.4500	0.04	<0.05	0.0034	0.0006	<0.1	0.1610	<0.0005	2.1800	<0.00001	0.40000	0.07	6.50	<0.00005	0.000080	<0.0005	0.00005	0.000140	0.00150	<0.005	2.35	2.08	0.27	0.06
22-Jun-07																																								
25-Jun-07																																								
27-Jun-07																																								
29-Jun-07																																								
02-Jul-07																																								
04-Jul-07																																								
06-Jul-07																																								
09-Jul-07																																								
11-Jul-07																																								
13-Jul-07	107	0.08	0.02	1.99	0.0037	<0.00005	<0.00005	0.01	0.00016	32.10000	0.0006	0.0013	0.0048	0.098	0.00018	0.00170	6.8800	0.04	<0.05	0.0030	0.0027	<0.1	0.2380	<0.0005	2.3400	0.00005	0.39000	0.06	9.00	0.00012	0.000960	<0.0005	0.00010	<0.00005	0.00110	<0.005	2.20	2.16	0.04	0.01
16-Jul-07																																								
18-Jul-07																																								
20-Jul-07																																								
23-Jul-07																																								
25-Jul-07																																								
27-Jul-07																																								

[illegible]

Table 9-1
Humidity Cell 1 (HC1)
Upper Pud (Composite #1)
Analytical Results
Con Mine
Yellowknife, NT

Date	Cycle No.	Output Volume mL	pH	Redox mV	Cond. umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/L	Sulphate mg/L	Dissolved Oxygen mg/L	Cl mg/L	F mg/L	Redox in N2 atmosphere	Hardness (CaCO3) mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L	Cd mg/L	Ca mg/L	Cr mg/L	Co mg/L	Cu mg/L	Fe mg/L	Pb mg/L	Li mg/L	Mg mg/L	Mn mg/L	Hg ug/L	Mo mg/L	Ni mg/L	P mg/L	K mg/L	Se mg/L	Si mg/L	Ag mg/L	Na mg/L	Sr mg/L	S mg/L	Tl mg/L	Sn mg/L	Ti mg/L	U mg/L	V mg/L	Zn mg/L	Zr mg/L	Major Anions	Major Cations	Diff	Diff (%)
30-Jul-07	217	255	8.0	379	230	#N/A	3	74	39	0.25			282																																								
01-Aug-07	218	165	7.8	390	225	#N/A	4	74	44	0.2			306																																								
03-Aug-07	219	170	8.0	363	209	#N/A	4	74	29	0.25			353																																								
06-Aug-07	220	185	8.0	366	231	#N/A	3	79	26	0.25			341																																								
08-Aug-07	221	165	8.1	320	223	#N/A	2	76	28	0.2			347																																								
10-Aug-07	222	145	8.1	377	218	#N/A	8	82	31	0.2			343																																								
13-Aug-07	223	145	8.1	327	221	#N/A	3	80	27	0.25			360																																								
15-Aug-07	224	135	8.0	251	226	#N/A	4	88	38	0.2			293																																								
17-Aug-07	225	140	8.1	378	215	#N/A	3	86	37	0.25			292																																								
20-Aug-07	226	200	8.0	275	211	#N/A	2	84	40	0.2			321																																								
22-Aug-07	227	158	8.0	368	197	#N/A	4	81	36	0.2			295																																								
24-Aug-07	228	150	7.8	386	194	#N/A	4	87	32	0.25			305																																								
27-Aug-07	229	190	8.2	262	187	#N/A	3	83	33	0.25			314																																								
29-Aug-07	230	185	7.6	409	186	#N/A	6	80	32	0.25	2.30		306	120	0.03	0.03	1.85	0.0031	<0.00005	<0.00005	0.01	0.00004	34.20000	<0.0002	0.0016	0.0233	0.064	0.00040	0.00220	8.3200	0.06	<0.05	0.0041	0.0010	<0.1	0.2190	<0.0005	2.4100	<0.00001	0.37000	0.07	11.90	<0.00005	0.000120	<0.0005	0.00008	0.000060	0.00980	<0.005	2.26	2.41	-0.14	-0.03
31-Aug-07	231	200	8.0	378	165	#N/A	4	81	26	0.25			287																																								
03-Sep-07	232	440	8.1	320	162	#N/A	3	86	20	0.25			291																																								
05-Sep-07	233	190	8.0	381	165	#N/A	3	86	25	0.2			299																																								
07-Sep-07	234	250	7.8	425	156	#N/A	25	99	22	0.25			290																																								
10-Sep-07	235	180	8.1	194	180	#N/A	3	91	29	0.25			247																																								
12-Sep-07	236	195	8.0	382	145	#N/A	6	80	27	0.25			246																																								
14-Sep-07	237	240	8.0	392	150	#N/A	6	89	28	0.25			247																																								
17-Sep-07	238	200	8.3	207	185	#N/A	3	92	27	0.25			268																																								
19-Sep-07	239	215	7.9	380	180	#N/A	11	88	22	0.2			277																																								
21-Sep-07	240	225	7.8	385	218	#N/A	3	79	27	0.25			290																																								
24-Sep-07	241	260	8.2	165	219	#N/A	3	81	24	0.25			245																																								
26-Sep-07	242	210	8.0	398	206	#N/A	5	76	23	0.2			265																																								
28-Sep-07	243	200	7.9	392	204	#N/A	6	73	22	0.2			284																																								
01-Oct-07	244	200	7.8	#N/A	196	#N/A	6	74	17	0.2			265																																								
03-Oct-07	245	205	7.6	398	194	#N/A	7	75	21	0.2			347																																								
05-Oct-07	246	205	7.7	415	218	#N/A	#N/A	80	23	0.2			255																																								
08-Oct-07	247	265	7.6	413	203	#N/A	5	73	24	0.25			257																																								
10-Oct-07	248	340	8.0	390	195	#N/A	3	73	17	0.2			219																																								
12-Oct-07	249	365	7.8	412	188	#N/A	3	77	14	0.25			155																																								
15-Oct-07	250	205	7.8	152	250	#N/A	3	83	25	0.25	<0.5		266	127	0.02	0.07	2.09	0.0030	<0.00001	<0.000005	0.01	0.00004	38.30000	<0.0001	0.0018	0.0024	0.094	0.00012	0.00370	7.6000	0.06	<0.01	0.0034	0.0012	#N/A	0.1200	0.0001	2.3900	<0.000005	0.21000	0.07	10.00	0.00000	0.000120	<0.0005	0.00010	0.000300	0.00340	<0.0001	2.38	2.55	-0.17	-0.03
17-Oct-07	251	410	7.3	438	194	#N/A	6	82	16	0.25			345																																								
19-Oct-07	252	165	8.0	421	200	#N/A	3	85	18	0.25			315																																								
22-Oct-07	253	435	8.0	375	204	#N/A	3	82	18	0.2			274																																								
24-Oct-07	254	210	8.0	387	193	#N/A	3	82	23	0.25			280																																								
26-Oct-07	255	265	7.6	406	205	#N/A	4	85	20	0.25			288																																								
29-Oct-07	256	345	7.9	354	216	#N/A	3	78	21	0.25			259																																								
31-Oct-07	257	165	8.0	401	203	#N/A	3	79	28	0.3			343																																								
02-Nov-07	258	175	8.0	409	210	#N/A	3	76	22	0.25			289																																								
05-Nov-07	259	150	8.0	345	234	#N/A	3	81	24	0.2			256																																								
07-Nov-07	260	175	7.9	386	234	#N/A	4	90	25	0.25			260																																								
09-Nov-07	261	165	7.9	428	216	#N/A	4	80	26	0.2			340																																								
12-Nov-07	262	165	8.1	423	224	#N/A	3	79	33	0.3			318																																								
14-Nov-07	263	165	7.8	447	207	#N/A	3	74	30	0.2			340																																								
16-Nov-07	264	235	7.9	455	199	#N/A	3	73	25	0.25			320																																								
19-Nov-07	265	475	7.9	423	197	#N/A	3	72	18	0.25			370																																								
21-Nov-07	266	290	7.9	435	183	#N/A	8	69	22	0.25			367																																								
23-Nov-07	267	280	7.6	470	190	#N/A	4	79	16	0.25			360																																								
26-Nov-07	268	360	7.3	462	184	#N/A	7	77	14	0.25			340																																								
28-Nov-07	269	310	7.7	455	170	#N/A	6	72	13	0.25			350																																								
30-Nov-07	270	230	7.8	454	162	#N/A	3	73	13	0.25	<0.5		358	84	0.03	0.03	1.76	0.0021	<0.00001	<0.000005	0.01	0.00004	25.10000	0.0003	0.0012	0.0023	0.133	0.00011	0.00170	5.1500	0.04	<0.01	0.0018	0.0068	<0.002	0.1600	0.0001	1.8800	<0.000005	0.33000	0.05	5.02	0.00001	0.000110	<0.0005	0.00003	0.000300	0.00230	<0.0001	1.74	1.69	0.05	0.01
03-Dec-07	271	300	8.0	423	186	#N/A	3	79	15	0.25			334																																								
05-Dec-07	272	180	7.8	348	190	#N/A	4	80	20	0.25			337																																								
07-Dec-07	273	180	7.7	444	185	#N/A	5	85	17	0.25			340																																								
10-Dec-07	274	270	7.9	429	206	#N/A	3	83	19	0.25			343																																								
12-Dec-07	275	240	7.7	451	185	#N/A	4	78	19	0.25			250																																								
14-Dec-07	276	240	7.8	448	177	#N/A	2	73	24	0.25			312																																								
17-Dec-07	277	320	7.9	429	167	#N/A	2	72	19	0.25			312																																								
19-Dec-07	278	230	8.0	381	182	#N/A	3	71	21	0.25			339																																								
21-Dec-07	279	200	8.0	430	132	#N/A	3	74	30	0.25			364																																								
24-Dec-07	280	490	8.0	430	158	#N/A	2	74	32	0.25			360																																								
26-Dec-07	281	220	7.8	445	184	#N/A	3	74	18	0.25			375																																								
28-Dec-07	282	205	7.8	436	186	#N/A	2	77	23	0.3			299																																								
31-Dec-07	283	260	8.0	434	188	#N/A	2	78	24	0.3			344																																								
02-Jan-08	284	215	7.8	422	177	#N/A	3	71	20	0.25			355																																								
04-Jan-08	285	200	7.5	430	178	#N/A	3	73	21	0.25			308																																								
07-Jan-08	286	255	7.8	424	198	#N/A	3	78	23	0.20			315																																								
09-Jan-08	287	205	7.8	436	186	#N/A	4	77	22	0.3			327																																								
11-Jan-08	288	205	7.8	441	198	#N/A	3	80	30	0.25			235																																								
14-Jan-08	289	515	7.7	458	203	#N/A	5	78	24	0.25			335																																								
16-Jan-08	290	340	7.7	450	198	#N/A	6	78	20	0.25	<0.5		320	102	0.04	0.13	1.37	0.0016	<0.00001	<0.000005	<0.005	0.00005	30.40000	0.0009	0.0013	0.0016	0.103	0.00004	0.00190	6.4000	0.03	0.0200	0.0023	0.0011	0.0020	0.1000	0.0001	1.7200	0.00001	0.27000	0.06	10.00	0.00001	0.000050	<0.0005	0.00067	0.000300	0.00290	<0.0001	2.00	2.06	-0.06	-0.01
18-Jan-08	291	310	7.8	458	189	#N/A	5	79	23	0.25			300																																								
21-Jan-08	292	535	7.7	433	181	#N/A	5	71	14	0.25			310																																								
23-Jan-08	293	175	7.8	445	201	#N/A	5	75	16	0.25			328																																								
25-Jan-08	294	260	7.9	443	195	#N/A	4	75	21	0.25			328																																								
28-Jan-08	295	210	7.8	416	208	#N/A	5	79	30	0.3			341																																								
30-Jan-08	296	188	7.7	334	196	#N/A	6	79	20	0.25			234																																								
01-Feb-08	297	170	7.8	435	202	#N/A	5	80	23	0.25			320																																								
04-Feb-08	298	175	7.9	421	219	#N/A	4	80	28	0.25			366																																								
06-Feb-08	299	185	7.8	435	205	#N/A	5	76	23	0.25			369																																								
08-Feb-08	300	180	8.0	449	203	#N/A	7	78	28	0.25			315																																								
11-Feb-08	301	170	7.9	419	214	#N/A	4	75	26	0.25			334																																								
13-Feb-08	302	150	7.9	322	212	#N/A	6	76	23	0.25			270																																								
15-Feb-08	303	205	8.0	427	200	#N/A	3	74	25	0.3			340																																								
18-Feb-08	304	425	7.8	406	206	#N/A	4	75	18	0.25			327																																								
20-Feb-08	305	180	7.9	410	203	#N/A	5	75	26	0.25			310																																								
22-Feb-08	306	205	8.1	397	195	#N/A	3	79	36	0.25			341																																								
25-Feb-08	307	220	7.9	394	220	#N/A	4	83	24	0.25			329																																								
27-Feb-08	308	185	7.8	324	221	#N/A	6	85	24	0.25			299																																								
29-Feb-08	309	210	7.8	413	206	#N/A	6	81	19	0.25			290																																								
03-Mar-08	310	175	7.9	391	218	#N/A	4	82	24	0.25	<0.5		305	113	0.03	0.01	1.82	0.0014	<0.00001	<0.000005	<0.005	0.00003	32.80000	<0.0001	0.0011	0.0022	0.079	0.00007	0.00230	7.5800	0.06	<0.01	0.0031	0.0010	0.0030	0.1200	0.0001	2.0800	<0.000005	0.20000	0.05	12.00	0.00002	0.000060	<0.0005	0.00008	<0.0002	0.00160	<0.0001	2.14	2.27	-0.13	-0.03
05-Mar-08	311	205	7.7	398	215	#N/A	8	82	24	0.25			275																																								
07-Mar-08	312	375	7.9	418	203	#N/A	4	81	27	0.25			308																																								
10-Mar-08	313	170	8.1	388	262	#N/A	3	98	32	0.25			318																																								
12-Mar-08	314	270	7.9	312	254	#N/A	5	98	25	0.25			330																																								
14-Mar-08	315	190	7.8	412	230	#N/A	4	95	23	0.25			313																																								
17-Mar-08	316	300	7.9	394	227	#N/A	4	88	22	0.25			331																																								

Table II-2
Humidity Cell 2 (HC2)
Mill Lake Tailings (Composite #2)
Analytical Results
Con Mine
Yellowknife, NT

Date	Cycle No.	Output Volume mL	pH	Redox mV	Cond. µmhos/cm	Acidity (pH 4.5) mg(CaCO3)/L	Acidity (pH 8.3) mg(CaCO3)/L	Alkalinity mg(CaCO3)/L	Sulphate mg/L	Dissolved Oxygen mg/L	Cl mg/L	F mg/L	Redox in N2 atmosphere
08-Mar-06	1	250	7	467	13920	#N/A	17	65	4246		3280.00	0.23	
10-Mar-06	2	265	8	454	10430	#N/A	13	98	3218		1930.00	0.23	
13-Mar-06	3	#N/A	8	383	2590	#N/A	6	88	1360		159.00	0.22	
15-Mar-06	4	345	8	353	980	#N/A	5	122	344				
17-Mar-06	5	280	8	347	678	#N/A	4	131	193		2.20	0.26	
20-Mar-06	6	315	8	381	527	#N/A	3	133	104				
22-Mar-06	7	280	8	392	431	#N/A	2	134	69				
24-Mar-06	8	415	8	309	337	#N/A	3	131	34		0.70	0.34	
27-Mar-06	9	315	8	327	273	#N/A	2	126	18				
29-Mar-06	10	260	8	348	247	#N/A	3	119	10				
31-Mar-06	11	310	8	383	229	#N/A	3	112	7				
03-Apr-06	12	185	8	400	228	#N/A	5	109	6		<0.5	0.28	
05-Apr-06	13	285	8	377	245	#N/A	2	104	8				
07-Apr-06	14	255	8	375	240	#N/A	2	104	<1				
10-Apr-06	15	200	8	374	209	#N/A	4	100	4				
12-Apr-06	16	275	8	395	182	#N/A	2	94	4		<0.5	0.20	
14-Apr-06	17	375	8	400	176	#N/A	2	90	3				
17-Apr-06	18	275	8	412	184	#N/A	3	86	1				
19-Apr-06	19	260	8	420	166	#N/A	3	83	<1				
21-Apr-06	20	265	8	406	171	#N/A	3	85	4		0.60	0.11	
24-Apr-06	21	375	8	395	158	#N/A	<1	84	2				
26-Apr-06	22	495	8	400	150	#N/A	1	81	<1				
28-Apr-06	23	300	8	391	154	#N/A	2	81	2				
01-May-06	24	320	8	271	158	#N/A	3	78	<1				
03-May-06	25	330	8	269	153	#N/A	2	78	1				
05-May-06	26	200	8	292	155	#N/A	3	77	5				
08-May-06	27	195	8	327	160	#N/A	3	79	2				
10-May-06	28	250	8	305	154	#N/A	3	76	<1				
12-May-06	29	260	8	309	151	#N/A	4	74	5				
15-May-06	30	220	8	313	152	#N/A	2	78	4		<0.5	0.06	
17-May-06	31	220	8	284	155	#N/A	3	76	3				
19-May-06	32	235	8	286	154	#N/A	4	76	3				
23-May-06	33	175	8	272	149	#N/A	3	76	2				
24-May-06	34	250	8	253	145	#N/A	3	71	3				
26-May-06	35	210	8	279	142	#N/A	4	70	2				
29-May-06	36	265	8	320	141	#N/A	3	71	4				
31-May-06	37	235	8	276	137	#N/A	3	68	2				
02-Jun-06	38	225	8	273	135	#N/A	4	64	5				
05-Jun-06	39	300	8	272	131	#N/A	3	66	5				
07-Jun-06	40	310	8	201	133	#N/A	3	67	<1		<0.5		
09-Jun-06	41	245	8	286	129	#N/A	4	64	<1				
12-Jun-06	42	350	8	271	128	#N/A	2	62	<1				
14-Jun-06	43	255	8	264	128	#N/A	4	64	<1				
16-Jun-06	44	225	8	258	122	#N/A	4	62	<1				
19-Jun-06	45	330	8	271	125	#N/A	3	63	2				
21-Jun-06	46	255	8	268	120	#N/A	3	62	<1				
23-Jun-06	47	290	8	262	119	#N/A	2	62	2				
26-Jun-06	48	265	8	257	110	#N/A	2	59	<1				
28-Jun-06	49	190	8	271	118	#N/A	2	60	<1				
30-Jun-06	50	230	8	240	124	#N/A	2	60	<1		<0.5		
04-Jul-06	51	450	8	262	120	#N/A	1	59	<1				
07-Jul-06	52	160	8	222	117	#N/A	3	59	<1				
10-Jul-06	53	210	8	259	121	#N/A	2	59	<1				
12-Jul-06	54	260	8	250	120	#N/A	3	59	<1				
14-Jul-06	55	260	8	246	110	#N/A	4	56	1				
17-Jul-06	56	216	8	218	114	#N/A	4	57	1				
19-Jul-06	57	216	8	231	110	#N/A	3	57	<1				
21-Jul-06	58	270	8	228	106	#N/A	4	56	2				
24-Jul-06	59	310	7	226	116	#N/A	5	47	<1				
26-Jul-06	60	235	8	232	106	#N/A	4	57	<1		<0.5		
28-Jul-06	61	2115	8	227	103	#N/A	4	50	3				
31-Jul-06	62	370	7	258	109	#N/A	4	53	1				
02-Aug-06	63	200	7	246	103	#N/A	3	54	<1				
04-Aug-06	64	180	7	212	100	#N/A	6	54	3				
07-Aug-06	65	310	7	236	107	#N/A	5	53	<1				
09-Aug-06	66	180	7	236	100	#N/A	4	52	<1				
11-Aug-06	67	350	7	209	98	#N/A	4	51	<1				
13-Aug-06	68	230	7	167	114	#N/A	3	50	7	6			
15-Aug-06	69	175	7	203	98	#N/A	6	51	4	5.8			
18-Aug-06	70	162	7	213	93	#N/A	6	53	3	3.50	<0.5		
20-Aug-06	71	305	7	185	93	#N/A	5	52	5	4.6			
22-Aug-06	72	195	7	242	86	#N/A	11	54	2	5.5			
25-Aug-06	73	245	7	233	90	#N/A	10	54	1	5.2			
27-Aug-06	74	265	7	237	89	#N/A	10	54	<1	4.5			
29-Aug-06	75	185	7	229	86	#N/A	7	50	<1	5.4			
01-Sep-06	76	300	7	286	91	#N/A	6	49	<1	4.4			
05-Sep-06	77	308	7	220	89	#N/A	5	47	<1	4.5			
07-Sep-06	78	150	8	226	97	#N/A	1	50	<1	5.4			
08-Sep-06	79	195	8	228	93	#N/A	3	48	<1	5			
11-Sep-06	80	405	8	226	85	#N/A	4	48	<1	5.70	<0.5		
13-Sep-06	81	310	7	220	90	#N/A	6	46	<1	4.8			
15-Sep-06	82	210	7	207	89	#N/A	4	48	2	4.9			
18-Sep-06	83	265	8	224	89	#N/A	3	47	2	5.5			
20-Sep-06	84	220	8	235	93	#N/A	3	46	2	4.5			
22-Sep-06	85	200	7	307	89	#N/A	3	47	3	5			
25-Sep-06	86	255	7	252	96	#N/A	3	48	<1	5.25			
27-Sep-06	87	210	8	243	93	#N/A	4	47	no sample	5.5			
29-Sep-06	88	195	7	258	88	#N/A	4	48	<1	6.2			
02-Oct-06	89	245	7	245	94	#N/A	6	46	<1	6			
04-Oct-06	90	195	7	263	91	#N/A	6	48	3	5.60	<0.5		
06-Oct-06	91	220	8	281	90	#N/A	3	48	2	4.8			
09-Oct-06	92	210	7	297	84	#N/A	6	42	2	2.75			
11-Oct-06	93	135	8	264	77	#N/A	3	39	3	5.7			
13-Oct-06	94	165	7	274	83	#N/A	5	40	IP	5.7			
16-Oct-06	95	190	7	264	93	#N/A	5	40	IP	4.8			
18-Oct-06	96	185	8	281	67	#N/A	4	45	<1	5.2			
20-Oct-06	97	215	7	338	36	#N/A	3	18	<1	5.6			
23-Oct-06	98	130	8	365	106	#N/A	3	50	4	5.6			
25-Oct-06	99	160	8	389	122	#N/A	3	65	6	5.6			
27-Oct-06	100	170	8	370	123	#N/A	5	62	4	5.80	<0.5		
30-Oct-06	101	220	8	317	125	#N/A	3	60	4	5.9			
01-Nov-06	102	150	8	299	112	#N/A	3	57	5	5.8			
03-Nov-06	103	135	8	427	104	#N/A	4	41	4	5.7			
06-Nov-06	104	160	8	330	115	#N/A	3	58	3	6.2			
08-Nov-06	105	155	8	269	111	#N/A	2	53	5	5			
10-Nov-06	106	135	8	300	118	#N/A	4	53	3	5			
13-Nov-06	107	130	8	273	108	#N/A	4	51	4	4.9			

Date	Hardness (CaCO3) mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L	Cd mg/L	Ca mg/L	Cr mg/L	Co mg/L	Cu mg/L	Fe mg/L	Pb mg/L	Li mg/L	Mg mg/L	Mn mg/L	Hg µg/L	Mo mg/L	Ni mg/L	P mg/L	K mg/L	Se mg/L	Si mg/L	Ag mg/L	Na mg/L	Sr mg/L	S mg/L	Tl mg/L	Sn mg/L	Ti mg/L	U mg/L	V mg/L	Zn mg/L	Zr mg/L	Major Anions	Major Cations	Diff	Diff (%)
08-Mar-06	6000.00	0.01	0.17	0.22	0.0337	<0.0005	<0.0005	0.17	0.00320	722.00	0.0030	0.0747	0.028	0.16	0.00180	0.0620	1030.00	0.1370	0.11	0.1240	0.0340	<0.1	54.00	0.0130	1.90	0.00080	1060.00	8.19	1150.00	<0.0005	0.00110	0.0170	0.001100	0.01000	0.1010	<0.005	162.90	146.89	16.01	0.05
10-Mar-06	4600.00	<0.002	0.16	0.22	0.0264	<0.0005	<0.0005	0.18	0.00220	622.00	0.0090	0.0578	0.023	0.08	0.00080	0.0570	745.00	0.1670	<0.05	0.1160	0.0290	<0.1	36.20	0.0180	2.03	0.00020	735.00	5.29	1100.00	<0.0005	<0.0005	0.0150	0.000600	<0.0005	0.0820	0.01	123.47	124.31	-0.85	0.00
13-Mar-06	1500.00	<0.002	0.17	0.18	0.0112	<0.0005	<0.0005	0.20	0.00050	348.00	0.0040	0.0116	0.014	0.02	0.00030	0.0280	151.00	0.0851	<0.05	0.1000	0.0070	<0.1	12.30	<0.005	1.86	<0.0001	83.60	2.07	458.00	<0.0005	<0.0005	<0.005	0.000600	0.00160	0.0190	<0.005	34.76	33.43	1.33	0.02
17-Mar-06	300.00	0.01	0.12	0.19	0.0073	<0.00005	<0.00005	0.19	0.00029	92.80	0.0003	0.0044	0.008	0.01	0.00257	0.0152	17.40	0.0579	<0.05	0.0685	0.0026	<0.1	4.75	0.0005	1.84	<0.00001	2.83	0.49	57.80	<0.00005	0.00020	0.0017	0.000130	0.00017	0.0083	<0.005	8.71	8.19	0.52	0.03
24-Mar-06	180.00	0.01	0.06	0.27	0.0046	<0.00005	<0.00005	0.10	0.00017	46.80	0.0004	0.0036	0.005	0.01	0.00009	0.0125	10.50	0.0866	<0.05	0.0501	0.0019	<0.1	3.38	<0.0005	1.63	<0.00001	1.08	0.28	11.10	<0.00005	0.00015	0.0010	0.000050	0.00017	0.0070	<0.005	3.36	3.24	0.12	0.02
03-Apr-06	110.00	0.01	0.01	0.44	0.0042	<0.00005	0.00014	0.06	0.00013	31.60	0.0005	0.0030	0.005	0.01	0.00022	0.0078	7.81	0.0545	<0.5	0.0443	0.0016	<0.1	2.79	<0.0005	1.32	<0.00001	0.86	0.19	1.50	<0.00005	0.00017	<0.0005	0.000020	0.00008	0.0087	<0.005	2.36	2.24	0.12	0.03
12-Apr-06	100.00	0.01	0.01	0.86	0.0037	<0.00005	<0.00005	0.04	0.00015	28.50	0.0006	0.0034	0.016	0.02	0.00549	0.0063	7.48	0.0487	<0.05	0.0458	0.0009	<0.1	2.83	<0.0005	1.37	<0.00001	0.45	0.17	1.10	<0.00005	0.00013	<0.0005	0.000030	0.00009	0.0029	<0.005	1.98	2.11	-0.13	-0.03
21-Apr-06	82.00	0.01	0.02	0.48	0.0032	<0.00005	0.00007	0.04	0.00009	23.30	0.0012	0.0022	0.023	0.03	0.00311	0.0051	5.69	0.0379	<0.05	0.0262	0.0010	<0.1	2.29	0.0007	1.16	0.00013	0.30	0.14	0.80	<0.00005	0.00013	<0.0005	0.000040	0.00007	0.0010	<0.005	1.70	1.56	0.14	0.04
15-May-06	78.00	0.01	0.04	0.45	0.0027	<0.00005	<0.00005	0.02	0.00010	22.50	0.0008	0.0029	0.241	0.14	0.00004	0.0042	5.51	0.0199	<0.05	0.0226	0.0013	<0.1	1.84	<0.0005	1.30	0.00002	0.46	0.12	1.00	<0.00005	0.00011	<0.0005	0.000060	0.00008	0.0020	<0.005	1.84	1.80	0.04	0.01
07-Jun-06	70.00	0.02	0.04	0.45	0.0029	<0.00005	<0.00005	0.02	0.00005	20.10	<0.0002	0.0030	0.226	0.32	0.00032	0.0039	4.72	0.0217	<0.05	0.0121	0.0006	<0.1	1.20	<0.0005	1.16	0.00003	0.22	0.11	0.50	<0.00005	0.00011	<0.0005	0.000060	0.00017	0.0018	<0.005	1.33	1.40	-0.07	-0.03
30-Jun-06	65.00	0.03	0.04	0.50	0.0024	<0.00005	<0.00005	0.02	0.00004	18.90	<0.0002	0.0036	0.193	0.28	0.00010	0.0036	4.39	0.0173	<0.05	0.0118	0.0025	<0.1	0.59	<0.0005	1.12	0.00002	0.18	0.10	0.86	<0.00005	0.00011	<0.0005	0.000050	0.00018	0.0011	<0.005	1.20	1.32	-0.11	-0.04
26-Jul-06	60.00	0.02	0.03	0.54	0.0019	<0.00005	<0.00005	0.01	0.00003	17.90	<0.0002	0.0031	0.089	0.23	0.00010	0.0029	3.87	0.0172	<0.05	0.0060	<0.0005	<0.1	0.75	<0.0005	1.11	0.00001	0.14	0.09	0.50	<0.00005	0.00009	<0.0005	0.000120	0.00016	0.0024	<0.005	1.14	1.20	-0.07	-0.03
18-Aug-06	49.00	0.02	0.02	0.52	0.0015	<0.00005	<0.00005	0.01	0.00004	14.40	0.0004	0.0023	0.007	0.22	0.00046	0.0016	3.21	0.0138	<0.05	0.0050	<0.0005	<0.1	0.62	<0.0005	0.93	0.00007	0.18	0.08	0.50	<0.00005	0.00005	0.0010	0.000060	0.00005	0.0100	<0.005	1.06	0.99	0.07	0.04
11-Sep-06	47.00	0.02	0.02	0.57	0.0015	<0.00005	<0.00005	0.01	0.00002	13.80	<0.0002	0.0024	0.007	0.21	<0.00002	0.0016	3.06	0.0145	<0.05	0.0040	<0.0005	<0.1	0.50	<0.0005	0.95	0.00006	0.21	0.07	0.40	<0.00005	<0.00005	<0.0005	0.000050	<0.00005	0.0030	<0.005	0.86	0.85	0.01	0.01
04-Oct-06	52.00	0.02	0.02	0.63	0.0015	<0.00005	<0.00005	0.01	0.00002	15.30	0.0006	0.0027	0.007	0.25	0.00006	0.0020	3.33	0.0149	<0.05	0.0040	0.0006	<0.1	0.41	0.0029	1.14	0.00015	0.14	0.07	0.40	<0.00005	0.00008	0.0006	0.000030	0.00009	0.0017	<0.005	0.95	1.04	-0.09	-0.04
27-Oct-06	66.00	0.03	0.10	0.87	0.0048	<0.00005	<0.00005	0.02	0.00004	18.30	0.0002	0.0029	0.009	0.30	0.00005	0.0042	4.80	0.0382	<0.05	0.0061	<0.0005	<0.1	0.43	0.0014	1.17	0.00003	0.22	0.10	1.00	<0.00005	0.00020	0.0006	0.000050	0.00029	0.0016	<0.005	1.24	1.32	-0.08	-0.03

Table II-2
Humidity Cell 2 (HC2)
Neil Lake Tailings (Composite #2)
Analytical Results
Con Mine
Yellowknife, NT

Date	Cycle No.	Output Volume mL	pH	Redox mV	Cond umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/L	Sulphate mg/L	Dissolved Oxygen mg/L	Cl mg/L	F mg/L	Redox in N2 atmosphere
15-Nov-06	108	160	8	259	103	#N/A	3	52	4	5.3			292
17-Nov-06	109	455	7	323	113	#N/A	5	53	6	5.9			160
20-Nov-06	110	530	8	229	103	#N/A	2	51	4	4.20	<0.5		155
22-Nov-06	111	270	7	228	117	#N/A	3	52	5	3.5			305
24-Nov-06	112	270	8	213	116	#N/A	8	60	4	4			241
27-Nov-06	113	165	8	278	116	#N/A	7	60	7	5			225
29-Nov-06	114	255	8	310	107	#N/A	6	53	4	4			245
01-Dec-06	115	160	8	311	102	#N/A	#N/A	64	2	4			275
04-Dec-06	116	395	8	302	109	#N/A	#N/A	66	6	3.5			265
06-Dec-06	117	205	8	335	108	#N/A	2	61	6	4.7			295
08-Dec-06	118	210	8	293	106	#N/A	4	53	3	4.7			275
11-Dec-06	119	275	8	330	111	#N/A	4	52	5	4.5			365
13-Dec-06	120	255	7	343	112	#N/A	4	45	6	4.38	<0.5		180
15-Dec-06	121	205	8	349	105	#N/A	3	55	6	4.4			250
18-Dec-06	122	380	8	292	108	#N/A	3	54	5	1.5			120
20-Dec-06	123	650	8	348	106	#N/A	3	55	6	1.55			205
22-Dec-06	124	385	8	292	105	#N/A	3	54	9	1.8			170
25-Dec-06	125	155	8	337	103	#N/A	2	53	2	insufficient sample			235
27-Dec-06	126	490	8	319	119	#N/A	2	67	2	0.5			185
29-Dec-06	127	400	8	385	118	#N/A	3	62	2	0.25			189
01-Jan-07	128	210	8	310	147	#N/A	2	72	4	0.80			199
03-Jan-07	129	295	8	238	125	#N/A	2	60	3	0.0			210
05-Jan-07	130	400	8	363	117	#N/A	1	60	4	0.30	<0.5		215
08-Jan-07	131	245	8	260	116	#N/A	2	61	4	0.25			199
10-Jan-07	132	165	8	332	116	#N/A	2	63	3	0.25			253
12-Jan-07	133	430	8	348	111	#N/A	4	57	4	0.35			217
15-Jan-07	134	275	8	227	111	#N/A	2	54	2	1.55			286
17-Jan-07	135	575	8	300	106	#N/A	3	63	3	1.05			245
19-Jan-07	136	215	8	335	135	#N/A	3	66	2	0.75			254
22-Jan-07	137	455	8	294	130	#N/A	3	62	4	0.65			330
24-Jan-07	138	340	8	349	118	#N/A	4	67	3	0.5			262
26-Jan-07	139	325	8	349	117	#N/A	9	60	5	0.6			251
29-Jan-07	140	300	7	350	121	#N/A	8	55	5	0.75	<0.5		255
31-Jan-07	141	235	8	367	118	#N/A	8	58	6	0.3			270
02-Feb-07	142	200	8	379	120	#N/A	4	59	5	0.25			256
05-Feb-07	143	275	8	373	110	#N/A	4	58	4	0.4			171
07-Feb-07	144	245	8	382	121	#N/A	4	58	4	0.2			246
09-Feb-07	145	250	8	366	116	#N/A	11	63	4	0.26			236
12-Feb-07	146	245	7	368	116	#N/A	5	54	4	0.75			345
14-Feb-07	147	300	8	359	110	#N/A	3	56	4	0.6			245
16-Feb-07	148	420	8	366	103	#N/A	4	53	3	0.65			285
19-Feb-07	149	410	8	355	106	#N/A	4	51	3	1.2			275
21-Feb-07	150	290	8	381	106	#N/A	4	51	2	0.95	<0.5		250
23-Feb-07	151	380	7	226	111	#N/A	5	53	<1	1.4			286
26-Feb-07	152	270	7	352	106	#N/A	8	52	2	1.35			280
28-Feb-07	153	180	7	312	104	#N/A	5	54	3	1.65			225
02-Mar-07	154	245	8	374	107	#N/A	3	52	3	2.8			315
05-Mar-07	155	530	8	369	98	#N/A	3	55	3	2.15			345
07-Mar-07	156	205	8	352	94	#N/A	6	59	3	2.2			280
09-Mar-07	157	180	8	443	99	#N/A	1	49	<1	1.75			288
12-Mar-07	158	195	8	402	103	#N/A	3	52	<1	0.5			265
14-Mar-07	159	265	8	306	100	#N/A	3	50	<1	0.5			300
16-Mar-07	160	380	8	410	96	#N/A	3	49	<1	0.40	<0.5		310
19-Mar-07	161	440	8	341	98	#N/A	3	50	1	0.45			320
21-Mar-07	162	205	8	301	100	#N/A	3	51	1	0.5			360
23-Mar-07	163	325	8	277	101	#N/A	3	49	1	0.65			310
26-Mar-07	164	445	8	286	98	#N/A	3	47	<1	0.45			320
28-Mar-07	165	200	8	276	85	#N/A	2	47	2	0.5			315
30-Mar-07	166	150	8	316	134	#N/A	3	47	#N/A	0.5			295
02-Apr-07	167	455	8	340	94	#N/A	2	50	4	0.4			285
04-Apr-07	168	170	8	387	103	#N/A	2	48	4	0.45			330
06-Apr-07	169	220	7	336	106	#N/A	6	46	4	0.5			245
09-Apr-07	170	570	8	392	107	#N/A	3	51	2	0.40	<0.5		190
11-Apr-07	171	205	8	315	101	#N/A	3	48	2	0.3			259
13-Apr-07	172	90	8	369	110	#N/A	3	48	3	0.3			246
16-Apr-07	173	155	8	345	111	#N/A	3	49	3	0.25			235
18-Apr-07	174	160	8	364	109	#N/A	2	50	2	0.3			233
20-Apr-07	175	175	8	400	108	#N/A	4	50	3	0.25			220
23-Apr-07	176	270	8	248	99	#N/A	1	48	5	0.25			169
25-Apr-07	177	225	8	307	97	#N/A	2	48	3	0.3			205
27-Apr-07	178	235	8	288	94	#N/A	2	48	<1	0.3			255
30-Apr-07	179	310	8	290	96	#N/A	3	51	2	0.35			215
02-May-07	180	250	8	305	109	#N/A	2	48	<1	0.25	<0.5		210
04-May-07	181	250	8	353	104	#N/A	2	51	2	0.25			194
07-May-07	182	165	8	315	102	#N/A	2	51	3	0.25			205
09-May-07	183	330	8	354	94	#N/A	4	48	3	0.25			330
11-May-07	184	355	8	350	97	#N/A	2	51	<1	0.35			340
14-May-07	185	500	8	259	114	#N/A	2	52	<1	0.25			167
16-May-07	186	155	8	330	106	#N/A	2	51	4	0.35			220
18-May-07	187	210	8	371	105	#N/A	2	52	4	0.3			255
21-May-07	188	220	8	335	102	#N/A	2	51	1	0.25			235
23-May-07	189	215	8	342	115	#N/A	2	51	4	0.25			237
25-May-07	190	235	8	356	112	#N/A	2	51	3	0.25	#N/A		243
28-May-07	191	175	8	334	109	#N/A	2	51	4	0.25			245
30-May-07	192	340	8	310	104	#N/A	2	52	3	0.25			260
01-Jun-07	193	365	8	364	114	#N/A	2	53	3	0.2			290
04-Jun-07	194	270	8	318	109	#N/A	2	52	5	0.3			290
06-Jun-07	195	185	8	358	102	#N/A	2	52	5	0.2			300
08-Jun-07	196	190	8	293	99	#N/A	3	51	6	0.2			337
11-Jun-07	197	270	8	295	107	#N/A	2	51	5	0.25			282
13-Jun-07	198	170	8	283	94	#N/A	2	51	3	0.25			256
15-Jun-07	199	190	8	372	107	#N/A	3	49	5	0.25			265
18-Jun-07	200	285	8	304	114	#N/A	2	54	4	0.20	<0.5		235
20-Jun-07	201	230	8	313	114	#N/A	2	54	3	0.25			287
22-Jun-07	202	240	8	315	116	#N/A	1	55	2	0.2			225
25-Jun-07	203	365	8	356	110	#N/A	2	58	3	0.2			236
27-Jun-07	204	345	8	357	112	#N/A	2	54	<1	0.3			228
29-Jun-07	205	365	8	348	101	#N/A	5	53	5	0.25			195
02-Jul-07	206	340	8	337	115	#N/A	3	55	4	0.25			258
04-Jul-07	207	230	8	328	115	#N/A	3	50	4	0.35			255
06-Jul-07	208	240	8	-1	109	#N/A	3	56	2	0.25			250
09-Jul-07	209	305	8	325	105	#N/A	3	58	2	0.25			250
11-Jul-07	210	270	8	373	103	#N/A	9	63	1	0.25	<0.5		275
13-Jul-07	211	120	8	337	119	#N/A	6	56	2	0.3			229
16-Jul-07	212	200	8	336	104	#N/A	4	45	3	0.25			220
18-Jul-07	213	165	8	375	102	#N/A	3	47	3	0.2			270
20-Jul-07	214	160	8	305	104	#N/A	7	50	3	0.25			293
23-Jul-07	215	230	8	349	110	#N/A	4	48	3	0.25			236
25-Jul-07	216	180	8	366	109	#N/A	5	47	4	0.25			320

Date	Hardness (CaCO3) mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L	Cd mg/L	Ca mg/L	Cr mg/L	Co mg/L	Cu mg/L	Fe mg/L	Pb mg/L	Li mg/L	Mg mg/L	Mn mg/L	Hg ug/L	Mo mg/L	Ni mg/L	P mg/L	K mg/L	Se mg/L	Si mg/L	Ag mg/L	Na mg/L	Sr mg/L	S mg/L	Tl mg/L	Sn mg/L	Ti mg/L	U mg/L	V mg/L	Zn mg/L	Zr mg/L	Major Anions	Major Cations	Diff	Diff (%)
20-Nov-06	53.00	0.02	0.01	0.73	0.0011	<0.00005	<0.00005	0.01	0.00004	15.30	<0.0002	0.0017	0.010	0.14	0.00007	0.0023	3.71	0.0169	<0.05	0.0019	<0.0005	<0.1	0.58	0.0005	1.06	0.00010	0.20	0.07	0.40	<0.00005	0.00007	<0.0005	0.000050	0.00009	0.0033	<0.005	1.10	1.08	0.02	0.01
13-Dec-06	56.00	0.01	0.01	0.36	0.0014	<0.00005	<0.00005	<0.008	0.00002	15.80	<0.0002	0.0016	0.013	0.13	0.00001	0.0021	3.93	0.0289	<0.05	0.0025	0.0016	<0.1	0.56	<0.0005	1.13	0.00003	0.28	0.07	3.00	<0.00005	0.00074	<0.0005	0.000050	0.00006	0.0019	<0.005	1.15	1.12	0.02	0.01
05-Jan-07	61.00	0.02	0.03	0.59	0.0011	<0.00005	<0.00005	<0.008	0.00004	16.60	<0.0002	0.0032	0.007	0.27	<0.00002	0.0021	4.61	0.0303	<0.05	0.0014	<0.0005	<0.1	0.36	0.0010	1.22	0.00047	0.26	0.07	0.60	<0.00005	0.00014	<0.0005	0.000050	0.00020	0.0016	<0.005	1.28	1.21	0.06	0.02
29-Jan-07	57.00	0.05	0.02	0.59	0.0017	<0.00005	<0.00005	0.02	0.00003	14.80	0.0008	0.0037	0.006	0.56	0.00006	0.0023	4.82	0.0310	<0.05	0.0013	<0.0005	<0.1	0.26	0.0008	1.00	0.00001	0.15	0.06	0.70	<0.00005	0.00184	<0.0005	0.000050	0.00016	0.0073	<0.005	1.21	1.15	0.06	0.03
21-Feb-07	57.10	0.02	0.02	0.70	0.0015	<0.00005	<0.00005	0.01	0.00003	15.00	<0.0002	0.0021	0.012	0.36	0.00005	0.0021	4.71	0.0195	<0.05	0.0012	<0.0005	<0.1	0.28	0.0006	1.26	0.00039	0.23	0.06	0.50	<0.00005	<0.00005	<0.0005	0.000050	0.00009	0.0056	<0.005	1.06	1.15	-0.09	-0.04
16-Mar-07	56.10	0.02	0.02	0.74	0.0016	<0.00005	<0.00005	<0.008	0.00005	14.40	<0.0002	0.0016	0.009	0.31	0.00068	0.0022	4.87	0.0215	<0.05	0.0014	<0.0005	<0.1	0.31	0.0008	1.20	0.00002	0.17	0.06	0.70	0.000060	0.00005	<0.0005	0.000050	0.00005	0.0058	<0.005	0.99	1.12	-0.15	-0.07
09-Apr-07	51.70	0.02	0.01	0.81	0.0015	<0.00005	<0.00005	<0.008	0.00004	13.20	<0.0002	0.0014	0.005	0.21	0.00019	0.0015	4.56	0.0157	<0.05	0.0013	<0.0005	<0.1	0.25	0.0008	1.20	0.00012	0.06	0.06	0.60	<0.00005	<0.00005	<0.0005	0.000040	0.00006	0.0014	<0.005	1.02	1.04	-0.02	-0.01
02-May-07	48.10	0.02	0.01	0.81	0.0014	<0.00005	<0.00005	<0.008	0.00002	12.50	<0.0002	0.0014	0.003	0.19	0.00007	0.0015	4.36	0.0155	<0.05	0.0019	<0.0005	<0.1	0.30	<0.0005	1.11	0.00006	0.17	0.07	0.60	<0.00005	0.00013	<0.0005	0.000050	<0.00005	0.0022	<0.005	0.96	0.98	-0.03	-0.01
25-May-07	52.10	0.03	0.02	0.98	0.0015	<0.00005	<0.00005	<0.008	0.00002	13.30	<0.0002	0.0013	0.003	0.16	0.00003	0.0022	4.62	0.0143	<0.05	0.0021	<0.0005	<0.1	0.34	0.0027	1.30	0.00003	0.16	0.07	0.60	<0.00005	0.00005	<0.0005	0.000040	0.00010	0.0016	<0.005	1.01	1.07	-0.06	-0.03
18-Jun-07	50.30	0.01	0.01	0.89	0.0061	<0.00005	<0.00005	<0.008	0.00002	12.80	<0.0002	0.0012	0.009	0.12	0.00003	0.0016	4.49	0.0121	<0.05	0.0020	0.0005	<0.1	0.41	0.0009	1.13	0.00007	0.24	0.06	0.60	<0.00005	0.00010	<0.0005	0.000050	0.00005	0.0015	<0.005	1.06	1.02	0.06	0.03
11-Jul-07	66.00	0.01	0.01	0.86	0.0018	<0.00005	<0.00005	0.01	0.00003	14.30	<0.0002	0.0012	0.009	0.16	0.00004	0.0022	5.41	0.0144	<0.05	0.0020	<0.0005	<0.1	0.31	<0.0005	1.29	0.00007	0.14	0.07	0.50	<0.00005	0.00039	<0.0005	0.000050	<0.00005	0.0018	<0.005	1.23	1.18	0.05	0.04

Table II-2
Humidity Cell 2 (HC2)
Nell Lake Tailings (Composite #2)
Analytical Results
Con Mine
Yellowknife, NT

Date	Cycle No.	Output Volume mL	pH	Redox mV	Cond. umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/L	Sulphate mg/L	Dissolved Oxygen mg/L	Cl mg/L	F mg/L	Redox in N2 atmosphere	Hardness (CaCO3) mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L	Cd mg/L	Ca mg/L	Cr mg/L	Co mg/L	Cu mg/L	Fe mg/L	Pb mg/L	Li mg/L	Mg mg/L	Mn mg/L	Hg ug/L	Mo mg/L	Ni mg/L	P mg/L	K mg/L	Se mg/L	Si mg/L	Ag mg/L	Na mg/L	Sr mg/L	S mg/L	Tl mg/L	Sn mg/L	Ti mg/L	U mg/L	V mg/L	Zn mg/L	Zr mg/L	Major Anions	Major Cations	Diff	Diff (%)
27-Jul-07	217	215	8	399	103	#N/A	4	47	3	0.2			352																																								
30-Jul-07	218	265	8	382	112	#N/A	3	52	1	0.25			326																																								
01-Aug-07	219	170	8	373	110	#N/A	4	49	2	0.25			355																																								
03-Aug-07	220	170	8	363	101	#N/A	3	50	1	0.2			369																																								
06-Aug-07	221	205	8	353	110	#N/A	2	49	<1	0.3			334																																								
08-Aug-07	222	170	8	312	106	#N/A	2	50	<1	0.2			350																																								
10-Aug-07	223	165	8	371	105	#N/A	7	52	3	0.3			360																																								
13-Aug-07	224	195	8	322	102	#N/A	2	48	2	0.25			362																																								
15-Aug-07	225	140	8	313	91	#N/A	2	50	2	0.2			331																																								
17-Aug-07	226	150	8	373	86	#N/A	2	50	5	0.2			330																																								
20-Aug-07	227	200	8	320	94	#N/A	2	49	4	0.25			355																																								
22-Aug-07	228	160	8	354	90	#N/A	2	51	1	0.2			281																																								
24-Aug-07	229	165	8	378	93	#N/A	4	45	3	0.25			335																																								
27-Aug-07	230	170	8	330	84	#N/A	4	55	2	0.20	<0.5		309	50.80	0.01	0.01	1.06	0.0037	<0.00005	<0.00005	<0.008	0.00003	12.40	0.0002	0.0013	0.014	0.17	0.00016	0.0021	4.84	0.0155	<0.05	0.0021	<0.0005	<0.1	0.32	<0.0009	1.28	0.00002	0.53	0.07	0.60	<0.00005	<0.00005	<0.0005	0.000040	<0.00005	0.0041	<0.005	1.11	1.04	0.07	0.03
29-Aug-07	231	230	8	375	85	#N/A	5	52	2	0.2			315																																								
31-Aug-07	232	365	8	368	77	#N/A	3	49	3	0.2			291																																								
03-Sep-07	233	455	8	340	74	#N/A	3	50	2	0.2			306																																								
05-Sep-07	234	195	8	371	75	#N/A	3	47	3	0.25			292																																								
07-Sep-07	235	255	8	383	74	#N/A	22	64	2	0.28			260																																								
10-Sep-07	236	135	8	240	73	#N/A	3	45	3	0.28			297																																								
12-Sep-07	237	210	8	364	67	#N/A	5	48	3	0.28			229																																								
14-Sep-07	238	260	8	382	66	#N/A	5	49	4	0.25			239																																								
17-Sep-07	239	215	8	278	68	#N/A	2	52	<0	0.2			259																																								
19-Sep-07	240	225	8	341	65	#N/A	8	50	1	0.2			239																																								
21-Sep-07	241	235	8	357	104	#N/A	3	50	6	0.25			240																																								
24-Sep-07	242	260	8	253	109	#N/A	3	51	4	0.2			228																																								
26-Sep-07	243	220	8	394	104	#N/A	5	49	2	0.2			258																																								
28-Sep-07	244	210	8	385	102	#N/A	6	45	2	0.2			262																																								
01-Oct-07	245	200	8	#N/A	98	#N/A	6	46	1	0.28			270																																								
03-Oct-07	246	210	8	375	99	#N/A	8	50	2	0.25			235																																								
05-Oct-07	247	215	8	392	112	#N/A	#N/A	55	2	0.2			230																																								
08-Oct-07	248	350	8	383	103	#N/A	4	47	2	0.2			259																																								
09-Oct-07	249	330	8	386	103	#N/A	3	47	4	0.25			190																																								
11-Oct-07	250	265	8	401	104	#N/A	3	50	<1	0.33	<0.5		170	53.30	0.03	0.02	1.14	0.0015	<0.00001	<0.000005	0.01	0.00003	13.30	<0.0001	0.0008	0.005	0.18	0.00010	0.0016	5.37	0.0130	<0.01	0.0012	0.0007	#N/A	0.25	0.0003	1.34	0.00001	0.20	0.06	<3	0.000008	0.00005	<0.0005	0.000031	<0.0002	0.0026	<0.0001	1.01	1.07	-0.07	-0.03
15-Oct-07	251	250	8	305	101	#N/A	2	48	3	0.28			395																																								
17-Oct-07	252	545	7	431	87	#N/A	5	50	<1	0.25			330																																								
19-Oct-07	253	185	8	416	91	#N/A	3	47	1	0.28			320																																								
22-Oct-07	254	445	8	379	93	#N/A	3	48	<1	0.28			327																																								
24-Oct-07	255	210	8	399	93	#N/A	3	48	4	0.28			342																																								
26-Oct-07	256	165	8	402	85	#N/A	3	47	3	0.2			295																																								
29-Oct-07	257	310	8	386	102	#N/A	3	48	2	0.28			270																																								
31-Oct-07	258	150	8	405	87	#N/A	3	46	3	0.25			345																																								
02-Nov-07	259	175	8	403	85	#N/A	2	41	0	0.25			275																																								
05-Nov-07	260	160	8	346	99	#N/A	3	40	2	0.2			335																																								
07-Nov-07	261	190	7	413	106	#N/A	6	37	3	0.25			367																																								
09-Nov-07	262	215	8	432	87	#N/A	3	44	3	0.25			348																																								
12-Nov-07	263	210	8	421	83	#N/A	2	46	2	0.25			365																																								
14-Nov-07	264	220	8	440	88	#N/A	2	45	3	0.25			388																																								
16-Nov-07	265	210	8	442	83	#N/A	3	42	3	0.25			295																																								
19-Nov-07	266	225	8	420	87	#N/A	3	44	3	0.2			336																																								
21-Nov-07	267	285	8	430	84	#N/A	4	41	3	0.28			363																																								
23-Nov-07	268	285	8	458	82	#N/A	3	47	0	0.25			355																																								
26-Nov-07	269	355	7	456	88	#N/A	5	44	2	0.25			335																																								
28-Nov-07	270	305	7	458	88	#N/A	4	46	2	0.28	<0.5		255	44.40	0.02	0.03	0.94	0.0020	<0.00001	<0.000005	0.01	0.00003	10.10	<0.0001	0.0007	0.004	0.15	0.00007	0.0014	4.86	0.0083	<0.01	0.0009	0.0008	<0.002	0.28	0.0006	1.00	<0.000005	0.19	0.05	<3	0.000012	0.00007	<0.0005	0.000037	0.00030	0.0033	<0.0001	0.85	0.90	0.03	0.02
30-Nov-07	271	225	8	440	85	#N/A	3	49	1	0.25			315																																								
03-Dec-07	272	290	8	420	90	#N/A	2	47	3	0.25			330																																								
05-Dec-07	273	210	8	369	90	#N/A	3	49	3	0.25			315																																								
07-Dec-07	274	190	8	438	91	#N/A	4	52	1	0.25			340																																								
10-Dec-07	275	270	8	432	96	#N/A	3	50	<1	0.25			335																																								
12-Dec-07	276	240	8	441	93	#N/A	3	50	1	0.25			310																																								
14-Dec-07	277	240	8	436	91	#N/A	2	51	4	0.25			285																																								
17-Dec-07	278	310	8	431	98	#N/A	2	53	1	0.25			305																																								
19-Dec-07	279	250	8	371	87	#N/A	3	53	4	0.25			323																																								
21-Dec-07	280	230	8	436	94	#N/A	3	52	2	0.25			368																																								
24-Dec-07	281	560	8	420	93	#N/A	2	49	8	0.25			381																																								
26-Dec-07	282	210	8	440	95	#N/A	3	52	3	0.25			385																																								
28-Dec-07	283	200	8	432	96	#N/A	2	55	<1	0.25			325																																								
31-Dec-07	284	250	8	428	101	#N/A	2	53	<1	0.25			320																																								
02-Jan-08	285	210	8	411	103	#N/A	3	54	2	0.29			317																																								
04-Jan-08	286	195	8	431	98	#N/A	3	54	5	0.3			336																																								
07-Jan-08	287	250	8	430	107	#N/A	3	55	4	0.35			325																																								
09-Jan-08	288	200	8	436	99	#N/A	4	53	<1	0.025			285																																								
11-Jan-08	289	220	8	436	100	#N/A	3	55	3	0.25			235																																								
14-Jan-08	290	515	8	453	98	#N/A	4	51	5	0.35	<0.5		346	48.90	0.02	0.04	0.86	0.0011	<0.00001	<0.000005	0.01	0.00003	11.40	0.0001	0.0006	0.003	0.24	0.00002	0.0014	4.97	0.0116	0.01	0.0008	0.0005	0.0020	0.17	0.0002	0.88	0.00001	0.16	0.06	<3	0.000016	0.00004	<0.0005	0.000047	0.00030	0.0017	<0.0001	1.02	0.98	0.03	0.02
16-Jan-08	291	360	8	444	99	#N/A	5	52	5	0.25			265																																								
18-Jan-08	292	310	8	455	102	#N/A	3	55	5	0.26			250																																								
21-Jan-08	293	575	8	446	110	#N/A	4	56	4	0.29			312																																								
23-Jan-08	294	230	8	405	106	#N/A	4	51	4	0.29			318																																								
25-Jan-08	295	255	8	443	109	#N/A	3	57	4	0.25			153																																								
28-Jan-08	296	210	8	416	113	#N/A	4	59	4	0.35			373																																								
30-Jan-08	297	185	8	353	110	#N/A	6	60	3	0.3			174																																								
01-Feb-08	298	175	8	432	105	#N/A	4	56	5	0.25			303																																								
04-Feb-08	299	175	8	423	111	#N/A	3	56	6	0.25			380																																								
06-Feb-08	300	155	8	443	105	#N/A	3	58	2	0.3			353																																								
08-Feb-08	301	175	8	421	109	#N/A	3	56	2	0.25			305																																								
11-Feb-08	302	165	8	330	106	#N/A	5	58	6	0.25			324																																								
13-Feb-08	303	150	8	416	100	#N/A	2	56	3	0.25			293																																								
15-Feb-08	304	195	8	394	105	#N/A	4	55	3	0.25			317																																								
18-Feb-08	305	420	8	399	102	#N/A	4	55	5	0.28			310																																								
20-Feb-08	306	170	8	397	101	#N/A	3	56	6	0.25			295																																								
22-Feb-08	307	200	8	447	84	#N/A	3	40	7	0.25			325																																								
25-Feb-08	308	215	8	390	110	#N/A	5	58	6	0.3			316																																								
27-Feb-08	309	180	8	334	107	#N/A	5	59	6	0.35			305																																								
29-Feb-08	310	205	8	404	100	#N/A	4	58	5	0.25	<0.5		298	58.00	0.01	0.02	1.05	0.0026	<0.00001	<0.000005	0.01	0.00004	12.50	<0.0001	0.0006	0.005	0.22	0.00063	0.0019	5.04	0.0144	<0.01	0.0015	0.0007	0.0030	0.18	0.0003	1.20	<0.000005	0.22	0.06	<3	0.000011	0.00003	<0.0005	0.000053	<0.0003	0.0023	<0.0001	1.16	1.13	0.02	0.01
03-Mar-08	311	170	8	399	105	#N/A	4	55	5	0.25			300																																								
05-Mar-08	312	200	8	388	103	#N/A	6	56	3	0.25			260																																								
07-Mar-08	313	315	8	409	97	#N/A	4	56	1	0.25			292																																								
10-Mar-08	314	160	8	369	133	#N/A	2	80	4	0.25			308																																								
12-Mar-08	315	270	8	328	138	#N/A	4	73	3	0.25			300																																								
14-Mar-08	316	190	8	403	132	#N/A	4	74	1	0.26			300																																								
17-Mar-08	317	345	8	398	132	#N/A	3	70	1	0.25			313																																								

February 5, 2009

REPORT ON

RESULTS OF THE KINETIC TEST WORK - CON MINE, NT

Submitted to:
Miramar Con Mine Ltd.
P. O. Box 2000
Yellowknife, NT
X1A 2M1

Attention: Mr. Ron Connell

REPORT

Report Number: 06-1413-0026

Distribution:

8 Copies - Miramar Con Mine Ltd.
2 Copies - Golder Associates Ltd.

A world of capabilities delivered locally

Golder Associates

Table of Contents

TABLES

FIGURES

APPENDICES

1.0 OBJECTIVES

Golder Associates Ltd. (Golder) is pleased to submit the following report on the results of kinetic tests conducted using two composite samples of mine tailings from the Upper and Middle Pud Tailing Containment Area (TCAs). The tests were begun in March 2006 and were completed in March of 2008 running for a total of 107 weeks. All of the test work was conducted by Canadian Environmental and Metallurgical, Inc. (CEMI) under Golder's supervision.

The test program was designed to simulate, under laboratory conditions, the effects of natural precipitation on tailings as the water percolates through the tailings column. The Golder test program was intended to supplement similar testing completed by URS (2003) which was designed to simulate oxidizing conditions in the unsaturated zone of the tailings pile. The Golder program was designed to simulate the anoxic conditions in saturated or nearly saturated tailings under a vegetated cover.

2.0 TEST DESIGN AND ANALYTICAL METHODS

The entire test program consisted of several phases including both static and kinetic test work. Table 2.1 summarizes the test program and the reports that summarize the results of each of the test phases. The report that follows summarizes the results of all of the static and kinetic test work including supplemental testing that was added to the program after the 2006 summary.

Table 2.1: Summary of Static and Kinetic Testing of Con Tailings Samples

	Test Program	Description	Report
Pre-kinetic Test	Sulphur Species: total sulphur (S_{tot}) sulphate sulphur (S_{SO4})	Tests conducted on individual and composite samples used for kinetic testing from Upper Pud, Middle Pud, and Neil Lake, to evaluate the range in chemical composition and select representative sample for kinetic testing.	Golder (2006)
	Metals: As and Sb by assay, total metals by strong acid digestion with ICP-MS analysis		
	Major element chemistry through Whole Rock analyses	Composite #1 (Upper Pud samples - HC-1) and Composite #2 (Neil Lake samples - HC-2)	Attached
	Supplemental ABA Analyses: paste pH, total inorganic carbon (TIC), carbonate neutralizing potential ($CaCO_3$ NP), and acid neutralizing potential (NP)		Attached
	Kinetic Testing	Composite #1 (Upper Pud samples – HC-1) and Composite #2 (Neil Lake samples – HC-2)	Golder (2006), Golder (2008), Attached
Post-kinetic Test	ABA Analyses: paste pH, total sulphur (S_{tot}) sulphate sulphur (S_{SO4}), total inorganic carbon (TIC), carbonate neutralizing potential ($CaCO_3$ NP), and acid neutralizing potential (NP)	Composite #1 (Upper Pud samples - HC-1) and Composite #2 (Neil Lake samples - HC-2)	Attached
	Whole Rock Analyses		
	Metals: As and Sb by assay, total metals by strong acid digestion with ICP		
	Arsenic Speciation on Kinetic Test Leachate: arsenite (AsIII) and arsenate (AsV)	8 leachate samples, 4 from HC-1, and 4 from HC-2 (cycles 248 and 249 for HC-1 and cycles 249 and 250 for HC-2).	Attached

2.1 Sample Selection

Two composite samples were constructed for the Golder test program using samples collected from; a) Upper Pud Lake (samples UP01-01, UP01-02, UP02-01, and UP02-02), to make HC-1, which were specifically selected for the tests due to their high concentrations of sulphur (1.94%), arsenic (5,940 ppm), iron (6.58%), and copper (135 ppm), and, b) Neil Lake (NL-01 and NL-02), to make HC-2, which were specifically selected because of their relatively low sulphur (0.19%) and arsenic (1,260 ppm) concentrations (Golder, 2006).

2.2 Static Testing

The static test program consisted of pre- and post-kinetic testing ABA and whole rock chemical analyses. The original static test program was designed to provide only the data required (*i.e.,* sulphur and metals content) to identify individual samples to build the composite test samples. The supplemental ABA analyses were intended to complete the static characterization of the two composite samples (HC-1 and HC-2) used for the test cells. The post-kinetic testing included a complete suite of ABA and whole rock chemical analyses for HC-1 and HC-2.

Comparing the results of pre-kinetic test analyses and post-kinetic test analyses of the tailings samples must be regarded with caution because the differences caused by leaching in the cell are typically very small and the difference may fall within the analytical error and/or sampling error. Therefore, only where there is an obvious cause and effect can the results of pre- and post-kinetic test analyses be used to interpret changes in sample properties.

2.2.1 ABA Analyses

The ABA testing included: paste pH; sulphur species analysis for total sulphur (S_{tot}) and sulphate sulphur (S_{SO4}); bulk neutralization potential (NP) by the modified Sobek Method; and carbonate neutralization potential (CaCO3 NP) through total inorganic carbon (TIC) analysis. The reduced form of sulphur or pyritic sulphur (S_{py}) was calculated by difference ($S_{py} = S_{tot} - S_{SO4}$). The acid generating potential (AP) was calculated by multiplying the reduced sulphur S_{py} concentration by 31.25 ($AP = 31.25 * S_{py}$); where 31.25 is derived from the stoichiometry of the reaction of one mole of acid from pyrite oxidation being neutralized by one mole of calcite. The neutralization potential ratio is either the ratio of the Carbonate NP to the AP (CaCO3 NPR = CaCO3 NP/AP) or the ratio of the bulk NP to the AP (NPR = NP/AP). The net neutralizing potential (NNP) is the difference between the NP and the AP (NNP = NP-AP).

2.2.2 Chemical Composition

The chemical composition of the two composite samples used for the kinetic tests was determined by whole rock major and trace element analyses. Whole rock major element analyses are done by lithium metaborate fusion and nitric acid digestion with ICP-MS finish. Major element analyses provide total elemental weight percent compositions as oxides of major rock forming elements and are used to determine the elemental composition of the composite samples pre- and post-kinetic testing and changes that have occurred either between the two samples or when compared to equivalent unmineralized rocks.

Trace metal concentrations were determined by four acid digestion followed by induction couple plasma mass spectroscopy (ICP-MS). Four acid digestion is a hot vacuum hood method that results in the volatilization of several metals such as arsenic and antimony. The concentrations of arsenic and antimony were measured by individual assays using aqua regia digestion and ICM-MS analyses. Trace elemental analyses provide elemental concentrations of 32 trace (and major) elements and are useful in tracking the changes in concentrations of ore metals and other elements of environmental concern between the samples and compared to equivalent unmineralized rocks.

2.3 Kinetic Testing

The kinetic testing consisted of two column leach tests. The two composite samples with dry weight of 1.54 kg and 1.72 kg for HC-1 and HC-2, respectively, were placed in acrylic leaching cells measuring 11.4 cm in diameter and 12.70 cm in height and subjected to continuous irrigation with NanoPure water. In order to minimize contact of the tailings with oxygen and to maintain an anoxic environment in the cell, each cell and the NanoPure water reservoir were sealed and purged with nitrogen gas to minimize the effects of dissolved oxygen.

The NanoPure water irrigation rate was set to allow one pore volume of lixiviant to be applied every two to three days (samples were collected on Mondays, Wednesdays, and Fridays) resulting in a flow rate of 3 pore volumes, or three "test cycles" per week. Figure 2-1 shows the configuration of the test cells. The average flow rate for the 310 test cycles for the two cells was 252 and 262 ml/cycle for HC-1 and HC-2, respectively.

A review of the test program suggested that the target reducing conditions had not been achieved and the conclusion was that the initial test design allowed atmospheric oxygen to displace the NanoPure water withdrawn from the reservoir. Beginning with cycle 67 (HC-1) and 68 (HC-2), solution chemistry was also analyzed for dissolved oxygen (DO) to improve estimation of the redox conditions in the test cell. In natural waters, dissolved oxygen is the ultimate oxidant and organic matter or, in the case of the Con samples sulphide-bearing minerals, are the dominant reductants. In natural systems, anaerobic decay of the organic matter (or oxidation of the sulphide-bearing minerals) will deplete the solution of free oxygen and therefore, the free oxygen concentration in the water, reported as dissolved oxygen (DO), is a measure of the oxidation or reducing (redox) conditions in the water. Elevated DO concentrations reflect oxidizing conditions while low DO concentrations represent a more reducing environment. Beginning with cycle 120 (HC-1) and 121 (HC-2) a nitrogen reservoir was added to the water reservoir to minimize the dissolved oxygen in the NanoPure water which resulted in a decrease in dissolved oxygen concentration in the leachate from roughly 5 mg/L to 0.3 mg/L.

3.0 PRE AND POST-KINETIC TEST STATIC RESULTS

3.1 ABA Analyses

All of the pre-and post-kinetic ABA analyses are shown in Table 3.1. The pre-kinetic supplemental data are shown in **bold** print in the table. Total and sulphate sulphur concentrations decrease between the pre- and post-kinetic test samples for HC-1 (S_{tot} decreases from 1.94 to 1.28% and S_{SO4} decreases from 0.66 to 0.04%) and remain nearly constant for the HC-2 samples (S_{tot} 0.19 and 0.12% and S_{SO4} 0.07 and less than 0.01%).

The decline in sulphate sulphur (and total sulphur) concentrations between the pre- and post-kinetic test samples from HC-1 is consistent with the apparent decline in dissolved sulphate concentration in the HC-1 kinetic test leachate (SO_4 concentration decreases from over 1,400 mg/L to less than 30 mg/L between cycles 71 and 96). The observed decrease in sulphate is mimicked by calcium. These are likely attributed to gypsum dissolution (Section 3.3). The sulphide content of both cells is similar before and after kinetic testing, suggesting that no significant sulphide oxidation took place during the test.

Generally, the CaCO3 NP is higher than the NP (Table 3.1) which is consistent with the presence of ankerite ($Ca(Fe,Mg,Mn)(CO_3)_2$) in tailings from the Con Mine (URS, 2003). Iron-bearing carbonate minerals such as ankerite and siderite ($FeCO_3$) are typically not considered acid neutralizing because the iron released when either mineral is dissolved produces ferric iron (Fe^{3+}) which is itself a strong acid that consumes the available carbonate acid neutralizing capacity of the mineral.

Based upon industry standard criteria from NPR (Price, 1997) shown in Table 3.2, the two composite samples used in HC-1 and HC-2 are classified as having "no" potential to generate acidic leachate based on both the CaCO3 NPR and the NPR. The data are consistent with the results of the URS (2001) static testing of 35 tailing samples in which the NPR based upon S_{py} ranged from 2.1 to 102.3, with 33 (94%) of the samples having NPR greater than 4. The remaining 2 samples had NPR values greater than 2, and were classified as having a "low" potential for acid production.

Table 3.2: Criteria for Acid Rock Drainage (ARD) Potential (Price, 1997)

Potential for ARD	Initial Screening Criteria	Comments
Likely	NPR<1	Likely ARD generating unless sulphide minerals are non-reactive.
Possibly	1<NPR<2	Possibly ARD generating if NP is insufficiently reactive or is depleted at a faster rate than sulphides.
Low	NPR 2-4	Not potentially ARD generating unless significant preferential exposure of sulphides along fracture planes or extremely reactive sulphides in combination with insufficiently reactive NP.
None	NPR>4	

3.2 Metals Analyses

The results of the major and trace element analyses were compared with "average" concentrations in equivalent unmineralized rocks (tholeiitic basalt) for major elements and the "crustal abundances" for basalt for trace elements (Price, 1997). Major element compositions can be compared to equivalent unmineralized rocks to identify the loss or gain of elements as a result of any hydrothermal alteration. Trace elemental compositions are useful to predict the potential of elevated metal concentration in groundwater. The logic to this is that water in contact with rock with elevated metal concentrations may have correspondingly elevated dissolved metal concentrations as compared with water in contact with unmineralized rock.

3.2.1 Major Elements

Results of the whole rock, for the pre- and post-kinetic test samples, analyses are shown in Table 3.3 at the end of this report. Comparison of pre-kinetic test and post-kinetic test results show both increases and decreases in concentrations which may be real or the result of sampling error and analytical uncertainty. Calcium concentrations in the leachate from kinetic test HC-1 show a dramatic decrease during the test, presumably resulting from dissolution of gypsum (Section 3.3.1 and Figure 3-3) yet the whole rock calcium concentration in HC-1 remains unchanged (8.45% in the pre-kinetic test sample and 8.75% in the post-kinetic test sample).

The major element chemistry has been compared with the average major element chemistry of tholeiitic basalt (Price, 1997). Both pre- and post-test samples have higher silica and iron and lower aluminum, magnesium, sodium, and titanium concentrations compared to typical tholeiitic basalts. The apparent differences in major element chemistry between the Con samples and average tholeiitic basalt may reflect different chemistries of the "volcanic" host rock due to mineralization at the Con Mine or remobilization of major elements during metamorphism of the basalts, of the greenstone belts, within the Archean Slave Province.

3.2.2 Trace Element

Results of all of the trace element analyses, for the pre- and post-kinetic test analyses are shown in Table 3.4 and MMER parameters are summarized in Table 3.5. The concentrations of most of the elements are near or below the respective average crustal abundances of basalt (Price, 1997). Only the concentrations of arsenic, lead, and antimony are high relative to average basalt. Arsenic and antimony concentrations are two to three orders of magnitude above the respective average abundances and lead is two orders of magnitude above the average.

Table 3.5: Summary of Pre- and Post-Kinetic Test Concentration of MMER Metals

Element	Cell	Post-test	Post-test
		ppm	ppm
Arsenic	HC-1	5940	6830
	HC-2	1260	1240
Copper	HC-1	136	127
	HC-2	74	61
Lead	HC-1	308	379
	HC-2	156	164
Nickel	HC-1	87	80
	HC-2	57	49
Zinc	HC-1	404	420
	HC-2	380	347

The concentrations of MMER metals arsenic in HC-2 and copper, lead, nickel and zinc in HC-1 and HC-2 remain unchanged for the pre- and post-kinetic test analyses, while the concentration of arsenic in HC-1 increased between the pre- and post-kinetic test samples. Of the other metals, the concentrations of chromium declined between the pre- and post-tests analyses and the concentrations of beryllium, cadmium and antimony increased between the pre- and post-test analyses. The decrease in chromium concentration may be the result of chromium leaching from the minerals in the tailings however the increase in concentrations of arsenic, beryllium, cadmium, and antimony are likely the result of sample heterogeneity or analytical error.

3.3 Leaching Test Solution Chemistry

The pH and dissolved ion concentrations in the leachate derived from the two test cells (HC-1 and HC-2) evolved over time as the tailings equilibrated with the pore water. All of the results of the leaching tests are shown in Appendix II. Figures 3-1 to 3-12 are time series plots of pH, selected anions and cations, and Metal Mining Effluent Regulation (MMER) metals for the two leaching tests. The figures include the respective Water License and MMER guidelines for Maximum Average and Maximum Grab Sample concentrations for comparison purposes only. The actual discharge water chemistry from the tailings facilities will also depend upon factors not addressed in the tests summarized in this report, such as site specific climate data as well as flow characteristics through and over the tailing facilities.

3.3.1 Major Element Chemistry

pH

The leachate pH remains neutral to slightly alkaline during the entire test period for both cells (Figure 3-1), well within the water license criteria. HC-1 leachate had an initial pH of 7.5 that persisted through about cycle 60. Following a brief decline to near 6.5, the pH quickly rebounded to near 8 and the last measured pH was over 7.89. Although the differences are slight, the pH of the HC-1 leachate can be categorized as an early low pH roughly below 7.5 followed by sharp increase in pH in the later samples to above 7.5. The leachate from HC-2 showed less overall temporal variation with an initial pH higher than HC-1, near 8. Following a decline to near 7 in cycle 75, the pH of the leachate from HC-2 quickly rose to near 8 and remained near 8. The last measured pH of the HC-2 leachate was 7.92.

Results of the URS humidity cell tests (URS, 2003) showed an overall similar pattern in pH over time. The pH rose from an initial pH of near 7.2 for the "Average" tailings samples (TL-01) to near 7.8 within the first 30 weeks of the test and then rose a second time by week 50 to a final pH range of near 8. The final pH at week 100 was over 7.9. The pH of the remaining samples (TL-07 identified as "tailings with elevated leachable arsenic" and TL-34 identified as "low NP/AP tailings") increased from near 7.5 to around 8 within the first 10 weeks of the tests and remained between 7.9 and 8.2 for the duration of the 100 week test period.

All of the data from the 5 kinetic tests suggest that leachate derived from a range of tailings types, from different tailings basins, and under differing leaching protocols remained neutral to slightly alkaline for the duration of the tests.

Sulphate

Figure 3-2 is a time series plot of sulphate concentrations in the leachate from HC-1 and HC-2. Initial concentrations of sulphate decreased from 2492 mg/L to near 1500 mg/L in HC-1 within the first 10 cycles of the test and from 4260 mg/L to less than 5 mg/L in the first 15 cycles in HC-2. Following the initial decline, sulphate concentrations in HC-1 were near 1400 mg/L in the early cycles of the test and declined to less than 50 mg/L between cycles 70 and 95.

URS sulphate concentrations are reported in units of mg/kg/tonne however the data show a similar pattern of stepped changes in sulphate concentration in the humidity cell leachate samples to that observed in HC-1. The three URS tailings samples showed a rapid decline from the initial high sulphate concentration of between 600 and 140 mg/L, assuming a standard Price (1997) type humidity cell configuration (*i.e.,* 1 kg of sample with 500 ml of lixiviant applied weekly), within the first one to three cycles of the test followed by a relatively erratic but mildly elevated concentration of between 135 to 224 mg/L through weeks 30 to 40 after which the sulphate concentration declined to a second plateau of between 58 and 95 mg/L. The change from the mildly elevated step to the lower concentration plateau roughly coincides with the major decline in sulphate concentration observed in HC-1.

Calcium

Calcium concentrations in leachate from HC-1 and HC-2 parallel the changes observed in sulphate concentrations. Figure 3-3 is a time series plot of calcium concentrations in the cell leachate. Calcium concentrations in HC-1 leachate declined from 980 mg/L to 567 mg/L by cycle 5 and declined a second time after cycle 70 to 29.6 mg/L by cycle 100. Although the sampling frequency differs between sulphate and calcium analyses, the decline in calcium concentrations matches the temporal changes in sulphate concentrations. The concentration of sulphate in HC-2 declined from 720 to 23.3 mg/L by cycle 20 and continued to decline to 12.5 mg/L at cycle 310.

Comparison of the variation in sulphate and calcium concentrations, particularly in samples from HC-1, shows a dramatic decline in both element concentrations beginning in cycle 70 and continuing until cycle 100. URS reported trace to 2.9 volume percent gypsum in the tailings samples and the parallel change in sulphate and calcium concentrations in the cell leachate suggests that gypsum was being leached early in the life of HC-1 and by cycle 100 was strongly depleted in the sample.

Dissolved Oxygen

Dissolved oxygen (DO) analyses were begun in cycles 67 and 68 for HC-1 and HC-2, respectively, after early results suggested that the reducing conditions within the test cells had not been achieved (Section 2.3). Figure 3-4 is a time series plot of DO concentration in the kinetic test cell leachate. The figure also includes the ideal concentration of oxygen in water in contact with the atmosphere at 22 °C of 8.7 mg/L. Since the source water for both cells was from a common reservoir, the measured DO concentrations in HC-1 and HC-2 are identical. Although the DO concentration was not measured at the start of the test, the level at the start of the test was probably low since the system had been purged with nitrogen. It is believed that the DO level then rose as atmospheric oxygen entered the reservoir as NanoPure water was applied to the samples (Section 2.3)

The initial DO concentration was 7 or 8 mg/L and declining immediately to near 5. The initial elevated DO level is believed to be a relic of the measurement technique and not representative of the actual concentration in the leachate since it is near the ideal concentration for water in contact with the atmosphere of 8.7 mg/L. The DO declined further with installation of the nitrogen bladder in cycles 120 (HC-1) and 121 (HC-2) from near 5 mg/L to a low of 0.3 mg/L. Following a protracted increase to a maximum DO concentration in both HC-1 and HC-2 of around 2 mg/L, the DO declined to near 0.3 mg/L after cycles 156 and 157 for HC-1 and HC-2, respectively and remained near 0.3 mg/L through cycle 310.

Table 3.6 is a summary of the Eh in the cells based upon the measured oxidation/reduction potential (Redox) and the DO concentration for the early high DO time interval (cycle 90) and the late stage low DO period of the test (cycles 248 to 250).

Table 3.6: Summary of Estimated Eh Conditions in the Two Test Cells

	T (°C)	pH	Redox (mV)	Eh (mV)	DO (mg/L)	Eh (mV)
HC-1 Cycle 90	20-22	7.3	312	512	5.5	790 (1)
HC-2 Cycle 90	20-22	7.1	269	469	5.6	802 (1)
HC-1 Cycle 248/249	20-22	8	390	590	0.2	729 (1)
HC-2 Cycle 249/250	20-22	7.87	386	586	0.25	738 (1)

(1) PHREEQC estimation based upon measured DO and pH

In all instances, the cells are oxidizing (*i.e.,* Eh > 0 mV) although the Eh derived from the DO and pH values indicates that the level of oxidation declined with the decline in DO concentration. The DO was measured using an oxygen probe under a nitrogen atmosphere; however the high oxygen concentration in the natural atmosphere (20.9% by volume) may influence the measured DO, particularly at low solution oxygen concentrations. The calculated Eh values therefore, should be considered an upper limit.

Chloride

Chloride concentration may track the use of groundwater for mineral processing. Groundwater in the Precambrian shield areas is typically a chloride-rich brine. The chloride concentrations in the leachate from HC-1 and HC-2 are shown in time series plots in Figure 3-5. The data show that chloride concentrations declined rapidly from 3,850 to 2.4 mg/L, by cycle 8, in HC-1 and from 3,280 to 2.2 mg/L, by cycle 5, in HC-2. The rapid decline of chloride is consistent with the high solubility of the chloride ion in contact with water.

Iron

Iron concentrations in both HC-1 and HC-2 showed a sharp decline immediately following the start-up of the test followed by a marked increase to 0.2 (HC-2) and 0.5 (HC-1). Figure 3-6 is a time series plot of iron concentrations in leachate from HC-1 and HC-2. HC-1 showed a decline in iron concentration of 0.43 mg/L to 0.1 mg/L in cycle 70 and then remained between 0.1 and 0.2 for the remainder of the test. Iron concentrations in leachate from HC-2 remained near 0.2 mg/L with a spike to 0.56 in cycle 140. Neither cell showed any changes in iron concentration at the onset of more reducing conditions in the lixiviant which took place around cycles 120 and 121.

Figure 3-7 is a time series plot of iron, arsenic and DO for HC-1. Figure 3-7 suggests that although iron solubility is strongly redox dependent, changes in iron concentration appear to be independent of changes in the DO concentration. Further although ferrous iron (Fe^{2+}) is more soluble than ferric iron (Fe^{3+}), the data suggests that more oxidized conditions (*i.e.,* high DO) that would favour ferric iron have higher dissolved iron concentrations than the more reduced conditions (*i.e.,* lower DO) that would favour the more soluble ferrous iron ion.

The decrease in iron concentration in HC-1 at cycle 70 corresponds to an increase in dissolved arsenic concentration in that cell. Figure 3-7 shows that the apparent change in arsenic concentration coincides with changes in dissolved iron concentration. The data suggests that at higher iron concentration, iron and arsenic concentrations may be related. At lower iron concentrations, arsenic concentration is independent of iron concentration. The decline in iron beginning in cycle 70 coincides with the change in sulphate concentration (refer Section 3.3.2). URS reported an iron arsenate mineral in the tailings ($Fe(AsO_4){\cdot}2H_2O$) and so the changes in arsenic and iron may be related through mineralogical controls.

3.3.2 MMER Metals

This section discusses the concentration of MMER-regulated parameters: arsenic, copper, lead, nickel, and zinc. These regulations apply to all Canadian metal mines and refer to the "Maximum Authorized Monthly Mean" concentration and the "Maximum Authorized Concentration in a Grab Sample".

Arsenic

Arsenic concentrations in the leach solution increase over time in proportion to the arsenic concentration in the tailing solids (Figure 3-8). The arsenic concentration in the leachate from HC-1 (Upper Pud), which contained 5,940 ppm arsenic in the tailing solids (Table 3.5), rose from an initial concentration of 0.463 mg/L (below the Maximum Average concentration of 0.5 mg/L), to 0.511 mg/L by cycle 5 and stabilized at roughly 0.6 mg/L until cycle 70. After cycle 70, the arsenic concentration in the HC-1 leachate rose to roughly 2 mg/L, exceeding the Maximum Grab Sample limit of 1.0 mg/L and stabilized at roughly 2 mg/L (ranging between 1.37 and 2.08 mg/L). The increase in arsenic concentration, after cycle 70, coincides with the decrease in iron concentration and sulphate concentration in HC-1.

The arsenic concentration in the leachate from HC-2 (Neil Lake), which contained 1,260 ppm arsenic in the tailing solids, rose from an initial dissolved concentration of 0.222 mg/L to above the Maximum Average concentration by cycle 16 and remained at roughly 0.5 mg/L until around cycle 150. During the remainder of the test program the arsenic concentration in the HC-2 leachate rose gradually to near the Maximum Grab sample concentration of 1.0 mg/L and remained near 1.0 mg/L through the final test cycles ranging between 0.941 and 1.14 mg/L.

The arsenic concentrations in the two cells appear to have reached a steady state concentration of near 2 mg/L and near 1 mg/L in the leachate in HC-1 and in HC-2, respectively. The arsenic concentrations in the leachate from the three humidity cells operated by URS (2003) appeared to have reached similar steady state concentrations of between roughly 0.13 and 0.06 mg/kg/week which, assuming a standard Price (1997) type humidity cell configuration (*i.e.,* 1 kg of sample with 500 ml of lixiviant applied weekly), translates to roughly between 0.12 and 0.26 mg/L; less than the 1 and 2 mg/L observed in the Golder test samples.

Copper

Copper concentrations remain below the minimum regulatory guidelines for both test cells (Figure 3-9). HC-1 initial copper concentration of 0.021 mg/L declined to below the detection limit of 0.001 mg/L and stabilized to between 0.001 and 0.01 mg/L. This value is well below the Maximum Average concentration of 0.3 mg/L. The leachate for the HC-2 test cell dropped from an initial copper concentration of 0.028 mg/L to 0.005 mg/L and then briefly rose to 0.024 mg/L. By the end of cycle 70 the copper concentration in the HC-2 leachate was generally below 0.01 mg/L (ranging between 0.0029 and 0.0142 mg/L).

Lead

Lead concentrations for both test cell declined over time and stabilized near 0.0001 mg/L, which is less than the Maximum Average guidelines for lead (0.02 mg/L) (Figure 3-10). The lead concentration in the leachate from HC-1 declined from an initial 0.0006 mg/L to a stable concentration of around 0.0001 mg/L (ranging from 0.00002 to 0.0004 mg/L). The lead concentration in the leachate from HC-2 showed a similar decline from an initial concentration of 0.0018 mg/L to a range of concentrations between 0.00001 to 0.0009 mg/L but centered on an average of approximately 0.0001 mg/L.

Nickel

Nickel concentrations, within the first 70 cycles of testing, declined from 0.051 mg/L and 0.034 mg/L for the HC-1 and HC-2 leachate samples, respectively, below the Maximum Average guideline of 0.5 mg/L to near or below the method detection limit (0.0005 mg/L) (Figure 3-11). Concentrations reported as below the respective detection limits are plotted as one half the detection limit to distinguish samples with measurable nickel (*i.e.,* equal to the detection limit) from samples with no detectable nickel. The nickel concentration in HC-1 leachate stabilized over the last portion of the tests to near 0.001 mg/L and ranging between the detection limit and 0.0065 mg/L. The long term nickel concentration in the leachate sample from HC-2 stabilized between the detection limit and 0.0008 mg/L.

Zinc

Zinc concentrations in the leachate samples rapidly stabilized at concentrations between 0.001 and 0.01 mg/L from an initial concentration of 0.027 mg/L and 0.101 mg/L for HC-1 and HC-2, respectively (Figure 3-12). These reported concentrations are below the Maximum Average concentration of 0.2 mg/L. A single analysis from HC-1 leachate did exceed the Water License Maximum Average concentration, however, the zinc concentration in the following samples declined to below the method detection limit at the time of 0.005 mg/L (detection limits for zinc varied between 0.001 and 0.005 mg/L). The detection limits for zinc ranged from less than 0.001 to 0.0005 mg/L over the course of the testing.

3.4 Arsenic Speciation in Kinetic Test Leachate

Arsenic leaching is a major factor in designing the final closure plan for the Upper and Middle Pud TCAs and therefore understanding arsenic chemistry is important in understanding the results of the tailings test program. Arsenic commonly takes the form of either arsenite (As(III); *e.g.,* H_3AsO_3) or arsenate (As(V); *e.g.,* $H_2AsO_4^-$ or $HAsO_4^{2-}$). The stable arsenic species is determined by the redox conditions; *e.g.,* As(V) prevails under oxidizing conditions and As(III) is the dominant species under reducing conditions. Arsenic mobility is determined by the redox conditions as well as the pH of the solution. Figures 3-13a and 3-13b show the stability fields of arsenic and the solubility of arsenic with pH, respectively (after Smedley (2002) in http://www.princeton.edu/~chm333/2003/ arsenic/sources/chemistry.htm).

Arsenic will leach from rocks and/or sediment:

- Under reducing conditions, arsenic is mobilized because a) iron-bearing arsenic minerals such as arsenopyrite (FeAsS) dissolve, owing to high iron solubility, releasing arsenic as well and b) some argue that As(V) is reduced in sediments to As(III) which is less tightly bound to sediment grains (*i.e.,* desorbed).
- Under high pH conditions (above 8.5), arsenic is readily released from metal oxide surfaces (*i.e.,* desorbed). This affect is particularly pronounced under conditions of high water to rock ratios.

Samples of leachate for arsenic speciation, including duplicates from October 10 and 11 (cycles 248 and 249 for HC-1 and 249 and 250 for HC-2) from HC-1 and HC-2, were collected by CEMI using the method proposed by Bodnar et al (2002) that consists of using an inline filter to minimize oxygen contamination and EDTA preservative. The samples were cooled and shipped by overnight express on 11 October 2007. All arsenic analyses were done by Applied Speciation and Consulting, LLC, Tukwila, Washington, USA. Table 3.7 summarize the results of the arsenic speciation analyses. There is a discrepancy between the first cycle analyses and the second cycle analyses (HC-1 As(V) goes from 2,220 to 1,190 /L and HC-2 As(V) goes from 1,080 to 2,850 /L). The duplicate analyses suggest that the arsenic speciation is correct however comparison of the sum of the As(V) and As(III) analyses and the total arsenic concentrations for HC-1 and HC-2 suggests that the sample numbers from second sampling event may have been reversed. The lack of consistency in As(III) concentration and the variability in the As(III):As(V) ratio may also suggest disequilibrium between the solution and the substrate.

Table 3.7: Summary of Arsenic Speciation Analyses

Sample ID	As(III)	As(V)	Total As (1)
Units	**(μ/L)**	**(μ/L)**	**(μ/L)**
HC-1 cycle 248	258	2,220	2080
HC-1 cycle 248 dup	244	2,160	
HC-1 cycle 249	4.32	1,190	
HC-1 cycle 249 dup	4.38	1,150	
HC-2 cycle 249	53.4	1,080	1140
HC-2 cycle 249 dup	58.0	1,060	
HC-2 cycle 250	3.77	2,850	
HC-2 cycle 250 dup	3.64	2,850	

(1) Total arsenic concentration was from cycle 250.

3.4.1 Arsenic Speciation and Redox Conditions

The As(III) and As(V) pair define a redox pair that can be compared to the measured redox potential and the dissolved oxygen (DO) concentrations. Table 3.8 summarizes the water chemical data for the two windows of time during which the arsenic samples were collected.

Table 3.8: Summary of Measured Redox Parameters from Leachate Water Chemistry Compared to Calculated Redox Conditions

	T	pH	As(III)	As(V)	Eh	Eh from DO
	ºC	**su**	**(μ/L)**	**(μ/L)**	**(mV)**	**mV**
HC-1 Oct 10	20-22	8	258	2,220	-79.1 (1)	729
HC-1 Oct 11	20-22	8	3.77	2,850	-22.5 (1)	
HC-2 Oct 10	20-22	7.87	4.32	1,190	-20.4 (1)	738
HC-2 Oct 11	20-22	7.87	53.4	1,080	-53.5 (1)	

(1) PHREEQC estimation based upon measured As(III) and As(V).

The Eh estimates based upon the arsenic speciation suggests that the redox conditions in HC-1 and HC-2 are relatively reduced compared to the Eh estimates from the measured DO (*i.e.,* Eh < 0 mV). Figure 3-13a shows arsenic speciation in a plot of pH versus Eh or pe. At a pH near 8, the Eh derived from the measure DO suggests that HC-1 and HC-2 lie within the field of As(V) ($HAsO_4^{2-}$) while the Eh estimated from the measured arsenic species concentrations suggests that the test cells straddle the field of As(V) ($HAsO_4^{2-}$) and As(III) ($H_2AsO_3^0$). Considering the potential of atmospheric contamination of the DO measurements and potential disequilibrium in the leachate used for the arsenic speciation analyses the estimated EH values may represent a range of redox conditions for the Golder test cells. The data does however suggest 1) that the redox conditions of the Golder test cells are more reduced than the URS test cells and 2) the conditions simulated in the Golder test cells more accurately represent the conditions expected in the tailings beneath a vegetative cover following closure of the Con TCAs.

3.4.2 Arsenic Solubility

Arsenic solubility depends upon redox conditions and pH. Under oxidizing conditions arsenic is not strongly mobile however the data suggests that increasing pH may promote arsenic dissolution. Figure 3-14 shows arsenic concentrations and pH for all of the HC-1 leachate analyses. The data from HC-1 suggests that all other things being equal (*e.g.,* mineral stability); arsenic concentrations increase from generally less than 1 mg/L to approaching 2 mg/l between pH 7.5 to 7.6. The onset of arsenic mobility shown in Figure 3-14 is similar to that expected in Figure 3.13b, except that the ranges of arsenic concentration differ by several orders of magnitude probably owing to starting arsenic concentrations.

Results of the URS report show similar changes in arsenic concentration in the humidity cell test work (URS, 2003, Figure 3.3-4) with pH. Arsenic concentrations in the leachate from the three humidity cells generally remained below 300 µg/L (0.3 mg/L) at roughly pH 7.6. Between pH 7.6 and 7.7, the arsenic concentrations rose to where the minimum concentration was above 200 µg/L and the maximum reached as high as 1400 µg/L (1.4 mg/L).

4.0 TEST DURATION

Based upon the rates of solution application to the test cells and the estimated rates of precipitation and infiltration to the TCAs, the estimated time equivalents for the two test cells through cycle 310 is between 290 and 300 years. Table 4.1 lists the total volume of solution applied to the cells, the number of days of application, and the estimated infiltration rate based upon the cell dimensions. Table 4.1 also lists the groundwater model predicted infiltration rate based upon a 10% infiltration of annual precipitation (under a covered tailing scenario), the real time equivalence, and the real time duration of the cells HC-1 and HC-2.

Table 4.1: Time Equivalence Estimates for the Kinetic Test Cell

	Solution Volume Applied	Test Duration	Test Infiltration Rate	Annual Predicted Infiltration Rate	Real Time Equivalence	Real Time of Tests
	ml	Days	cm/Day	cm/year	Test Days/Year	Years
HC-1	77,878	726	1.05	2.643	2.51	289
HC-2	81,125	725	1.10	2.643	2.41	301

5.0 DEPLETION ESTIMATES

Rates of acid generation, acid neutralization, and depletion of MMER metals have been calculated for the samples used for kinetic test cells HC-1 and HC-2. Appendix I summarizes the methods used for depletion calculations. Table 5.1 summarizes the estimated depletion times for acid generation, alkalinity, and metals based upon the laboratory irrigation rate. The site specific irrigation rate (infiltration and seepage) and resultant depletion rate for the TCAs will differ depending upon the flow path of the water through the tailings pile.

The data suggests that the depletion time for acid neutralizing capacity (alkalinity) in HC-1 equals or exceeds the depletion time for acid generation (pyrite oxidation) and is two to three times higher than the depletion time of acid generation in HC-2. This means that over the long term, leachate derived from tailings in the Upper Pud TCA would remain near neutral while the leachate from the Neil Lake TCA would remain neutral to alkaline.

Arsenic depletion times range from 52 years for HC-2 to 419 years for the average of three humidity cell tests conducted by URS (2003). The difference in the time estimate reflects the different amount of arsenic present in each sample and the differing arsenic release rates.

Table 5.1: Depletion Estimates for Acid Generation, Alkalinity and Selected Metals

	HC-1	HC-2	URS
	Time to Depletion	**Time to Depletion**	**Time to Depletion**
	Years	**Years**	**Years**
	ABA Components		
Sulphide	64	60	
NP (emp)	66	186	
CaNP (emp)	82	160	
	Metals		
Arsenic (As)	123 (1)	52 (2)	419 (3)

(1) 5940 mg/kg initial arsenic concentration leached at 47.6 mg/kg/yr.

(2) 1260 mg/kg initial arsenic concentration leached at 23.8 mg/kg/yr.

(3) 2137 mg/kg initial arsenic concentration leached at 5.1 mg/kg/yr.

6.0 CONCLUSIONS

Results of the static and kinetic testing of the tailing samples suggest that:

- The two kinetic test cells operated under conditions more reduced than those used for the URS cells and are representative of the conditions expected to exist in the Con TCAs beneath the proposed waste rock and vegetative covers.
- The leachate from the two kinetic tests remained neutral (as did the three samples from the URS humidity cell tests) throughout the entire test period and based upon the static test results and the predicted depletion times are likely to remain neutral over the long term. The depletion time calculations suggest that the depletion time for NP equals or exceeds the depletion time for sulphide mineralization, the source of acid generation in the Con tailings.
- Arsenic concentrations in the leachate from the two current tests are between 1 and 2 mg/L, and slightly exceed the MMER Maximum Average concentration of 0.5 mg/L and Maximum Grab Sample limit of 1.0 mg/L. Results of the current kinetic tests and the URS humidity cell tests however suggest that the arsenic concentrations in leachate stabilized over the long term, are predictable, and showed no signs of changing once stabilized.
- Depletion rate estimates for arsenic vary with the leaching rate but range from 50 to 400 years. The leaching rate will depend upon the rate of flow of solution through the tailings pile, which can only be evaluated through modeling that addresses infiltration and percolation rates through the TCAs. The data does suggest however, that water treatment for arsenic may be required for the foreseeable future.
- Concentrations of the other MMER metals (copper, lead, nickel, and zinc) are generally low; on the order of one to three orders of magnitude below the minimum MMER guideline concentrations and therefore not likely to require treatment.

GOLDER ASSOCIATES LTD.

Steve Atkin, Ph.D.
Senior Geochemist

John Hull, P.Eng.
Principal

REGISTERED PROFESSIONAL ENGINEER
Feb 09
J. A. HULL
LICENSEE
N.W.T.

SAA/JAH/rs

\\bur1-s-filesrv2\final\2006\1413\06-1413-026\rpt-0129_09 miramar-results of the kinetic test work\rpt-0205_09 miramar-results of the kinetic test work.doc

REFERENCES

Applied Speciation and Consulting, LLC, 2007, Arsenic Speciation Analysis, letter report, October 26, 2007.

Bednar, A.J., Garbarino, J.R., Ranville, J.F., Wildeman, T.R., 2002, preserving the distribution of inorganic arsenic species in groundwater and acid mine drainage samples, Environmental Science and Technology, Vol 36, pg. 2213-2218.

Price, W.A., 1997, DRAFT Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia, Reclamation Section, Energy and Minerals Division, Ministry of Employment and Investment.

Golder, 2006. Interim Summary of Results, Kinetic Testing on Tailings, Closure Plan, Miramar Con Mine, NT, August 14, 2006.

Golder, 2008, Draft Interim Results of the Kinetic Tests, Closure Plan - Water Treatment Predictions, Miramar Con Mine, Yellowknife, NT, February 2008.

URS, 2001, Miramar Con Mine Acid/Alkaline Rock Drainage and Geochemical Characterization Plan for Miramar Mining Corporation, April, 2001.

URS, 2003, Miramar Con Mine, Results of the Kinetic Testing of Tailings and Water Quality Predictions for the Con Mine Tailings Impoundment for Miramar Con Mine, Ltd. March, 2003.

IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Standard of Care: Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practising under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

Basis and Use of the Report: This report has been prepared for the specific site, design objective, development and purpose described to Golder by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within eighteen months of the date of the report may alter the validity of the report. Golder can not be responsible for use of this report, or portions thereof, unless Golder is requested to review and, if necessary, revise the report.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client can not rely upon the electronic media versions of Golder's report or other work products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Golder by the Client, communications between Golder and the Client, and to any other reports prepared by Golder for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. Golder can not be responsible for use of portions of the report without reference to the entire report.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of test holes, necessary to determine all of the relevant conditions which may affect construction costs would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, and safety and equipment capabilities.

Soil, Rock and Groundwater Conditions: Classification and identification of soils, rocks, and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves judgment, and boundaries between different soil, rock or geologic types or units may be transitional rather than abrupt. Accordingly, Golder does not warrant or guarantee the exactness of the descriptions.

IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT (cont'd)

Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions. The environmental, geologic, geotechnical, geochemical and hydrogeologic conditions that Golder interprets to exist between and beyond sampling points may differ from those that actually exist. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. **The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report.** The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.

Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

Sample Disposal: Golder will dispose of all uncontaminated soil and/or rock samples 90 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.

Follow-Up and Construction Services: All details of the design were not known at the time of submission of Golder's report. Golder should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of Golder's report.

During construction, Golder should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Golder's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in Golder's report. Adequate field review, observation and testing during construction are necessary for Golder to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, Golder's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

Changed Conditions and Drainage: Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Golder be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that Golder be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. Golder takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

Table 3.1: Summary of ABA Results for HC-1 and HC-2

Sample ID	Paste	S_{tot}	S_{SO4}	S_{py}	TIC	CaCO3 NP	NP	AP	NPR	CaCO3 NPR	NNP	Fizz Test
	pH	%	%	%	%	Tonnes CaCO3/Ktonne	Tonnes CaCO3/Ktonne	Tonnes CaCO3/Ktonne			Tonnes CaCO3/Ktonne	
	Pre-kinetic Test Analyses											
HC-1 (Upper Pud)	**8.02**	1.94	0.66	1.28	**2.85**	**237.5**	**197.0**	40	4.93	5.93	157	Moderate
HC-2 (Neil Lake)	**8.07**	0.19	0.07	0.12	**2.37**	**197.5**	**229.7**	3.75	61.25	52.67	225.95	Moderate
	Post-kinetic Test Analyses											
HC-1 (Upper Pud)	8.09	1.28	0.04	1.2	2.3	191.7	176.8	37.5	4.71	5.11	139.3	Moderate
HC-2 (Neil Lake)	8.42	0.12	<0.01	0.1	2.78	231.7	206.7	3.1	66.25	74.25	203.58	Moderate

Bold identifies supplemental data.

Table 3.3: Whole Rock Analytical Results for HC-1 and HC-2

Sample ID	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	TiO2	P2O5	MnO	BaO	Cr2O3	LOI	Total	C	S
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Tholeiitic Basalt (Price, 1997)	50.83	14.07	2.88	10.42	6.34	2.23	0.82	2.03	0.23	0.18	-	-	-	-	-	-
	Pre-kinetic Test Analyses															
HC-1 (Upper Pud)	55.42	8.41	7.17	8.45	4.39	0.39	1.2	0.64	0.08	0.15	0.01	0.04	13.2	99.56	2.96	0.21
HC-2 (Neil Lake)	55.22	7.87	9.42	8.63	3.97	0.53	1.11	0.87	0.11	0.14	0.01	0.04	10.45	98.39	2.45	1.94
	Post-kinetic Test Analyses															
HC-1 (Upper Pud)	53.71	9.18	10.76	8.74	4.65	0.55	1.32	0.89	0.09	0.16	0.02	0.03	10.11	>100.00	2.49	1.32
HC-2 (Neil Lake)	55.2	8.92	7.54	9.44	4.82	0.35	1.28	0.64	0.09	0.17	0.02	0.02	11.7	>100.00	2.89	0.14

Table 3.4: Trace Element Analytical Results for HC-1 and HC-2

Sample ID	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K
	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%
Crustal Basalt (Price, 1997)	0.11	7.8	2	330	1	0.007	7.6	0.22	48	170	87	8.65	0.83
	Pre-kinetic Test Analyses												
HC-1 (Upper Pud)	2	4.61	5940	148	<0.5	<5	7.01	<1	45	294	136	7.71	1
HC-2 (Neil Lake)	1	5.07	1260	152	<0.5	<5	7.11	<1	18	365	74	6.19	1.13
	Post-kinetic Test Analyses												
HC-1 (Upper Pud)	<1	4.6	6830	142	8	<5	5.85	4	48	92	127	7.56	1.04
HC-2 (Neil Lake)	<1	4.77	1240	135	6.2	<5	6.54	3	22	64	61	5.66	1.09

Sample Name	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sr	Ti	V	W	Zn
	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
Crustal Basalt (Price, 1997)	4.6	1500	1.5	1.8	130	1100	6	0.2	465	1.38	250	0.7	105
	Pre-kinetic Test Analyses												
HC-1 (Upper Pud)	2.6	1208	3	0.48	87	475	308	122	130	0.14	172	18	404
HC 2 (Neil Lake)	2.96	1348	12	0.38	57	376	156	24	107	0.07	190	26	380
	Post-kinetic Test Analyses												
HC-1 (Upper Pud)	2.58	1175	<2	0.44	80	480	379	250	103	0.25	183	15	420
HC 2 (Neil Lake)	2.81	1249	<2	0.3	49	385	164	60	92	0.18	190	31	347