

**KINROSS**

**FORT KNOX MINE  
KINROSS GOLD CORPORATION**



**WASTE MANAGEMENT PERMIT #2006-DB0043  
ANNUAL REPORT  
FOURTH QUARTER 2008**

CERTIFIED MAIL – RETURN RECEIPT REQUESTED 7004 1160 0001 2671 6550

March 4, 2009

Mr. Tim Pilon  
State of Alaska  
Department of Environmental Conservation  
610 University Avenue  
Fairbanks, Alaska 99709-3643

**RE: Waste Management Permit # 2006-DB0043, Annual Report 1/1/08-12/31/08**

Dear Mr. Pilon:

Fairbanks Gold Mining, Inc. (FGMI) submits this Annual 2008 report for the Waste Management Permit # 2006-DB0043, prepared in conformance with the requirements in Section 1.8 of the permit. The report contains the analytical results from compliance monitoring, an evaluation of the interceptor well system and a summary of the spills during 2008. The monitoring data has been collected and this report has been completed in accordance with the requirements of Waste Management Permit # 2006-DB0043.

### **Compliance Monitoring and Results of Sample Analysis**

There was no significant weather or seismic events that could have potentially compromised the integrity of either the tailing or freshwater reservoir dams during 2008. Surface water monitoring locations (Upper Wetlands, Lower Wetlands, Fresh Water Reservoir and Fresh Water Dam Seepage) and groundwater monitoring wells (MW-5, MW-6, MW-7, and MW-8) were sampled quarterly to demonstrate compliance. Neither surface water monitoring points or groundwater monitoring wells showed any evidence of seepage water from the tailing impoundment.

Monitoring data for the 4<sup>th</sup> quarter 2008 and the previous four (4) quarters is provided in Attachment A. The previous four quarters are included to provide an indication of any recent trends that might have developed. Attachment A contains the Fort Knox Mine Monitoring Data for process solutions, groundwater, surface water, and acid base accounting for tailing solids. Graphs have been included in Attachment “B” for interceptor wells, monitoring wells, tailing decant, tailing seepage major ion chemistry.

Monitoring of the tailing discharge for pH and Weak Acid Dissociable (WAD) cyanide levels

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continued in accordance with permit requirements. A composite sample for each 12-hour shift is collected and the samples are analyzed daily by FGMI laboratory personnel using the Perstorp Cyanide Analyzer to determine the WAD cyanide concentration. The pH is determined using a pH meter. Table 1 contains a summary of the tailing discharge pH range (minimum, maximum, median, and average) for the period October 1, 2008, through December 31, 2008.

**TABLE 1  
Tailing Discharge pH Levels**

	Minimum	Maximum	Average
<b>October</b>	7.61	9.80	9.27
<b>November</b>	7.76	9.89	9.05
<b>December</b>	7.24	9.77	8.84

Tailing discharge WAD cyanide levels (parts per million) recorded for the period October 1, 2008, through December 31, 2008, have been included in Table 2.

**TABLE 2  
Tailing Discharge WAD Cyanide parts per million (ppm)**

	Minimum	Maximum	Average
<b>October</b>	0.07	18.21	9.94
<b>November</b>	0.08	15.90	9.51
<b>December</b>	0.01	19.45	9.08

All FGMI process records and daily logs for the cyanide detoxification circuit are available for inspection upon request.

FGMI collects monthly samples of seepage from the tailing impoundment. The samples are analyzed for As, Sb, Se and Pb to evaluate the presence of any trends in the concentration of these metals. The results of that sampling are provided in Attachment "C" with a graph of the data.

Quarterly analytical results from groundwater sampling points MW-5, MW-6, MW-7, and MW-8 and surface sampling points Upper and Lower Wetlands indicate that the tailing impoundment continues to operate as a zero discharge facility. There was no exceedance of the Upper Tolerance Limits for Groundwater in 2008. There were three exceedances of the Upper Tolerance Limits for Surface Water prior to approval of the monitoring plan authorizing the use of the Upper Tolerance Limits. The Upper Wetlands exceed the Upper Tolerance Limit for Cl on February 6, 2008 and May 5, 2008. The Upper Tolerance Limit for NH<sub>4</sub> was exceeded at the Upper Wetlands on April 7, 2008. Each of these exceedances were isolated occurrences and not part of any trend. Attachment A provides tables illustrating the Upper Tolerance Limits for groundwater and for surface water. Attachment A also provides the analytical results for ground water and surface water sampling for process water and compliance monitoring points.

## Tailing Impoundment Dam

Monitoring data on the tailing impoundment includes piezometer data, tailing pond elevations, and seepage pumping rates. The monitoring data did not display any unusual trends. The monitoring data is consistent with the recent measurements during 2007 and the historic seasonal trends measured in previous years.

Weekly visual monitoring is routinely conducted at the TSF and freshwater reservoir. The visual monitoring looks for signs of damage or potential damage from settlement, ponding, leakage, thermal instability, frost action, erosion, thawing of waste material, operations at the site are monitored and recorded weekly by mill personnel.

All water within the seepage reclaim area below the TSF dam is collected and pumped back to the tailing storage facility in accordance with an approved design of the tailing dam. Groundwater and surface water compliance sampling points down gradient of the TSF continue to be free from cyanide.

The following sampling schedule was approved for sampling the points specified:

July 29, 2008, to December 31, 2008: Labs used during this period ACZ, IML

Frequency	Analysis	Sample Locations
Quarterly	Profile I SW	Site 501, Upper & Lower Wetlands, Freshwater
Quarterly	Profile II GW	Site 401, MW-5 - 8, IW-1 - 8 & IW-11

Additional Sampling October 6, 2008, December 31, 2008: Labs used during this period ACZ

Frequency	Analysis	Sample Locations
Weekly	WAD & Total Cyanide	Surface Water Sites 801, Test Sites 1 - 5, and Upper Wetlands Groundwater Sites MW 5 - 8

## Interceptor and Monitoring Wells

All interceptor wells were pumped continuously throughout the fourth quarter. This is to ensure a hydraulic break is maintained below the TSF in the Fish Creek Valley and that the impoundment continues to operate as a zero discharge facility.

The interceptor well system (IW-1, IW-2, IW-3, IW-4, IW-5, IW-6, IW-7, IW-8, IW-11, MW-1, MW-3, & Site 401) continued to perform successfully during the fourth quarter maintaining a cone of depression across the Fish Creek Valley down gradient of the tailing impoundment (Attachment "D"). Both depth to water measurements and water chemistry indicate the tailing impoundment is operating as a zero discharge facility.

Table 3 shows the depth of the wells, depth to the pump, current depth to water, and pumping rate for the interceptor wells and the monitoring wells. Table 4 contains construction information and depth to water measurements for the piezometers.

**TABLE 3**  
**Interceptor and Monitor Well Measurements and Change from the Second Quarter 2008**

	Top of Casing Elevation	Depth of Well Feet	Depth to Pump Feet	Depth to Water Feet 09/28/08 <sup>1</sup>	Depth to Water Feet 12/20/08 <sup>1</sup>	Change From 2nd Quarter Ft.	Water Elevation at Pumping	Pumping Rate
IW-1	1198	320	283	114	Tube Frozen	N/A	N/A	20 gpm
IW-2	1205	329	252	228	254	-26	951	11 gpm
IW-3	1174	310	283	215	279	-64	895	17 gpm
IW-4	1192	330	295	208	196	12	996	21 gpm
IW-5	1177	380	294	176	297	-122	880	108 gpm
IW-6	1176	380	320	217	236	-19	940	20 gpm
IW-7	1243	197	160	56	76	-20	1167	45 gpm
IW-8	1267	184	172	48	55	-7	1212	Broken Meter
IW-11	1429	296	275	236	236	0	1193	15 gpm
MW-1	1178	305	232	253	256	-3	922	30 gpm
MW-3	1174	296	253	150	139	11	950	6 gpm
SITE 401	1206	35	25	10	15	-5	1191	8 gpm
SITE 801	1161	25	None	Dry	Dry	N/A	N/A	N/A
MW-2	1176	279	N/A	181	202	-21	N/A	N/A
MW-4	1196	285	N/A	27	55	-28	N/A	N/A
MW-5	1163	120	N/A	31	33	-2	N/A	N/A
MW-6	1178	150	N/A	58	57	1	N/A	N/A
MW-7	1149	135	N/A	14	14	0	N/A	N/A
MW-8	1160	156	0.0	Frozen	Frozen	N/A	N/A	N/A

<sup>1</sup> Depth to water measurements and pumping rates in the pumping wells were taken on 12/20/08.

**TABLE 4**  
**Piezometer Measurements and Change from the Second Quarter 2008**

	<b>Well Depth</b>	<b>Angle</b>	<b>Vertical Depth Feet</b>	<b>Depth to Water 12/20/08</b>	<b>Vertical D. to Water Feet 12/20/08</b>	<b>Vertical D. to Water Feet 09/28/08</b>	<b>Change Feet</b>
<b>PZ-1</b>	420-ft.	60°	363.7	Tube Frozen	N/A	137	N/A
<b>PZ-2</b>	450-ft.	60°	389.7	151	131	133	2
<b>PZ-3</b>	445-ft.	60°	385.4	86	74	19	-55
<b>PZ-4</b>	550-ft.	60°	477.1	Tube Frozen	N/A	49	N/A
<b>PZ-5</b>	450-ft.	60°	389.7	249	216	192	-24
<b>PZ-6</b>	150-ft.	60°	129.9	Tube Frozen	N/A	115	N/A
<b>PZ-7</b>	200-ft.	60°	173.5	Tube Frozen	N/A	115	N/A
<b>IW-9</b>	143-ft	-	143	Dry	142	142	0
<b>IW-10</b>	260-ft	-	260	Dry	82	82	0
<b>KPPZ1</b>	142-ft	-	142	122	122	122	0
<b>KPPZ2</b>	122-ft	-	122	111	111	112	1
<b>KPPZ3</b>	133-ft	-	133	119	119	110	-9
<b>KPPZ4</b>	119-ft	-	119	Frozen	Frozen	115	N/A
<b>KPPZ5</b>	131-ft	-	131	113	113	112	-1
<b>KPPZ6</b>	117-ft	-	117	105	105	105	0

### Heap Leach Sampling Results

Samples were collected from the Heap Leach monitoring well HL-1. The sampling point is located between the new heap leach dam and the existing tailing storage facility. Analytical results are located in Attachment A.

### Petroleum, Hazardous Substances, and Process Solution Spills

During the fourth quarter 2008 Fort Knox had 4 petroleum spills for a total of 21 petroleum spills, 3 coolant spills, and 2 process water spills for the year. The spills were reported to the ADEC in accordance with discharge notification and reporting requirements, and there was no contamination of surface or groundwater. The Fort Knox Mine Spill Reporting Log, containing a list of the year to date spills, has been included in Attachment E for your review.

### Interceptor Well System

In October 2008 interceptor wells IW4, IW-5, and IW-6 were chemically and mechanically cleaned. Previous testing of the wells had concluded that an iron bacteria buildup in the wells was slowing pumping capacities. Aqua-Clear MGA (Inhibited Granular Acid) and Aqua-Clear AE (Acid Enhancer) was decided upon to clean the wells.

**ANNUAL REVIEW OF POST ACTIVITIES FOR 2008 AND PLANNED ACTIVITIES FOR 2009**

**Ponding Water Below Tailings Impoundment Dam**

A surface pond that formed at Site 801 was sampled in September for Weak Acid Dissociable (WAD) cyanide (CN) and total CN. WAD cyanide was detected, and FGMI began a weekly sampling program on Oct 6, 2008, for WAD CN at Site 801 and at five surface water Test Sites (TS-1 to TS-5) located down gradient. In addition, Monitoring Wells 5, 6, 7, & 8, and the Upper Wetlands have been sampled weekly.

There were seven exceedances at Site 801 and one exceedance at Test Site 1 during the weekly sampling for WAD Cyanide.

The water that ponded at Site 801 dried up by the first week of December 2008 and pumping had to be discontinued. Water has either dried up or is completely frozen at Test Sites 1 – 5. Weekly WAD & Total cyanide sampling is continuing at Upper Wetlands, MW-5, MW-6, MW-7, and MW-8. Down-gradient groundwater and surface water sampling points continue to be free from cyanide.

**TABLE 5  
801 Sampling Points Exceedances**

Facility Name	Site Number	Sample Date	Weak Acid Dissociable Cyanide, mg/l
Fairbanks Gold Mining	801	9/16/2008 1:50:00 PM	0.037
Fairbanks Gold Mining	801	9/26/2008 7:05:00 AM	0.024
Fairbanks Gold Mining	801	10/6/2008 10:30:00 AM	0.032
Fairbanks Gold Mining	801	10/13/2008 10:00:00 AM	0.014
Fairbanks Gold Mining	801	10/20/2008 1:45:00 PM	0.025
Fairbanks Gold Mining	801	10/27/2008 11:20:00 AM	0.019
Fairbanks Gold Mining	801	11/3/2008 10:10:00 AM	0.014
Fairbanks Gold Mining	TS - 1	9/29/2008 4:40:00 PM	0.025

## **Pit Lake Evaluation**

Analytical samples were collected monthly during 2008 from the dewatering wells located in and around the existing pit. Water Management Consultants has prepared a Technical Memo updating the pit lake evaluation which is included in Attachment F. The results of the updated pit lake modeling indicate the following:

- The most recent chemistry data for the dewatering production is largely consistent with that used in the previous analyses.
- The revised inflow water quality using the 2008 data has not resulted in a significant change from the 2006 model.
- With the exception of manganese, water quality standards can be met with no active management or treatment after 15 years following cessation of dewatering.
- The overall conclusion that water quality standards will be met in the pit lake prior to discharge is still valid and not affected by the new data
- At the time discharge is predicted to occur, water quality will be sufficient to meet applicable standards, again, with the exception of manganese concentrations.
- Pumping decant and seepage water to the pit will have no short- or long-term effects on water quality. Over the short-term, the pit will act as a hydraulic sink with hydraulic gradients toward the pit lake; and over the long-term, the pit lake water will comply with water quality standards.

## **Interceptor Well System**

Interceptor wells IW-4, IW-5, and IW-6, were mechanically and chemically cleaned during the fourth quarter of 2008. A program will be initiated in the spring of 2009 to video selected interceptor wells to identify if wells are in need of repair or cleaning. If you have any questions or require additional information, please call me at (907) 488-4653 Ext 2702.

Respectfully,

Dave Stewart  
Environmental Coordinator

cc: (by PDF file)

Jim Vohden, ADNR  
Brent Martellaro, ADNR  
Steve McGroarty PE, ADNR  
Sharon Seim, ACOE  
Cindi Godsey, EPA  
Alvin Ott, ADNR-OHM&P  
Larry Radford, FGMI



# **ATTACHMENT A**

## **Compliance Monitoring Data Report**

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# FORT KNOX MINE 2008 COMPLIANCE SAMPLING DATA

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



## **FORT KNOX MINE COMPLIANCE SAMPLING DATABASE**

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This document comprises a hard copy of the Fort Knox Mine compliance sampling results for the fourth quarter of 2008. The previous four (4) quarters of compliance and baseline sample data are also included for tracking purposes. The objective of this monitoring program is to document and track local surface and groundwater conditions and characterize overburden, waste, and ore rock for acid rock drainage potential, as specified in Waste Management Permit 2006-DB0043 at the Fort Knox Mine.

The data is divided into the following sections:

- Upper Tolerance Limits Table for Water Quality Exceedances for Compliance Groundwater and Surface Water Sampling Points
- Major ion chemistry
- Minor ion chemistry
- Trace ion chemistry
- Meteoric Water Mobility
- Acid rock drainage characterization
- Site 801 WAD & Total CN Data
- HL-1 Monitoring Well Data
- Notes:

# UPPER TOLERANCE LIMITS FOR GROUNDWATER & SURFACE WATER COMPLIANCE SAMPLING POINTS

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



# UTLs for Groundwater Monitoring Locations

Parameter	MW-5, MW-6, and MW-8 Upper Tolerance Limit (mg/L)	MW-7 Upper Tolerance Limit (mg/L)
As	0.005	0.002
Cu	0.02	0.02
Cl	17	26
CN WAD	ML	ML
NO <sub>2</sub>	1	1
NO <sub>3</sub>	3.87	13
NH <sub>4</sub>	0.33	0.36
Sb	0.002	0.0155
SO <sub>4</sub>	70	910

Dissolved Concentrations

Note: If the minimum level (ML) for any indicator parameter is greater than the calculated tolerance limit, the ML will be adopted as the tolerance limit

Outlined In the Fort Knox Compliance Monitoring Plan April 11, 2008

## UTLs for Surface Water Monitoring Locations

Parameter	Upper and Lower Wetlands Upper Tolerance Limit (mg/L)
As	0.0437
Cu	0.01
Cl	2.5
CN WAD	ML
NO <sub>2</sub>	1
NO <sub>3</sub>	1.4
NH <sub>4</sub>	1.1
Sb	0.005
SO <sub>4</sub>	53

Total Concentrations

Note: If the minimum level (ML) for any indicator parameter is greater than the calculated tolerance limit, the ML will be adopted as the tolerance limit

Outlined In the Fort Knox Compliance Monitoring Plan April 11, 2008

# COMPLIANCE SURFACE WATER PROCESS WATER QUALITY DATA

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



Process Surface Water - Major Ion Chemistry

Site	Date	Bic Alk	Tot Alk	Ca	Cl	Ca Hard	Mg Hard	Mg	Lab pH	K	Si	Na	SS	Lab Cond.	SO4	Temp. (C)	TDS	TSS	Tur
501	10/14/2008	31	31	34.9	33	87	76	18.6	8	3.5	5.4	60.1	<0.1	640	141		390	<5	0.1
501	07/01/2008	32	32	32	30	80	71	17.3	7.9	2.9	5.3	49.1	<0.1	602	145	6.5	380	<5	0.3
501	06/10/2008	47	47	55.4	24	139	66	16.1	7.6	1.5	6.5	20.5	<0.1	541	122	9.2	330	<5	0.2
501	05/07/2008		50	47.8	13			11.4	7.4	2	5.2	5.5	<0.5	400	73	3.6	260	<5	1.5
501	04/21/2008	25	25	37.7	34	94	82	20	7.6	3.1	12.2	55.7	<0.1	584	170		400	<5	0.8
501	04/21/2008	30	30	31.6	26	79	74	18	7.7	3	10.3	47.3	<0.1	554	131		340	<5	4.4
501	11/07/2007	33	33	42.4	27			21.7	7.9	4.1		50.4	<0.1	638	170		400	318	246
501	10/01/2007	39	39	40.1	24			20.2	7.8	4.5		49.6	<0.1	622	160		400	86	14.8
Tailing Decant	10/07/2008	53	57	45.2	37	113	12	2.9	8.5	13.1	22.4	81.6	<0.1	655	132		430	226	214
Tailing Decant	07/02/2008	52	54	54.6	33	137	12	3	8.3	16.8	12.5	96.7	<0.1	772	177	15.7	480	47	67.5
Tailing Decant	04/15/2008	65	65	55.2	42	138	23	5.5	8.2	12.8	23.3	68.1	<0.1	675	136		460	32	53.7
Tailing Decant	01/28/2008	50	55	48.5	35	121	16	3.9	8.7	13.9	<0.01	71.8	<0.1	652	138		410	308	342
Tailing Decant	11/27/2007	64	64	63.6	31			7.6	8.1	9.7	13.4	63.7	<0.1	741	190	3.9	440	<5	6.4
Tailing Filtrate	10/08/2008	2	42	32.7	60	82	2	0.5	9.5	13	14.4	97.1	<0.1	688	137		450	81	120
Tailing Filtrate	07/03/2008	17	43	41.6	66	104	4	0.9	9.2	26.1	19.4	126	<0.1	820	172	23.3	520	25	170
Tailing Filtrate	04/23/2008	27	43	38.3	54	96	7	1.7	8.9	24.1	86.3	95.5	<0.2	691	161	19	430	204	347
Tailing Filtrate	01/29/2008	24	42	35.9	57	90	4	0.9	9.1	18.9	48.3	109	<0.1	696	150		420	80	105
Tailing Filtrate	12/05/2007	24	26	47.8	55			0.9	8.6	19.5	29.9	93.4	<0.1	709	190	20.7	500	26	45.9
Tailings Seepage	10/06/2008	78	78	70.8	28	177	63	15.4	8	5.5	5.8	44.7	<0.1	709	170		450	<5	0.4
Tailings Seepage	07/02/2008	85	85	77.4	26	194	66	16	8	5.8	5.6	46.4	<0.1	723	185	8	470	<5	0.7
Tailings Seepage	04/14/2008	88	88	79.6	25	199	68	16.6	7.8	6	14.3	49.5	<0.2	738	192		480	<5	0.3
Tailings Seepage	02/04/2008	86	86	81.1	30	203	71	17.2	7.8	6.1	13.9	47.7	<0.1	746	196	5.7	490	<5	0.5
Tailings Seepage	10/31/2007	82	82	86.4	28			17.9	7.6	6.4	13.7	52.1	<0.1	769	240	8	560	<5	0.1



## Process Surface Water - Minor Ion Chemistry

Site	Date		NH4	As	CN	F	Fe	Mn	NO3	NO2	P	TPH	WAD CN
501	10/14/2008		<0.05	0.0013	0.22	0.1	0.08	0.013	17.5	<0.01	<0.01		0.051
501	07/01/2008		<0.05	0.0016	0.438	0.2	0.24	0.019	14.5	<0.01	<0.01	<0.1	0.073
501	06/10/2008		<0.05	0.0009	0.74	<0.1	0.35	0.011	10.3	0.02	<0.01	<0.1	0.51
501	05/07/2008		<0.05	0.0014	0.94	0.2	0.8	0.028	13.3	<0.01	0.02	<0.1	0.257
501	04/21/2008		<0.3	0.0016	1.75	0.2	0.7	0.014	16.9	<0.01	<0.01	<0.09	0.266
501	04/21/2008		<0.1	<0.005	0.109	<0.1	0.21	0.018			<0.05	<5	0.023
501	11/07/2007		<0.05		0.276	0.1							0.056
501	10/01/2007		<0.5	0.001	0.173		1.04	0.137	13.9		<0.01		0.04
Tailing Decant	10/07/2008		3.37	0.0346	1.84	0.7	3.62	0.08	12.4	0.69	0.21	<0.1	1.38
Tailing Decant	07/02/2008		10.9	0.0304	0.203	0.7	1.3	0.056	10.7	0.68	0.15	0.2	0.09
Tailing Decant	04/15/2008		4.99	0.0189	5	0.5	2.77	0.079	9.5	0.81	0.2	<0.1	3.56
Tailing Decant	01/28/2008		2.44	0.0276	1.17	0.4	0.67	0.113	11.1	1.13	0.06	<0.1	0.236
Tailing Decant	11/27/2007		2.08	0.0389	0.369	0.4	0.17	0.112	11.3		0.06	<0.1	0.059
Tailing Filtrate	10/08/2008		3.18	0.0273	13.4	0.9	1.73	0.011	14.9	0.81	0.07	<0.1	11.8
Tailing Filtrate	07/03/2008		12	0.034	15.7	0.9	1.86	0.016	15.1	0.84	0.11	0.1	10.4
Tailing Filtrate	04/23/2008		7.38	0.013	17	0.9	2.56	<0.01	11.3	0.93	0.21		12.7
Tailing Filtrate	01/29/2008		4.57	0.041	13.5	0.7	2.09	0.008	13	1.21	0.37	<0.1	9.2
Tailing Filtrate	12/05/2007		4.56	0.0355	15	0.7	1.5	0.01	11	1.25	0.07	<0.1	11.3
Tailings Seepage	10/06/2008		0.39	<0.0005	0.112	0.2	0.18	0.339	8.2	0.06	0.02	<0.1	0.02
Tailings Seepage	07/02/2008		0.34	<0.0005	0.179	0.2	0.19	0.412	8.78	0.05	0.01	0.2	0.035
Tailings Seepage	04/14/2008		0.5	0.0005	0.175	0.1	0.17	0.464	8.33	0.08	0.02	<0.1	0.083
Tailings Seepage	02/04/2008		0.38	0.0005	0.132	<0.1	0.13	0.417	8.7	0.06	0.01	<0.1	0.028
Tailings Seepage	10/31/2007		0.39	0.0005	<0.005	0.1	0.09	0.394	10	0.09	0.02	<0.09	0.025

## Process Surface Water - Trace Ion Chemistry

Site	Date		Sb	Ba	Bi	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
501	10/14/2008		0.0186	0.011	<0.04	<0.0001		<0.01	<0.0001	0.0007	<0.01	0.0045	<0.01	<0.01
501	07/01/2008		0.0123	0.011	<0.04	<0.0001		<0.01	0.0001	<0.0002	0.01	0.0042	<0.01	0.07
501	06/10/2008		0.001	0.003	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	0.0019	<0.01	<0.01
501	05/07/2008		0.013	0.011	<0.04	<0.0001		<0.01	0.0005	<0.0002	<0.01	0.0024		<0.01
501	04/21/2008		0.015	0.012	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	0.0025		<0.01
501	04/21/2008		<0.0013	0.022	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	<0.005	<0.005	<0.01	<0.01
501	10/01/2007		0.029	0.015	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	<0.01	0.002	<0.01	0.02
Tailing Decant	10/07/2008		0.05	0.169	<0.04	<0.0001		0.43	0.0098	<0.0002	0.04	0.0055	<0.01	<0.01
Tailing Decant	07/02/2008		0.0395	0.092	<0.04	<0.0001		0.14	0.0057	<0.0002	0.01	0.0103	<0.01	<0.01
Tailing Decant	04/15/2008		0.027	0.187	<0.04	0.0004		0.69	0.0072	<0.0002	0.01	0.004		0.02
Tailing Decant	01/28/2008		0.069	0.06	<0.04	<0.0001		0.05	0.0038	<0.0002	0.01	0.0026		0.01
Tailing Decant	11/27/2007		0.096	0.016	<0.04	<0.0001	<0.01	0.03	0.0002	<0.0002	<0.01	0.0022	<0.01	<0.01
Tailing Filtrate	10/08/2008		0.056	0.083	<0.04	0.0002		0.51	0.0039	<0.0002	0.03	0.0063	0.01	0.04
Tailing Filtrate	07/03/2008		0.035	0.197	<0.04	0.0003		0.26	0.0066	<0.0002	0.01	0.0093	<0.01	0.09
Tailing Filtrate	04/23/2008		0.0355	0.3	<0.08	0.0003		0.71	0.0031	<0.0002	<0.02	0.0044		0.12
Tailing Filtrate	01/29/2008		0.056	0.298	<0.04	0.0002		0.12	0.007	<0.0002	0.01	0.0028		0.1
Tailing Filtrate	12/05/2007		0.051	0.468	<0.08	0.0001	<0.02	0.08	0.0067	0.0002	<0.02	0.0021	<0.02	0.14
Tailings Seepage	10/06/2008		0.0423	0.014	<0.04	<0.0001		<0.01	0.0001	<0.0002	<0.01	0.002	<0.01	<0.01
Tailings Seepage	07/02/2008		0.043	0.015	<0.04	0.0006		<0.01	<0.0001	<0.0002	0.01	0.0018	<0.01	<0.01
Tailings Seepage	04/14/2008		0.04	0.013	<0.04	<0.0001		<0.01	0.0002	<0.0002	<0.01	0.0013		<0.01
Tailings Seepage	02/04/2008		0.057	0.02	<0.04	<0.0001		<0.01	0.0002	<0.0002	<0.01	0.0014		<0.01
Tailings Seepage	10/31/2007		0.047	0.016	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0016	0.01	<0.01

# COMPLIANCE SURFACE WATER NON-PROCESS WATER QUALITY DATA

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



### Non-Process Surface Water - Major Ion Chemistry

Site	Date	Bic Alk	Tot Alk	Ca	Cl	Ca Hard	Mg Hard	Mg	Lab pH	K	Si	Na	SS	Lab Cond.	SO4	Temp. (C)	TDS	TSS	Tur
Lower Wetlands	10/01/2008	80	80	29.2	<1	73	27	6.6	8.2	1.5	4.5	4.2	<0.1	214	14		130	<5	3.1
Lower Wetlands	07/02/2008	67	67	24.6	1	62	21	5.1	8.3	1.1	3	3.5	<0.1	156	6	17.2	110	<5	2.5
Lower Wetlands	06/02/2008	73	73	25.5	2	64	22	5.4	8.1	1.5	<0.01	3.7	<0.1	179	12	16.9	120	5	6.9
Lower Wetlands	05/05/2008	29	29	11	2	28	11	2.7	7.4	1.9	<0.01	1.6	<0.1	80	<1		90	<5	8.3
Lower Wetlands	04/02/2008	92	92	35.3	<1	88	34	8.2	8.1	1.3	11.3	5.2	<0.1	243	23		130	8	8.7
Lower Wetlands	03/03/2008	112	112	37.2	<1	93	32	7.7	7.9	1.4	<0.01	4.9	<0.1	252	31		160	<5	6.8
Lower Wetlands	02/06/2008	120	120	39.1	1	98	34	8.2	7.9	1.6	14.2	5.2	<0.1	268	20		150	<5	12.4
Lower Wetlands	01/16/2008		117	39.8	<1	99	33	8.1	7.9	1		6.7		259	20		160	<5	11
Lower Wetlands	12/05/2007		132	42	<1			9	7.9	2	6.2	5.1	<0.5	279	13		150	8	11.4
Lower Wetlands	12/04/2007	129	129	42.6	1	101	37	9.1	7.7	1.7	15.4	5.7	<0.1	284	16		170	<5	12.8
Lower Wetlands	11/07/2007	121	121	38.8	<1	97	35	8.4	8	1.8	7.8	5	<0.1	275	15	1.1	170	26	15.5
Lower Wetlands	10/03/2007	94	91	27.7	<1	72	25	6.2	8.2	1	4.7	4.3	<0.5	196	9		130	<5	2.7
Rinse	09/04/2008	<2	<2	<0.2	<1			<0.2	6.3	<0.3	<0.2	<0.3	<0.1	3	<1	23	<10	<5	<0.1
Upper Wetlands	10/02/2008	102	102	32.9	<1	82	28	6.9	8.1	1.9	5.9	7.6	<0.1	254	7		150	<5	6.5
Upper Wetlands	07/02/2008	83	85	27	2	68	23	5.5	8.3	0.8	3.2	6.5	<0.1	188	3	21.3	130	<5	4.5
Upper Wetlands	06/02/2008	92	92	28.4	2	71	23	5.5	8.1	1.7	<0.01	6.5	<0.1	199	2	16.4	130	5	8.6
Upper Wetlands	05/05/2008	21	21	7.2	4	18	7	1.7	7.1	2	<0.01	1.7	<0.1	54	<1		70	5	9.4
Upper Wetlands	04/07/2008	281	281	84.7	1	212	60	14.5	7.5	2.1	24.8	21.2	<0.1	530	3	0.7	320	100	168
Upper Wetlands	03/03/2008	306	306	80.4	<1	201	58	14.1	7.5	2.1	<0.01	19.8	<0.1	559	<5		400	80	68.6
Upper Wetlands	02/06/2008	276	276	75.9	10	190	57	13.9	7.5	2.4	26.1	17	<0.1	514	<1		330	92	143
Upper Wetlands	01/16/2008		219	62.4	<1	156	46	11.3	7.5	2		18.5		407	2		300	70	81.6
Upper Wetlands	12/05/2007		169	48.4	1			9.2	7.6	2	10	10.7	<0.5	328	8		200	44	78.2
Upper Wetlands	12/04/2007	172	172	49.7	2	122	43	10.5	7.4	2.5	11.1	11.4	<0.1	350	5		240	78	40.6
Upper Wetlands	11/07/2007	148	148	42.8	<1	107	35	8.4	7.7	2	6.5	9	<0.1	305	6	1.3	180	<5	15.4
Upper Wetlands	10/03/2007	127	128	34.9	<1	90	30	7.3	7.9	2	5	8	<0.5	250	4		140	<5	7.3
Water Dam Seepage	10/01/2008	81	81	23.4	<1	59	24	5.9	7.8	1.7	6.5	5.6	<0.1	197	11		340	<5	4.5
Water Dam Seepage	04/15/2008	91	91	28.6	1	72	30	7.3	7.8	1.8	14.7	6.5	<0.1	220	13		150	<5	1.7
Water Dam Seepage	01/28/2008	91	91	29.5	1	74	29	7.1	7.8	1.8	<0.01	6.8	<0.1	207	14		140	<5	4.2
Water Dam Seepage	11/27/2007	90	90	26.8	1	67	28	6.7	7.4	1.6	12.1	6.9		209	15	3.8	160	<5	1.8
Water Reservoir	10/01/2008	41	41	16	<1	40	18	4.3	8	1	4.3	2.7	<0.1	129	12		90	<5	4
Water Reservoir	07/02/2008	52	52	19.5	1	49	20	4.9	7.9	1.2	4.4	3.1	<0.1	138	14	10.4	100	<5	4.4
Water Reservoir	06/02/2008	53	53	18.1	2	45	20	4.8	7.7	1.2	<0.01	2.9	<0.1	143	13	9.1	100	<5	9.6
Water Reservoir	05/05/2008	73	73	23.9	2	60	24	5.9	7.6	1.3	<0.01	3.7	<0.1	183	16		120	<5	9.7
Water Reservoir	04/02/2008	63	63	23.5	<1	59	24	5.8	8	1	<0.01	3.4	<0.1	172	15		100	<5	5.8
Water Reservoir	04/02/2008	61	61	23	<1	58	23	5.7	8	1.1	<0.01	3.5	<0.1	167	16		100	<5	2
Water Reservoir	03/03/2008	69	69	23.5	<1	59	24	5.9	7.7	1.1	<0.01	3.6	<0.1	174	17		110	<5	8.4
Water Reservoir	02/06/2008	66	66	23.3	1	58	24	5.8	7.7	1.2	10.8	3.5	<0.1	167	17		120	<5	6.4
Water Reservoir	01/09/2008		63	22		55	23	5.5	7.7					161	15		120	<5	7.5
Water Reservoir	12/04/2007	63	63	21.3	1	53	24	5.8	7.7	1.3	11.4	3.5	<0.1	164	17		110	<5	1.8
Water Reservoir	11/07/2007	54	54	18.9	<1	47	20	4.8	7.8	1.1	9.3	2.9	<0.1	146	14	7.6	110	<5	3.7
Water Reservoir	11/07/2007	57	57	21.8	<1	54	22	5.4	8	1	5.9	3.1	4.2	157	13		100	104	62.2
Water Reservoir	10/03/2007	57	57	18.1	<1	45	19	4.6	8.1	0.6	8.5	2.8	<0.1	146	14		100	<5	6.7

## Non-Process Surface Water - Minor Ion Chemistry

Site	Date		NH4	As	CN	F	Fe	Mn	NO3	NO2	P	TPH	WAD CN
Lower Wetlands	10/01/2008		<0.05	0.001	<0.005	0.1	0.67	0.083	0.04	<0.01	0.02	<0.09	<0.005
Lower Wetlands	07/02/2008		<0.05	0.0019	<0.005	<0.1	1.01	0.101	<0.02	<0.01	<0.01	0.1	<0.005
Lower Wetlands	06/02/2008		<0.05	0.0021	<0.005	<0.1	1.46	0.218	<0.02	<0.01	0.03	<0.1	<0.005
Lower Wetlands	05/05/2008		<0.5	0.0009	0.006	<0.1	1.35	0.222	0.03	<0.01	0.05	0.2	<0.005
Lower Wetlands	04/02/2008		<0.05	0.003	<0.005	<0.1	2.33	0.471	0.07	0.01	0.05	0.2	<0.005
Lower Wetlands	03/03/2008		<0.05	0.0028	<0.005	0.2	2.09	0.886	<0.02	0.01	0.04	<0.1	<0.005
Lower Wetlands	02/06/2008		0.12	0.003	<0.005	0.1	2.17	0.895	<0.02	0.01	0.04	<0.1	<0.005
Lower Wetlands	01/16/2008		<0.05		<0.005	0.2			0.05	0.02	<0.05		<0.005
Lower Wetlands	12/05/2007		0.2	<0.005	<0.005	0.1	1.92	0.624			<0.05	<5	<0.005
Lower Wetlands	12/04/2007		0.1	0.002	<0.005	0.1	2.08	0.632	0.04	<0.01	0.03	<0.1	<0.005
Lower Wetlands	11/07/2007		0.12	0.0024	<0.005	0.1	3.57	0.707	0.1	<0.01	0.06	<0.09	<0.005
Lower Wetlands	10/03/2007		<0.1	<0.005	<0.005	0.1	0.96	0.042	0.02		<0.05	<5	<0.005
Rinse	04/23/2008		<0.05	<0.0005	0.056	<0.1	<0.02	<0.005	<0.02	<0.01	<0.01		<0.005
Upper Wetlands	10/02/2008		<0.05	0.0019	<0.005	0.1	1.8	0.197	<0.02	<0.01	0.04	<0.1	<0.005
Upper Wetlands	09/26/2008				<0.005								<0.005
Upper Wetlands	07/02/2008		<0.05	0.003	<0.005	0.2	2.15	0.066	<0.02	<0.01	0.03	0.3	<0.005
Upper Wetlands	06/02/2008		<0.05	0.0036	<0.005	<0.1	3.24	0.238	<0.02	<0.01	0.05	<0.1	<0.005
Upper Wetlands	05/05/2008		<0.5	0.0025	0.008	<0.1	2.65	0.32	<0.02	<0.01	0.07	0.2	<0.005
Upper Wetlands	04/07/2008		1.24	0.0282	<0.005	0.1	37.3	1.84	0.04	0.05	0.47	0.14	<0.005
Upper Wetlands	03/03/2008		0.93	0.0284	<0.005	0.2	37.6	1.81	<0.02	0.03	0.46	<0.1	<0.005
Upper Wetlands	02/06/2008		0.87	0.0294	<0.005	0.2	43.5	2.27	<0.02	0.04	0.42	<0.09	<0.005
Upper Wetlands	01/16/2008		0.37		<0.005	0.2			<0.02	0.04	0.33		<0.005
Upper Wetlands	12/05/2007		0.4	0.013	<0.005	0.2	17.1	1.5			0.19	<5	<0.005
Upper Wetlands	12/04/2007		0.22	0.0098	<0.005	0.2	19.1	2.3	<0.02	0.01	0.15	0.6	<0.005
Upper Wetlands	11/07/2007		0.1	0.0027	<0.005	<0.1	4.75	1.61	0.03	<0.01	0.05	0.1	<0.005
Upper Wetlands	10/03/2007		<0.1	<0.005	0.196	0.2	1.95	0.239	0.02		<0.05	<5	<0.005
Water Dam Seepage	10/01/2008		0.14	0.0031	<0.005	0.5	2.78	1.14	<0.02	<0.01	0.05	<0.1	<0.005
Water Dam Seepage	04/15/2008		0.09	0.004	<0.005	0.3	3.65	1.39	<0.02	<0.01	0.05	<0.1	<0.005
Water Dam Seepage	01/28/2008		0.22	0.0021	<0.005	0.3	3.16	1.4	0.1	<0.01	0.05	<0.1	<0.005
Water Dam Seepage	11/27/2007		0.06	0.0028	<0.005	0.5	2.64	1.26	<0.02		<0.01	<0.1	<0.005
Water Dam Seepage	08/29/2007		<0.05	0.0029	<0.005	0.4	2.51	1.07	<0.02	<0.01	0.03	<0.09	<0.005
Water Dam Seepage	05/07/2007		<0.05	0.0033	<0.005	0.3	3.51	1.27	<0.02	<0.01	0.05	<0.1	<0.005
Water Reservoir	10/01/2008		0.05	0.0013	<0.005	<0.1	1	0.182	0.04	<0.01	0.02	<0.09	<0.005

## Non-Process Surface Water - Minor Ion Chemistry

Site	Date		NH4	As	CN	F	Fe	Mn	NO3	NO2	P	TPH	WAD CN
Water Reservoir	07/02/2008		<0.05	0.0015	0.007	0.1	2.08	0.505	0.05	<0.01	0.02	0.14	<0.005
Water Reservoir	06/02/2008		0.07	0.0016	<0.005	<0.1	1.99	0.387	0.06	<0.01	0.04	<0.1	<0.005
Water Reservoir	05/05/2008		0.13	0.0014	<0.005	0.1	2.48	0.599	<0.02	<0.01	0.03	<0.09	<0.005
Water Reservoir	04/02/2008		<0.3	0.0016	<0.005	<0.1	1.51	0.444	0.18	<0.01	0.02	<0.1	<0.005
Water Reservoir	04/02/2008		<0.3	0.0007	<0.005	<0.1	0.66	0.22	0.16	<0.01	0.01	0.1	<0.005
Water Reservoir	03/03/2008		<0.05	0.0015	<0.005	0.1	2.15	0.54	0.15	0.02	0.03	<0.09	<0.005
Water Reservoir	02/06/2008		<0.05	0.0022	<0.005	<0.1	1.95	0.454	0.15	<0.01	0.02	<0.1	<0.005
Water Reservoir	01/09/2008		<0.05		<0.005				0.15	0.02			<0.005
Water Reservoir	12/04/2007		<0.05	0.0009	<0.005	<0.1	0.73	0.207	0.05	<0.01	0.02	<0.09	<0.005
Water Reservoir	11/07/2007		<0.05	0.0009	<0.005	<0.1	0.86	0.184	0.04		0.01	<0.1	<0.005
Water Reservoir	11/07/2007		0.06	0.0034	<0.005	<0.1	4.01	0.58	0.05	<0.01	0.1	0.1	<0.005
Water Reservoir	10/03/2007		<0.05	0.0011	<0.005	<0.1	0.89	0.203	0.02		<0.01	<0.1	<0.005

## Non-Process Surface Water - Trace Ion Chemistry

Site	Date		Sb	Ba	Bi	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Lower Wetlands	10/01/2008		<0.0004	0.028	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	0.0001	<0.01	<0.01
Lower Wetlands	07/02/2008		<0.0004	0.026	<0.04	<0.0001		<0.01	0.0002	<0.0002	<0.01	0.0001	<0.01	<0.01
Lower Wetlands	06/02/2008		<0.0004	0.03	<0.04	<0.0001		<0.01	0.0004	<0.0002	<0.01	<0.0001		<0.01
Lower Wetlands	05/05/2008		<0.0004	0.023	<0.04	<0.0001		<0.01	0.0002	<0.0002	<0.01	<0.0001		<0.01
Lower Wetlands	04/02/2008		<0.0004	0.025	<0.04	<0.0001		<0.01	0.0002	0.0002	<0.01	0.0003		<0.01
Lower Wetlands	03/03/2008		<0.0004	0.033	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	<0.0001		<0.01
Lower Wetlands	02/06/2008		<0.0004	0.036	<0.04	<0.0001		<0.01	0.0003	<0.0002	<0.01	0.0002		0.03
Lower Wetlands	12/05/2007		<0.0013	0.037	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	<0.005	<0.005	<0.01	<0.01
Lower Wetlands	12/04/2007		<0.0004	0.039	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	0.0001	<0.01	<0.01
Lower Wetlands	11/07/2007		<0.0004	0.046	<0.04	<0.0001	<0.01	<0.01	0.0003	<0.0002	<0.01	0.0001	<0.01	<0.01
Lower Wetlands	10/03/2007		<0.0013	0.024	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	<0.005	<0.005	<0.01	<0.01
Rinse	04/23/2008		<0.0004	<0.003	<0.04	<0.0001		<0.01	0.0014	<0.0002	<0.01	0.0001		0.03
Upper Wetlands	10/02/2008		<0.0004	0.04	<0.04	<0.0001		<0.01	0.0002	<0.0002	0.01	<0.0001	<0.01	0.03
Upper Wetlands	07/02/2008		<0.0004	0.03	<0.04	0.0001		<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
Upper Wetlands	06/02/2008		<0.0004	0.027	<0.04	<0.0001		<0.01	0.0002	<0.0002	<0.01	<0.0001		<0.01
Upper Wetlands	05/05/2008		<0.0004	0.019	<0.04	<0.0001		<0.01	0.0001	<0.0002	<0.01	<0.0001		<0.01
Upper Wetlands	04/07/2008		<0.0004	0.109	<0.04	<0.0001		<0.01	0.0003	<0.0002	<0.01	0.0001		<0.01
Upper Wetlands	03/03/2008		<0.0004	0.096	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	<0.0001		<0.01
Upper Wetlands	02/06/2008		<0.0004	0.103	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	0.0002		0.05
Upper Wetlands	12/05/2007		<0.0013	0.078	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	<0.005	<0.005	<0.01	0.02
Upper Wetlands	12/04/2007		<0.0004	0.094	<0.04	<0.0001	<0.01	<0.01	0.0005	<0.0002	<0.01	0.0001	<0.01	<0.01
Upper Wetlands	11/07/2007		<0.0004	0.073	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0001	<0.01	0.01
Upper Wetlands	10/03/2007		<0.0013	0.032	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	<0.005	<0.005	<0.01	0.02
Water Dam Seepage	10/01/2008		<0.0004	0.008	<0.04	<0.0001		<0.01	<0.0001	<0.0002	0.01	0.0001	<0.01	<0.01
Water Dam Seepage	04/15/2008		<0.0004	0.007	<0.04	<0.0001		<0.01	0.0001	<0.0002	<0.01	<0.0001		<0.01
Water Dam Seepage	01/28/2008		<0.0004	0.009	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	0.0002		0.05
Water Dam Seepage	11/27/2007		<0.0004	0.006	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
Water Reservoir	10/01/2008		<0.0004	0.018	<0.04	<0.0001		<0.01	0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
Water Reservoir	07/02/2008		<0.0004	0.02	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
Water Reservoir	06/02/2008		<0.0004	0.021	<0.04	0.0001		<0.01	0.0004	<0.0002	<0.01	<0.0001		<0.01
Water Reservoir	05/05/2008		<0.0004	0.025	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	<0.0001		0.01
Water Reservoir	04/02/2008		<0.0004	0.024	<0.04	0.0002		<0.01	0.0004	<0.0002	<0.01	0.0003		<0.01
Water Reservoir	04/02/2008		<0.0004	0.024	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	0.0003		<0.01
Water Reservoir	03/03/2008		<0.0004	0.024	<0.04	<0.0001		<0.01	0.0008	<0.0002	<0.01	<0.0001		0.03
Water Reservoir	02/06/2008		<0.0004	0.025	<0.04	<0.0001		<0.01	<0.0001	<0.0002	<0.01	<0.0001		0.03
Water Reservoir	12/04/2007		<0.0004	0.023	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01

## Non-Process Surface Water - Trace Ion Chemistry

Site	Date		Sb	Ba	Bi	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Water Reservoir	11/07/2007		<0.0004	0.019	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
Water Reservoir	11/07/2007		<0.0004	0.044	<0.08	<0.0001	<0.02	<0.02	0.0005	<0.0002	<0.02	0.0001	<0.02	<0.02
Water Reservoir	10/03/2007		<0.0004	0.022	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01



# COMPLIANCE GROUNDWATER PROCESS WATER QUALITY DATA

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



Process GW-Major Ions

Site	Sample Date	Alk, Total (mg/l as CaCO3)	Ca, Disvd (mg/l)	Chloride (mg/l)	Hardness Ca CaCO3 mg/L	Hardness Mg CaCO3 (mg/L)	Mg, Dissolved (mg/l)	pH (Lab-su)	K, Dissolved (mg/l)	SILICON, DISSOLVED (MG/L AS SI)	Sodium, Dissolved (mg/l)	Specific Conductance (umhos/cm @ 25C)	Sulfate (mg/l)	Sulfide, Total (mg/l as S)	H2O Temp C	TDS (mg/l)	TSS (mg/l)	Lab NTU
401	10/03/2007	57	40		96	38	9.7	7.7	1.2		4.3	310	52	<0.02		170	<5	0.9
401	10/03/2007	56	40	7	96	38	9.7	7.4	1.2	5.3	4.3	307	54	<0.5		180	<5	0.9
401	01/08/2008	116	72		164	23	6	8.1	1.7	8.1	34.7	511	109	<0.02	3.2	320	<5	1.6
401	04/21/2008	49	50.5		130	52	12.3	7.5	1.4	6.2	5.8	368	78	<0.02		250	<5	1.5
401	04/21/2008	49	50.5		130	52	12.3	7.5	1.4		5.8	368	78	<0.02		250	<5	1.5
401	05/06/2008	36	31.5		74	36	8.5	7	1.3	5.4	4.3	256	50	<0.02		160	7	13
401	06/09/2008	52	43.4		105	42	10.6	7.3	1.3	5.6	5	338	65	<0.02		210	<5	1.2
401	07/21/2008	78	48.5		110	45	10.9	7.4	1.5	5.5	5.2	358	67	<0.02	2.9	210	<5	0.8
401	10/08/2008	59	34.4		83	35	8.5	7.5	1.3	5.1	4.5	257	38	<0.02		180	<5	2.3
IW-1	10/03/2007	187	84.3	7	210	60	15.1	8.4	4.2	15.2	8	554	82	<0.02		330	<5	0.2
IW-1	11/05/2007	184	83.8		208	60	14.9	8.2	4.3		8.1	557	82	<0.02		340	<5	0.3
IW-1	01/07/2008	186	89.9		196	57	15.8	8.1	4.1	7.2	7.7	513	82	<0.02	4.8	340	<5	0.1
IW-1	02/04/2008	189	84		213	61	15	8.1	4.2	7.5	7.8	546	83	<0.02		330	<5	0.4
IW-1	03/05/2008	174	82.3		216	63	14.6	8	4	7.3	7.6	524	76	<0.02		330	<5	0.2
IW-1	04/07/2008	179	85.5		225	63	15.3	8.2	4.3	7.7	8.5	520	75	<0.02	3.1	330	<5	0.3
IW-1	05/05/2008	176	83.1		197	58	15	8	4.2	7.2	8.1	516	83	<0.02		320	<5	<0.1
IW-1	06/04/2008	180	83.8		191	55	14.9	8.2	4.1	7.4	7.8	540	77	<0.02	4.7	300	<5	<0.1
IW-1	07/01/2008	181	82		188	56	14.5	8.3	4.1	6.5	7.8	528	79	<0.02	2.9	320	42	1.7
IW-1	11/13/2008	183	84.9		217	62	14.9	8.2	4.3	6.6	8	501	83	<0.02	8.5	340	<5	0.1
IW-11	10/01/2007	51	61.7		155	74	17.7	7.8	1.4	13.6	14	530	129	<0.02		330	<5	0.4
IW-11	11/06/2007	30	37.7		93	81	19.1	7.8	3	5.7	47.4	625	132	<0.02	8.1	380	<5	<0.1
IW-11	03/10/2008	45	61.2		144	67	17.5	7.3	1.6	6.5	19.1	524	124	<0.02		330	<5	1.2
IW-11	04/01/2008	47	60.3		152	71	17.4	7.9	1.6	5.8	19.4	525	120	<0.02		280	<5	0.5
IW-11	05/07/2008	45	54.7		140	74	16	7.7	1.6	6.3	19.3	525	126	<0.02		320	<5	0.5
IW-11	06/10/2008	44	58.1		143	68	17	7.8	1.6	6.5	21.1	542	130	<0.02	6.1	330	<5	<0.1
IW-11	07/08/2008														6.1			
IW-11	07/22/2008	45	61.2		150	74	18.1	7.8	1.7	5.9	24.1	538	118	<0.02	4.4	310	<5	0.7
IW-11	10/14/2008	46	57.9		136	66	16.6	8	1.7	5.6	23.5	545	124	<0.02		320	<5	0.3
IW-2	10/03/2007	184	132	26	348	83	19.9	8.3	3.6	19.8	34.2	947	250	<0.02		610	<5	1.2
IW-2	11/05/2007	180	131		328	81	20.1	8.1	3.7	19.7	36	938	260	<0.02		620	<5	1.3
IW-2	12/03/2007	187	128		318	79	19.3	8	3.8	9.1	34.5	908	250	<0.02		620	<5	1.1
IW-2	01/07/2008	181	139		333	82	21.3	7.8	3.9	9.4	34.6	865	240	<0.02	5.2	630	<5	1.1
IW-2	02/04/2008	188	133		343	86	20.5	7.9	4	9.5	36.1	905	260	<0.02		620	<5	3.7
IW-2	03/05/2008	189	130		333	84	20	7.6	3.9	9.4	34.8	879	230	<0.02		600	<5	2.3
IW-2	04/07/2008	189	136		345	85	21.3	8.1	4	9.7	36.4	880	240	<0.02	3.3	610	<5	1.8
IW-2	05/05/2008	176	130		305	78	20.6	8	4	9.4	36.7	863	250	<0.02		600	<5	0.9
IW-2	06/04/2008	178	129		298	75	20	8.1	3.8	9.3	35.9	890	240	<0.02	5	580	<5	1
IW-2	07/01/2008	176	134		288	74	19.1	8.3	3.8	9.1	35.1	870	240	<0.02	5.7	600	<5	1.3
IW-2	10/01/2008	169	124		318	81	19.2	8.1	4.1	8	35.7	875	250	<0.02		590	321	216
IW-3	10/03/2007	114	109	22	260	46	12.1	8.3	1.4	13.1	33.3	750	210	<0.02		480	<5	0.6
IW-3	12/03/2007	186	81.9		206	60	14.4	8.2	4.2	7.3	7.9	546	80	<0.02		340	<5	<0.1
IW-3	01/08/2008	97	72.4		180	34	8	8.1	1.6	8.1	35	541	140	<0.02	4.3	360	<5	0.3
IW-3	03/05/2008	87	93.2		243	42	9.5	7.9	1.3	6.9	37.2	693	192	<0.02		460	<5	0.5
IW-3	04/14/2008	90	73.9		186	35	8.5	8.2	1.8	7.5	37.8	567	157	<0.02	5	370	<5	0.5
IW-3	05/05/2008	82	71.1		172	40	9.1	8	1.6	6.7	33	551	150	<0.02		360	409	2.8
IW-3	06/09/2008	95	74		173	33	8.4	8.1	1.7	7.7	35.6	559	153	<0.02		370	<5	0.1
IW-3	07/01/2008	95	69.9		157	31	8.2	8.4	1.9	6.7	34.9	559	141	<0.02	5.6	360	<5	0.7
IW-3	10/01/2008	87	72.2		182	36	8.4	8.3	1.9	6.6	33.7	568	150	<0.02		370	<5	4.4
IW-4	10/03/2007	161	85.6		212	22	5.5	8.3	1.4		43.8	644	149	<0.02		410	<5	0.4

Process GW-Major Ions

IW-4	11/05/2007	154	86	222	25	5.9	8.1	2.1	17.7	42.9	658	155	<0.02		430	<5	1.1
IW-4	01/08/2008	129	73.7	175	20	4.9	8.1	1.7	8.5	40.8	532	113	<0.02	4.4	350	<5	1.9
IW-4	03/05/2008	78	72.5	184	35	8.3	8	1.7	7.6	33.3	566	150	<0.02		380	<5	0.3
IW-4	04/14/2008	103	48.4	120	9	2.1	8.3	1.2	10	55.6	469	110	<0.02	4.7	310	<5	<0.1
IW-4	06/04/2008	129	78	196	20	5.1	8.1	1.7	8.2	48.4	612	150	<0.02		370	<5	<0.1
IW-4	06/04/2008	131	79.1	192	20	5.2	8.1	1.8	8.3	48.1	612	152	<0.02		380	<5	0.2
IW-4	07/01/2008	133	77.5	174	18	4.6	8.4	1.8	7.2	47.6	605	144	<0.02	6.3	390	<5	0.4
IW-4	10/08/2008	157	81.6	195	22	5.4	8.1	1.7	7.6	41.2	577	123	<0.02		410	<5	1.1
IW-5	10/03/2007	129	109	275	74	18.4	8.1	9.4		47.9	903	230	<0.02		580	<5	0.4
IW-5	11/05/2007	125	107	263	72	18	8	9.8	14.8	47.9	899	250	<0.02		580	<5	0.4
IW-5	12/03/2007	130	103	260	72	17.1	7.9	9.4	6.9	45.8	866	240	<0.02		570	<5	0.5
IW-5	01/07/2008	127	110	253	70	18.5	7.8	9.2	7	45.4	832	220	<0.02	4.3	560	<5	0.8
IW-5	02/04/2008	128	105	270	74	17.8	7.8	9.6	7.2	48.1	844	240	<0.02		550	<5	0.5
IW-5	03/05/2008	119	101	258	72	16.9	7.5	9.3	6.9	45	821	230	<0.02		550	<5	0.3
IW-5	04/07/2008	134	106	270	73	18.4	8	9.3	6.8	47.7	838	230	<0.02	5.2	560	<5	2.4
IW-5	05/05/2008	124	101	232	65	17.4	7.8	9.1	7	46.7	810	230	<0.02		540	16	0.2
IW-5	06/04/2008	127	102	241	67	17.3	7.9	9.2	7.2	45.4	833	230	<0.02	5.2	520	<5	0.6
IW-5	07/01/2008	129	99.2	228	65	16.9	8.2	9	6.2	46.2	823	230	<0.02	3.3	540	<5	0.9
IW-5	10/01/2008	118	96.6	242	68	16.2	8	9.5	6.1	44.6	809	220	<0.02		530	<5	0.6
IW-6	10/03/2007	170	100	268	60	14.1	8.2	3		28.1	744	180	<0.02		480	<5	0.5
IW-6	11/05/2007	160	101	247	57	14.1	8.1	3		29	733	158	<0.02	4.2	480	<5	0.8
IW-6	12/03/2007	164	99.5	249	57	13.9	8	3.1	9.9	29.1	710	172	<0.02		480	<5	0.7
IW-6	01/07/2008	165	108	245	56	15.2	8	3.4	9.7	29.3	683	168	<0.02	4.4	480	<5	0.9
IW-6	02/04/2008	161	103	268	61	14.5	8	3.2	9.8	30	713	173	<0.02		470	<5	0.8
IW-6	03/05/2008	155	104	258	59	14.9	7.7	3.4	9.6	31.5	703	163	0.04		460	<5	2
IW-6	04/07/2008	155	107	275	63	15.5	8.2	3.3	9.3	31.1	710	176	<0.02	5.3	490	<10	1.7
IW-6	05/05/2008	154	91.6	249	59	12.9	8	2.9	8.6	27	712	177	<0.02		470	<5	0.7
IW-6	06/04/2008	162	110	263	59	15.2	8.1	3.2	9.7	30.1	744	183	<0.02	4.3	470	<5	1.7
IW-6	07/01/2008	158	108	240	57	14.7	8.3	3.4	9.7	30.7	719	168	<0.02	5.5	470	<5	0.3
IW-6	10/01/2008	143	101	253	61	14.6	8.2	3.6	8.3	30.6	722	170	<0.02		480	<5	0.7
IW-7	10/03/2007	99	56.7	137	37	9.6	8.1	1.5	11	4.2	374	51	<0.02		210	<5	<0.1
IW-7	11/05/2007	92	53.8	134	37	9.2	8	1.6		4.1	376	48	<0.02	5.7	220	<5	0.3
IW-7	03/11/2008	77	57.6	142	39	10	7.6	1.7	5.5	4.4	376	58	<0.02		220	<5	0.3
IW-7	04/01/2008	82	58.3	144	40	10.1	8.1	1.8	5	4.6	377	60	<0.02		210	<5	0.6
IW-7	05/07/2008	86	52.7	135	42	9.1	7.9	1.6	5.4	4.3	367	65	<0.02		210	<5	0.2
IW-7	06/09/2008	95	56.8	134	38	9.7	7.9	1.6	5.8	4.3	370	58	<0.02		230	<5	<0.1
IW-7	07/21/2008	117	61.1	137	40	9.9	8	2	5.4	4.3	384	60	<0.02	3	230	<5	0.5
IW-7	10/14/2008	93	55.3	136	39	9.5	8.1	1.7	5.1	4.6	370	52	<0.02		220	<5	0.5
IW-8	10/01/2007	46	47.1	117	44	10.6	7.7	1.4	12.2	7.9	379	78	<0.02		240	<5	<0.1
IW-8	10/01/2007	49		117	44	10.6	7.7	1.4	12.2	7.9	379	78	<0.02		240	<5	<0.1
IW-8	11/05/2007	44	49.9	118	43	11.2	7.8	1.5		8.8	375	78	<0.5		250	<5	0.2
IW-8	03/11/2008	40	52	148	53	11.4	7.5	1.6	5.1	10.6	412	80	<0.02		250	<5	1
IW-8	04/01/2008	43	60.1	148	53	13.6	7.8	1.9	5.1	13	465	102	<0.02		280	<5	0.3
IW-8	05/07/2008	30	35.8	92	37	8	7.5	1.6	4.4	9.2	309	1	<0.02		210	<5	4.3
IW-8	06/10/2008	44	53.1	124	45	11.8	7.8	1.8	5.7	12.2	429	89	<0.02	8.4	260	<5	<0.1
IW-8	07/22/2008	47	54.7	140	52	12.2	7.7	1.9	5.2	13.1	437	88	<0.02	3	240	<5	<0.1
IW-8	10/08/2008	46	40.6	99	37	8.9	7.8	1.4	5	8.6	313	60	<0.02		220	<5	0.3
MW-1	11/05/2007	332	148	360	93	23.7	7.9	5.5		25.7	952	130	0.04		610	<5	5.6
MW-1	01/28/2008	331	153	378	92	24	7.9	5.2	10.5	25.5	867	121	<0.02		590	<5	2.6
MW-1	04/07/2008	325	149	390	99	24	7.9	5.6	10	27.3	891	136	<0.02	4.5	600	<5	2.5
MW-1	07/01/2008	347	150	340	90	24	8.2	5	8.8	24	928	122	<0.02	2.8	610	<5	3
MW-1	10/08/2008	273	137	348	91	21.8	8	6.4	7.9	28.3	858	160	<0.02		610	<5	2.6

Process GW-Major Ions

MW-2	11/05/2007	208	69.7	172	37	8.9	8.1	2.2		21.7	500	40	0.04		320	<5	22.2
MW-2	01/28/2008	202	74.1	184	37	9.6	8.1	2.4	12.5	23	478	37	<0.02		310	<5	26.8
MW-2	06/11/2008	223	71.6	183	40	9.5	8	2.4	10.3	21.9	512	34	0.05	12.2	310	8	26.7
MW-2	07/01/2008	219	80.1	178	42	9.8	8.3	2.5	9	23	510	23	0.27	6.5	320	113	51.1
MW-2	10/08/2008	197	69.9	173	40	9.4	8.3	2.4	3.5	23.1	467	34	0.21		300	27	43.9
MW-3	01/08/2008	104	109	273	48	11.3	7.9	1.5	7.9	40.1	734	200	<0.02	3.9	480	<5	2.6
MW-3	04/07/2008	92	73.1	187	34	8.5	8.3	1.9	7.9	36.9	554	150	<0.02		370	<5	0.6
MW-3	07/01/2008	89	87.9	193	35	9.5	8.3	1.3	6.6	35.1	638	177	<0.02	5	420	<5	0.2
MW-3	10/08/2008	104	82.6	202	38	9.1	8.1	1.2	5.7	26	573	143	<0.02		390	<5	0.9

Process GW-Minor Ions

Site	Sample Date	Ammonia (mg/l as N)	As, Disvd (mg/l)	CN, Total (mg/l)	Fluoride (mg/l)	Iron, Dissolved (mg/l)	Manganese, Dissolved (mg/l)	Nitrate Nitrogen, Disvd (mg/l as N)	Nitrite Nitrogen, Dissolved (mg/l as N)	Phosphorus (mg/l as P)	Total Petroleum Hydrocarbons mg/l	WADCN, mg/l
401	10/03/2007	<0.1	<0.0005	0.116		0.24	0.04	4.45	<0.01		<0.1	0.029
401	10/03/2007	<0.1	<0.005	<0.005	<0.1	0.07	0.055	4.45	<0.01	<0.05	<5	<0.005
401	01/08/2008	<0.1	<0.0005	0.021		0.08	0.078	1.32	0.02			<0.005
401	04/21/2008	<0.3	<0.0005	0.157		0.09	0.018	7.67	<0.01			0.037
401	04/21/2008	<0.3	<0.0005	0.157		0.09	0.018	7.67	<0.01			0.037
401	05/06/2008	<0.05	<0.0005	0.094		0.12	0.016	4.58	<0.01			0.021
401	06/09/2008	<0.05	<0.0005	0.162		0.09	0.027	6.13	0.01			0.09
401	07/21/2008	<0.05	<0.0005	0.193		0.12	0.026	6.3	<0.01			0.048
401	10/08/2008	<0.05	<0.0005	0.1		0.34	0.108	3.71	<0.01			0.027
401	10/20/2008			0.12								0.033
IW-1	10/03/2007	<0.05	0.0036	<0.005	<0.1	<0.02	0.066	0.42	0.18	<0.01	0.1	<0.005
IW-1	11/05/2007	<0.05	0.0032	<0.005		<0.02	0.065	0.36	0.17			0.008
IW-1	01/07/2008	0.07	0.0033	<0.005		<0.02	0.063	0.55	0.17			<0.005
IW-1	02/04/2008	<0.05	0.0036	<0.005		0.02	0.057	0.19	0.17			<0.005
IW-1	03/05/2008	<0.3	0.0036	<0.005		<0.02	0.06	0.26	0.17			<0.005
IW-1	04/07/2008	<0.05	0.0037	<0.005		0.06	0.049	0.31	0.19			<0.005
IW-1	05/05/2008	<0.05	0.003	0.019		<0.02	0.048	0.3	0.17			<0.005
IW-1	06/04/2008	<0.05	0.0051	<0.005		<0.02	0.058	0.26	0.18			<0.005
IW-1	07/01/2008	<0.05	0.0033	<0.005		<0.02	0.05	0.24	0.17			<0.005
IW-1	11/13/2008	<0.05	0.0029	<0.005		<0.02	0.071	0.1	0.1			<0.005
IW-11	10/01/2007	<0.05	<0.0005	0.166		0.12	0.017	8.9	0.08		0.1	0.031
IW-11	11/06/2007	<0.5	0.0006	0.246		0.09	0.024	16.4	<0.01			0.031
IW-11	03/10/2008	<0.3	<0.0005	0.48		0.46	0.016	10.5	0.01			0.119
IW-11	04/01/2008	<0.3	0.001	0.57		0.21	<0.005	10.9	0.02			0.134
IW-11	05/07/2008	<0.05	<0.0005	0.57		0.28	0.01	11.1	<0.01			0.146
IW-11	06/10/2008	<0.05	0.01	0.75		0.31	0.01	10.9	0.02			0.51
IW-11	07/22/2008	<0.05	0.0006	0.48		0.22	0.009	11.2	0.02			0.082
IW-11	10/14/2008	<0.05	<0.0005	0.282		0.12	0.016	11.4	0.03			0.047
IW-2	10/03/2007	<0.05	<0.0005	<0.005	<0.1	0.18	0.611	<0.02	<0.01	<0.01	0.1	<0.005
IW-2	11/05/2007	<0.05	<0.0005	<0.005		0.51	0.604	<0.02	<0.01			<0.005
IW-2	12/03/2007	<0.05	<0.0005	<0.005		0.08	0.642	0.16	<0.01			<0.005
IW-2	01/07/2008	<0.05	<0.0005	<0.005		0.22	0.68	<0.02	<0.01			<0.005
IW-2	02/04/2008	<0.05	<0.0005	<0.005		1.44	0.649	<0.02	<0.01			<0.005
IW-2	03/05/2008	<0.05	<0.0005	0.006		0.45	0.667	0.04	<0.01			<0.005

Process GW-Minor Ions

IW-2	04/07/2008	<0.05	0.0006	<0.005		0.26	0.647	<0.02	<0.01			<0.005
IW-2	05/05/2008	<0.05	<0.0005	<0.005		0.24	0.643	<0.02	<0.01			<0.005
IW-2	06/04/2008	0.1	0.0007	<0.005		0.21	0.64	0.03	<0.01			<0.005
IW-2	07/01/2008	<0.05	<0.0005	0.006		0.25	0.688	<0.02	<0.01			<0.005
IW-2	10/01/2008	<0.05	<0.0005	<0.03		0.72	0.651	0.02	<0.01			<0.005
IW-3	10/03/2007	<0.05	0.0026	<0.005	<0.1	0.14	0.46	<0.02	<0.01	<0.01	0.1	<0.005
IW-3	12/03/2007	<0.05	0.0032	<0.005		<0.02	0.058	0.32	0.18			<0.005
IW-3	01/08/2008	<0.1	0.001	<0.005		0.04	0.217	<0.02	0.01			<0.005
IW-3	03/05/2008	<0.3	0.0012	<0.005		0.12	0.333	<0.02	<0.01			<0.005
IW-3	04/14/2008	<0.3	0.0012	<0.005		0.03	0.167	0.09	<0.01			<0.005
IW-3	05/05/2008	<0.05	0.0006	0.007		0.06	0.171	0.06	<0.01			<0.005
IW-3	06/09/2008	0.07	0.0009	<0.005		<0.02	0.171	0.03	<0.01			<0.005
IW-3	07/01/2008	<0.05	0.0009	<0.005		0.03	0.152	0.03	<0.01			<0.005
IW-3	10/01/2008	<0.05	0.0011	<0.005		<0.02	0.194	0.03	<0.01			<0.005
IW-4	10/03/2007	<0.05	0.0005	<0.005		0.17	0.041	0.2	0.02		0.1	<0.005
IW-4	11/05/2007	<0.05	<0.0005	<0.005		4.58	0.089	0.17	0.02			<0.005
IW-4	01/08/2008	<0.05	<0.0005	0.009		0.2	0.101	0.41	0.03			<0.005
IW-4	03/05/2008	<0.3	0.0014	<0.005		0.09	0.205	2.38	<0.01			<0.005
IW-4	04/14/2008	<0.3	<0.0005	<0.005		0.12	0.081	<0.02	<0.01			<0.005
IW-4	06/04/2008	<0.05	0.0017	<0.005		0.15	0.031	0.11	<0.01			<0.005
IW-4	06/04/2008	<0.05	0.0009	<0.005		0.15	0.029	0.11	<0.01			<0.005
IW-4	07/01/2008	<0.05	<0.0005	<0.005		0.16	0.018	0.11	<0.01			<0.005
IW-4	10/08/2008	<0.05	<0.0005	<0.005		0.32	0.033	0.11	<0.01			<0.005
IW-5	10/03/2007	0.22	<0.0005	0.006		0.22	0.58	3.67	0.02		0.13	<0.005
IW-5	11/05/2007	0.2	<0.0005	<0.005		0.23	0.552	3.96	0.02			<0.005
IW-5	12/03/2007	0.22	0.0006	<0.005		0.16	0.566	3.61	0.02			<0.005
IW-5	01/07/2008	0.14	<0.0005	0.009		0.22	0.594	3.92	0.02			<0.005
IW-5	02/04/2008	0.3	0.0005	0.015		0.22	0.556	3.68	0.02			0.01
IW-5	03/05/2008	0.18	0.0006	0.013		0.2	0.556	3.59	0.02			0.005
IW-5	04/07/2008	0.44	0.0007	0.012		0.24	0.562	3.49	0.03			<0.005
IW-5	05/05/2008	0.3	<0.0005	<0.005		0.24	0.553	3.23	0.02			<0.005
IW-5	06/04/2008	0.37	0.0008	0.005		0.24	0.575	3.25	0.02			<0.005
IW-5	07/01/2008	0.25	<0.0005	0.009		0.18	0.559	3.25	0.01			<0.005
IW-5	10/01/2008	0.29	<0.0005	0.009		0.2	0.523	2.92	0.03			0.005
IW-6	10/03/2007	<0.05	0.0006	<0.005		0.3	0.495	0.07	<0.01		0.1	<0.005
IW-6	11/05/2007	<0.05	0.0007	<0.005		0.27	0.49	0.08	<0.01			<0.005
IW-6	12/03/2007	<0.05	0.0005	<0.005		0.05	0.517	0.08	<0.01			<0.005
IW-6	01/07/2008	<0.05	<0.0005	<0.005		0.32	0.526	0.09	<0.01			<0.005

Process GW-Minor Ions

IW-6	02/04/2008	<0.05	0.0006	<0.005	0.33	0.478	0.06	<0.01			<0.005	
IW-6	03/05/2008	<0.3	0.0008	<0.005	0.31	0.49	0.11	<0.01			<0.005	
IW-6	04/07/2008	0.16	0.0009	<0.005	0.39	0.489	0.12	<0.01			<0.005	
IW-6	05/05/2008	<0.05	<0.0005	0.014	0.39	0.442	0.08	<0.01			<0.005	
IW-6	06/04/2008	0.08	0.0009	<0.005	0.3	0.526	0.12	<0.01			<0.005	
IW-6	07/01/2008	<0.05	<0.0005	<0.005	0.4	0.526	0.12	<0.01			<0.005	
IW-6	10/01/2008	<0.05	<0.0005	<0.005	0.37	0.464	0.12	<0.01			<0.005	
IW-7	10/03/2007	<0.05	<0.0005	0.025	0.05	<0.005	3.6	<0.01		0.1	0.014	
IW-7	11/05/2007	<0.05	<0.0005	0.01	0.03	0.009	4.36	<0.01			0.024	
IW-7	03/11/2008	<0.3	<0.0005	0.012	0.08	<0.005	4.05	<0.01			0.016	
IW-7	04/01/2008	<0.3	<0.0005	0.04	0.03	<0.005	2.3	0.01			0.02	
IW-7	05/07/2008	<0.05	<0.0005	0.04	0.03	0.008	4.36	<0.01			0.016	
IW-7	06/09/2008	0.21	<0.0005	0.034	0.06	0.014	3.72	0.01			0.024	
IW-7	07/21/2008	<0.05	<0.0005	0.039	0.06	0.013	4.09	<0.01			0.016	
IW-7	10/14/2008	<0.05	<0.0005	0.045	0.05	0.017	3.5	<0.01			0.018	
IW-8	10/01/2007	<0.5	0.0005	0.164	<0.1	0.09	0.006	2.11	<0.01	<0.01	0.1	0.03
IW-8	10/01/2007	<0.1	<0.005	0.019	<0.1	0.08	0.006		<0.05	<0.05	<5	0.013
IW-8	11/05/2007	<0.05	<0.0005	0.17	0.1	0.014	7.58	<0.01				0.024
IW-8	03/11/2008	<0.05	<0.0005	0.234	0.09	0.01	7.4	<0.01				0.062
IW-8	04/01/2008	<0.3	0.0007	0.308	0.12	<0.005	10.5	0.01				0.115
IW-8	05/07/2008	<0.05	<0.0005	0.25	0.24	0.018	6.67	<0.01				0.018
IW-8	06/10/2008	<0.05	0.01	0.356	0.2	0.013	8.6	<0.01				0.246
IW-8	07/22/2008	<0.05	<0.0005	0.33	0.17	0.011	9.3	<0.01				0.063
IW-8	10/08/2008	<0.05	<0.0005	0.18	0.09	<0.005	5.93	<0.01				0.034
MW-1	11/05/2007	<0.05	<0.0005	0.116	1.09	0.581	2.08	0.03				<0.005
MW-1	01/28/2008	0.17	<0.0005	<0.005	0.8	0.608	1.32	0.07				<0.005
MW-1	04/07/2008	3.27	0.0006	<0.005	0.75	0.573	1.59	0.07				<0.005
MW-1	07/01/2008	<0.05	<0.0005	<0.005	0.75	0.586	1.23	0.04				<0.005
MW-1	10/08/2008	0.14	<0.0005	<0.005	0.66	0.526	1.59	0.08				<0.005
MW-2	11/05/2007	<0.05	0.0015	<0.005	2.65	0.595	<0.02	<0.01				<0.005
MW-2	01/28/2008	0.1	0.0018	<0.005	2.35	0.614	<0.02	<0.01				<0.005
MW-2	06/11/2008	0.23	0.0032	<0.005	3.16	0.615	<0.02	<0.01				<0.005
MW-2	07/01/2008	<0.05	0.0011	<0.005	5.78	0.668	<0.02	0.03				<0.005
MW-2	10/08/2008	<0.05	<0.0005	<0.005	1.34	0.433	0.05	<0.01				<0.005
MW-3	01/08/2008	<0.05	0.0011	<0.005	0.48	0.451	<0.02	0.01				<0.005
MW-3	04/07/2008	0.18	0.0013	<0.005	0.03	0.157	<0.02	<0.01				<0.005
MW-3	07/01/2008	<0.05	0.0009	0.005	<0.02	0.305	<0.02	<0.01				<0.005
MW-3	10/08/2008	<0.05	0.0016	<0.005	0.04	0.295	<0.02	<0.01				<0.005

Process GW-Trace Ions

Site	Sample Date	Sb, Disvd (mg/l)	Ba, Disvd (mg/l)	Bi, Disvd (mg/l as Bi)	Cd Disvd (mg/l)	Cr, Disvd (mg/l)	Cu, Dissolved (mg/l)	PB, Dissolved (mg/l)	Hg, Disvd (mg/l)	Ni, Dissolved (mg/l)	Selenium, Dissolved (mg/l)	AG, Dissolved (mg/l )	Zn Dissolved (mg/l)
401	10/03/2007	<0.0004	0.017	<0.04	<0.0001	<0.01	0.01	<0.0001	0.0002	<0.01	0.0009	<0.01	0.08
401	10/03/2007	<0.0013	0.017	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	0.005	<0.005	<0.01	<0.01
401	01/08/2008	0.0007	0.016	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	0.0014	0.01	<0.01
401	04/21/2008	<0.0004	0.025	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0014	<0.01	<0.01
401	04/21/2008	<0.0004	0.025	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0014	<0.01	<0.01
401	05/06/2008	<0.0004	0.017	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	0.0008	<0.01	<0.01
401	06/09/2008	<0.0004	0.022	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.001	<0.01	<0.01
401	07/21/2008	<0.0004	0.021	<0.04	<0.0001	<0.01	0.03	<0.0001	<0.0002	0.01	0.0009	<0.01	<0.01
401	10/08/2008	<0.0004	0.008	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0006	<0.01	<0.01
IW-1	10/03/2007	0.0025	0.036	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0011	<0.01	<0.01
IW-1	11/05/2007	0.0019	0.039	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0006	<0.01	0.01
IW-1	01/07/2008	0.0017	0.045	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0005	0.01	<0.01
IW-1	02/04/2008	0.0019	0.038	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0006	<0.01	<0.01
IW-1	03/05/2008	0.0016	0.043	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0006	<0.01	<0.01
IW-1	04/07/2008	0.0016	0.041	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0004	0.01	<0.01
IW-1	05/05/2008	0.0017	0.035	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0003	<0.01	<0.01
IW-1	06/04/2008	0.002	0.046	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0011	<0.01	<0.01
IW-1	07/01/2008	0.0016	0.034	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	0.0004	<0.01	<0.01
IW-1	11/13/2008	0.0015	0.039	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.01	0.0004	<0.01	<0.01
IW-11	10/01/2007	0.0008	<0.003	<0.04	<0.0001	<0.01	<0.01	0.0003	<0.0002	<0.01	0.0024	<0.01	<0.01
IW-11	11/06/2007	0.0188	0.012	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0021	<0.01	0.02
IW-11	03/10/2008	0.0011	0.003	<0.04	<0.0001	<0.01	<0.01	0.0015	<0.0002	<0.01	0.0021	<0.01	0.09
IW-11	04/01/2008	0.0011	0.004	<0.04	<0.0001	0.01	<0.01	<0.0001	<0.0002	<0.01	0.002	<0.01	<0.01
IW-11	05/07/2008	0.001	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0016	<0.01	<0.01
IW-11	06/10/2008	0.0011	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.002	<0.0002	<0.01	<0.002	<0.01	<0.01
IW-11	07/22/2008	0.0012	0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0036	<0.01	0.01
IW-11	10/14/2008	0.0014	0.003	<0.04	<0.0001	<0.01	<0.01	0.0005	<0.0002	<0.01	0.0047	<0.01	<0.01
IW-2	10/03/2007	0.0008	0.011	<0.04	<0.0001	<0.01	<0.01	<0.0001	0.0003	<0.01	0.0002	<0.01	<0.01
IW-2	11/05/2007	0.0005	0.011	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	<0.01	0.0002	<0.01	<0.01
IW-2	12/03/2007	0.0006	0.012	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0001	<0.01	<0.01
IW-2	01/07/2008	<0.0004	0.021	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	<0.0001	0.01	<0.01



Process GW-Trace Ions

IW-2	02/04/2008	0.0006	0.012	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	0.01	<0.0001	<0.01	<0.01
IW-2	03/05/2008	<0.0004	0.013	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-2	04/07/2008	0.0005	0.012	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-2	05/05/2008	0.0005	0.01	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-2	06/04/2008	0.0005	0.02	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.01	0.0003	<0.01	<0.01
IW-2	07/01/2008	<0.0004	0.012	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.03	<0.0001	<0.01	0.01
IW-2	10/01/2008	0.0004	0.004	0.1	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.01	0.0001	<0.01	<0.01
IW-3	10/03/2007	0.0007	0.007	<0.04	0.0001	<0.01	<0.01	0.0002	<0.0002	0.01	0.0005	<0.01	0.02
IW-3	12/03/2007	0.0019	0.038	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0006	<0.01	<0.01
IW-3	01/08/2008	<0.0004	0.016	<0.04	<0.0001	<0.01	<0.01	<0.0001	0.0002	<0.01	<0.0001	<0.01	<0.01
IW-3	03/05/2008	<0.0004	0.005	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-3	04/14/2008	<0.0004	0.012	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-3	05/05/2008	<0.0004	0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-3	06/09/2008	<0.0004	0.008	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-3	07/01/2008	<0.0004	0.006	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-3	10/01/2008	0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-4	10/03/2007	0.0009	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0023	<0.01	<0.01
IW-4	11/05/2007	0.0006	0.006	<0.04	<0.0001	<0.01	<0.01	0.0008	<0.0002	<0.01	0.0028	<0.01	<0.01
IW-4	01/08/2008	0.0009	0.015	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	<0.01	0.0014	0.01	<0.01
IW-4	03/05/2008	<0.0004	0.01	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-4	04/14/2008	<0.0004	0.005	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0002	<0.01	<0.01
IW-4	06/04/2008	0.0009	0.011	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	0.0014	<0.01	<0.01
IW-4	06/04/2008	0.0009	0.004	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	<0.01	0.0014	<0.01	<0.01
IW-4	07/01/2008	0.001	<0.003	<0.04	<0.0001	<0.01	<0.01	0.0002	0.0004	<0.01	0.0015	<0.01	<0.01
IW-4	10/08/2008	0.0006	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0011	<0.01	<0.01
IW-5	10/03/2007	0.0091	0.03	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0009	<0.01	<0.01
IW-5	11/05/2007	0.0087	0.031	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0011	<0.01	<0.01
IW-5	12/03/2007	0.0094	0.03	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	0.02	0.001	<0.01	<0.01
IW-5	01/07/2008	0.0089	0.037	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	0.02	0.0009	0.01	<0.01
IW-5	02/04/2008	0.0102	0.03	<0.04	<0.0001	<0.01	<0.01	0.0005	<0.0002	0.03	0.0011	<0.01	<0.01
IW-5	03/05/2008	0.0091	0.031	<0.04	<0.0001	<0.01	<0.01	0.0003	<0.0002	0.02	0.0011	<0.01	<0.01
IW-5	04/07/2008	0.009	0.029	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.02	0.0008	0.02	<0.01
IW-5	05/05/2008	0.0091	0.026	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.02	0.0007	<0.01	<0.01
IW-5	06/04/2008	0.0104	0.038	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	0.03	0.0017	<0.01	<0.01
IW-5	07/01/2008	0.009	0.026	<0.04	<0.0001	<0.01	<0.01	0.0003	<0.0002	0.02	0.0007	<0.01	<0.01

Process GW-Trace Ions

IW-5	10/01/2008	0.0097	0.017	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.02	0.0009	<0.01	<0.01
IW-6	10/03/2007	0.0006	0.008	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.02	<0.0001	<0.01	<0.01
IW-6	11/05/2007	0.0005	0.008	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
IW-6	12/03/2007	0.0005	0.008	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.01	<0.0001	<0.01	<0.01
IW-6	01/07/2008	0.0004	0.018	<0.04	<0.0001	<0.01	<0.01	0.0004	<0.0002	<0.01	<0.0001	0.01	<0.01
IW-6	02/04/2008	0.0006	0.008	<0.04	<0.0001	<0.01	<0.01	0.0003	<0.0002	0.02	<0.0001	<0.01	<0.01
IW-6	03/05/2008	0.0007	0.009	<0.04	<0.0001	<0.01	<0.01	0.0004	<0.0002	0.01	<0.0001	<0.01	<0.01
IW-6	04/07/2008	0.0006	0.008	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	0.01	<0.0001	<0.01	<0.01
IW-6	05/05/2008	0.0006	0.009	<0.04	<0.0001	<0.01	<0.01	0.0003	<0.0002	0.02	<0.0001	<0.01	<0.01
IW-6	06/04/2008	0.0009	0.016	<0.04	<0.0001	<0.01	<0.01	0.0003	<0.0002	0.03	0.0002	<0.01	<0.01
IW-6	07/01/2008	0.0008	0.009	<0.04	0.0011	<0.01	<0.01	0.0012	<0.0002	0.05	<0.0001	<0.01	<0.01
IW-6	10/01/2008	0.0008	0.004	<0.04	<0.0001	<0.01	<0.01	0.0006	<0.0002	0.03	0.0001	<0.01	<0.01
IW-7	10/03/2007	<0.0004	0.007	<0.04	<0.0001	<0.01	<0.01	0.0001	0.0002	<0.01	0.0006	<0.01	0.01
IW-7	11/05/2007	<0.0004	0.008	<0.04	<0.0001	<0.01	<0.01	0.0003	<0.0002	<0.01	0.0005	<0.01	<0.01
IW-7	03/11/2008	<0.0004	0.009	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	<0.01	0.0007	<0.01	0.02
IW-7	04/01/2008	<0.0004	0.008	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0006	<0.01	<0.01
IW-7	05/07/2008	<0.0004	0.009	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0004	<0.01	<0.01
IW-7	06/09/2008	<0.0004	0.01	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0005	<0.01	<0.01
IW-7	07/21/2008	<0.0004	0.01	<0.04	<0.0001	<0.01	0.03	0.0003	<0.0002	0.01	0.0006	<0.01	<0.01
IW-7	10/14/2008	<0.0004	0.009	<0.04	<0.0001	<0.01	<0.01	0.0005	<0.0002	<0.01	0.0005	<0.01	<0.01
IW-8	10/01/2007	<0.0004	0.004	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0014	<0.01	<0.01
IW-8	10/01/2007	<0.0013	<0.005	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002		<0.005	<0.01	<0.01
IW-8	11/05/2007	<0.0004	0.005	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0014	<0.01	0.01
IW-8	03/11/2008	<0.0004	0.005	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	0.0018	<0.01	<0.01
IW-8	04/01/2008	<0.0004	0.005	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0017	<0.01	<0.01
IW-8	05/07/2008	<0.0004	0.004	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0008	<0.01	<0.01
IW-8	06/10/2008	<0.0004	0.005	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.002	<0.01	<0.01
IW-8	07/22/2008	<0.0004	0.006	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0021	<0.01	<0.01
IW-8	10/08/2008	<0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0013	<0.01	<0.01
MW-1	11/05/2007	0.0042	0.023	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	<0.01	0.0003	<0.01	0.04
MW-1	01/28/2008	0.0056	0.02	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.02	0.0003	<0.01	0.02
MW-1	04/07/2008	0.0047	0.022	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.02	0.0003	0.02	0.01
MW-1	07/01/2008	0.004	0.02	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	0.02	0.0002	<0.01	0.03
MW-1	10/08/2008	0.0061	0.011	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.06	0.0004	<0.01	0.01
MW-2	11/05/2007	<0.0004	0.015	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	<0.01	<0.0001	<0.01	0.39

Process GW-Trace Ions

MW-2	01/28/2008	<0.0004	0.015	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	0.01	<0.0001	<0.01	0.34
MW-2	06/11/2008	<0.0004	0.007	<0.04	<0.0001	<0.01	<0.01	0.0002	0.0003	0.02	<0.0001	<0.01	0.43
MW-2	07/01/2008	<0.0004	0.01	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	0.03	<0.0001	<0.01	2.9
MW-2	10/08/2008	<0.0004	0.003	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	<0.01	<0.0001	<0.01	2.95
MW-3	01/08/2008	<0.0004	0.015	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-3	04/07/2008	<0.0004	0.008	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	0.01	<0.01
MW-3	07/01/2008	<0.0004	0.006	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	0.02	<0.0001	<0.01	<0.01
MW-3	10/08/2008	0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	0.0001	<0.0002	0.01	<0.0001	<0.01	<0.01

# COMPLIANCE GROUNDWATER NON-PROCESS WATER QUALITY DATA

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



Non-Process GW-Major Ions

Site	Sample Date	Alkalinity, Total (mg/l as CaCO3)	Ca, Disvld (mg/l)	Chloride (mg/l)	Hardness Ca as CaCO3 mg/L	Hardness Mg as CaCO3 (mg/L)	Mg, Disvld (mg/l)	pH (Lab. su)	K Disvld (mg/l)	Si (MG/L)	Sodium, Dissolved (mg/l)	Specific Conductance (umhos/cm @ 25C)	Sulfate (mg/l)	Sulfide, Total (mg/l as S)	H2O Temp C	TDS (mg/l)	TSS (mg/l)	Lab, Ntu
MW-5	10/01/2007	395	120		288	56	14.2	7.7	1.6		22.4	698	1	0.06		450	<5	15.2
MW-5	10/01/2007	406	120	<1	288	56	14.2	8.1	1.6	12.5	22.4	689	<1	<0.5		470	<5	19.3
MW-5	11/06/2007	381	115		300	57	13.7	7.9	1.7	14.1	22	725	<1	0.09	4.6	440	<5	18.5
MW-5	12/05/2007	381	145	<1	305	60	26.2	7.8	1.8	13.7	22.2	710	6	0.05		500	6	17.8
MW-5	01/08/2008	408	131	<1	323	63	15.4	7.7	1.8	15	22.3	724	<5	0.06	14	470	10	18.2
MW-5	01/08/2008	426		<1				7.6		12.6		729	<1	<0.5		450	<5	24.3
MW-5	02/18/2008	431	139		348	66	15.1	7.9	1.6	14.2	20.1	738	<1	0.08		470	8	26.8
MW-5	03/10/2008	414	131		355	67	15.4	7.4	1.6	13	21.3	749	<5	0.04		470	8	19.8
MW-5	04/01/2008	410	139		343	64	16	8	1.7	13.6	21.3	751	<1	0.03		470	22	24.6
MW-5	05/06/2008	398	132		295	61	15.2	7.7	1.6	15.7	21.7	722	<1	0.02		460	<5	14.3
MW-5	06/02/2008	351	109		268	51	13.1	7.9	1.7	12.9	26.6	659	<1	0.07	9	380	<5	7.4
MW-5	07/22/2008	372	124		320	63	14.7	7.9	1.7	13.2	23.7	696	<10	0.07	5.5	450	<5	10.9
MW-5	10/07/2008	290	91.8		221	42	10.6	7.9	1.7	12.2	27.7	556	<1	0.06		370	<5	4
MW-6	10/01/2007	483	141		343	99	25.1	7.9	1.7		20.6	848	<1	0.07		500	<5	3.6
MW-6	10/01/2007	490	141	<1	343	99	25.1	8	1.7	13.9	20.6	832	6	<0.5		530	<5	4.9
MW-6	11/06/2007	463	138		358	102	24.4	8.1	1.7	15.9	20	884	5	0.09	3	510	<5	3.6
MW-6	12/05/2007	457	42.2	<1	343	100	8.9	8	1.7	14.8	5.9	851	16	0.08		170	<5	4.5
MW-6	01/15/2008	466	139	<1	355	105	24.1	8	1.7	16.5	20.4	824	<1	0.06		500	<5	3.6
MW-6	02/18/2008	472	149		363	103	23.4	8.1	1.7	15.3	18.9	810	4	0.09		490	<5	3.8
MW-6	03/10/2008	416	137		365	104	24.5	7.6	1.7	14.2	20.4	827	4	0.07		500	<5	3.8
MW-6	04/23/2008	404	142		338	102	25	8	1.5	16.4	20	824	2	0.06		490	<5	2.2
MW-6	05/06/2008	453	139		330	105	24.5	7.9	1.7	17.2	20.5	827	4	0.04		500	<5	2.9
MW-6	06/02/2008	445	133		345	105	24.8	8	1.6	14.5	20.2	844	3	0.06	6.7	510	29	4
MW-6	07/22/2008	455	150		373	112	26.7	8.2	1.9	14.7	22.3	846	3	0.07	4.4	510	<5	1.5
MW-6	10/07/2008	450	140		338	100	25.2	8	1.8	14.6	22.6	818	3	0.04		530	<5	6.4
MW-7	10/01/2007	100	15.7		39	4	0.9	8.7	1		36.7	232	<1	<0.02		150	<5	<0.1
MW-7	10/01/2007	101		<1				8.7		6.6		228	15	<0.5		150	<5	0.2
MW-7	11/07/2007	96	15.9		39	4	0.8	8.6	1	6.9	34.5	236	16	<0.02	7	160	<5	1.8
MW-7	12/05/2007	97	16.3	<1	39	4	0.9	8.6	1.2	6.8	39.7	232	20	<0.02		150	<5	0.9
MW-7	01/15/2008	101	16.8	<1	41	4	0.8	8.6	1.1	7.5	37.7	232	18	<0.02		140	<5	<0.1
MW-7	02/18/2008	102	16.2		42	4	0.9	8.7	1.1	7.5	37.3	227	16	<0.02		140	<5	<0.1
MW-7	03/10/2008	80	16.4		41	4	0.9	8.7	1.1	6.3	38.2	233	16	<0.02		160	<5	0.2
MW-7	03/10/2008	108	16.4	<1	41	4	0.9	8.7	1.1	6.4	38.2	243	15	<0.5		140	<5	0.1
MW-7	04/01/2008	97	17.1		42	3	1	8.6	1.2	6.4	37.7	234	16	<0.02		140	<5	0.2
MW-7	05/07/2008	97	15.4		40	3	0.9	8.7	1.1	7.2	35.5	230	<1	<0.02		150	<5	0.3

Non-Process GW-Major Ions

MW-7	06/02/2008	97	16.6	41	4	0.8	8.6	0.9	6.4	37.3	240	18	<0.02	4.6	150	<5	0.2
MW-7	07/21/2008	121	17.5	38	4	0.9	8.9	1.1	6.8	35.8	239	19	<0.02	3.4	150	<5	<0.1
MW-7	10/06/2008	90	16	38	4	0.7	8.7	1.2	6.4	36.1	235	18	<0.02		140	<5	0.2
MW-8	10/10/2008	69	29.6	73	16	3.9	8.3	1.2	4.3	5.9	198	30	<0.02		120	<5	1

Non-Process GW-Minor Ions

Site	Sample Date	Ammonia (mg/l as N)	Ar, Dissolved (mg/l)	Cn, Total (mg/l)	Fluoride (mg/l)	Fe, Divd (mg/l)	Manganese, Dissolved (mg/l)	Nitrate Nitrogen, Dissolved (mg/l as N)	Nitrite Nitrogen, Dissolved (mg/l as N)	P (mg/l)	Total Petroleum Hydrocarbons mg/l	WADCN, mg/l
MW-5	10/01/2007	<0.05	0.0018	<0.005		8.61	1.39	<0.02	<0.01		0.1	<0.005
MW-5	10/01/2007	0.2	<0.005	<0.005	<0.1	7.81	1.29	<0.02	<0.01	<0.05	<5	<0.005
MW-5	11/06/2007	<0.05	0.0006	<0.005		8.57	1.37	<0.02	<0.01			<0.005
MW-5	12/05/2007	0.05	0.0008	<0.005	<0.1	0.16	0.766	<0.02	<0.01	<0.05		<0.005
MW-5	01/08/2008	<0.05	<0.0005	<0.005	<0.1	8.89	1.47	0.04	0.01	<0.05		<0.005
MW-5	01/08/2008	<0.1	<0.005	<0.005	<0.1	7.81	1.39			<0.05		<0.005
MW-5	02/18/2008	0.15	0.0006	<0.005		8.92	1.43	<0.02	<0.01			<0.005
MW-5	03/10/2008	<0.05	0.0007	<0.005		8.65	1.43	<0.02	<0.01			<0.005
MW-5	04/01/2008	<0.05	0.0005	<0.005		8.99	1.47	<0.2	<0.1			<0.005
MW-5	05/06/2008	0.12	0.0006	0.006		8.21	1.48	<0.02	<0.01			<0.005
MW-5	05/26/2008			<0.005								<0.005
MW-5	06/02/2008	0.16	0.0009	<0.005		5.74	1.21	<0.02	<0.01			<0.005
MW-5	07/22/2008	0.19	<0.005	<0.005		11.4	1.23	<0.02	<0.01			<0.005
MW-5	10/07/2008	0.13	<0.0005	<0.005		5.15	1.01	<0.02	<0.01			<0.005
MW-5	10/13/2008			<0.005								<0.005
MW-5	10/20/2008			<0.005								<0.005
MW-5	10/27/2008			<0.005								<0.005
MW-5	11/03/2008			<0.005								<0.005
MW-5	11/10/2008			<0.005								<0.005
MW-5	11/17/2008			<0.005								<0.005
MW-5	11/24/2008			<0.005								<0.005
MW-5	12/01/2008			<0.005								<0.005
MW-5	12/08/2008			<0.005								<0.005
MW-5	12/15/2008			<0.005								<0.005
MW-5	12/22/2008			<0.005								<0.005
MW-5	12/29/2008			<0.005								<0.005
MW-6	10/01/2007	<0.05	0.0009	<0.005		0.77	0.705	<0.02	<0.01		0.1	<0.005
MW-6	10/01/2007	<0.1	<0.005	<0.005	<0.1	0.74	0.669	<0.02	<0.01	<0.05	<5	<0.005
MW-6	11/06/2007	<0.05	<0.0005	<0.005		0.72	0.714	<0.02	<0.01			<0.005
MW-6	12/05/2007	<0.05	0.001	<0.005	<0.1	0.55	0.727	0.1	0.01	<0.05		<0.005
MW-6	01/15/2008	<0.05	<0.0005	<0.005	<0.1	0.65	0.733	0.11	0.01	<0.05		<0.005

Non-Process GW-Minor Ions

MW-6	02/18/2008	<0.05	0.0008	<0.005		0.72	0.692	<0.02	<0.01		<0.005
MW-6	03/10/2008	<0.3	<0.0005	<0.005		0.73	0.718	<0.02	<0.01		<0.005
MW-6	04/23/2008	<0.05	0.0008	<0.005		0.62	0.692	<0.02	<0.01		<0.005
MW-6	05/06/2008	<0.05	<0.0005	0.006		0.63	0.721	<0.02	<0.01		<0.005
MW-6	05/26/2008			<0.005							<0.005
MW-6	06/02/2008	0.25	0.0006	<0.005		0.58	0.668	<0.02	<0.01		<0.005
MW-6	07/22/2008	<0.05	0.0005	<0.005		0.76	0.605	0.03	<0.01		<0.005
MW-6	10/07/2008	<0.05	<0.0005	<0.005		0.89	0.7	<0.02	<0.01		<0.005
MW-6	10/13/2008			<0.005							<0.005
MW-6	10/20/2008			<0.005							<0.005
MW-6	10/27/2008			<0.005							<0.005
MW-6	11/03/2008			<0.005							<0.005
MW-6	11/10/2008			<0.005							<0.005
MW-6	11/17/2008			<0.005							<0.005
MW-6	11/24/2008			<0.005							<0.005
MW-6	12/01/2008			<0.005							<0.005
MW-6	12/08/2008			<0.005							<0.005
MW-6	12/15/2008			<0.005							<0.005
MW-6	12/22/2008			<0.005							<0.005
MW-6	12/29/2008			<0.005							<0.005
MW-7	10/01/2007	<0.05	0.0019	<0.005		<0.02	0.039	<0.02	<0.01	0.1	<0.005
MW-7	10/01/2007	<0.1	<0.005	<0.005	0.8	<0.05	0.037			<0.05 <5	0.007
MW-7	11/07/2007	<0.05	0.0011	<0.005		<0.02	0.04	<0.02	<0.01		<0.005
MW-7	12/05/2007	<0.05	0.0016	<0.005	1.2	0.03	0.044	<0.02	0.01	<0.05	<0.005
MW-7	01/15/2008	<0.05	0.0013	<0.005	0.8	<0.02	0.044	0.03	<0.01	<0.05	<0.005
MW-7	02/18/2008	<0.05	0.0016	<0.005		<0.02	0.034	<0.02	<0.01		<0.005
MW-7	03/10/2008	<0.05	0.0013	<0.005		<0.02	0.036	<0.02	<0.01		<0.005
MW-7	03/10/2008	<0.1	<0.005	<0.005	0.7	<0.05	0.043	<0.02	<0.01	<0.05	<0.005
MW-7	04/01/2008	<0.3	0.0013	<0.005		<0.02	0.035	<0.02	<0.01		<0.005
MW-7	05/07/2008	<0.05	0.0008	<0.005		0.03	0.047	<0.02	<0.01		<0.005
MW-7	05/26/2008			<0.005							<0.005
MW-7	06/02/2008	<0.05	0.0017	<0.005		<0.02	0.037	<0.02	<0.01		<0.005
MW-7	07/21/2008	<0.05	0.0015	<0.005		0.05	0.039	<0.02	<0.01		<0.005
MW-7	10/06/2008	<0.05	0.0014	<0.005		<0.02	0.036	<0.02	<0.01		<0.005
MW-7	10/13/2008			<0.005							<0.005



Non-Process GW-Minor Ions

MW-7	10/20/2008			<0.005						<0.005
MW-7	10/27/2008			<0.005						<0.005
MW-7	11/03/2008			<0.005						<0.005
MW-7	11/10/2008			<0.005						<0.005
MW-7	11/17/2008			<0.005						<0.005
MW-7	11/24/2008			<0.005						<0.005
MW-7	12/01/2008			<0.005						<0.005
MW-7	12/08/2008			<0.005						<0.005
MW-7	12/15/2008			<0.005						<0.005
MW-7	12/22/2008			<0.005						<0.005
MW-8	10/10/2008	<0.05	0.0018	<0.005	0.19	0.154	0.02	<0.01		<0.005
MW-8	10/13/2008			<0.005						<0.005
MW-8	10/20/2008			<0.005						<0.005
MW-8	11/03/2008			<0.005						<0.005
MW-8	11/17/2008			<0.005						<0.005
MW-8	11/24/2008			<0.005						<0.005

Non-Process GW-Trace Ions

Site	Sample Date	Sb, Disvd (mg/l)	Ba, Disvd (mg/l)	Bi Disvd (mg/l)	Cd Disvd (mg/l)	Cr, Disvd (mg/l)	Cu, Dissolved (mg/l)	Pb, Dissolved (mg/l)	Hg, Dissolved (mg/l)	Ni Disvd(mg/l)	Se Disvd (mg/l)	Ag Disvd(mg/l )	Zn Disvd(mg/l)
MW-5	10/01/2007	<0.0004	0.044	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0002	<0.01	<0.01
MW-5	10/01/2007	<0.0013	0.043	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	0.018	<0.005	<0.01	<0.01
MW-5	11/06/2007	<0.0004	0.045	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-5	12/05/2007	<0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-5	01/08/2008	<0.0004	0.056	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-5	01/08/2008	<0.0013	0.044	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	<0.01	<0.005	<0.01	<0.01
MW-5	02/18/2008	<0.0004	0.047	<0.04	0.0001	0.02	<0.01	0.0001	<0.0002	<0.01	0.0002	<0.01	<0.01
MW-5	03/10/2008	<0.0004	0.044	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0002	<0.01	<0.01
MW-5	04/01/2008	<0.0004	0.046	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-5	05/06/2008	<0.0004	0.046	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.01	0.0001	<0.01	<0.01
MW-5	06/02/2008	<0.0004	0.035	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.03	0.0004	<0.01	<0.01
MW-5	07/22/2008	<0.004	0.045	<0.04	<0.001	<0.01	<0.01	0.002	<0.0002	<0.01	<0.001	<0.01	<0.01
MW-5	10/07/2008	<0.0004	0.033	0.05	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0005	<0.01	<0.01
MW-6	10/01/2007	<0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0001	<0.01	<0.01
MW-6	10/01/2007	<0.0013	<0.005	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	0.022	<0.005	<0.01	<0.01
MW-6	11/06/2007	<0.0004	0.004	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-6	12/05/2007	<0.0004	0.035	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0001	<0.01	0.07
MW-6	01/15/2008	<0.0004	0.006	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0002	<0.01	<0.01
MW-6	02/18/2008	<0.0004	0.004	<0.04	<0.0001	0.01	<0.01	0.0001	<0.0002	<0.01	0.0002	<0.01	<0.01
MW-6	03/10/2008	<0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	0.0003	<0.0002	<0.01	0.0009	<0.01	<0.01
MW-6	04/23/2008	<0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-6	05/06/2008	<0.0004	0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.02	<0.0001	<0.01	<0.01
MW-6	06/02/2008	<0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.03	0.0012	<0.01	<0.01
MW-6	07/22/2008	<0.0004	0.004	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	0.0001	<0.01	<0.01
MW-6	10/07/2008	<0.0004	0.009	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	0.01	0.0009	<0.01	<0.01
MW-7	10/01/2007	<0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-7	10/01/2007	<0.0013	<0.005	<0.02	<0.0005	<0.005	<0.01	<0.002	<0.0002	<0.01	<0.005	<0.01	<0.01
MW-7	11/07/2007	<0.0004	0.003	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-7	12/05/2007	<0.0004	0.004	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-7	01/15/2008	<0.0004	0.007	<0.04	<0.0001	<0.01	<0.01	<0.0001	<0.0002	<0.01	<0.0001	<0.01	<0.01
MW-7	02/18/2008	<0.0004	<0.003	<0.04	<0.0001	<0.01	<0.01	0.0002	<0.0002	<0.01	<0.0001	<0.01	<0.01

# METEORIC WATER MOBILITY DATA

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



### Meteoric Water Mobility - Major Ion Chemistry

Site	Date		Bic Alk	Tot Alk	Ca	Cl	Ca Hard	Mg Hard	Mg	Lab pH	K	Si	Na	Lab Cond.	SO4	TDS	TSS
Tailing Solids	10/16/2008				6.5				0.4		13.9		188				
Tailing Solids	07/01/2008				6.7				<0.2		10.7		232				
Tailing Solids	04/17/2008				3.7				0.3		9		193				
Tailing Solids	02/06/2008				5.3				0.3		11.1		213				
Tailing Solids	11/27/2007				5.4				0.5		15		231				

### Meteoric Water Mobility - Minor Ion Chemistry

Site	Date		NH4	As	CN	F	Fe	Mn	NO3	NO2	P	TPH	WAD CN
Tailing Solids	10/16/2008			0.0209			0.03	<0.005					
Tailing Solids	07/01/2008			0.0363			0.05	<0.005					
Tailing Solids	04/17/2008			0.0321			0.1	<0.005					
Tailing Solids	02/06/2008			0.032			0.04	<0.005					
Tailing Solids	11/27/2007			0.073			0.03	<0.005					

### Meteoric Water Mobility - Trace Ion Chemistry

Site	Date		Sb	Ba	Bi	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Tailing Solids	10/16/2008		0.023	0.004	<0.04	0.0002	0.0033	<0.0005	<0.002	<0.0002	0.0023	0.0019	<5E-05	0.05
Tailing Solids	07/01/2008		0.0243	0.004	<0.04	<0.0001	<0.001	<0.005	0.0002	<0.0002	0.001	0.002	<5E-05	0.03
Tailing Solids	04/17/2008		0.0119	0.003	<0.04	0.0001	<0.001	<0.005	0.0003	<0.0002	0.0028	0.0016	5E-05	<0.01
Tailing Solids	02/06/2008		0.0163	<0.003	<0.04	<0.0001	0.003	<0.005	0.0002	<0.0002	<0.006	0.0014	<5E-05	0.01
Tailing Solids	11/27/2007		0.121	<0.003	<0.04	<0.0001	0.0022	<0.005	0.0006	<0.0002	<0.0006	0.0016	<5E-05	<0.01

# ACID ROCK DRAINAGE CHARACTERIZATION DATA

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



## Static Acid/Base Accounting

Site	Date		Acid Generation Potential AGP (tons/100tons)	Acid Neutralization Potential ANP (tons/100tons)	ANP/AGP
Low Grade Stockpile	12/02/2008		<1	68	
Low Grade Stockpile	12/24/2007		<1	69	>69
Tailing Solids	10/16/2008		<1	34	
Tailing Solids	07/01/2008		<1	40	
Tailing Solids	04/17/2008		<1	37	>37
Tailing Solids	02/06/2008		<1	38	>38
Tailing Solids	11/27/2007		<1	36	>36
Topsoil Sample	12/02/2008		<1	15	
Topsoil Sample	12/24/2007		<1	4	>4



# SITE 801 WAD & TOTAL CN DATA

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



## Site 801

Facility Name	Site Number	Sample Date	WAD Cyanide, mg/l	Cyanide, Total (mg/l)
Fairbanks Gold Mining	801	09/16/2008	0.037	0.061
Fairbanks Gold Mining	801	09/26/2008	0.024	0.06
Fairbanks Gold Mining	801	10/06/2008	0.032	0.067
Fairbanks Gold Mining	801	10/13/2008	0.014	0.061
Fairbanks Gold Mining	801	10/20/2008	0.025	0.064
Fairbanks Gold Mining	801	10/27/2008	0.019	0.062
Fairbanks Gold Mining	801	11/03/2008	0.014	0.051
Fairbanks Gold Mining	801	11/10/2008	0.017	0.055
Fairbanks Gold Mining	801	11/17/2008	0.015	0.046
Fairbanks Gold Mining	801	11/24/2008	0.016	0.049
Fairbanks Gold Mining	801	12/01/2008	0.011	0.046
Fairbanks Gold Mining	801	12/08/2008	0.007	0.013

# HL-1 MONITORING WELL DATA

FAIRBANKS GOLD MINING, INC.  
FORT KNOX MINE



Heap Leach Monitoring Well HL-1

Facility Name	FGMI	FGMI	FGMI	FGMI	FGMI
Site Number	HL-1	HL-1	HL-1	HL-1	HL-1
Sample Date	05/13/2008	07/29/2008	10/14/2008	11/19/2008	12/16/2008
Alkalinity, Bicarbonate Dissolved (mg/l as CaCO3)	33	45	<2	44	25
Weak Acid Dissociable Cyanide, mg/l	<0.005	<0.005	<0.005	<0.005	<0.005
Alkalinity, Carbonate (mg/l as CaCO3)	<2	<2	<2	<2	<2
Cyanide, Total (mg/l)	0.012	<0.005	<0.005	<0.005	<0.005
Alkalinity, Total (mg/l as CaCO3)	33	45	<2	44	25
Ammonia (mg/l as N)	<0.05	<0.05	<0.05	<0.05	<0.05
Antimony, Dissolved (mg/l)	<0.0004	0.0005	<0.0004	<0.0004	<0.0004
Arsenic, Dissolved (mg/l)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Barium, Dissolved (mg/l)	0.009	0.01	0.006	<0.003	0.005
Bismuth, Dissolved (mg/l as Bi)	<0.04	<0.04	<0.04	<0.04	<0.04
Cadmium, Dissolved (mg/l)	<0.0001	<0.0001	<0.0001	0.0006	<0.0001
Calcium, Dissolved (mg/l)	15	18.1	15.6	19.5	13.1
Calcium, Total (mg/l)	18.2	19.9	15.4	19.3	12.2
Cation Anion Balance, % difference	4.3	0	50	<3.4	10
Chloride, dissolved	3	2	1	<1	1
Chromium, Dissolved (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01
Copper, Dissolved (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoride, Dissolved (mg/l)	<0.1	<0.1	<0.1	0.2	<0.1
Hardness Ca as CaCO3 mg/L	46	50	39	48	31
Hardness Mg as CaCO3 (mg/L)	23	27	13	14	12
Hardness, Total (mg/l as CaCO3)	69	77	52	63	42
Iron, Dissolved (mg/l)	0.06	0.23	0.03	0.04	0.07
Lead, Dissolved (mg/l)	0.0001	0.0002	0.0006	0.0004	<0.0001
Magnesium, Dissolved (mg/l)	3.1	3.9	3.1	3.3	3.1
Magnesium, Total (mg/l)	5.6	6.6	3.2	3.5	2.9
Manganese, Dissolved (mg/l)	0.127	0.155	0.008	0.022	<0.005
Mercury, Dissolved (mg/l)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nickel, Dissolved (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate Nitrogen, Dissolved (mg/l as N)	1.1	0.99	1.18	0.02	0.95
Nitrite Nitrogen, Dissolved (mg/l as N)	0.08	<0.01	<0.01	<0.01	<0.01
Nitrite Plus Nitrate, Dissolved mg/l as Nitrogen	1.18	0.99	1.18	0.02	0.95
pH (Lab-su)	7.7	7.9	23	8	7.8
pH, Field, Standard Units		6.94		7.3	
Potassium, Dissolved (mg/l)	1.2	1.5	1.1	0.9	1.1
Selenium, Dissolved (mg/l)	<0.0001	<0.0001	0.0002	<0.0001	0.0002
Silica, Dissolved (mg/l as SiO2)	15.3	17.1	15.9	15.9	16.6
SILICON, DISSOLVED (MG/L AS SI)	7.1	7.9	7.4	7.4	7.7
Silver, Dissolved (mg/l )	0.01	<0.01	<0.01	<0.01	<0.01
Sodium, Dissolved (mg/l)	3.6	4.1	3.5	4.5	3.8
Solids, Dissolved-sum Of Constituents (mg/l)	83	98	62	102	77
Specific Conductance (umhos/cm @ 25C)	122	132	1560	130	101
Specific Conductance,Field (umhos/cm @ 25C)		147		140	
Sulfate (mg/l)	17	19	16	31	19
Sulfide, Total (mg/l as S)	<0.02	0.06	<0.02	0.03	<0.02
Sum of Anions, Total (meq/l)	1.1	1.4	0.4	1.5	0.9
Sum of Cations, Total (meq/l)	1.2	1.4	1.2	1.4	1.1
TDS Ratio	1.08	0.92	0.97	0.69	0.91
Total Dissolved Solids (mg/l)	90	90	60	70	70
Total Suspended Solids (mg/l)	146	276	<5	<5	<5
Turbidity,lab Nephelometric Turbidity Units, Ntu	156	590	3	12.8	3.8
Zinc, Dissolved (mg/l)	<0.01	<0.01	<0.01	0.04	<0.01

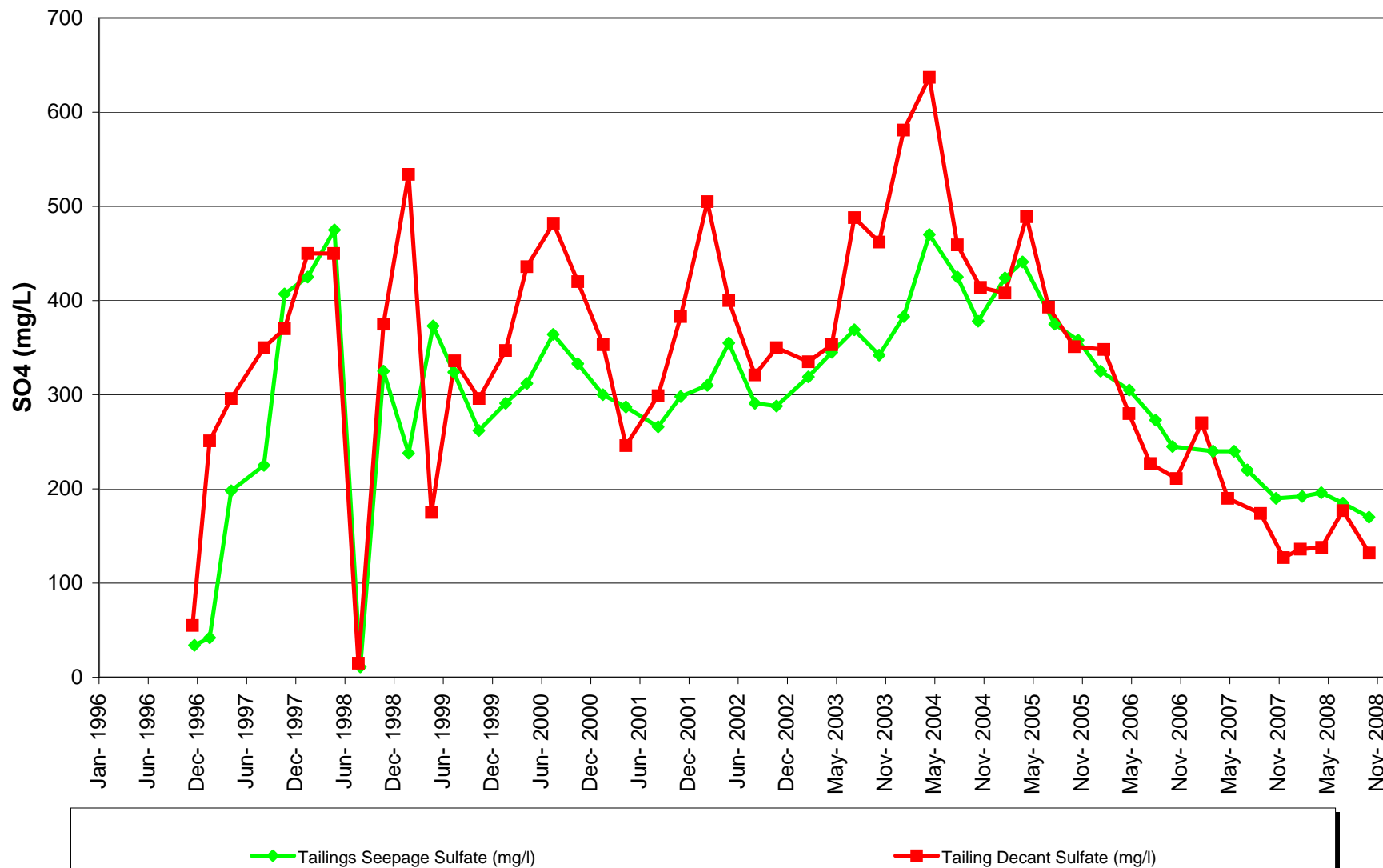
# **ATTACHMENT B**

## **Interceptor and Monitor Well**

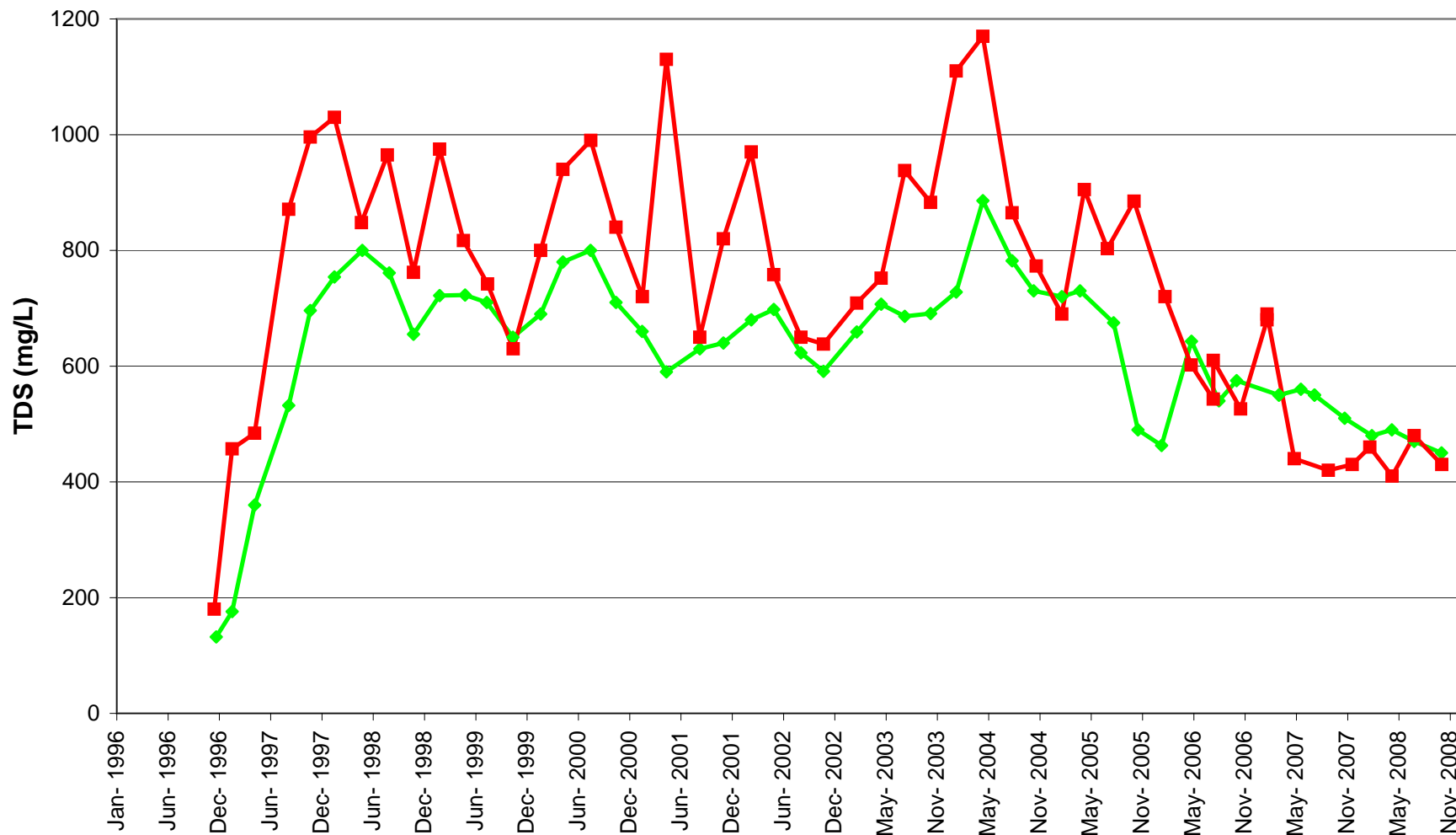
### **Water Quality Graphs**

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### Fort Knox Mine Tailing Decant and Seepage Sulfate



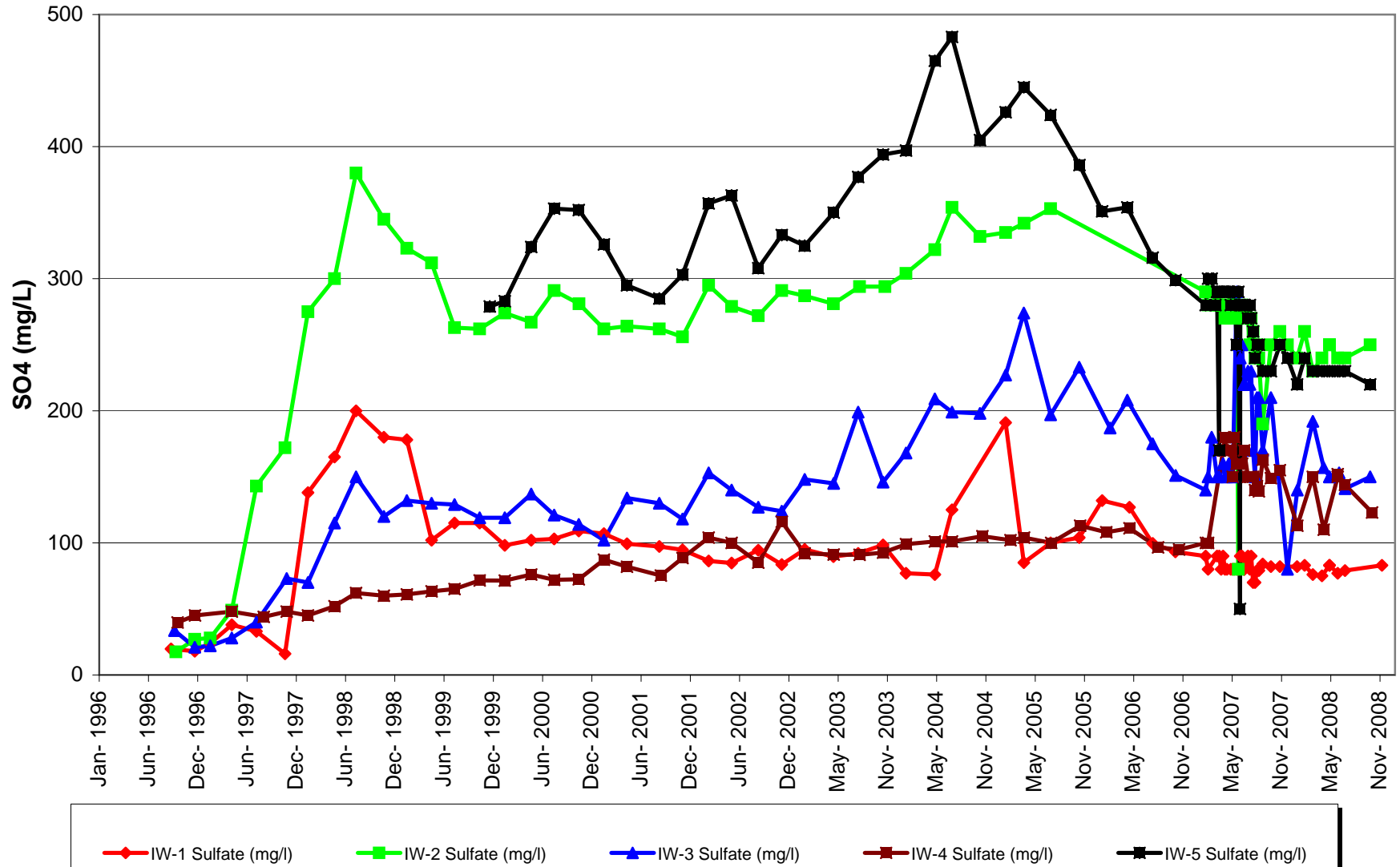
### Fort Knox Tailing Decant and Tailing Seepage - TDS



—◆— Tailing Seepage Total Dissolved Solids (mg/l)

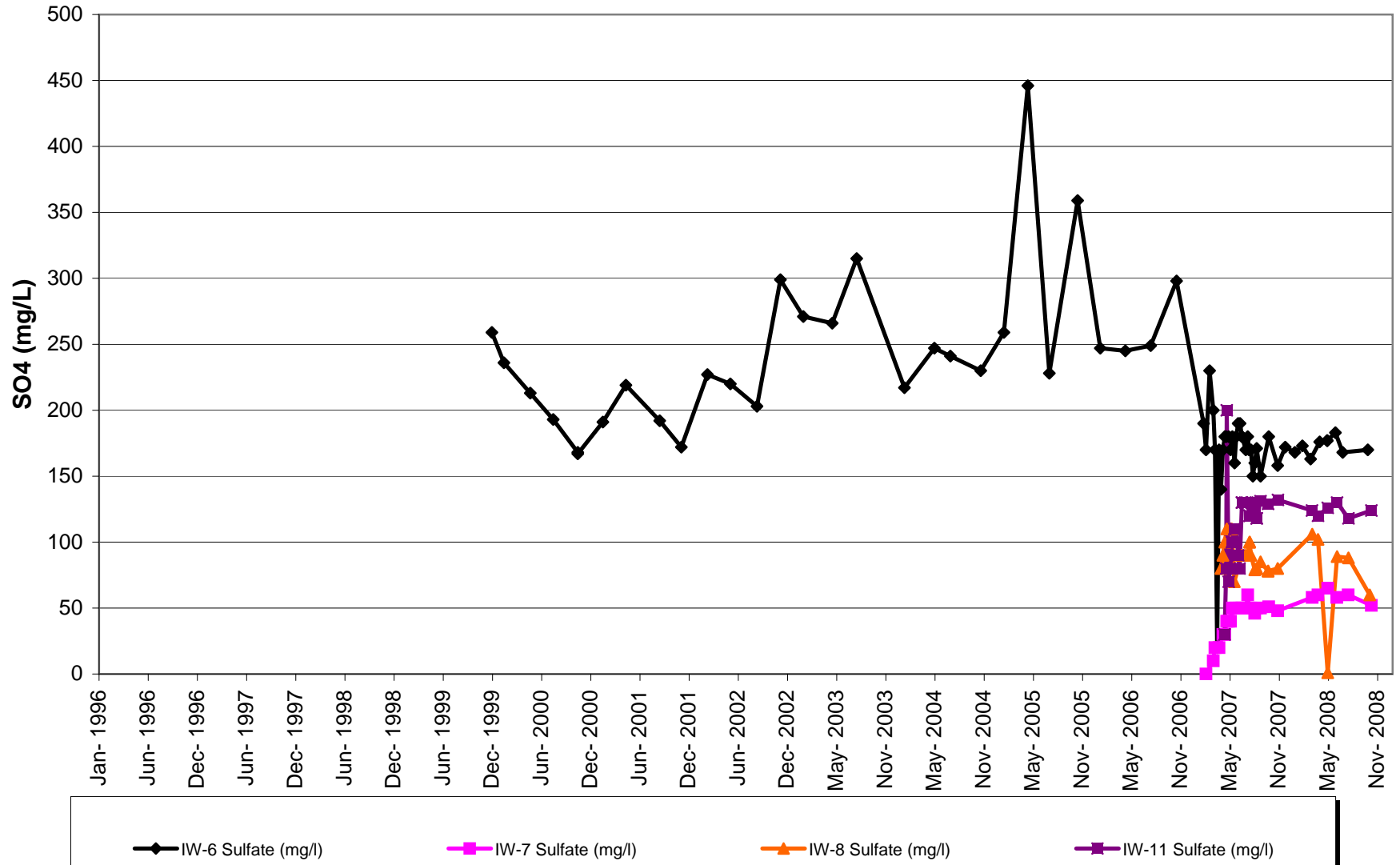
—■— Tailing Decant Total Dissolved Solids (mg/l)

Fort Knox Mine Interceptor Wells 1 -5 - Sulfate

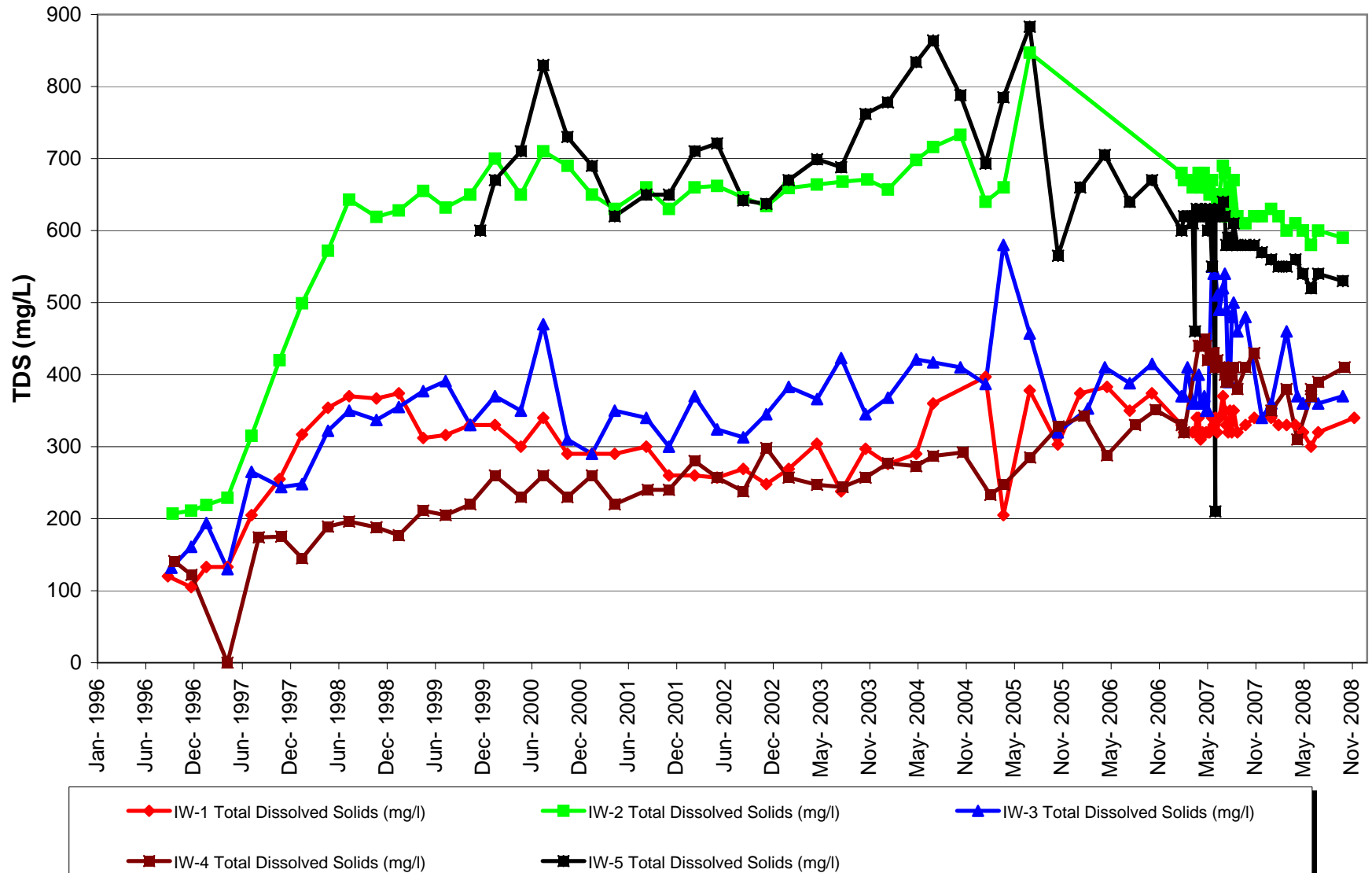




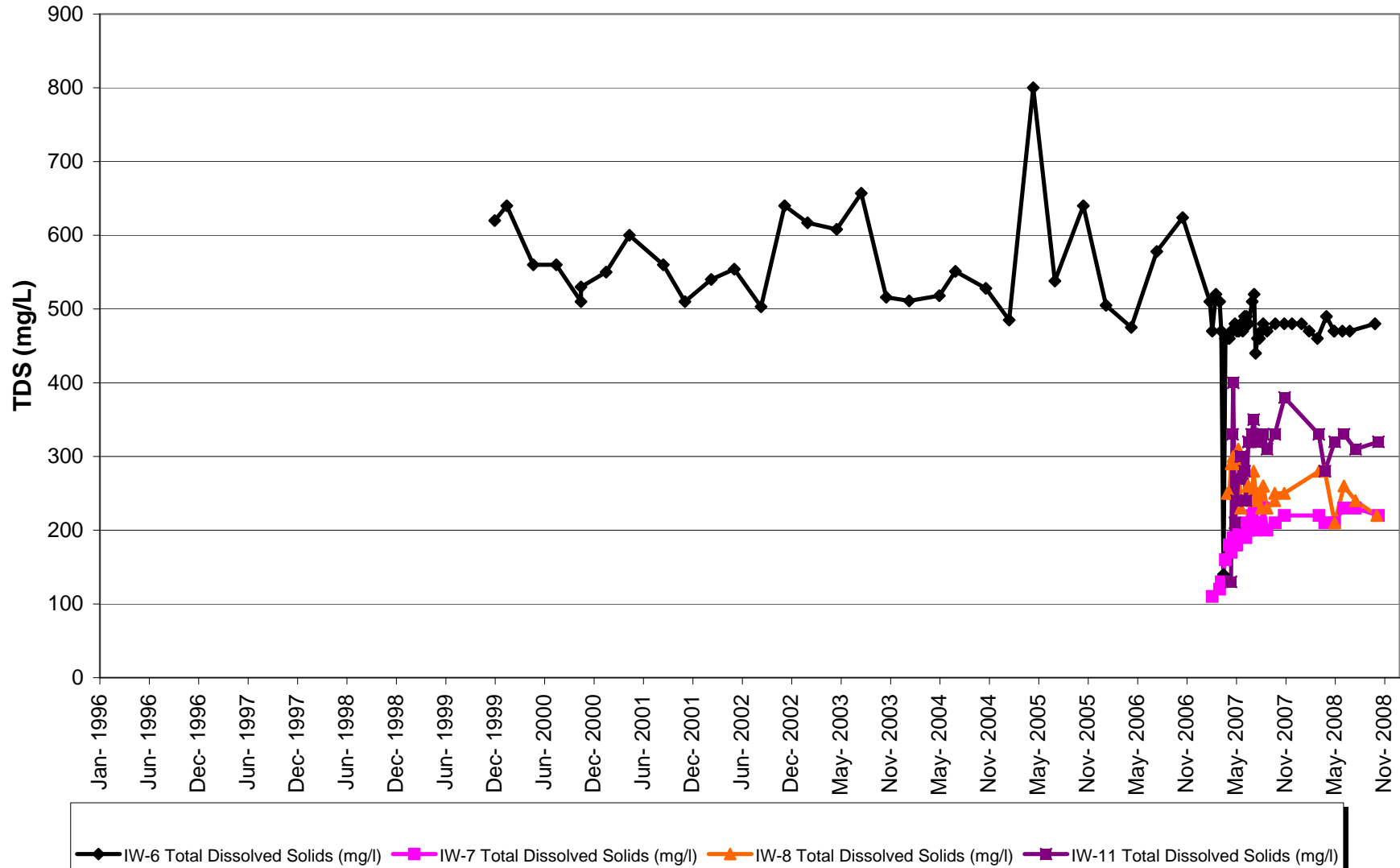
Fort Knox Mine Interceptor Wells 6 - 11 Sulfate



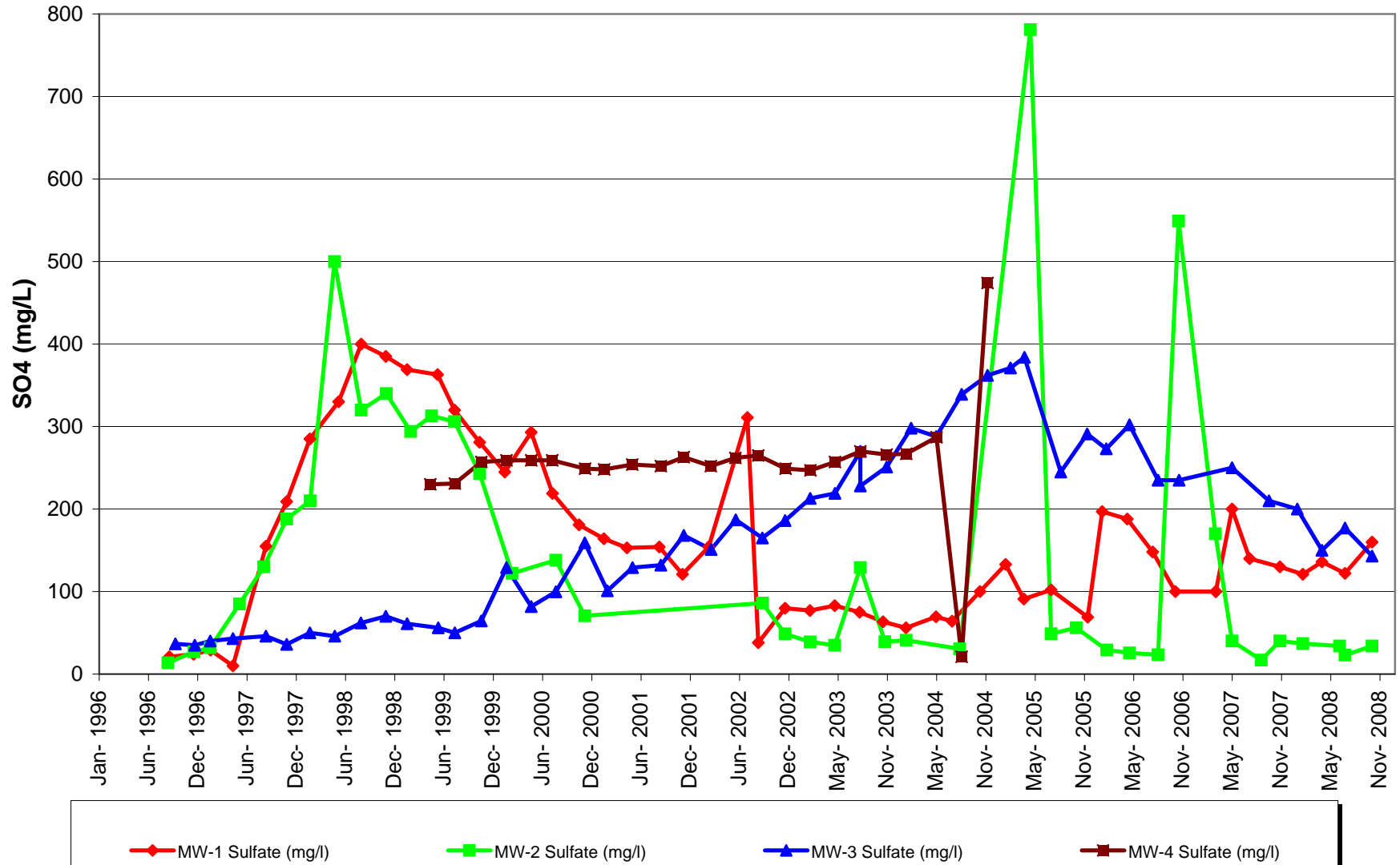
Fort Knox Interceptor Wells 1 - 5 TDS



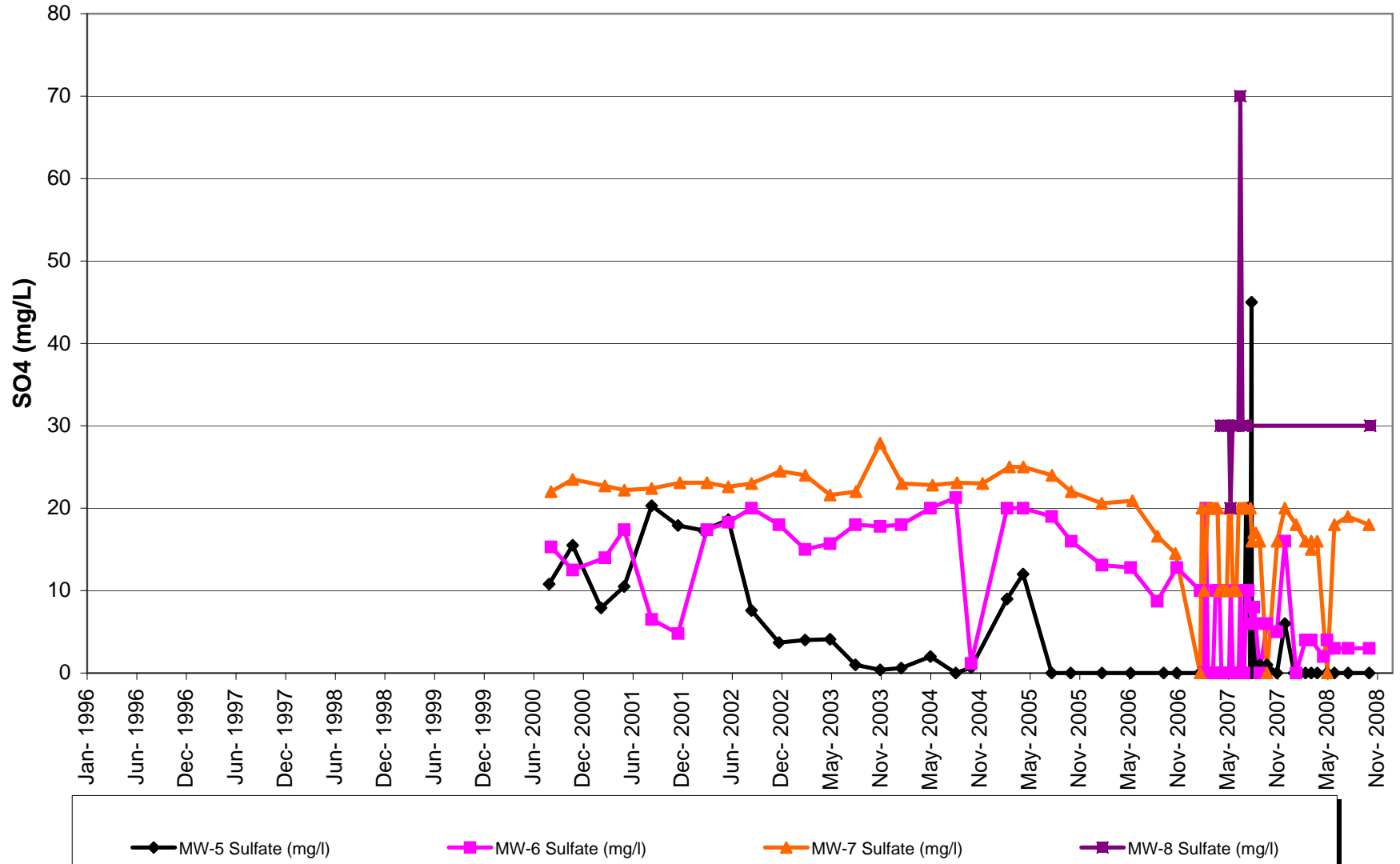
Fort Knox Interceptor Wells 6 - 8 & 11 TDS



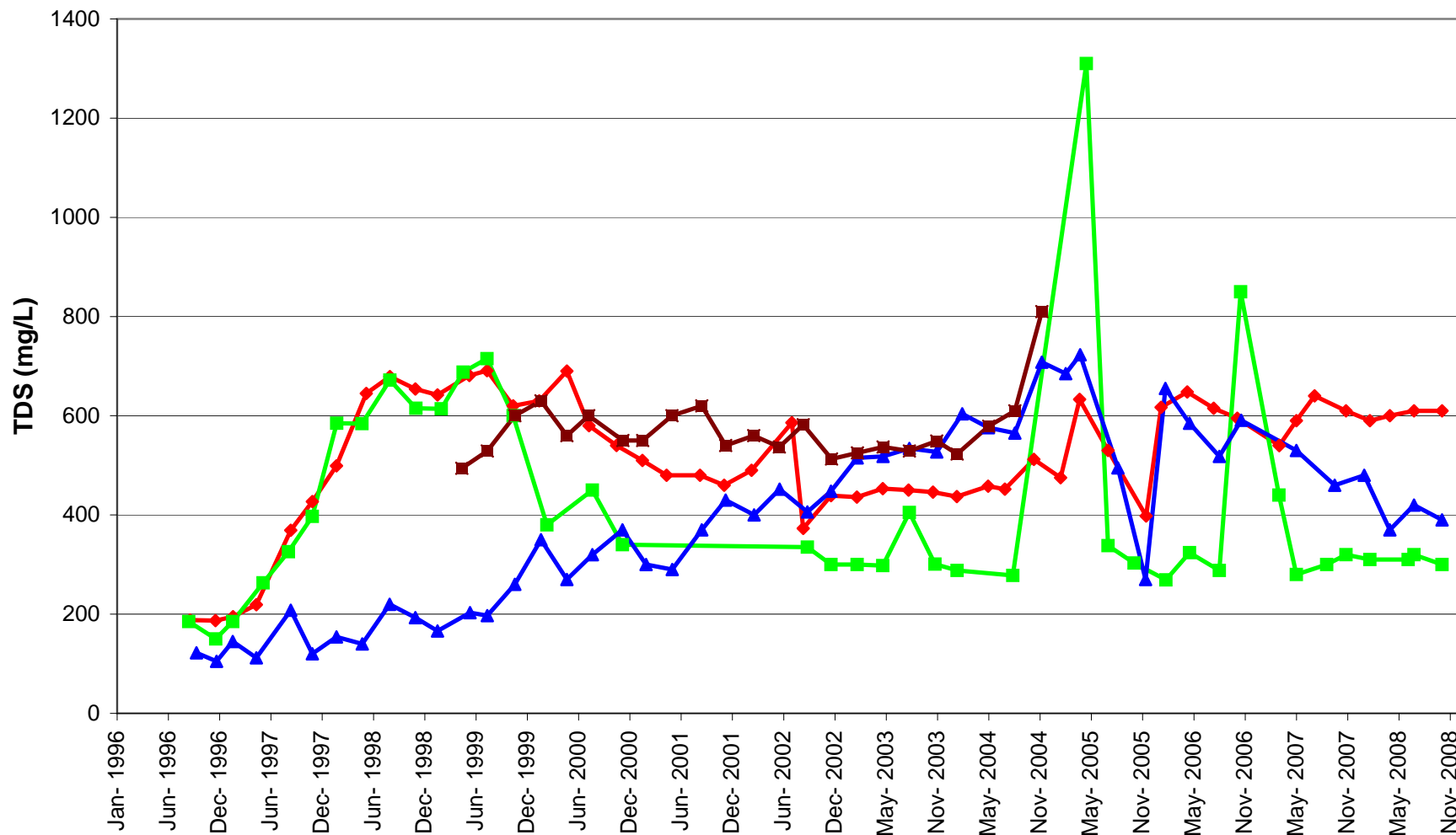
FK Monitoring Wells 1 - 4 Sulfate



FK Monitoring Wells 5 - 8 Sulfate



FK Monitoring Wells 1 - 4 TDS



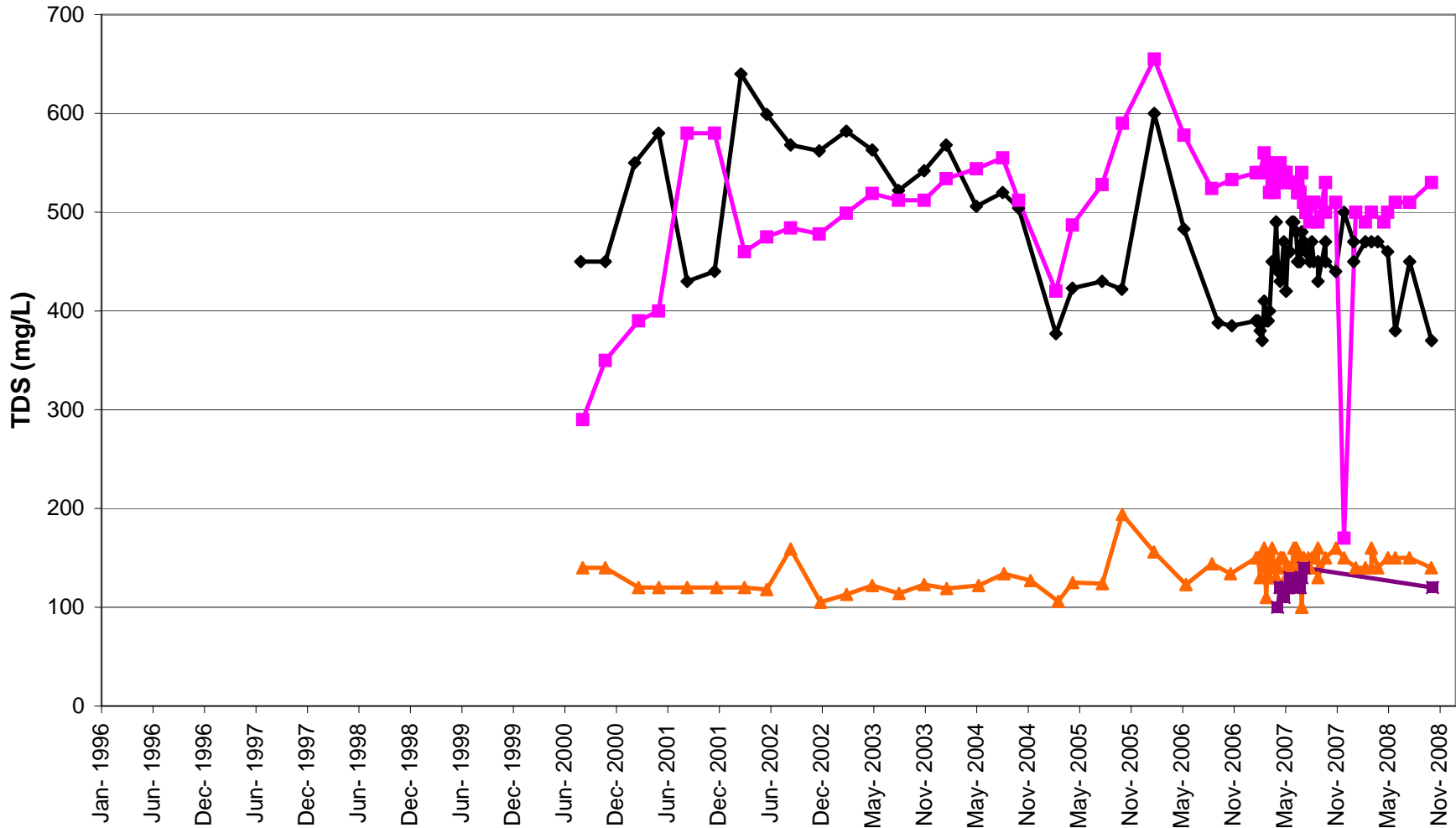
◆ MW-1 Total Dissolved Solids (mg/l)

■ MW-2 Total Dissolved Solids (mg/l)

▲ MW-3 Total Dissolved Solids (mg/l)

■ MW-4 Total Dissolved Solids (mg/l)

### Fort Knox Monitoring Wells 5 - 8 TDS



◆ MW-5 Total Dissolved Solids (mg/l)

■ MW-6 Total Dissolved Solids (mg/l)

▲ MW-7 Total Dissolved Solids (mg/l)

■ MW-8 Total Dissolved Solids (mg/l)

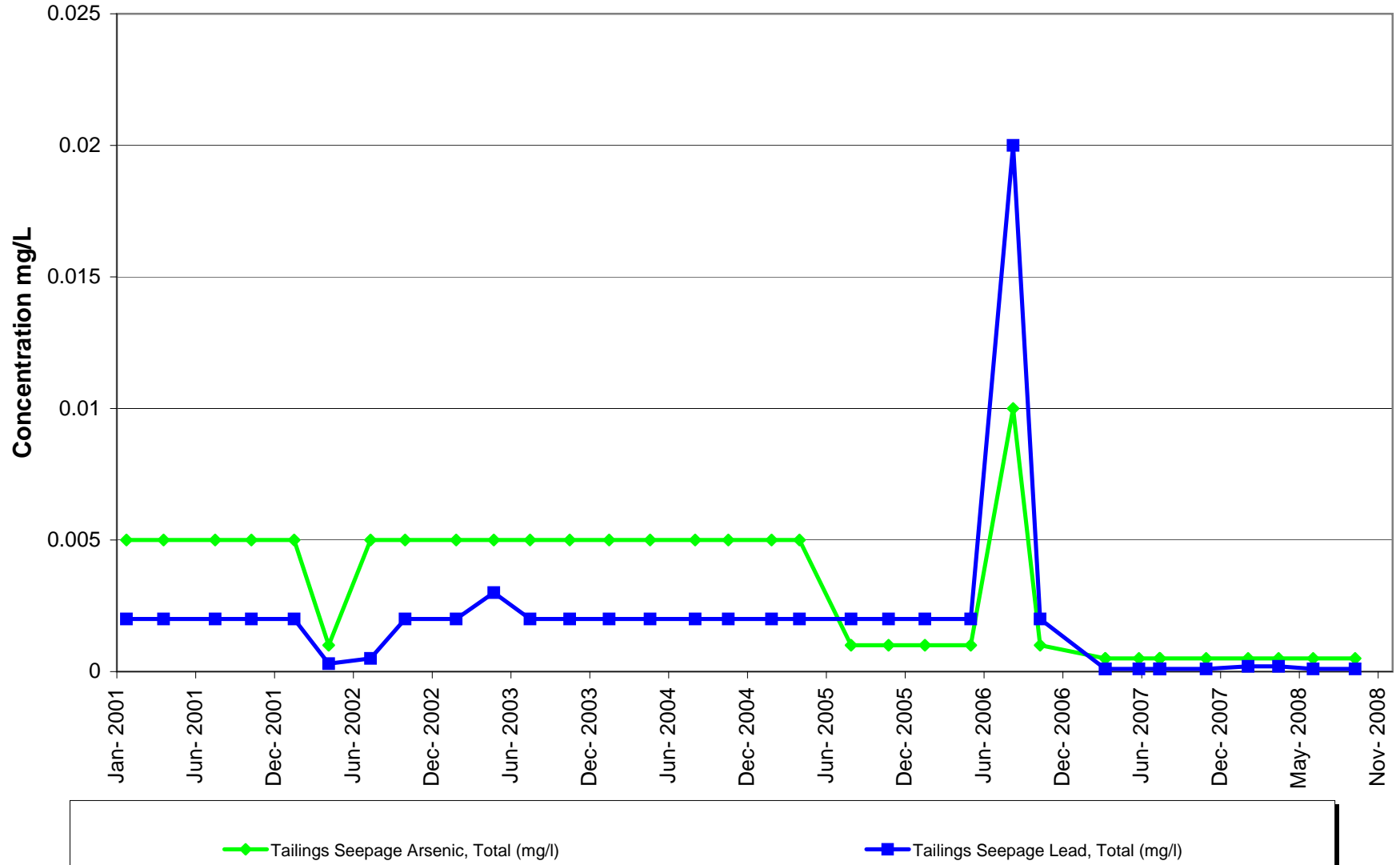
# **ATTACHMENT C**

## **Monthly Samples of Tailing Impoundment Seepage**

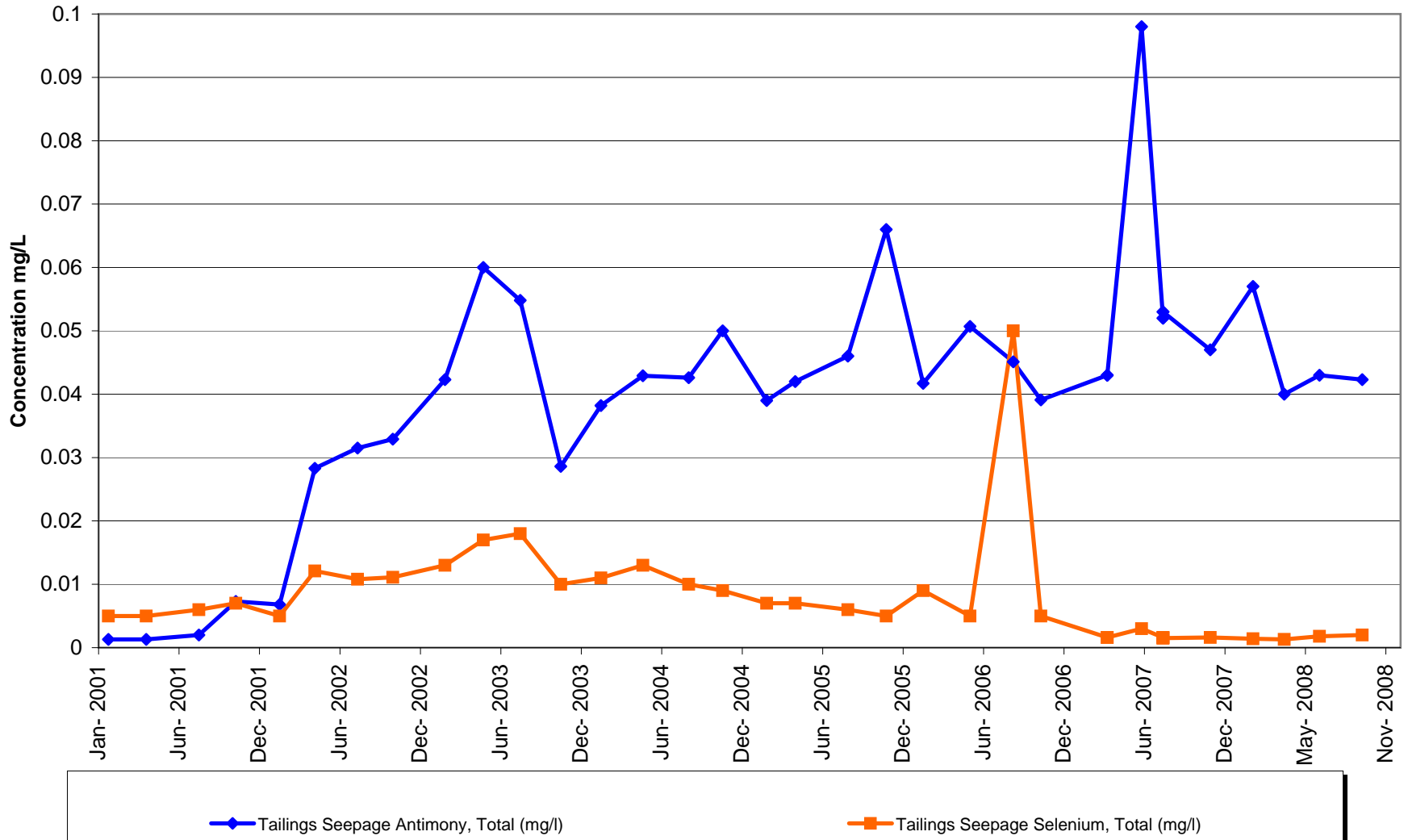
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Tailing Seepage Metals Arsenic (As) and Lead (Pb)



Tailing Seepage Metals Antimony (Sb) and Selenium (Se)

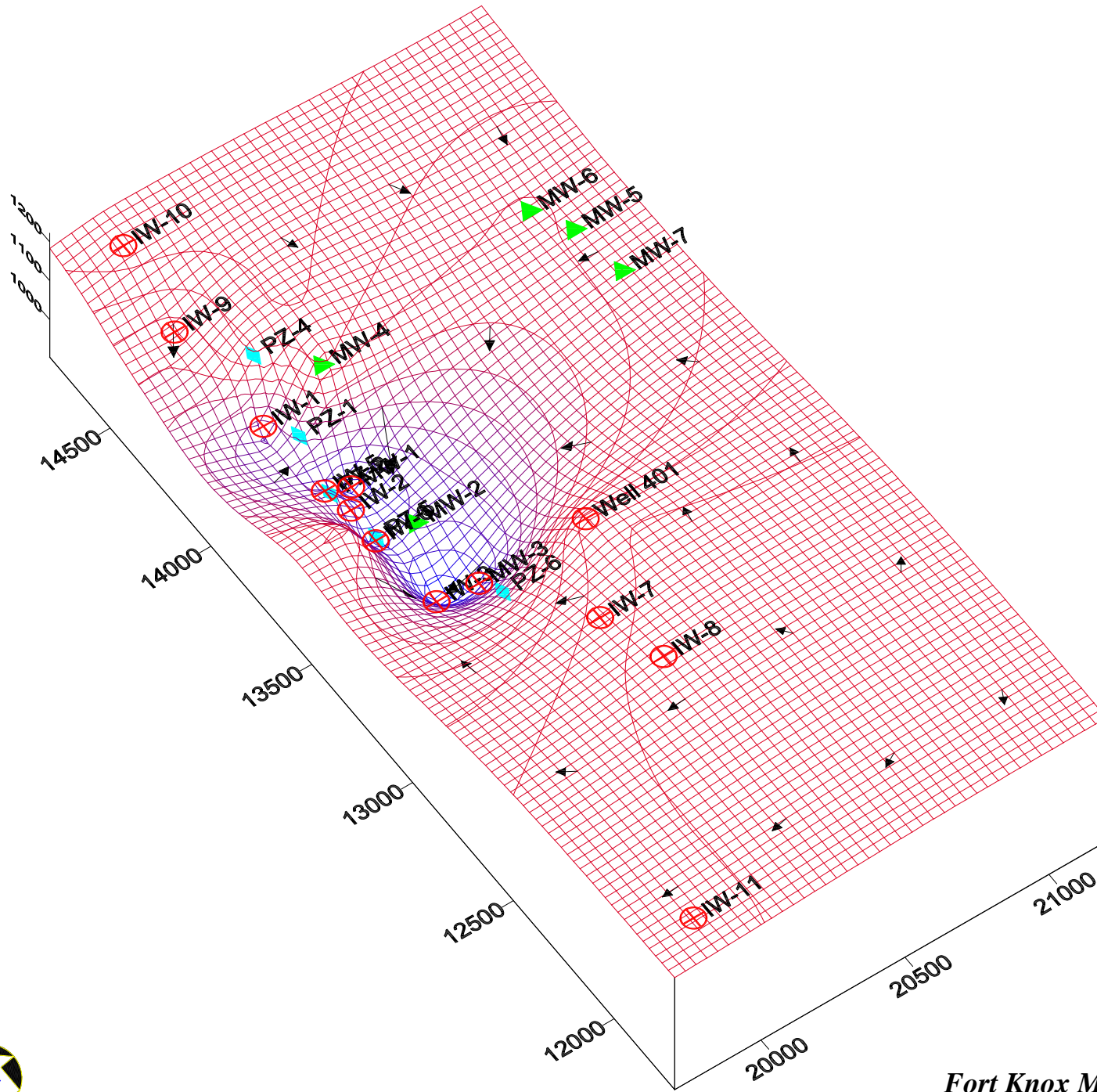
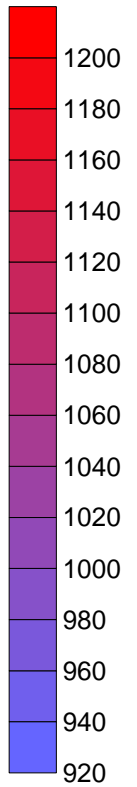


# **ATTACHMENT D**

## **Interceptor and Monitoring Well Groundwater Contour**

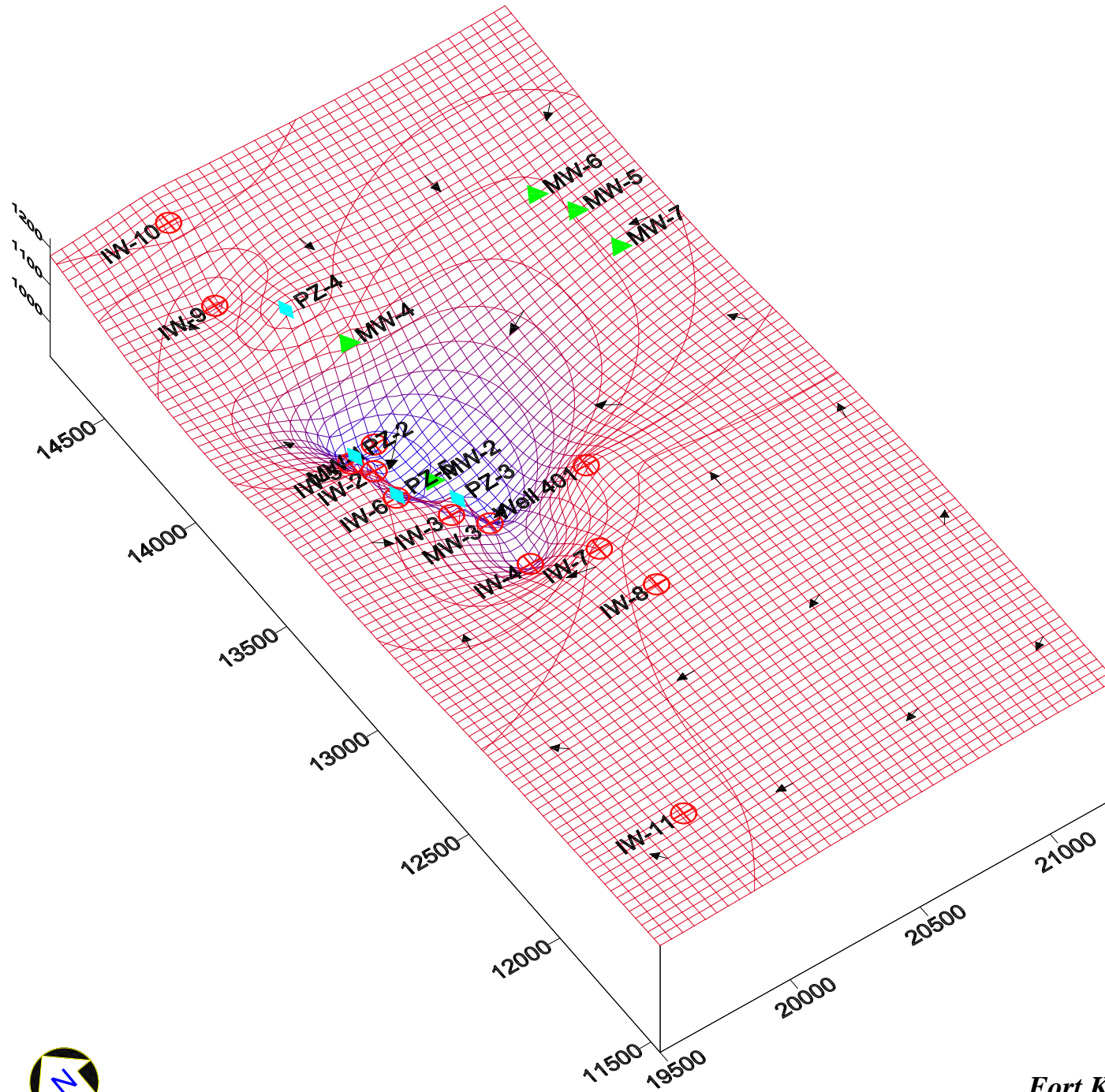
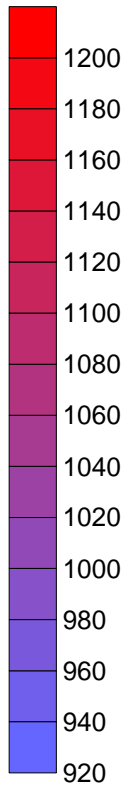
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Elevation In Feet Above MSL



*Fort Knox Mine Interceptor Wells  
October 26, 2008 Groundwater Contours*

Elevation In Feet Above MSL

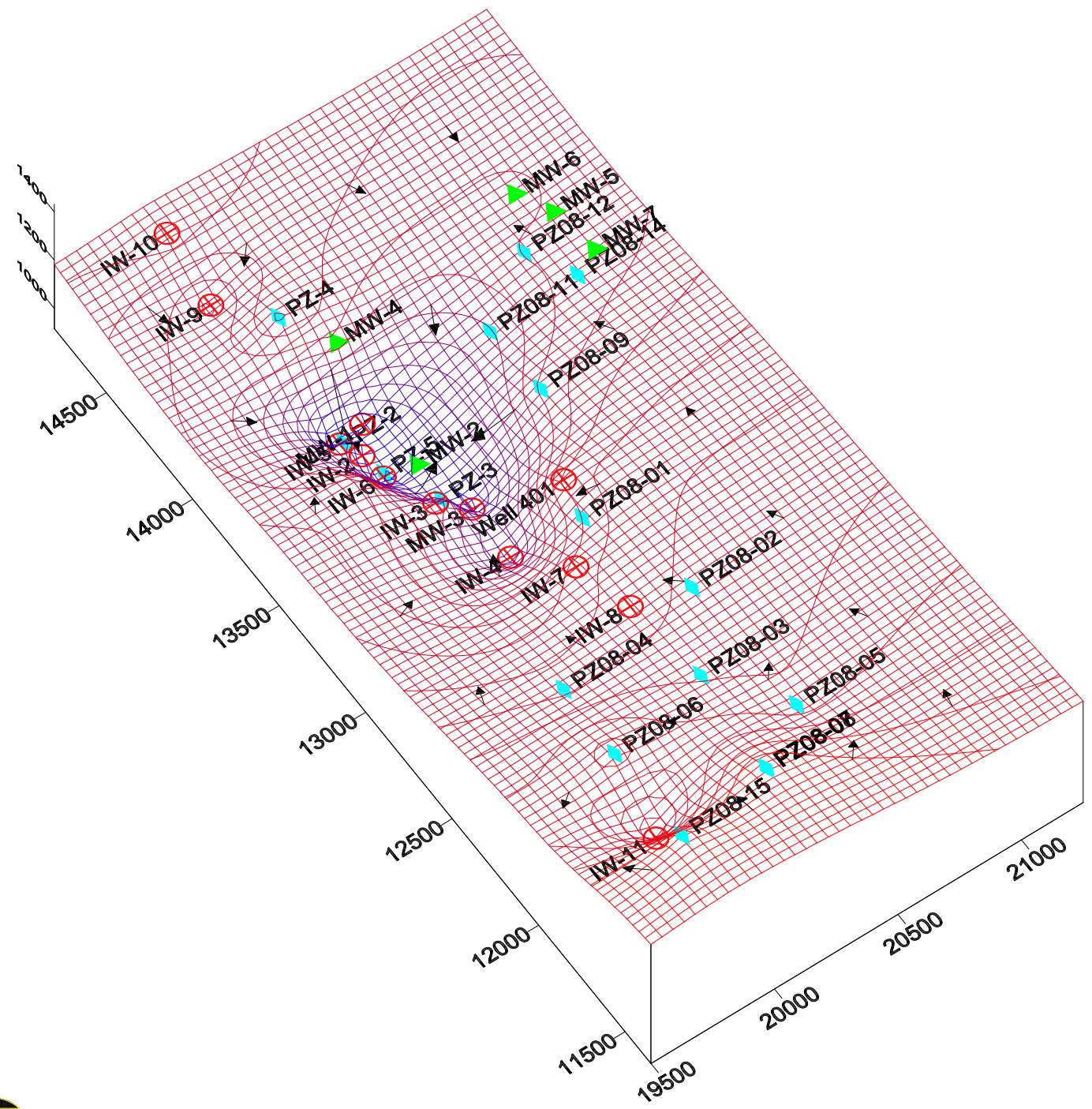
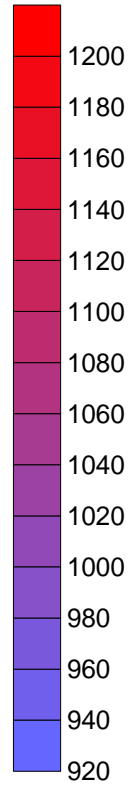


Do to well conditions the following date was used for Surfer Diagram  
IW-5 11-02-08



*Fort Knox Mine Interceptor Wells  
November 9, 2008 Groundwater Contours*

Elevation In Feet Above MSL



Do to well conditions the following date was used for Surfer Diagram  
IW-11 11-23-08  
MW-7 11-23-08  
All PZ08's 12-15-08



**Fort Knox Mine Interceptor Wells  
December 13, 2008 Groundwater Contours**

# **ATTACHMENT E**

## **Spill Reporting Log**

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nox Mine Spill Log Jan 1 - Dec 31

Spill Number	Date	Time	Location	Material	Quantity	Equipment	Cause	Cleanup Measures	Disposal	Agency Notified	Date	Time
08-01-01	1/21/08	9:30 AM	Phase 6, next to dispatch	ATF Fluid	2 gallons	Drill 5	Fuel truck ran over containment pool	Excavation,Absorbs	Soil to waste dump, burn absorbs	DEC EOM Report	2/1/08	8:00 AM
08-01-02	2/10/08	5:00PM	Phase 6	Hydraulic Fluid	45 gallons	Bort Drill Rig	Hydraulic Cooler Leak	Excavation,Absorbs	Soil to waste dump, burn absorbs	DEC / Peggy Wandell	2/12/08	4:43 PM
08-03-03	2/26/08	6:00 PM	Walter Creek Fuel Area	Diesel Fuel	10 gallons	Diesel Tank#19	Hose Leaked during transfer	Excavation	Soil barreled up for shipment	DEC / Paul Lhothka	2/27/08	3:15 PM
08-01-04	3/5/08	10:30 AM	NC Repair Yard	50 Weight Oil	10 gallons	HT-30	Outboard Final Leaked	Absorbs	Used absorbs to Smart Ash Burners	DEC/Brandy Weintraub	3/5/08	2:00 PM
08-03-05	3/27/08	2:00 PM	DW-181 Site (Next to Dispatch)	Diesel Fuel	2 gallons	Heater # 13	Ignition Failure	Excavation,Absorbs	Soil to waste dump, burn absorbs	DEC EOM Report	4/1/08	8:00 AM
08-05-06	5/14/08	9:00 PM	Bull Rail	Antifreeze	3.5 gallons	HT-5	Contact by another piece of equipment	Absorbs	Soil to waste dump, burn absorbs	DEC/Brandy Weintraub	5/16/08	9:15 AM
08-01-07	5/23/08	9:30 AM	Bottom of 1150 pit	Hydraulic Oil	10 gallons	SH-3	Changed high pressure screens	Excavation	Soil to waste dump	DEC/Brandy Weintraub	5/23/08	4:30 PM
08-01-08	5/26/08	7:51 AM	1240 bench in pit	Hydraulic Oil	3 gallons	SH-6	Spill occurred during hose change	Absorbs	Used absorbs to Smart Ash Burners	DEC EOM Report	4/1/08	8:00 AM
08-01-09	5/29/08	3:00 PM	DW-181Site (Next to Dispatch)	Hydraulic Oil	1.5 gallons	DR-5	Small leak under equipment	Absorbs	Used absorbs to Smart Ash Burners	DEC EOM Report	5/30/08	7:30 AM
08-05-10	5/30/08	9:55AM	NW corner of MEM shop	Coolant	25 gallons	coolant tote	tote slipped off forks of forklift	Absorbs	Used absorbs to Smart Ash Burners	DEC/Paul Lhotka	5/30/08	10:30 PM
08-03-11	5/29/08	11:30 AM	SH-003 Pit Floor	Diesel Fuel	1.5 Gallons	SH-003	Over fill	Absorbs	Used absorbs to Smart Ash Burners	DEC/Brandy Weintraub	5/30/08	2:20 PM
08-01-12	6/9/08	3:00 PM	1180 Pit Floor	10 W Oil	200 gallons	SH-3	Hydraulic Hose Failure	Absorbs/Excavate	Soil to waste dump, burn absorbs	DEC Hotline	6/9/08	5:15 PM
08-01-13	6/14/08	10:00 PM	Small Vehicle Bay	ATF Fluid	5 gallons	FT-5	Rubber Hose Failure	Absorbs	Used absorbs to Smart Ash Burners	DEC EOM Report	7/1/08	8:00 AM
08-06-14	6/21/08	8:30 PM	South side of Detox	Process Solution	100 gallons	Cooling Tower	Recirculating pump leak	Excavation	Returned to process	DEC Hotline (Missy)	6/22/08	12:40 AM
08-06-15	7/2/08	8:50 PM	South side of Detox	Process Solution	40 gallons	Cooling Tower	Recirculating pump leak	Excavation	Returned to process	DEC Hotline	7/3/08	7:35 AM
08-01-16	7/5/08	3:20 AM	1330 floor	Hydraulic Oil	30 gallons	SH-3	Spill occurred during maintenance	Absorbs/Excavate	Soil to waste dump, burn absorbs	DEC Hotline/Jesse Lenaha	7/5/08	7:10 AM
08-03-17	7/10/08	12:43 PM	Upper Lay Down Yard	Diesel Fuel	5 gallons	fuel storage tank	fuel left in tank spilled when moved	Excavation	Soil will be shipped off-site to OIT	DEC Peggy Wandell	7/10/08	4:25 PM
08-01-18	7/14/08	8:00 PM	Tire Changing Yard	50 Wt Oil	10 gallons	HT-07	Loose bolts - final drive opened up	Absorbs/Excavation	Soil will be shipped off-site to OIT	DEC Peggy Wandell	7/15/08	10:45 AM
08-01-19	8/5/08	6:00AM	1150 Bench	ATF Fluid	20 gallons	DR-4	Hose Failure	Absorbs/Excavation	Soil to waste dump, burn absorbs	DEC Peggy Wandell	8/5/08	9:47AM
08-01-20	8/6/08	3:00 PM	Bull Rail/Tails Alignment Road	ATF Fluid	40 gallons	FT-6	Hose Failure	Absorbs	Used absorbs to Smart Ash Burners	DEC Peggy Wandell	8/6/08	4:10 PM
08-03-21	8/22/08	3:52 PM	Bull Rail/Tails Alignment Road	Diesel Fuel	1 gallon	Tank #16	Plumbing malfunction on tank	Absorbs	Burned at Alaska Petroleum	DEC EOM Report	9/1/08	8:00 AM
08-05-22	9/30/08	1:55 PM	Barnes Creek/HG Stockpile "Y"	Antifreeze	10 gallons	HT-21	Hose Leak	Absorbs	Used absorbs to Smart Ash Burners	DEC Peggy Wandell	9/30/08	3:20 PM
08-01-23	10/2/08	10:00 AM	Upper Barnes Creek Dump	50w Oil	15 gallons	HT-46	Loose Bolt	Absorbs	Soil to waste dump, burn absorbs	Wes Gormley	10/3/08	9:20 AM
08-01-24	10/30/08	2:25 PM	Across from Bay 10/11	15-40 Oil	3 gallons	DZ-8	Hose Failure	Absorbs/Excavation	Soil barreled up for shipment	DEC- Paul Lahotka	10/30/08	2:55 PM
08-01-25	11/27/08	12:22 AM	Across from MEM	Diesel Fuel	6 Gallons		Suspected to be from drill rig. Unknown	Absorbs/Excavation	Recycled snow/ice pack	DEC EOM Report	11/27/08	12:22pm
08-03-26	12/16/08	11:36 AM	ELV. 2071 (PH-7)	Diesel Fuel	30 gallons	SH-6	Over fill while fueling	Absorbs/Excavation	Soil to waste dump, burn absorbs	DEC Peggy Wandell	12/16/08	11:36 AM

Spill Number Key: 1- Oil, 2-Grease, 3-Diesel, 4-Gas, 5-Coolant, 6-Process Solution, 7-Reagent, 8-Blasting Emulsion



# **ATTACHMENT F**

## **Updated Pit Lake Evaluation**

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## **TECHNICAL MEMORANDUM**

**To:** Delbert Parr  
**Company:** Fairbanks Gold Mining, Inc.  
**Project No.:** 2603  
**From:** John Chahbandour  
**Date:** February 27, 2009  
**Subject:** Fort Knox Pit Lake Evaluation  
Update using 2008 groundwater chemistry data

---

### **1 INTRODUCTION**

This document presents an update to the Fort Knox pit lake evaluation technical memoranda (WMC, December 2006 and WMC, February 2008), completed in support of the Reclamation and Closure Plan for the Fort Knox Mine. This update has been prepared to incorporate recent site dewatering well chemistry data into the pit lake modeling analysis. The pit lake study was prepared to evaluate the short- and long-term pit lake quality following the solution management approach proposed for the Fort Knox Mine.

The Fort Knox Mine is located approximately 15 miles northeast of Fairbanks, Alaska. The site includes several sections in T2N, R2E and T2N, R3E, Fairbanks Meridian near the headwaters of the Fish Creek drainage. The site is located on land owned by the State of Alaska, the Alaska Mental Health Trust, and private parties.

#### **1.1 Purpose**

The purpose of the pit lake modeling remains the same as described in the December 2006 memo. This update incorporates the most recent dewatering well chemistry data (2008 sampling data) into the pit lake model.

#### **1.2 Objectives**

The objectives of this update are to:

- present the revised groundwater dataset, and
- predict short- and long-term, post-closure pit lake water quality using the updated dataset.

## **2 PROJECT BACKGROUND**

The December 2006 technical memo provides a description of the site climate, topography, hydrology and hydrogeology. That document also includes a summary of the relevant elements of the proposed Fort Knox Mine Reclamation and Closure Plan as they relate to the management of the TSF and pit lake.

The original modeling included a detailed water balance that defined the magnitude and relative proportions of inflows to the pit during the recovery period. Site specific data were utilized to assign water quality to each inflow component. Time steps of 2, 5, 15, 75, and 100 years were used to evaluate water quality over time. The pit volume is based on the current mine plan and a spill point elevation of 1,470 ft amsl. The detailed modeling was based on the following:

- a pumped volume of 5,500 acre-ft over 2 years (represents the anticipated case)
- decant and seepage water quality from July/August 2006
- decant and seepage water quality remain constant over time (i.e., does not account for steady improvements in quality observed)
- uses dewatering well analytical data to represent the chemistry of groundwater inflow to the pit following closure
- relevant geochemical reactions were included (via equilibrium geochemical modeling).

The pit lake water balance results and modeling approach are described in detail in the December 2006 memo. The approach used for this update is identical.

## **3 UPDATED GROUNDWATER DATA**

In the December 2006 modeling, groundwater quality in the vicinity of the pit was based on samples collected from the dewatering system between 2000 and 2002. For this update, dewatering well data from 2008 were used to estimate the quality of groundwater inflow to the pit. These data are presented in Attachment 1.

Updated groundwater chemistry for the revised modeling was calculated based on the mean composition of the 2008 data. For major ion chemistry arithmetic averages were used, as these data are typically normally distributed. For trace metal chemistry, geometric mean data were used because these datasets are often skewed and a log-normal distribution is more likely to be appropriate to describe the data. By convention, if all analyses for a constituent in a well were non-detect, the concentration for that well was set to zero for calculating arithmetic and geometric means. If only some analyses were non-detect, the mean concentration for that well was calculated by substituting all non-detect values with one-half of the method detection limit for the analysis. Where there was no 2008 data for a well used in the February 2008 modeling, chemistry values obtained from the 2007 sampling were used. Chemistry data from dewatering well DW05-149A was omitted in this update as water from the tailings storage facility (TSF) is being drawn into this well. Use of this data would result in an overestimate of the effect of tailings facility water on the pit lake as TSF seepage and decant water are included separately in the model. All wells were weighted equally to calculate the groundwater inflow chemistry. The data used to represent groundwater chemistry for the revised modeling are presented in Table 3.1. The values are presented with the February 2008 and December 2006 concentrations for comparison.

#### **4 REVISED PIT LAKE MODELING**

The geochemical modeling process involves solution mixing, chemical reactions, and mineral surface adsorption to predict the pit lake composition at each selected time step. The process is detailed in the December 2006 memo. Results of the revised modeling are summarized in Table 4.1 and compared to applicable water quality standards. Results from the February 2008 and December 2006 modeling are also presented in Tables 4.2 and 4.3 for comparison. As presented in these tables, the predicted concentrations of pit lake water chemistry have changed very little based on the updated groundwater data. The conclusions described in the December 2006 memo are unchanged.

Pit lake water quality results were predicted for years 2, 5, 15, 75, and 100. Standards for cadmium, chromium, copper, lead, silver and zinc represent hardness-based aquatic standards, which were calculated using a hardness value of 103.7 mg/L as CaCO<sub>3</sub>. Hardness was calculated based on the average calcium and magnesium concentrations in the lower wetland surface water samples collected between February 2000 and November 2005. Any surface water discharges from the TSF will report to this drainage. For comparison the average hardness of the pit lake is predicted to be slightly higher at 143 mg/L as CaCO<sub>3</sub>.

The predicted pH of the pit lake water remains above 7 throughout filling and once discharge begins. The alkalinity values were predicted between 50 and 114 mg/L as CaCO<sub>3</sub>, indicating excess buffering capacity of the pit lake water. During Years 1 through 15, concentrations of total cyanide, antimony, copper, manganese, selenium and silver are predicted to be elevated compared to standards. The main source of these constituents is the tailings decant and seepage waters that are added to the pit lake during the first two years of filling. Copper and silver concentrations are predicted to decrease below standards after five years. By year 75 (approximately 13 years prior to pit lake spillover), concentrations of total cyanide, antimony and selenium are predicted to be below standards. Manganese concentrations are predicted to decrease below standards by 100 years.

#### **5 CONCLUSIONS**

The results of the updated pit lake modeling indicate the following:

- The most recent chemistry data for the dewatering production is largely consistent with that used in the previous analyses.
- The revised inflow water quality using the 2008 data has not resulted in a significant change from the 2008 or 2006 models.
- With the exception of manganese, water quality standards can be met with no active management or treatment after 15 years following cessation of dewatering.
- The overall conclusion that water quality standards will be met in the pit lake prior to discharge is still valid and not affected by the new data.
- At the time discharge is predicted to occur, water quality will be sufficient to meet applicable standards, again, with the exception of manganese concentrations, which will meet standards shortly thereafter.
- Pumping decant and seepage water to the pit will have no short- or long-term effects on water quality. Over the short-term, the pit will act as a hydraulic sink with hydraulic gradients toward the pit lake; and over the long-term, the pit lake water will comply with water quality standards.

**REFERENCES**

WMC. February 2008. Fort Knox Pit Lake Evaluation, Updated 2007 groundwater analytical data, February 27, 2008.

WMC, December 2006. Fort Knox Pit Lake Evaluation, December 28, 2006.

## **TABLES**

**Table 3.1 Comparison of groundwater chemistry data used in revised modeling**

Parameter	December 2006 Modeling Groundwater	February 2008 Modeling Groundwater	February 2009 Modeling Groundwater
	Weighted average data from dewatering wells	Weighted average data from dewatering wells (2007 data)	Weighted average data from dewatering wells (2008 data)
pH (su)	8.0	8.2	8.37
Alkalinity as CaCO <sub>3</sub>	78.6	86.2	85.45
Ammonia	0.103	0.100	0.030
Antimony	0.0019	0.0013	0.0016
Arsenic	0.0140	0.0080	0.0080
Barium	0.0010	0.0024	0.0026
Cadmium	0.00015	0.00005	0.00006
Calcium	35.6	37.5	40.2
Chloride	0.52	1.58	1.09
Chromium	0	0	0.005
Copper	0.0051	0.0056	0.0053
Cyanide	0	0.0032	0.0029
Flouride	0.292	0.196	0.221
Iron	0.130	0.039	0.020
Lead	0.00071	0.00008	0.00017
Magnesium	6.49	6.55	6.56
Manganese	0.045	0.012	0.008
Mercury	0.0002	0.0001	0
Nitrate, as N	0.91	1.27	1.42
Nitrite, as N	0.054	0.061	0.013
Phosphorus	0.051	0	0
Potassium	1.1	1.08	1.03
Selenium	0.007	0.0004	0.0004
Silver	0	0.0056	0.0055
Sodium	9.3	10.5	9.6
Sulfate	50.5	46.2	46.8
Zinc	0.011	0.012	0.009

*All concentrations are reported in mg/L, unless otherwise noted*

Table 4.1  
 Prediction of pit lake composition through time after closure  
 Input 5,500 ac-ft of TSF decant (550 ac-ft) and seepage (4950 ac-ft) in 2 years  
 Groundwater chemistry input revised based on average 2008 dewatering well analytical data

Parameter/ Analyte	Reference standards	Source	Timestep 1	Timestep 2	Timestep 3	Timestep 4*	Timestep 5
			Year 2	Year 5	Year 15	Year 75	Years 100
pH, std units	6.5 - 8.5	18 AAC 70	7.7	7.7	7.6	7.5	7.5
pe	NS		14	14	14	14	14
Alkalinity, as CaCO <sub>3</sub>	> 20	Table III chronic	114	100	80	53	52
Chloride	230	Table III chronic	15.4	11.9	7.1	2.6	2.3
Fluoride	4	MCL	0.40	0.33	0.24	0.13	0.12
Nitrate, as N	10	MCL/Table 1	6.6	5.2	3.2	1.3	1.17
Nitrite, as N	1	MCL/Table 1	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	2.43-6.67	Table VII chronic	<0.01	<0.01	<0.01	<0.01	<0.01
Sulfate, as SO <sub>4</sub> <sup>2-</sup>	250	SDWR	198	154	95	38	35
Aluminum	NS						
Total cyanide	0.0052**	Table III chronic	0.033	0.026	0.015	0.0051	0.0044
Antimony	0.006	MCL/Table 1	0.032	0.025	0.015	0.0058	0.005
Arsenic	0.01	MCL/Table 1	0.00063	0.0008	0.0012	0.0018	0.0018
Barium	2	MCL/Table 1	0.017	0.014	0.0092	0.0051	0.0052
Beryllium	0.004						
Boron	NS						
Cadmium	0.0028 H	Table III chronic	0.00014	0.00013	0.00010	<0.0001	<0.0001
Calcium	NS		76.6	61.0	39.6	18.1	16.7
Chromium	0.089 H	Table III chronic	<0.006	<0.006	<0.006	<0.006	<0.006
Cobalt	NS						
Copper	0.0096 H	Table III chronic	0.017	0.012	0.0046	<0.003	<0.003
Iron	1	Table III chronic	<0.06	<0.06	<0.06	<0.06	<0.06
Lead	0.0033 H	Table III chronic	0.0025	0.0018	0.0008	0.00023	0.00019
Lithium	NS						
Magnesium	NS		14.5	11.7	7.8	3.9	3.7
Manganese	0.05	Table Va	0.43	0.33	0.19	0.059	0.050
Mercury	0.002	MCL	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	NS						
Nickel	0.10						
Phosphorus	NS		<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	NS		5.7	4.5	2.8	1.2	1.2
Selenium	0.005	Table III chronic	0.015	0.012	0.0072	0.0031	0.0029
Silver	0.0043 H	Table III acute	0.0061	0.0051	0.0038	0.0023	0.0022
Sodium	NS		23.3	18.7	12.3	5.9	5.5
Strontium	NS						
Thallium	0.0005						
Tin	NS						
Zinc	0.124 H	Table III acute	0.039	0.030	0.019	0.008	0.007
TDS	NS		455	368	249	125	118
Hardness	NS		251	200	131	61	57

\* Discharge from the pit occurs at Year 88, post filling.

All concentrations are in milligrams per liter, unless otherwise noted.

< Analyte concentration result is below typical analytical detection limits. Value shown is the detection limit

NS = No standard

Exceedences of the reference standards are highlighted in bold.

\*\* The reference standard applies to WAD cyanide; however, model results report total cyanide.

**Applicable water quality standards (WMC, 2005)**

18 AAC 70

*Alaska Department of Environmental Conservation Water Quality Standards for fresh water uses, growth and propagation of fish, shellfish and other*

MCL

*Maximum Contaminant Level (USEPA, 2004)*

SDWR

*Secondary Drinking Water Regulation (USEPA, 2004)*

Tables 1 - VIIa

*Water Quality Criteria for Toxic and Other Deleterious Organic and Inorganic Substances [Title XVIII, Chapter 70, Alaska Administrative Code (18 AAC*

*Table 1 - Drinking water maximum contaminant levels (MCL)*

*Table III - Criteria for freshwater aquatic life*

*Table V - Human health criteria for noncarcinogens*

*Tables VI and VIIa = Specific criteria for ammonia*

H

Standard is calculated based on a hardness of 103.7 mg/L as CaCO<sub>3</sub>. Hardness is calculated based on the average calcium and magnesium concentrations in the lower wetland surface water samples collected between February 2000 and November 2005.



**Table 4.2**  
**Prediction of pit lake composition through time after closure**  
**Input 5,500 ac-ft of TSF decant (550 ac-ft) and seepage (4950 ac-ft) in 2 years**  
**Groundwater chemistry input revised based on average 2007 dewatering well analytical data**

Parameter/ Analyte	Reference standards	Source	Timestep 1	Timestep 2	Timestep 3	Timestep 4*	Timestep 5
			Year 2	Year 5	Year 15	Year 75	Years 100
pH, std units	6.5 - 8.5	18 AAC 70	7.7	7.7	7.6	7.4	7.4
pe	NS		14	14	14	14	14
Alkalinity, as CaCO <sub>3</sub>	> 20	Table III chronic	113	99	78	51	50
Chloride	230	Table III chronic	15.5	11.9	7.2	2.7	2.4
Fluoride	4	MCL	0.40	0.33	0.23	0.13	0.12
Nitrate, as N	10	MCL/Table 1	6.6	5.2	3.2	1.3	1.16
Nitrite, as N	1	MCL/Table 1	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	2.43-6.67	Table VII chronic	<0.01	<0.01	<0.01	<0.01	<0.01
Sulfate, as SO <sub>4</sub> <sup>2-</sup>	250	SDWR	198	155	96	39	35
Aluminum	NS						
Total cyanide	0.0052**	Table III chronic	0.033	0.026	0.015	0.0052	0.0045
Antimony	0.006	MCL/Table 1	0.032	0.025	0.015	0.0058	0.005
Arsenic	0.01	MCL/Table 1	0.00062	0.0008	0.0012	0.0017	0.0018
Barium	2	MCL/Table 1	0.017	0.014	0.0091	0.0051	0.0051
Beryllium	0.004						
Boron	NS						
Cadmium	0.00028 H	Table III chronic	0.00014	0.00012	0.00010	<0.0001	<0.0001
Calcium	NS		77.2	62.0	41.0	19.5	18.1
Chromium	0.089 H	Table III chronic	<0.006	<0.006	<0.006	<0.006	<0.006
Cobalt	NS						
Copper	0.0096 H	Table III chronic	0.017	0.011	0.0044	<0.003	<0.003
Iron	1	Table III chronic	<0.06	<0.06	<0.06	<0.06	<0.06
Lead	0.0033 H	Table III chronic	0.0024	0.0017	0.0008	0.00022	0.00019
Lithium	NS						
Magnesium	NS		14.5	11.7	7.8	3.9	3.7
Manganese	0.05	Table Va	0.43	0.33	0.19	0.060	0.051
Mercury	0.002	MCL	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	NS						
Nickel	0.10						
Phosphorus	NS		<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	NS		5.7	4.5	2.8	1.3	1.2
Selenium	0.005	Table III chronic	0.015	0.012	0.0072	0.0031	0.0029
Silver	0.0043 H	Table III acute	0.0061	0.0052	0.0039	0.0024	0.0023
Sodium	NS		22.6	17.5	10.5	4.2	3.8
Strontium	NS						
Thallium	0.0005						
Tin	NS						
Zinc	0.124 H	Table III acute	0.039	0.031	0.020	0.009	0.008
TDS	NS		454	367	247	123	116
Hardness	NS		252	203	135	65	60

\* Discharge from the pit occurs at Year 88, post filling.

All concentrations are in milligrams per liter, unless otherwise noted.

< Analyte concentration result is below typical analytical detection limits. Value shown is the detection limit.

NS = No standard

Exceedences of the reference standards are highlighted in bold.

\*\* The reference standard applies to WAD cyanide; however, model results report total cyanide.

**Applicable water quality standards (WMC, 2005)**

18 AAC 70 Alaska Department of Environmental Conservation Water Quality Standards for fresh water uses, growth and propagation of fish, shellfish and other

MCL Maximum Contaminant Level (USEPA, 2004)

SDWR Secondary Drinking Water Regulation (USEPA, 2004)

Tables 1 - VIIa Water Quality Criteria for Toxic and Other Deleterious Organic and Inorganic Substances [Title XVIII, Chapter 70, Alaska Administrative Code (18

Table 1 - Drinking water maximum contaminant levels (MCL)

Table III - Criteria for freshwater aquatic life

Table V - Human health criteria for noncarcinogens

Tables VI and VIIa = Specific criteria for ammonia

H Standard is calculated based on a hardness of 103.7 mg/L as CaCO<sub>3</sub>. Hardness is calculated based on the average calcium and magnesium concentrations in the lower wetland surface water samples collected between February 2000 and November 2005.

**Table 4.3**  
**Prediction of pit lake composition through time after closure**  
**Input 5,500 ac-ft of TSF decant (550 ac-ft) and seepage (4950 ac-ft) in 2 years**  
**Groundwater chemistry input based on average 2004 dewatering well analytical data data**

Parameter/ Analyte	Reference standards	Source	Timestep 1	Timestep 2	Timestep 3	Timestep 4*	Timestep 5
			Year 2	Year 5	Year 15	Year 75	Years 100
pH, std units	6.5 - 8.5	18 AAC 70	7.7	7.7	7.6	7.4	7.4
pe	NS		14	14	14	14	14
Alkalinity, as CaCO <sub>3</sub>	> 20	Table III chronic	113	98	78	51	50
Alkalinity, as CaCO <sub>3</sub>	230	Table III chronic	15.4	11.8	6.9	2.5	2.2
Fluoride	4	MCL	0.41	0.34	0.25	0.14	0.14
Nitrate, as N	10	MCL/Table 1	6.6	5.1	3.1	1.2	1.09
Nitrite, as N	1	MCL/Table 1	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	2.43-6.67	Table VII chronic	<0.01	<0.01	<0.01	<0.01	<0.01
Sulfate, as SO <sub>4</sub> <sup>2-</sup>	250	SDWR	198	155	96	39	35
Sulfate, as SO <sub>4</sub> <sup>2-</sup>	NS						
Total cyanide	<b>0.0052**</b>	Table III chronic	<b>0.033</b>	<b>0.025</b>	<b>0.014</b>	0.0046	0.0039
Antimony	<b>0.006</b>	MCL/Table 1	<b>0.033</b>	<b>0.025</b>	<b>0.015</b>	0.0059	0.0054
Arsenic	<b>0.01</b>	MCL/Table 1	0.00080	0.0012	0.0020	0.0026	0.0027
Barium	2	MCL/Table 1	0.017	0.014	0.0088	0.0048	0.0048
Beryllium	<b>0.004</b>						
Boron	NS						
Cadmium	<b>0.0028 H</b>	Table III chronic	0.00015	0.00014	0.00012	<0.0001	0.00010
Calcium	NS		77.0	61.7	40.6	19.1	17.7
Chromium	<b>0.089 H</b>	Table III chronic	<0.006	<0.006	<0.006	<0.006	<0.006
Cobalt	NS						
Copper	<b>0.0096 H</b>	Table III chronic	<b>0.016</b>	<b>0.010</b>	0.0034	<0.003	<0.003
Iron	1	Table III chronic	<0.06	<0.06	<0.06	<0.06	<0.06
Lead	<b>0.0033 H</b>	Table III chronic	0.0023	0.0015	0.0006	0.00016	0.00015
Lithium	NS						
Magnesium	NS		14.5	11.7	7.8	3.9	3.7
Manganese	<b>0.05</b>	Table Va	<b>0.43</b>	<b>0.33</b>	<b>0.20</b>	<b>0.066</b>	<b>0.057</b>
Mercury	<b>0.002</b>	MCL	<0.0002	<0.0002	<0.0002	<0.0002	0.0002
Molybdenum	NS						
Nickel	<b>0.10</b>						
Phosphorus	NS		<0.05	<0.05	<0.05	<0.05	0.054
Potassium	NS		5.7	4.5	2.8	1.3	1.2
Selenium	<b>0.005</b>	Table III chronic	<b>0.016</b>	<b>0.013</b>	<b>0.0086</b>	0.0044	0.0042
Silver	<b>0.0043 H</b>	Table III acute	<b>0.0056</b>	<b>0.0044</b>	0.0027	0.0012	0.0012
Sodium	NS		22.6	17.6	10.7	4.4	4.1
Strontium	NS						
Thallium	<b>0.0005</b>						
Tin	NS						
Zinc	<b>0.124 H</b>	Table III acute	0.039	0.031	0.019	0.008	0.008
TDS	NS		454	366	246	123	115
Hardness	NS		252	202	134	64	59

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**Tables 1 - VIIa** Water Quality Criteria for Toxic and Other Deleterious Organic and Inorganic Substances [Title XVIII, Chapter 70, Alaska Administrative Code (18 AAC 70)]

Table 1 - Drinking water maximum contaminant levels (MCL)

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Table V - Human health criteria for noncarcinogens

Tables VI and VIIa = Specific criteria for ammonia

**H** Standard is calculated based on a hardness of 103.7 mg/L as CaCO<sub>3</sub>. Hardness is calculated based on the average calcium and magnesium concentrations in the lower wetland surface water samples collected between February 2000 and November 2005.

**ATTACHMENT 1**

