POLICIES AND PROCEDURES APPLICABLE
TO THE TREASURY DIVISION,
DEPARTMENT OF REVENUE,
STATE OF ALASKA

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APPENDIX AAA

Illinois Creek Mine Reclamation Trust Fund Memorandum of Understanding

Illinois Creek Mine Reclamation Trust Fund
Memorandum of Understanding
Alaska Department of Natural Resources
Alaska Department of Environmental Conservation and
Alaska Department of Revenue

I. Background

A. Legal Background

The Alaska Legislature in Chapter 137 SLA 2004 established a new Article 9 in AS 37.14. The Article established a Mine Reclamation Trust Fund. The Trust fund provides a location to hold a fund and earnings on the fund to assure reclamation for a particular mine.

That law provides in AS 37.14.800(c) that "Before payments are accepted into the mine reclamation trust fund income account[1] for a particular mining operation, the commissioner of natural resources and the miner may execute a memorandum of understanding that outlines a schedule of expected payments into the trust fund and the relationship of the payments and accumulated earnings in the trust fund to reclamation obligations of the miner under AS 27.19.040...[2] The memorandum of understanding may also address expected use of the fund under AS 37.14.820. If the memorandum of understanding addresses investment of the fund with respect to payments made by the miner, the commissioner of revenue must also sign the memorandum."

This memorandum accomplishes the following:

- Outlines the responsibilities of the Department of Natural Resources (DNR) under this MOU and delegations of those responsibilities within DNR;
- Outlines the responsibilities of the Department of Revenue (DOR) under this MOU and delegations of those responsibilities within DOR.
- Outlines the responsibilities of the Department of Environmental Conservation (DEC) under this MOU and delegations of those responsibilities within DEC.
- Lists the expected payments into the trust fund;

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[1] The law works as follows: payments are made into the "income account" of the trust fund. The legislature transfers the balance to the "operating account", and DNR takes funds from the operating account for reclamation needs, consistent with the law.

[2] The words omitted reference AS 27.21.160 which is the Coal Reclamation statute and not relevant to Illinois Creek Mine Project nor this Trust Fund.

- Provides the reasons for which funds are held, the purposes for which they may be used, and a schedule for the times the funds will be needed.

B. History of the Illinois Creek Gold Mine

The Illinois Creek Gold Mine is a remote gold mine located on state land approximately 51 miles south of Galena, Alaska. It is a fly-in mine without road access. USMX of Alaska, Inc. originally permitted the mine in 1996. Construction began in June, 1996. After some corporate changes and mergers, the mining companies responsible for the mine eventually dissolved, the financier abandoned its ownership rights, and the State of Alaska inherited operating responsibility for the mine in July 1999.

The mining company had provided a $1,618,209 Reclamation Bond to satisfy the bonding requirements of DNR and DEC. On behalf of those agencies, DNR, upon the company's bankruptcy and default, seized the bond, and used funds from the bond, augmented by proceeds from the sale of gold that continued to be produced by the mine's heap leach facility, to maintain the mine until an operator could be found to reclaim it. DNR also seized equipment at the mine owned by the mining company.

After a series of temporary contracts, DNR entered into a contract with American Reclamation Group, LLC to reclaim the mine. American Reclamation Group was to use a combination of proceeds from further mining and the remaining reclamation bond to reclaim the mine. American Reclamation Group is expected to finish reclaiming the site in the Fall, 2005. At that time the company will have no further responsibility for the site. The original mine permits required the operator to monitor the site for 30 years after mine closure. Following reclamation by American Reclamation Group, the agencies will now assume the responsibility to monitor the site and to fix unexpected post-reclamation problems.[3] To fund the post-closure monitoring and, if necessary, maintenance, the agencies are establishing this trust fund.

In a typical Mine Reclamation Trust Fund, periodic payments will be made into the fund by a mining company, DOR will manage the fund, and DNR will withdraw funds from the operating account to accomplish required reclamation tasks. This Illinois Creek Mine Reclamation Trust Fund is not typical in that the original mining company no longer exists. DNR has already seized the original reclamation bond. Therefore, payments to the fund will be from the State of Alaska, not the mining company. As with a typical fund, DOR will manage the fund and DNR will withdraw funds from the operating account consistent with monitoring and reclamation obligations.

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[3] Another mining company has retained control and has responsibility for reclamation of some part of the Illinois Creek Mine site. Elsewhere on the site, monitoring remains the responsibility of the state.

II. Responsibilities of the Alaska Department of Natural Resources

DNR will be responsible for expending funds from Operating Account of the Illinois Creek Mine Reclamation Trust Fund to ensure that appropriate monitoring and maintenance of the Mine Site is accomplished. In addition, DNR must forecast the need for funds so that DOR may appropriately invest the Trust Fund. DNR will work closely with DEC to accomplish these tasks. Specifically, DNR must accomplish the following:

1. DNR will work with DEC and, as appropriate DF&G, to determine and predict the monitoring and maintenance tasks appropriate for the mine site, and to forecast the cost of accomplishing those tasks. The current monitoring plan is attached as Appendix A to this MOU.
2. Consistent with Task 1, above, DNR will, after consultation with DEC, provide DOR with a forecast of expected expenditures through the life of the Trust Fund. DNR's initial forecast is contained as Appendix B to this MOU. DNR will update the forecast by March 31st after the first summer of monitoring (i.e., before March 31, 2006) and thereafter at least once every three years before March 31st of the appropriate year (2009, 2012, etc). If for some reason, DNR determines that the forecast is wrong, or that they can make a more accurate forecast, DNR will consult with DEC and provide a revised forecast to DOR as soon as practical.
3. If unplanned expenditures are required by conditions at the Illinois Creek Mine Site, DNR will inform DOR of the need for funds as soon as practical.
4. DNR will keep a record of expenditures made and reclamation tasks accomplished at the Illinois Creek Mine Site.

The Director of the Division of Mining, Land and Water may act for DNR under this Memorandum of Understanding. Communication to DNR under the MOU should be addressed to that Director, with a copy to the Mining Section Chief within that Division. Copies of the current incumbent's e-mail and physical, contact addresses and telephone numbers are included at Appendix C.

III. Responsibilities of the Alaska Department of Environmental Conservation

DEC is responsible for working with DNR to ensure that appropriate monitoring and maintenance of the Mine Site is accomplished. DEC will work with DNR and, as appropriate DF&G, to accomplish task 1 and 2 listed under Section II of this MOU (Responsibilities of DNR). If DEC determines that unplanned expenditures are required by conditions at the Illinois Creek Mine Site, DNR will inform DOR of the need for funds as soon as practical.

The Director of the Division of Water may act for DEC under this Memorandum of Understanding. Communication to DEC under the MOU should be addressed to that Director. Copies of the current incumbent's e-mail and physical, contact addresses and telephone numbers are included at Appendix C.

IV. Responsibilities of the Alaska Department of Revenue

The Department of Revenue is responsible for investing the Illinois Creek Mine Reclamation Trust Fund so as to best protect and grow the Trust Fund while making funds available to meet the DNR's forecast of expenditures, and with the ability to make funds available to meet the need for unplanned expenditures, after appropriate notice.

The State Comptroller may act for the Department of Revenue under this Memorandum of Understanding. Communication to DOR under the MOU should be addressed to the State Comptroller. Copies of the current incumbent's name, contact physical and e-mail addresses and telephone numbers are included at Appendix C.

V. Payments into the Illinois Creek Reclamation Trust Fund

The Trust Fund will be established by a transfer of approximately $838,000 from funds currently held in other State of Alaska accounts. This is expected to occur during calendar 2005. These funds are derived from three sources: mining proceeds, a remnant of the reclamation bond seized from the original mining company, and sale of the equipment seized by DNR and forfeited by the original mining company. The amount of the deposit will be determined by DNR and will be made into the income account by DNR as soon as the trust fund is established by the Department of Revenue.

The agencies expect that the legislature will transfer the funds from the income account to the operating account during the next legislative session DNR will work to ensure that language which enacts the transfer is a part of the Governor's FY 2007 budget submittal.

VI. Expenditures from the Illinois Creek Mine Reclamation Trust Fund

DNR may make expenditures from the operating account for a purpose authorized in AS 37.14.820(a). However, the primary expectation for use of the fund is for monitoring erosion, revegetation, and water quality at the site, especially from the heap leach facility, and for fixing any problems should they unexpectedly occur. As stated above, the current estimate of cost of monitoring is included as Appendix A of this MOU, and the current Monitoring Plan that explains the use of the funds is included as Appendix B.

AS 37.14.820(b) provides that, subject to appropriation, DOR may expend funds from the operating account to pay DOR's expenses for managing the fund. DOR will charge its customary fee of 35 basis points per thousand dollars in the fund. For example purposes the annual charge to manage $700,000 would be $2,450.00. Investment management fees are charged based on actual costs for the funds under management. Except for these customary fees, DOR does not expect to ask the Alaska Legislature for an appropriation from the operating account of the Fund. However, these fees may be revised in the future based on cost allocation reviews.

AS 37.14.820(b) also provides that, subject to appropriation, DNR may expend funds from the operating account to pay state expenses in administrating the fund and programs under AS 27.19 and AS 27.21. However, DNR does not expect to ask the Alaska Legislature for an appropriation from the operating account of the Fund for its administrative expenses.

VII. Miscellaneous

The parties to this MOU may amend it at any time in writing with the concurrence of the other parties.

11/1/05

Director, Division of Mining, Land and Water — Date
Department of Natural Resources

11/2/05

Commissioner — Date
Department of Revenue

11/1/05

Director, Division of Water — Date
Department of Environmental Conservation

Post Closure Monitoring Plan

Illinois Creek Mine

October 2005

Alaska Department of Natural Resources
and
Alaska Department of Environmental
Conservation

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1.0 INTRODUCTION

1.1 History

The Illinois Creek Gold Mine is a remote gold mine located on state land approximately 51 miles south of Galena, Alaska. It is a fly-in mine without road access. USMX of Alaska, Inc. originally permitted the mine in 1996. Construction began in June, 1996. After some corporate changes and mergers, the mining companies responsible for the mine eventually dissolved, the financier abandoned its ownership rights, and the State of Alaska inherited operating responsibility for the mine in July 1999.

The mining company had provided a $1,618,209 Reclamation Bond to satisfy the bonding requirements of DNR and DEC. On behalf of those agencies, DNR, upon the company's bankruptcy and default, seized the bond, and used funds from the bond, augmented by proceeds from the sale of gold that continued to be produced by the mine's heap leach facility, to maintain the mine until an operator could be found to reclaim it. DNR also seized equipment at the mine owned by the mining company.

After a series of temporary contracts, DNR entered into a contract with American Reclamation Group, LLC to reclaim the mine. American Reclamation Group was to use a combination of proceeds from further mining and the remaining reclamation bond to reclaim the mine. American Reclamation Group finished reclaiming the site in the Fall of 2005. At this time the company has no further responsibility for the site. The original mine permits required the operator to monitor the site for 30 years after mine closure. Following reclamation by American Reclamation Group, the agencies (AEDC and ADNR) will now assume the responsibility to monitor the site and to manage unexpected post-reclamation problems.

1.2 Objectives

The objective of the post closure monitoring is to collect data that documents the facility remains in a stable condition that represents minimal environmental risk. Water quality data is collected to ensure that there are no environmental impacts resulting from past activities at the site. The general types of monitoring described in this plan are: visual monitoring, surface water quality monitoring, groundwater quality monitoring and heap leachate water quality monitoring. Water quality monitoring events are scheduled to occur in the following years: 2006, 2007, 2010, 2015, 2025 and

2035. Visual monitoring for erosion, to determine revegatation success and to collect a water quality sample(s) of the heap leachate will occur in 2008 and 2009 in addition to the years listed above.

1.3 Contact Information

This section outlines contact information for representatives from the Alaska Department of Natural Resources and the Alaska Department of Environmental Conservation

Name:	Steve McGroarty
Department:	AK Dept. of Natural Resources
Address:	3700 Airport Way Fairbanks AK 99709
Telephone:	907-451-2795
Fax:	907-451-2703
Email:	steve_mcgroarty@dnr.state.ak.us

Name:	Luke Boles
Department:	AK Dept. of Environmental Conservation
Address:	610 University Avenue Fairbanks AK 99709
Telephone:	907-451-2795
Fax:	907-451-2187
Email:	luke_boles@dec.state.ak.us

1.4 Location and Site Description

The Illinois Creek Mine is located in west-central Alaska in the Kaiyuh Mountains of the Western Interior Region. The mine is located approximately 51 air-miles southwest of Galena and 23 miles east of the Yukon River.

The project consisted of a heap leach facility, four open pits, two waste rock dumps and associated support infrastructure.

2.0 WATER QUALITY MONITORING

This section of the monitoring plan for water quality monitoring will provide information on the following:

- Monitoring locations and rationale;
- Sampling procedures;
- Parameters and analytical methods; and
- Quality Assurance / Quality Control (QA/QC) Program.

2.1 Monitoring Frequency

Monitoring frequency is scheduled to occur in the following years: 2006, 2007, 2008, 2009, 2010, 2015, 2025 and 2035. Different monitoring types may occur in separate events; for example visual monitoring and collection of heap leachate samples are scheduled to occur in 2008 and 2009, however collection of water quality samples at other locations are not scheduled for these two years.

Monitoring frequency may be adjusted if water quality monitoring shows a statistically significant increase from background concentrations. Statistical significance will be determined by methods listed in 18 AAC 60.830 (h) and (i). Monitoring frequency may also be adjusted if revegetation or erosion problems are observed during visual monitoring.

2.2 Monitoring Locations and Rationale

The water quality monitoring program covers the surface and ground waters nearest the locations of past mine operations, which include: Illinois Creek, 5 O'clock Creek and surrounding groundwaters. Additionally, leachate from the closed heap leach facility will be monitored. The monitoring locations for the surface water sampling are presented on Figure 2 and discussed in more detail below.

TABLE 2-1

WATER QUALITY MONITORING STATION LOCATIONS AND MONITORING FREQUENCY

Monitoring Station	Groundwater, Spring, Surface Water or Heap Leachate	Location (Latitude/Longitude)[1]	Scheduled Frequency
MW-1	Groundwater	N 64° 01.841' W157° 56.716'	All years except 2008 and 2009
MW-2	Groundwater	N 64° 02.560' W157° 53.293'	All years except 2008 and 2009
MW-3	Groundwater	N 64° 01.706' W157° 56.257'	All years except 2008 and 2009
MW-7	Groundwater	N 64° 01.945' W157° 55.835'	All years except 2008 and 2009
SP-1 (Drill Spring)	Spring	N 64° 01.718' W157° 54.420'	All years except 2008 and 2009
SP-2 (Warm Spring)	Spring	N 64° 02.290' W157° 51.924'	All years except 2008 and 2009
FM-1 (Ill Cr above SP-2)	Surface Water	N 64° 02.300' W157° 51.927'	All years except 2008 and 2009
SW-4 (Ill Cr below SP-2)	Surface Water	N 64° 02.278' W157° 51.921'	All years except 2008 and 2009
5 O'clock Creek (when surface flow is present)	Surface Water	N 64° xx.xxx[2] W157° xx.xxx'	All years except 2008 and 2009
Dosing Siphon	Heap Leachate	N 64° xx.xxx[2] W157° xx.xxx'	All years
Heap Leach	Seeps	Heap Leach Trough	All years
Heap Leach	Surface Discharge	Heap Leach Trough	All years

1. Datum for Latitude and Longitude is assumed to be WGS84 but will be verified in 2006 sampling event.

2. Latitude and longitude for these locations will be determined during the 2006 sampling event.

2.2.1 Monitoring Wells

Monitoring well locations for MW-1, MW-2 and MW-7 are shown on Figure 2. These wells were selected for post closure monitoring to monitor the groundwater down gradient of the closed heap leach facility for potential impacts. MW-2 is located between the East Pit and Illinois Creek. MW-2 was selected to monitor the groundwater down gradient of the East pit and up gradient of Illinois Creek. The monitoring wells consist of 4" PVC casing extending one to three feet above the ground surface. The completion intervals of these wells extend a short distance below the water table typically observed during sampling. Groundwater sampling can be unsuccessful using these wells because they are either dry or have insufficient water to allow sample collection. These wells will continue to be monitored for the presence of water; however, if any water is present, samples will be collected. The wells will not be bailed and allowed to recharge before sampling. Samples will be collected of the water contained in the casing as this was how wells were sampled historically at the site. Dedicated bailers will be stored in capped PVC casing at each well location.

2.2.2 Springs

There are two sampling locations for springs at the site. SP-1 and SP-2 locations are shown on Figure 2. SP-1, also called the Driller's spring, was selected to monitor the groundwater down gradient of the Central and East Pits and the Central Pit Waste Rock Dump. SP-2, also called the warm spring, is located on the west bank of Illinois Creek, upstream of the abandoned airstrip access road. SP-2 was selected to monitor the groundwater down gradient of the East Pit. Water quality samples will be collected into appropriate containers directly from the springs.

2.2.3 Illinois Creek Surface Waters

Illinois Creek flows in the valley between the closed mine area and the airstrip. Illinois Creek drains into the Little Mud River. The approximate sampling locations on Illinois Creek are shown on Figure 2. FM-1 is located upstream of the confluence with the warm spring (sampling location SP-2) and was selected to monitor Illinois Creek prior to any influence from the warm spring. SW-4 is located downstream of the confluence with the warm spring (sampling location SP-2) and was selected to monitor Illinois Creek after mixing with waters contributed by the warm spring. Water quality samples will be collected into appropriate containers directly from Illinois Creek.

2.2.4 5 O'clock Creek Surface Waters

5 O'clock Creek is located southwest of the closed heap leach facility, the West Pit and the West Pit Waste Rock Dump as shown on Figure 2. The 5 O'clock Creek monitoring location was selected to monitor potential impacts to surface waters down gradient of the closed heap leach facility, the West Pit and the West Pit Waste Rock Dump. In the upper reaches of 5 O'clock Creek the flow is ephemeral and locally comprised of isolated ponded water without connected surface flow, samples will only be collected during sampling events when surface flow is observed. When available, water quality samples will be collected into appropriate containers directly from 5 O'clock Creek.

2.2.5 Heap Leachate Waters

Heap leachate waters from the closed heap leach drain through a dosing siphon into a soil absorption system located south of the closed heap leach facility. The purpose of the monitoring is to determine the quality of water draining from the closed heap leach facility into the soil absorption system. The heap leachate water will be collected into appropriate containers directly from the siphon apparatus using a dedicated bailer stored in capped PVC pipe near the siphon man-way. Due to safety issues inspection personnel will not enter the dosing siphon for sample collection.

The heap trough will be inspected for water flows. Any observed water flows will be evaluated in the field and if a determination is made that the water flow represents a seep, a representative sample will be obtained. If surface runoff is present at the heap trough outlets, these will be sampled.

2.3 Sampling Procedures

2.3.1 Sample Collection and Preservation

All samples will be collected in bottles provided by the analytical laboratory with appropriate preservatives in the bottles. Field parameters (pH/Temperature/Conductivity) will be measured in the field when weather conditions allow.

Sampling procedures to preserve the integrity of the water quality samples will include:

- Collection of representative and undisturbed water from flowing portions of the stream, spring or seep;
- Using new disposable sample collection equipment for each sample (i.e. gloves, tubing, and 0.45 micron filter for the peristaltic pump); and
- Collection and documentation of field parameters at each location.

After collection, the samples will be placed in a cooler and preserved with ice. If filtration is required, this will be performed at the site before refrigeration or preservation. The samples will then remain on ice until they are shipped, in ice packed coolers, to the laboratory for analysis.

2.3.2 Shipping and Chains of Custody

Standard methods will be followed for shipping the collected samples including preservation in coolers with ice, completing a chain of custody, and attaching seals to each cooler to detect any potential tampering. Samples will be flown from the site in order to meet the shortest holding times for analyses.

2.3.3 Parameters and Analytical Methods

Tables 2-1 and 2-2 list the parameters and analytical methods that will be utilized for the surface water quality samples collected at the Illinois Creek Mine. Trace metals will be analyzed for dissolved values. Due to the short holding time (48 hours) for analysis of speciated NO_3 and NO_2 (nitrate and nitrite, respectively) and shipping limitations from the site total NO_3/NO_2 will be analyzed as Nitrogen (N) after preliminary characterization of these species.

TABLE 2-2

MAJOR IONS
WATER QUALITY SAMPLE ANALYSES

Parameter	Method	Units	Method Detection Limit (MDL)	Practical Quantitation Limit (PQL)
Major Ion Chemistry				
pH (field & Lab)	EPA 150.1	Standard	n/a	n/a
Temperature (field)	Elect. probe	Degrees C	n/a	n/a
Conductivity (field & lab)	SM2510B	umhos/cm	0.477	1
Settleable Solids (field)	Cone	mL/L/hr	n/a	n/a
Total Dissolved Solids	EPA 160.1	mg/L	3.1	10.0
Total Suspended Solids	EPA 160.2	mg/L	0.15	0.5
Turbidity (field & lab)	EPA 180.1	NTU	0.05	0.1
Alkalinity, Total	SM 2320B	mg/L as $CaCO_3$	3.1	10.0
Calcium (D)	EPA 200.7	mg/L	0.062	0.2
Iron(D)	EPA 200.7	mg/L	0.0124	0.04
Magnesium(D)	EPA 200.7	mg/L	0.062	0.2

Notes: (D) = Analyzed for dissolved
umhos/cm is micromhos per centimeter

mL/L/hr is milliliters per liter per hour
mg/L is milligrams per liter
NTU is Nephelometric Turbidity Units
ug/L is micrograms per liter

TABLE 2-3

**MINOR & TRACE IONS
WATER QUALITY SAMPLE ANALYSES**

Parameter	Method	Units	Method Detection Limit (MDL)	Practical Q Quantitation Limit (PQL)
Minor Ion Chemistry				
Nitrate-Nitrogen	EPA 300.0	mg/L	0.0031	0.01
Nitrate/Nitrite-Nitrogen	EPA 300.0	mg/L	0.0031	0.01
Cyanide (WAD) Dissolved	SM 4500CN-I	mg/L	0.0025	0.005
Nitrogen, Ammonia-	SM 4500NH3-F	mg/L	0.0258	0.0500
Trace Ion Chemistry (D)				
Arsenic	EPA 200.8	ug/L	1.5	5
Cadmium	EPA 200.8	ug/L	0.05	0.5
Chromium,Total	EPA 200.8	ug/L	0.31	1
Copper	EPA 200.8	ug/L	0.31	1
Lead	EPA 200.8	ug/L	0.062	0.2
Selenium	EPA 200.8	ug/L	1.5	5
Silver	EPA 200.8	ug/L	0.31	1
Zinc	EPA 200.8	ug/L	1.5	5
Mercury	EPA 1631A	ng/L		1

Note: (D) = Analyzed for dissolved
ng/L is nanograms per liter

2.4 Quality Assurance/Quality Control Program

The Illinois Creek Mine Post Closure Monitoring Plan QA/QC Program for the water quality monitoring is presented in Appendix A. Samples will be submitted to a laboratory certified to conduct analysis in the State of Alaska. The QA/QC program, incorporated into the Illinois Creek Mine Post Closure Monitoring Plan QA/QC Program, will be reviewed whenever there is a change in laboratories used for the monitoring program.

3.0 VISUAL REVEGETATION AND EROSION MONITORING

3.1 Visual Monitoring Program

The visual monitoring program will include inspections of the mine facilities for signs of instability, erosion, or chemical contamination. Revegetation success will also be monitored under the visual monitoring program. Visual monitoring of the mining facilities will occur in the following years: 2006, 2007, 2008, 2009, 2010, 2015, 2025 and 2035.

3.1.1 Heap Leach Facility

The physical characteristics of the heap leach facility will be monitored and documented per the schedule presented in section 3.1. Inspectors will look for signs of settlement, seeps, erosion, as well as any unusual water color or sheens if any surface water is present. Revegetation success will be evaluated on a qualitative basis for both percent of cover and diversity of plant species. Areas of with substandard vegetative cover will be documented for further monitoring and evaluation. Areas of excessive erosion will be evaluated to determine if additional reclamation actions will be required to ensure that the closure design for the heap facility is not compromised.

3.1.2 Pits

The physical characteristics of the pits will be monitored per the schedule presented in section 3.1. Inspectors will visually monitor the pit walls for stability. It is anticipated that the slopes will gradually slough until they reach the angle of repose for the rock material. If there are significant changes in the slopes, DNR will evaluate the adequacy of the current safety-berm warning system. Areas of the pits used for the disposal of inert solid waste will be visually monitored to confirm that the solid waste facilities have remained buried. Pit floors, benches and slopes will be monitored to document the natural reinvasion of native plant species.

3.1.3 Development Rock Dumps

The physical characteristics of the development rock dumps will be monitored per the schedule presented in section 3.1. Inspectors will look for unusual signs of settlement, seeps, erosion, as well as any unusual water color or sheens if any surface water is present. Revegetation success will be evaluated on a qualitative basis for both percent of cover and diversity of plant species. Areas of with substandard vegetative cover will be documented for further monitoring and evaluation. Areas of excessive erosion will be evaluated to determine if additional reclamation actions will be required to ensure that the closure design for the facility is not compromised and any sediment transported from the waste rock dump will not enter surface waters. The surface runoff diversion ditches located on the western half of the Central Pit Waste Rock Dump will be monitored to ensure that they continue to perform as designed. The southwest corner of the Central pit Waste Rock Dump has experienced erosion prior to the completion of the surface runoff diversion ditches and will be closely monitored for future erosion.

3.1.4 Solid Waste Landfill

The solid waste landfill visual monitoring will be performed per the schedule presented in section 3.1. Inspectors will be instructed to look for unusual signs of settlement, seeps, or erosion, as well as any unusual water color or sheens if any surface water is present. Revegetation success will be evaluated on a qualitative basis for both percent of cover and diversity of plant species. Areas of with substandard vegetative cover will be documented for further monitoring and evaluation. Areas of excessive erosion will be evaluated to determine if additional reclamation actions will be required to ensure that the closure design for the solid waste facility is not compromised and that sediment is not transported to surface waters.

3.1.5 Wildlife

Inspection personnel will be required to report any wildlife mortality observed at any of the mine facilities. Any wildlife mortalities detected, including any Defense of Life and Property (DLP), will be reported to the ADNR Office of Habitat Management and Permitting, Fairbanks, Alaska.

4.0 MONITORING RECORDS AND REPORTING

4.1 Field Measurements and Records

All field activities pursuant to this monitoring plan will be recorded on field forms that will included the following information:

- Location, date, time of inspection, observations, measurements;
- The person(s) performing the inspection or monitoring activity;
- The laboratory performing the analysis;
- Chain-of-Custody records;
- Laboratory reports; and
- Consultant or engineering report.

4.2 Retention of Records

All records associated with the monitoring activities at Illinois Creek Mine will be retained by ADNR and ADEC in their Fairbanks offices, respectively.

4.3 Monitoring Reports and Submission Schedules

Monitoring reports will be generated in years when post closure monitoring occurs. The reports will discuss cumulative data collected to date.

FIGURES

FIGURE 1: VICINITY MAP

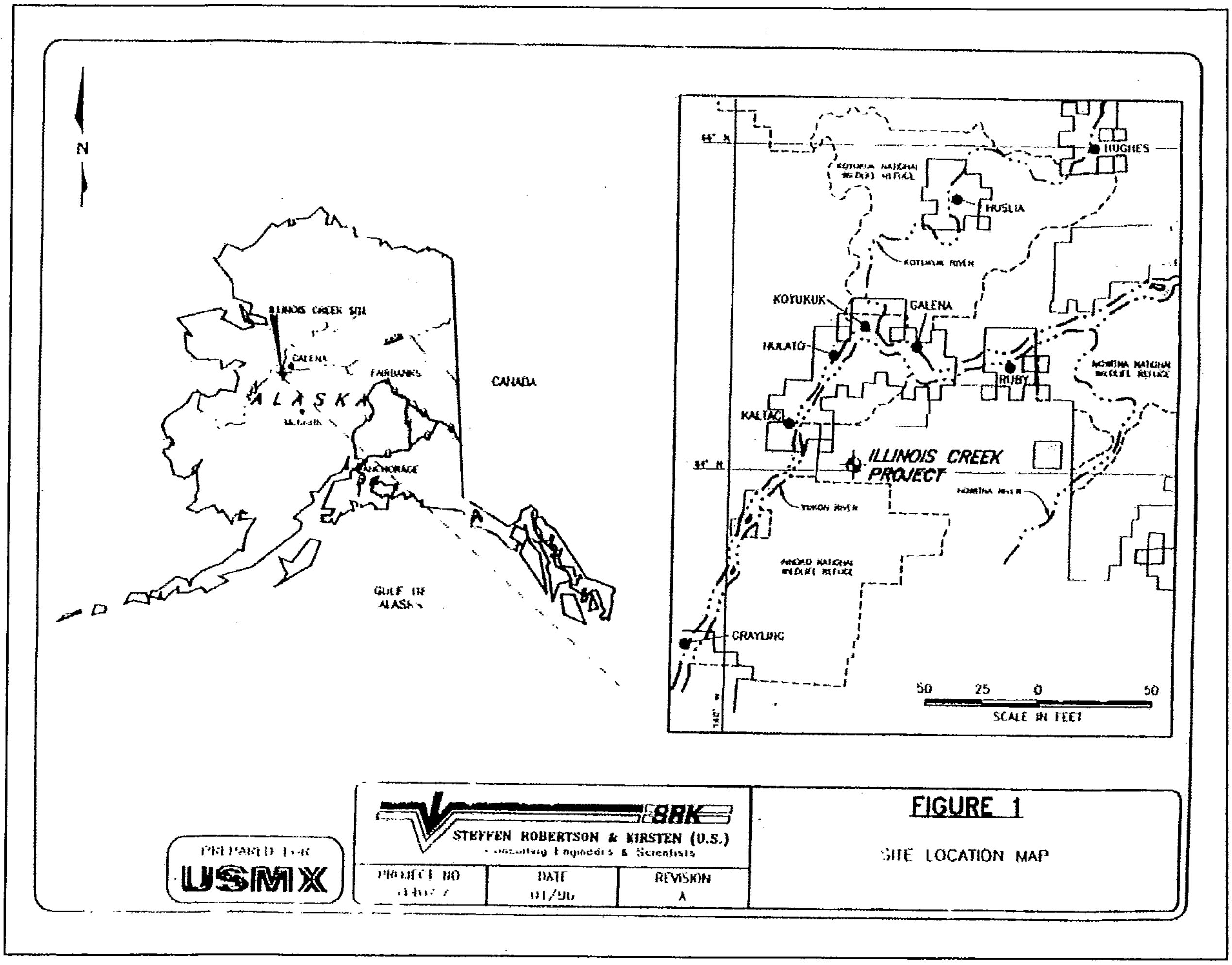
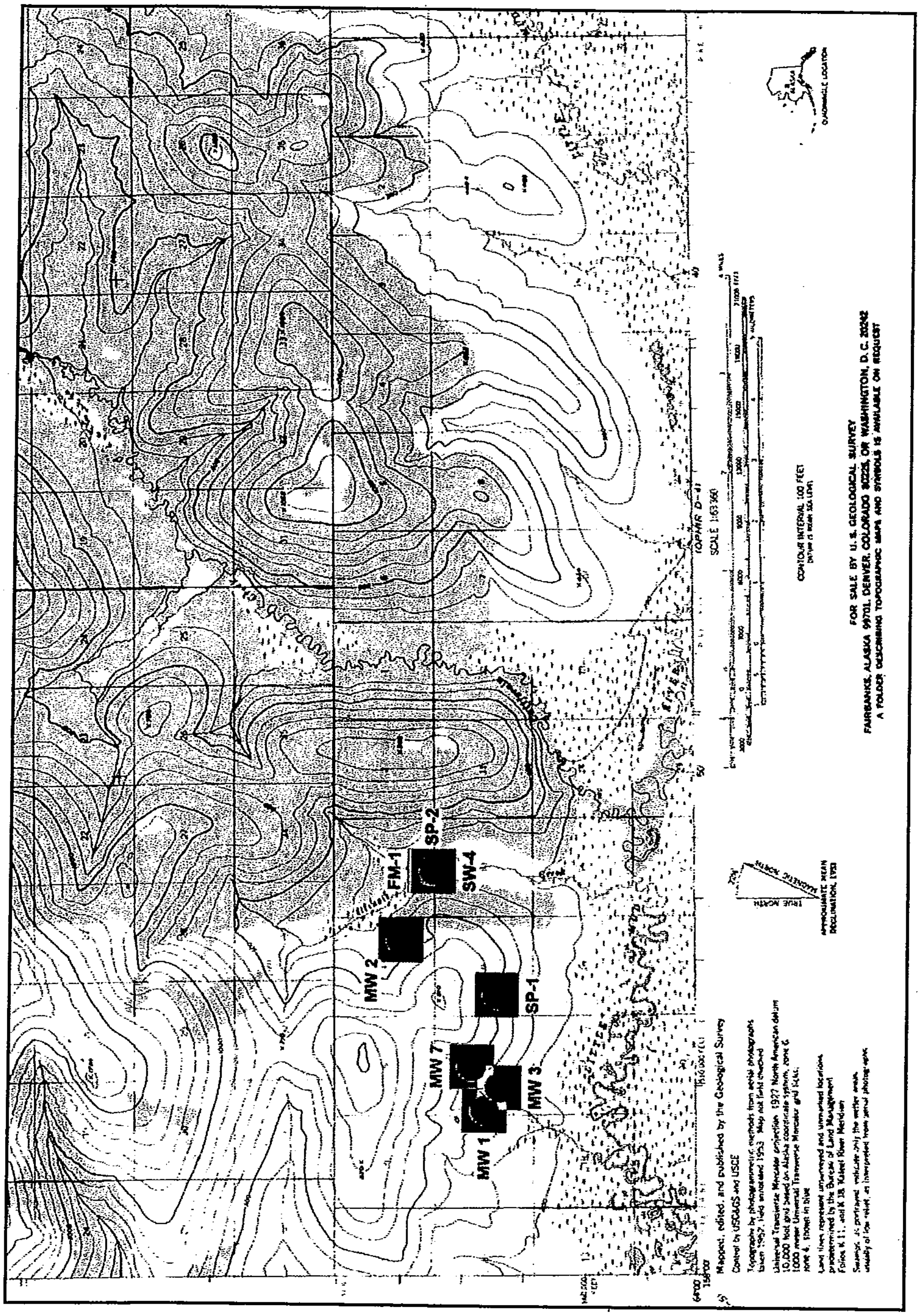


FIGURE 2: MONITORING LOCATIONS MAP



APPENDIX A

ILLINIOS CREEK MINE PROJECT

QUALITY ASSURANCE/QUALITY CONTROL
AND
FIELD PROCEDURES MANUAL

OCTOBER 2005

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ATTACHMENTS

1.0 INTRODUCTION

1.1 Objectives

This Water Monitoring Quality Assurance / Quality Control (QA/QC) and Field Procedures Manual will be utilized by State of Alaska personnel or contractors conducting post closure monitoring at the Illinois Creek Mine Project.

This manual will be used to maintain the quality of field activities, sample collection, sample handling, laboratory and data analysis, and to document the quality of data at each processing level. The QA/QC program identifies major aspects of the project requiring specific quality control and demonstrates that quality control is a major focus for this project. Additionally, this manual will be used for training employees in approved field monitoring procedures (i.e. instrument calibrations, measurements, maintenance).

1.2 Quality Assurance/Quality Control Program

The QA/QC program consists of the following three components.

- **Field QA/QC** identifies the procedures to be used in the field to verify that water samples and field monitoring data are collected according to the requirements of the project. The objective of field QA/QC is to assure that both field measurements and samples collected for laboratory analyses can be demonstrated to be representative of the environment sampled and are of known and acceptable quality.

- **Laboratory QA/QC** identifies the protocols to be used by the laboratories to demonstrate that project data are analyzed according to U.S. Environmental Protection Agency (EPA) acceptable methodologies, and that reported values are accurate. The objective of the laboratory QA/QC program is to produce data that will meet state and federal analytical requirements.

- **Data QA/QC** identifies the protocols to be used to verify that laboratory and field data have been reported accurately. The objective of the data QA/QC program is to demonstrate that the data reported meet the specified requirements, including comparability, with data from previous years.

1.3 Data Uses and Data Quality Objectives

Quality assurance (QA) requirements are established in this QA/QC program to achieve the project objectives for the data uses. Applicable quality control (QC) procedures, quantitative target limits, and level of effort for assessing the data quality are dictated by the intended use of the data and the nature of the required field and analytical methods. The project objectives are to collect data of known and sufficient quality to determine compliance with the applicable regulations, including water quality standards, during the post closure phase of the Illinois Creek Mine Project. The analyses to be conducted on the various sample types have been presented in the Illinois Creek Mine Post Closure Monitoring Plan. Protocols and appropriate detection limits are included in the laboratory's QA/QC plan available to all inspection personnel.

Federal and state levels of concern (i.e., ambient water quality criteria or maximum contaminant levels) exist for many of the parameters being analyzed in the water monitoring program. To the extent possible, analytical methods have been specified that will allow detection of chemical constituents at or below levels of concern.

1.4 Data Quality Parameters

The quality of laboratory data is measured by the precision, accuracy, representativeness, comparability, and completeness of the data. These parameters and the applicable quality control procedures and levels of effort are described below.

1.4.1 Precision

Precision is a qualitative measure of the reproducibility of a measurement under a given set of conditions. For duplicate measurements, analytical precision can be expressed as the relative percent difference. A quantitative definition of the relative percent difference is represented by the following equation.

$$RPD = (S_1\text{-}S_2/m)*100$$

where:

RPD = Relative percent difference (precision)
S_1 = Results of sample 1
S_2 = Results of sample 2
m = $(S_1\text{-}S_2/2)$

The level of effort for precision measurement will be at a minimum frequency of one in 20 (5 percent), or one per batch, whichever is more frequent.

1.4.2 Accuracy

For samples processed by the analytical laboratory, accuracy will be evaluated through the use of matrix spikes and standard reference materials (SRMs) to establish the percent recovery. A quantitative definition of percent recovery is represented by the following equation.

$$\text{Percent R} = [(A_x\text{-}B_x)/S_x]*100$$

where:

Percent R = Percent recovery (accuracy)
A_x = Concentration of analyte determined
B_x = Background concentration of analyte
S_x = Concentration of analyte added into sample or blank

The level of effort for precision measurement will be at a minimum frequency of one in 20 (5 percent), or one per batch, whichever is more frequent.

1.4.3 Representativeness

Representativeness is a measure of how closely the measured results reflect the actual concentration or distribution of the chemical compounds in the soil and water sampled. Sampling plan design, sampling techniques, and sample handling protocols (e.g. storage, preservation, and transportation) have been developed and are discussed in other sections of this document. Proposed documentation will establish that protocols have been followed and sample identification and integrity assured. Field blanks and field duplicates obtained at a minimum frequency of 5 percent or one per sampling event will be used to assess field and transport contamination and method variation. Laboratory sample retrieval, storage, and handling procedures have also been developed and are discussed in other sections of this document. Laboratory method blanks will be run at the minimum frequency of 5 percent or one per set to assess laboratory contamination.

1.4.4 Comparability

Comparability is the level of confidence with which one data set can be compared with another. Comparability of the data will be maintained by using EPA-defined procedures, where available and appropriate. Comparability will also be maintained by the use of consistent units.

1.4.5 Completeness

Completeness is a measure of the amount of valid data obtained from the measurement system. The target completeness objectives are approximately 90 percent for each analytical parameter; the actual completeness can vary with the intrinsic nature of the samples. The completeness of the data will be assessed during the data review.

2.0 FIELD QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

2.1 Purpose

Producing data of known quality that are considered representative of the sampling environment at an appropriate level of detail is achieved by establishing a QA/QC program with specified data gathering protocols overseen by a field QA/QC leader. The main components of the proposed QA/QC program include the following:

- Verification of use of proper sample containers and preservatives;
- Collection and analysis of blank and duplicate samples;
- Specific procedures for handling, labeling, and shipping samples;
- Field equipment calibration;
- Equipment decontamination;
- Field documentation; and
- Field corrective action.

Each task sampler is responsible for implementing these components in the field. However, the field QA/QC leader will oversee each aspect of field operations to verify that these components are accomplished within the strict requirements of the project.

2.2 Quality Control Samples

To aid in evaluating the accuracy of the analytical data, a field filter and rinse blank and duplicate samples are collected and subjected to the same analyses as identified in task samples. One field filter and rinse blank is collected per sampling event. In addition, a minimum of one duplicate sample is collected for every sampling event.

Equipment blanks for surface water sampling are taken by pouring laboratory provided distilled water into a decontaminated sample collection bucket, then sample bottles are filled from the sample collection bucket with a decontaminated one-liter plastic pitcher. Blanks will be analyzed along with the unknown samples. Equipment blanks will not be necessary if site conditions allow direct fill into the sample bottles without using a non-disposable transfer vessel. In addition, an equipment blank will not be necessary if the transfer vessel used to initially collect a sample is previously unused and disposable, and is not used for any other sample locations.

2.3 Sample Collection, Labeling, and Handling Procedures

Sample collection, labeling, and handling procedures are periodically checked by the QA/QC leader to verify that the following conditions are met.

- Collection: Samples are collected according to approved sampling methods.
- Labeling: Samples are uniquely labeled using a code that prohibits unauthorized personnel from knowing the sampling locations.
- Packaging: Samples are correctly packaged to prevent leakage or cross-contamination, sample containers with proper preservatives are used; and sample custody can be adequately documented.
- Shipping: Samples are hand delivered to the laboratory or proper shipping procedures are used, including maintenance of proper temperatures and specified holding times.

Each task leader is responsible for implementing the proper sample collection, labeling, and handling procedures. The field QA/QC leader will oversee these activities.

2.3.1 Surface Water and Seep Water Grab Sampling

Surface/seep water samples are collected in the following order:

1. Total and dissolved metals;
2. Settable solids;
3. Total suspended solids;
4. Ammonia nitrogen; and

5. Remaining parameters (i.e. turbidity, WAD CN etc.).

The surface/seep water grab sampling procedures and sampling sites are listed below.

1. Decontaminate compositing container and any other containers used to transfer the sample to the laboratory bottles. Decontamination procedures are described in Section 2.3.10.

2. Locate sampling site at a point in the stream, seep or surface flow exhibiting greatest flow and/or highest velocity, if possible.

3. Surface/seep water sample sites at the Illinois Creek Mine require filling the plastic-bucket by direct submergence whenever possible. When submersion is required: submerge plastic-bucket at sampling point such that mouth of container is under water surface at least 2 to 3 inches, if possible. Allow container to fill partially, rinse container by shaking, and then discharge this water. Repeat this procedure three times. Collect sample in plastic bucket and then transfer water from bucket into the laboratory sample bottle. If the configuration of the surface flow does not allow submergence of the plastic-bucket, a smaller disposable plastic sampling beaker will be used to fill the plastic-sampling bucket. Dissolved metals samples are field filtered with a 0.45μm filter as they are transferred to the laboratory sample bottles. Water field filtering procedures are described in Section 2.3.13.

4. Fill out appropriate field data form(s). Field documentation procedures are described in Section 2.3.7.

2.3.2 Groundwater Sampling

The groundwater monitoring wells are sampled with dedicated bailers stored in capped PVC pipe near the sampling locations. A description of the sampling procedure is given below. The following procedure will be followed in wells at Illinois Creek mine where appropriate; however, as discussed in section 2.2.1 of the Illinois Creek Post Closure Monitoring Plan, well depth often is insufficient to allow for well casing purge. In instances when there is insufficient water volume contained in the well casing no purging will take place.

1. Measure and record the static water level in the well then determine the well casing volume to be purged:

   (0.37 gal/ft for 2" well)

   (0.65 gal/ft for 4" well)

(1.47 gal/ft for 6" well)

2. Purge at least three well casing volumes using a disposable bailer and line/rope prior to sampling. Measure field parameters (pH, conductivity, and temperature) after purging each casing volume. After finishing purging and if field parameters were stable (within 10% between readings or ±0.2 pH units, fill sample bottles directly from the bailer. If field parameters were unstable during well purging, continue purging well until stable field parameters are achieved. Fill out appropriate field data form(s) documenting sample location, time, and other pertinent information (as described in Section 2.3.7, below) before leaving sampling site.

2.3.3 Sample Labeling

Each sample container will have a waterproof label large enough to contain the information needed to easily identify each sample. The information to be included on each label includes:

- the project name;
- date and time of collection;
- preservative (if added); and
- sampling code.

The sample code will be formatted to indicate sample number and date. In the field record book, the sampler will identify each sampling location. Each sample will be identified with a 12-digit number separated into three series, which includes the date (series 1), sampler (series 2), and identification number of the sample (series 3). An example of sample identification is as follows:

Sample ID: 050707/022/013

where:

050707 = Date (2005, July 07)

022 = Employee's identification number

013 = Sequential sample number recorded in log book for that date.

All blanks and duplicates will be noted in the field notebook. The following designation will be noted for the sample identification series (series 3): natural samples will be identified as 100 series; blanks as 200 series; and duplicates as 300 series.

2.3.4 Packaging

Each water sample bottle will be packed in an iced cooler immediately following collection to keep the samples cooled to 4°C and to prevent breakage during delivery/shipment to the laboratory. For hand delivered and shipped samples, one copy of the chain-of-custody seal will be attached to the outside of the cooler such that the seal(s) must be broken if the cooler is opened. Before sealing coolers, the field QA/QC leader will inspect the sample packaging.

2.3.5 Chain-of-Custody

Chain-of-custody forms will be used for all samples shipped off site. Once collected, the samples will remain within the custody of the sampler or will be locked up until the samples are prepared for shipment. Each time the sample bottle or sample changes hands, both the sender and receiver will sign and date the chain-of-custody form and specify what samples have changed hands. One carbon copy or photocopy of the chain-of-custody form will be retained by State of Alaska personnel or contractor and the original and one carbon copy is sent to the laboratory. The laboratory will forward the original to the appropriate State personnel with the laboratory report.

The following information is to be included on the chain-of-custody form:

- Sample identification code;
- Signature of sampler;
- Date and time of collection;
- Project name;
- Type of sample;
- Number and type of containers;

- Sample analysis requested (e.g., Profile I, II, III, Acid/Base Accounting, etc.);
- Inclusive dates of possession; and
- Signature of receiver.

Other chain-of-custody components will include sample labels, sample seals, field notebook, sample shipment receipts, and the laboratory logbook noting the requested analysis in the Monitoring Plan.

2.3.6 Shipping

State of Alaska personnel or contractor will have the samples delivered to the designated laboratory as soon as feasible after collection and in compliance with the specified method holding times for the required analysis. The remote location of the site will require that samples be shipped by air using the available services. The shipping containers will be sealed, which will be opened in transit only by airline personnel as part of airport security, if required, and then at the receiving laboratory. Samples may also be hand delivered by State of Alaska personnel or contractor as the opportunity is available. A copy of the chain-of-custody, signed by the laboratory at the time of delivery, will be sent with the laboratory report to the appropriate State of Alaska personnel.

2.3.7 Field Documentation

Field observations, field equipment calibration information, field measurements, and sample documentation (including sample identification, sample duplicates, and date and time the sample was collected) will be the responsibility of the entire sampling team. Field logbooks will have waterproof paper.

Proper documentation for sample custody includes keeping records of all materials and procedures involved in sampling. Project notebooks and data sheets will be used to record field data. The field crews will record information regarding the sampling station, including the station position, and respective samples and replicates collected at each. The field crew leader will review all data before leaving the sampling station. Completed field logs will be kept on file for any QA/QC checks. Additionally, the field QA/QC leaders will regularly inspect all field documentation, notebooks, and data sheets.

2.3.8 Corrections to Documentation

All original data will be recorded using waterproof ink unless prevented by weather conditions. No accountable documents will be destroyed or thrown away even if they are illegible or contain inaccuracies that require a replacement document. If an error is made on an accountable document assigned to one person, that person must make corrections by drawing a single line through the error, initialing and dating the lined-out item, and entering the correct information. The erroneous information is not to be obliterated but is to remain legible. The person who made the entry will correct any subsequent error discovered on an accountable document. All such subsequent corrections will be initialed and dated.

2.3.9 Field Equipment Calibration

Field equipment used for collection, measurement, and testing is subject to a strict program of control, calibration, adjustment, and maintenance as discussed in Attachment A. Portable water quality instruments will be used for the in situ measurement of pH, temperature, and conductivity. Recorded measurements will not be taken until an agreement of replicate measurements is obtained. This value will then be recorded. Calibrations will be performed daily prior to beginning any sample tasks. The standards of calibration are in accordance with applicable criteria such as the National Institute of Standards Technology (NIST), ASTM standards, or other accepted procedures outlined in the manufacturer's handbook of specifications. All calibration activities will be documented in each task notebook, as well as on appropriated field calibration forms.

The field crew leader will review data measured in the field, and final validation will be by senior personnel. Data validation will be completed by checking procedures used in the field and comparing the data with previous results. Data that cannot be validated will be so documented; corrective action may be required, as discussed in Section 2.3.12, below.

2.3.10 Decontamination Procedures

Due to logistical issues with attempting to haul deionized water and detergent solution to the sampling locations at a remote site decontamination procedures for field sampling probes will consist of rinsing the field sampling probe in the water to be sampled.

2.3.11 Dissolved Metal Field Filtration Method

Water sample filtration for selected samples will be performed either at the sampling station whenever possible, or at the mine office, if necessary, when sampling locations are remote and difficult to transport filtration equipment to. Filtration will be performed using an electronically operated peristaltic pump to transfer the sample through the filter and into the sample bottles except for groundwater wells sampled with downhole pumps. Separate descriptions for surface water sample and groundwater sample (collected with downhole pumps) filtration are presented below.

Surface Water:

1. Use a new, disposable, high capacity, pre-cleaned, vacuum-type, 0.45-micron filter for each sample.

2. Use a new length of clean, flexible poly tubing for each sample.

3. Visually inspect filter, and tubing for damage. Replace parts or repair equipment as necessary.

4. Attach length of poly tubing to drive head of peristaltic pump. Attach one end of poly tubing to inlet of the filter. Place other end of poly tubing in container containing collected sample for filtration. Purge approximately 3 filter and tubing volumes through system using peristaltic pump.

5. If sample water is extremely turbid, use the same procedure but pre-filter the water (usually with a 3-micron filter) and then use 0.45-micron filter.

6. Immediately after purging, fill sample container to appropriate level with filtered sample.

7. Repeat step 6 until all required sample bottles are filled.

Groundwater sampled with downhole pump:

1. Place disposable, high capacity, pre-cleaned, vacuum-type, 0.45-micron filter in two-way hose fitting/reducer fitting after restricting flow to one outlet.

2. After inserting filter firmly into the two-way hose fitting adjust valves so as to divert flow through the filter.

3. Let at least three filter volumes run through the filter before filling sample bottles.

2.3.12 Field Corrective Action

Field sampling corrective actions includes procedures to follow when field data results are not within the acceptable error tolerance range. These procedures include the following:

1. Comparing data readings being measured with readings previously recorded;
2. Recalibration of equipment (i.e., pH meters);
3. Replacing or repairing faulty equipment; and
4. Resampling when feasible.

The field team leader is responsible for ordering appropriate field corrective actions when deemed necessary. All field corrective actions will be recorded in the field book.

3.0 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

The laboratory QA/QC program is available to all State of Alaska inspection personnel or contractors and a copy is also located in the ADNR and ADEC Fairbanks offices.

4.0 DATA QUALITY ASSURANCE/QUALITY/QUALITY CONTROL PROGRAM

The data QA/QC program serves four major functions:

- Maintenance of a duplicate record of all field data;
- Sample tracking through laboratory analysis;
- Data validation; and
- Oversight of data management.

During field operations, the field QA leader will receive copies of all field data and will file these in a project notebook. These duplicates will serve as a backup file and will be checked against the field data entered into the database management system.

The second major component of the data QA/QC program is sample tracking throughout the laboratory analytical process. The data QA/QC leader will maintain close communication with all analytical laboratories to verify sample receipt, proper sample management, and strict adherence to sample holding times. The laboratories will immediately inform the field QA leader of sample breakages, inadequate sample media to meet QA objectives, and other sample problems. The field QA leader will then notify the task leader and project manager so that corrective action can be implemented as deemed necessary.

Following receipt of the analytical data package from the laboratory, the QA leader will verify that all sample parameter data have been received and will compare detection limits and preliminary results with previous results. Should major discrepancies be found, the field QA leader will communicate these to either or both the task leader and project manager. Possible corrective measures will then be evaluated as deemed necessary.

A data review or validation process will also be performed on 20 percent of all analytical data received from the laboratories. Chemical data will be reviewed with regard to the following:

- Analytical methodology;
- Detection limits;
- Cross-contamination as indicated by blank data;
- Accuracy and precision; and
- Adherence to holding times.

Where data do not meet the requirements specified in the QA/QC program, the data will be flagged with qualifiers. These reviews of data will be summarized and included in the report of sampling data.

ATTACHMENT A

ILLINOIS CREEK MINE PROJECT
INSTRUMENT CALIBRATION, OPERATION, AND MAINTENANCE PROCEDURES

ATTACHMENT A
INSTRUMENT CALIBRATION, OPERATION, AND MAINTENANCE PROCEDURES

The following sections discuss field sampling procedures and instrument calibration, maintenance, and measurements.

ELECTRICAL CONDUCTANCE

Instrument Calibration

At the beginning of each day of sampling, check instrument linearity.

1. Rinse probe with deionized water.

2. Measure conductivity of two potassium chloride (KCl) solution standards, which bracket expected sample values.

3. Measure temperature of both KCl solution standards.

4. Calculate cell constant for each standard to determine if instrument linearity is reasonable. The cell constant is the ratio of the computed conductivity to the measured conductivity of the standard KCl solution.

Maintenance

1. Store meter in its case during transport.

2. Check batteries before taking meter into the field. Carry spare batteries in the field (9 volt).

3. Inspect conductivity probe for cracks or other damage.

Field Measurement Procedures

1. Turn instrument on.

2. Rinse plastic beaker with approximately 50 milliliters of sample water three times.

3. Place water sample in plastic beaker (fill to at least 50 millimeters).

4. Rinse probe with deionized.

5. Immerse conductivity probe in sample so that vent hole is submerged. Move probe around in sample to displace any air bubbles. Turn instrument on to appropriate scale to measure conductivity. Record conductivity reading after a stable reading is obtained.

6. Remove probe from sample and turn off instrument.

FIELD PH

Instrument Calibration

1. Calibrate pH meter at the beginning of each day of fieldwork when pH will be measured, and whenever the standard check is out of acceptable bounds.

2. Rinse pH electrode probe with deionized water.

3. Immerse electrode and temperature probe from solution, and then rinse with deionized water.

4. Remove electrode and temperature probe from solution, and then rinse with deionized water.

5. Immerse electrode and temperature probe from solution, and rinse with deionized water.

6. Remove electrode and temperature probe from solution, and rinse with deionized water.

7. Measure pH of a third fresh calibration solution at pH 7.0. If measured value differs from expected value by more than 0.1 units, obtain fresh calibration solutions and recalibrate. If discrepancy persists, begin trouble-shooting procedures following meter operating instructions: check batteries, connections, probe, etc.

Maintenance

1. Store meter in its case with electrode immersed in a pH 7 buffer solution.

2. Inspect electrode prior to use.

3. Filler hole plug should be firmly seated when meter is stored for a week or more.

4. Check glass electrode for cracks or scratches.

5. Check batteries each time meter is used. Carry a spare battery pack into the field in the pH meter case.

Field Measurement Procedures

1. Rinse decontaminated glass beaker or sample bottle with approximately 50 milliliters of sample water three times.

2. Rinse pH electrode with deionized water.

3. Rinse pH electrode with deionized water.

4. If measurement is read ex situ, fill beaker with sample water.

5. Immerse electrode and temperature probe in sample while swirling the sample to provide thorough mixing. Turn on meter. Read pH to nearest 0.1 until the reading has stabilized (when beaker icon stops flashing).

6. Record sample pH. Note any problems such as erratic readings.

7. Rinse probe with deionized water and store according to manufacturer's directions.

WATER TEMPERATURE

1. Linearity and Field Measurement Procedures.

2. Use either a National Institute of Standards and Technology (NIST)-calibrated thermometer or a digital temperature probe calibrated against a NIST-calibrated thermometer to measure temperature.

3. Check thermometers for cracks or gaps in the mercury. Do not use thermometers if either cracks or gaps are visible.

4. When possible, measure temperature of surface water at midstream by submersing the thermometer or electronic temperature probe for approximately 1 minute or until temperature stabilizes.

5. When in situ temperature measurements are not possible, draw sample of at least 200 ml into a decontaminated beaker or sample bottle as soon after sampling as possible.

6. Place thermometer or electronic temperature probe in sample and allow temperature to stabilize.

7. Record temperature to nearest 0.5°C in field logbook or on field data sheet.

8. Rinse thermometer or electronic temperature probe with deionized water.

9. Check field thermometers or digital temperature probes against a NIST-certified laboratory thermometer, on a quarterly basis. Agreement should be within 0.5°C.

Appendix B: Forecast of Expenditures
Illinois Creek Mine Reclamation Trust Fund
October 2005

The Illinois Creek Mine is fully reclaimed. Money within the Illinois Creek Mine Reclamation Trust Fund is a reserve to be used for expenditures required to fix unexpected reclamation problems and to monitor the site to determine whether any of those problems occur.

While no problems are expected, the Illinois Creek Gold Mine one of the first modern hard-rock mines to be reclaimed in Alaska, and includes one of Alaska's first heap leach facilities. It is important to maintain the trust to fund the required monitoring and, equally as important, as a reserve for unexpected maintenance needs.

The expected monitoring is expected to require less than a quarter of the initial amount of the reclamation fund. Maintaining the remainder of the fund, however, is important as a reserve for maintenance. This forecast of expenditures reflects the schedule for monitoring as outlined in Appendix A. It anticipates monitoring in Years 1, 2, 5, 10, 20, and 30 at $25,000 for each of those years plus an additional $20,000 in year 31 to close the wells. Expenditures in the table are in 2005 dollars.

Year	Year	Expected Expense (2005 $)
1	2006	$ 25,000
2	2007	$ 25,000
	2008	
	2009	
5	2010	$ 25,000
	2011	
	2012	
	2013	
	2014	
10	2015	$ 25,000
	2016	
	2017	
	2018	
	2019	
	2020	
	2021	
	2022	
	2023	
	2024	
20	2025	$ 25,000
	2026	
	2027	
	2028	
	2029	
	2030	
	2031	
	2032	
	2033	
	2034	
30	2035	$ 25,000
	2036	$ 20,000 Well closure

Appendix C
Primary Agency Contacts

This appendix provides mailing address for contacts under this MOU for the individuals who hold the positions. This Appendix is valid as of the date at the bottom of this page.

DNR: Bob Loeffler, Director
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Tom Crafford, Mining Section Chief
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DEC: Lynn Kent, Director
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