COMAPLEX

MINERALS CORP

Quality Assurance / Quality Control Plan

for the

Meliadine Gold Project

October 2009

Introduction

This Quality Assurance & Quality Control (QA/QC) Plan has been prepared in accordance with the requirements of Water License 2BB-MEL0914 issued by the Nunavut Water Board to Comaplex Minerals Corporation on July 31, 2009. It is specific to the Meliadine Gold Project and presents basic protocols for field sampling, sample handling, field analysis, sample transport and other characteristics of a successful and repeatable mandated monitoring program. This QA/QC Plan can serve to provide QA/QC to other environmental monitoring programs where applicable and warranted.

The specific sampling requirements of the Water Licence (sampling locations, frequency, and parameter analysis) are summarized in Table 1 below.

Table 1. Water Licence 2BB-MEL0914 Monitoring Program

Station Number	Description of sampling site	Frequency of Sampling	Effluent Quality Parameters for analysis
MEL-1	Raw water supply intake at Meliadine Lake	Daily with volume of water used metered and average reported monthly.	Volume of water used (m^3/day)
MEL-2	Raw water supply intake at Pump Lake	Daily based on average determined from meters August – September 2009	Volume of water used (m^3/day)
MEL-3	Immediately downstream of the old greywater sump prior to effluent entering wetland area, when flow is observed.	Monthly during sewage treatment, effluent discharge and during periods of flow	BOD_5, Faecal Coliforms, TSS, pH, Oil and Grease
MEL-3a	Immediately downstream of upgraded sump prior to the effluent entering upgraded wetland area, when flow is observed	Monthly during sewage treatment, effluent discharge and during periods of flow	BOD_5, Faecal Coliforms, TSS, pH, Oil and Grease
MEL-4	At a point immediately upstream of the discharge from the wetland area / upgraded wetland area to Meliadine Lake	Monthly during sewage treatment, effluent discharge and during periods of flow	BOD_5, Faecal Coliforms, TSS, pH, Oil and Grease
MEL-5	Point of discharge for the Bermed Fuel Containment Facilities.	Prior to the release of effluent	BTEX, Pb, Oil and Grease, Phenols
MEL-6	Point of discharge for the contaminated soil storage.	Prior to the release of effluent	BTEX, Pb, Oil and Grease, Phenols
MEL-7	Final effluent discharge from the Biodisk treatment system	Monthly during sewage treatment, effluent discharge and during periods of flow	BOD_5, Faecal Coliforms, TSS, pH, Oil and Grease

Quality Control[1]

Widely accepted quality control measures are to be used with the intent to monitor for errors due to sampling, laboratory analyses and rapid changes in water quality. Table 2 summarises the use of blanks and duplicate samples in the field. In our case where the sampling is limited to a maximum of 6 locations per month and a diverse set of

[1] This section is adapted from *Metal Mining Guidance Document for Aquatic Effects Monitoring June 2002*

parameters, a single field blank, trip blank and one duplicate sample per matrix is to be submitted together with each monthly batch of test samples. This meets the guideline of 5 to 10 percent of samples submitted for analysis being quality control samples. All sample bottles and containers are supplied by a certified laboratory.

Table 2. Summary of Quality Control Samples[1]

QC Sample	Description
Field Blank	Checks contamination as a result of sample handling. One per day per matrix
Trip Blank	Tests validity of sample preservation, transportation and storage conditions. One per day per matrix.
Field Duplicate	Used to evaluate homogeneity of the sample site and the ability of the sampling system to take the sample in the same way every time.

[1] Adapted from: Metal Mining Guidance Document for Aquatic Effects Monitoring June 2002

Field Blank

The Metal Mine Guidance Document describes a field blank as follows:

> *Field blanks are used to check contamination from all potential sources of contamination of the sample. These include possible contamination of sample bottles, caps, preservatives, equipment, filter paper (if samples are to be filtered), atmospheric contamination, sampling techniques, and analysis. Field blanks are collected by obtaining blank water (i.e. Milli-Q water) from the laboratory conducting the analyses, transporting the water to the field, and taking it through all sample collection, handling and processing steps that the test samples undergo (e.g., transfer to a sample container, preservation and exposure to the environment). Field blanks are transported, stored and analysed in the same manner as test samples*.

Trip Blank

Trip blanks are also referred to as travel or transport blanks. The Metal Mine Guidance Document describes a trip blank as follows:

> *Trip blanks are used to check contamination from sample bottles, caps and preservatives during transport, storage and analysis. A sample bottle is filled in the laboratory with blank water (i.e. Milli-Q water) and preserved in the same manner as the test samples will be. Trip blanks are transported to the field with regular sample bottles and submitted to the laboratory unopened, together with the test samples. They are opened at the time of analysis, and analysed in the same manner as the samples.*

Field Duplicate

Similarly, the Metal Mine Guidance Document describes a field duplicate sample as follows:

Duplicate samples should be taken to verify analytical results and equipment reliance. Field duplicates are used to evaluate homogeneity of the sample site and the ability of the sampling system to take the sample the same way every time. A field duplicate is a completely separate sample, not a split of a single sample into two bottles. Duplicate samples should be treated as blind samples, and are not identified to the laboratory.

These quality control samples along with the test samples are likely to be analysed by the laboratory as a batch, together with samples from other clients. If the analytical data for the quality control samples proves acceptable, it will provide confidence in the test sample data. If the data from the control samples indicate contamination or analytical error, confidence in the test data will be much reduced and the sampling may have to be repeated after instituting the necessary improvements to the sampling and/or analytical methods.

Laboratory Analysis

The Meliadine Gold Project does not have an analytical laboratory on site and relies on an accredited laboratory for all analyses excepting field analysis of pH and temperature. The laboratory used by the Meliadine Gold Project is ALS Laboratory Group, an ISO/IEC Standard 17025 compliant laboratory. Appendix 1 displays a letter from the laboratory confirming acceptance of the Plan for analyses to be performed under this Licence

Receipt of Analytical Data

The laboratory upon receiving the cooler having the samples, emails the person(s) listed on the Chain of Custody form acknowledging receipt of the samples. Figure 1 below illustrates a sample of a Chain of Custody form. Once all the samples have been analysed, the results are again emailed to the same person(s). The value of the QC samples is evident at this point as they provide a degree of confidence in the test data.

Field Sampling Program

Sampling locations are specified in the Water Licence and will be marked in the field with a permanent sign designating the station number in English and Inuktitut. All sampling locations will be documented with their respective northing and easting coordinates obtained with a Global Positioning System. Figure 2 at the end of the document shows the sample locations while Table 4 has the coordinates.

Sample pH, sample temperature, and climate conditions will be recorded in the field at the time of sampling. The pH meter will be maintained and calibrated as per manufacturer's recommendations; see appendix 2.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To		**Report Format / Distribution**	**Service Requested:** (Rush subject to availability)
Company:	Comaplex Minerals Corporation	Standard: _____ Other (specify): _____	Regular (Standard Turnaround Times))
Contact:	Sandy Barham / John Witteman	Select: PDF___X__Excel___X_ Digital_____ Fax_____	Priority, Date Req'd: _____ (Surcharges apply)
Address:	901, 1015 - 4th Street SW	Email 1: SBarham@Comaplex.com	Emergency (1 Business Day) - 100% Surcharge
	Calgary, AB T2R1J4	Email 2: Jwitteman@Comaplex.com	For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone:	Fax:		**Analysis Request**
Invoice To	Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**	(Indicate Filtered or Preserved, F/P)
	Copy of Invoice with Report? (circle) Yes or No	Job #:	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #:	
Lab Work Order # (lab use only)		**ALS Contact:**	**Sampler:**

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Trace Arsenic & Mercury	Total Trace Metals ICP - MS	Nutrients	Oil and Grease	BOD	Total Phosphorus (P)	Feacal Coliforms (MPN)	TSS & pH	water temp Field	Field pH			Number of Containers
	MEL-3							X	X		X	X					
	MEL-3a							X	X		X	X					
	MEL-4							X	X		X	X					
	MEL-7				X	X		X	X		X	X					

Special Instructions / Regulations / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature: °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

Sample bottles will be labelled by marking them with a water resistant felt pen. Sample labels will include the initials of the person taking the sample, the sample location, date and time of sampling. Sample bottles will be labelled prior to sampling to avoid any confusion in the field with only the time of sampling added afterwards.

Sample bottles will be securely stored upright in sealed coolers containing ice packs and shipped to the laboratory by air transport. A laboratory chain of custody will accompany each batch of samples, an example of a chain of custody form is shown in figure 1. Table 3 should be consulted in carrying out the field sampling program.

Table 3. Parameter List, Preservatives and Holding Time

Parameters for Analysis	Bottle Type	Preservative	Minimum sample	Holding Time
Routine (anions, alkalinity, cations, pH, EC, TSS, turbidity, PO_4, NO_3)	500 ml High Density Polyethylene (HDPE)	None. Hold samples at 4°C or use ice packs	500 ml due to the large number of parameters	The holding time is determined by the most time sensitive parameters, these being PO_4 & NO_3 at 48 hours. (pH is best done in the field, hold time 15 minutes).
Dissolved or total organic carbon	100 ml amber glass bottle	None. Hold samples at 4°C or use ice packs	25 ml Field filter for dissolved	14 days
BOD_5	500 ml HDPE	None. Hold samples at 4°C or use ice packs	500 ml	48 hours (EPA), 7 days (MOE)
BTEX soil	125 ml wide mouth glass bottle	None. Hold samples at 4°C or use ice packs	125 ml and zero head space in bottle	14 days
BTEX – F1 (C_6-C_{10})[1]	3 x 40 ml vials	Sodium bisulphate (already in vials)	2 x 40 ml vials zero headspace in vials	14 days
F2 – F4 (F2 – C_{10}-C_{16}, F3 – C_{16}-C_{34}, F4 – C_{35}+)	2x250ml Amber glass bottles	None. Hold samples at 4°Cor use ice packs	500 ml	7 days
Dissolved Trace Metals	250 ml HDPE	1:3 HNO_3 after filtration, pH<2	200 ml	6 months
Total Trace Metals (includes Hg)	250 ml HDPE	1:3 HNO_3, pH<2	200 ml	6 months
Trace Metals (soil)	125 ml glass jar or plastic bag	None. Hold samples at 4°C or use ice packs	50 g	6 months
Nutrients - NH_3, Total Kjeldahl Nitrogen	250 ml HDPE/or glass	1:1 H_2SO_4	200 ml	28 days
Oil and Grease	1 L amber glass	1:1 HCl	1000 ml	28 days
Phenols	100 ml amber glass	1:1 H_2SO_4	50 ml	28 days
Total phosphorus	500 ml HDPE	1:1 H_2SO_4	100 ml	28 days
Faecal Coliforms	250 ml sterilized PET	Sodium Thiosulphate (already in bottle)	250 ml	24 hours recommended, maximum 48 hours

[1] #2 Diesel is generally C_{11} to C_{21}. Lubricating oils, C_{13} – C_{30}. If the compounds of interest are fractions F2 – F4, follow F2-F4 collection method.

Recommended holding times must be followed to ensure changes within the sample are kept to a minimum from the time of collection to the time of analyses. All samples, whether preserved or not, should be kept at 4°C and in the dark if at all possible by holding them in a refrigerator or by adding ice packs to the coolers for shipment.

With the exception of samples for faecal coliforms, oil and grease, and PAH's, containers will be rinsed three times using sample water prior to collection of the sample. Samples collected for the analysis of faecal coliforms, oil and grease and PAH's will be collected upon the first immersion of the bottle in the sample water.

General quality control guidelines of a field sampling program are provided in the Metal Mining Guidance Document. These are as follows:

- *all personnel involved in field procedures should have appropriate education and training;*
- *sampling methods should be consistently applied among sites throughout the study;*
- *samples should be collected according to SOPs that should be available to personnel at all times during the field program;*
- *sampling equipment should be appropriate for the habitat being studied, properly cleaned, and accompanied by the appropriate documentation (i.e., manual, calibration and maintenance schedule);*
- *all samples should be properly labelled as to date, location, type, number and collector;*
- *samples should be in the proper container with the appropriate preservative or fixative if necessary;*
- *field technicians should maintain detailed field notes using indelible ink and waterproof notebooks;*
- *personnel should use chain-of-custody/sample submission forms and custody seals for contaminant samples;*
- *personnel should follow appropriate shipping and storage methods; and*
- *standardised field collection forms should be used during the field program.*

A Standard Operating Procedure for the collection of water samples is presented in Appendix 3.

Transportation of Samples

The Meliadine Gold Project is far removed from the analytical laboratories in the south and this is a distinct disadvantage. Check the airline schedule to find when the samples have to be shipped so they are received by the laboratory within the time constraints for your samples; see Table 3 for maximum holding time. This is important for time sensitive parameters such as faecal coliforms. It is recommended the time sensitive samples be collected the morning of the day when the cooler is to be shipped to the laboratory.

Appendix 1

Letter from ALS Laboratory Group

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

9936 – 67Avenue
Edmonton, Alberta T6E 0P5

October 29, 2009

Licencing Coordinator
Nunavut Water Board
P.O Box 119
Gjoa Haven, Nunavut X0B 1J0

Dear Ms. Beaulieu,

ALS Accepts the Quality Assurance / Quality Control Plan for the Meliadine Gold Project.

Best Regards,

Hugh Elliott
Acting General Manager, Edmonton

APPENDIX 2

Calibration of the pH Meter

from

Hanna 9165 Manual

Hanna HI 9125 pH/Oxidation Reduction Potential Meter

To prepare the instrument for use, connect the pH electrode and the temperature probe to the BNC and temperature sockets on the top of the instrument. The temperature probe can be used independently to take temperature measurements, or it can be used in conjunction with the pH electrode to utilize Automatic Temperature Compensation (ATC) mode.

The pH reading is directly affected by temperature. In order for the meter to measure the pH accurately, temperature must be compensated for. If the sample temperature is different from the temperature at which the pH electrode was kept, allow a few minutes for thermal equilibrium.

To use the meter's Automatic Temperature Compensation feature, submerge the temperature probe into the sample as close to the electrode as possible and wait for a few minutes.

It is recommended to calibrate the instrument frequently, especially if high accuracy is required.

pH Calibration

The pH range should be recalibrated:
• Whenever the pH electrode or temperature probe is replaced.
• At least once a week.
• After testing aggressive chemicals.
• When extreme accuracy is required.

PREPARATION

Pour a small quantity of buffer solution into clean beakers. For accurate calibration use two beakers for each buffer solution, the first one for rinsing the electrode and the second one for calibration.

PROCEDURE

In order to perform pH calibration:
• Make sure that the meter is in the pH mode (HI 9125 only).
• Remove the protective cap and rinse the electrode with some of the buffer solution to be used for the first calibration point.

There is a choice of 5 memorized buffers: 4.01, 6.86, 7.01, 9.18 and 10.01 pH.

Two point pH calibration:

• Press the CAL key. The "CAL" and " *BUF* " indicators will be displayed. The secondary LCD will display buffer "7.01". If a different calibration buffer is desired (e.g. “6.86”), use the UP and DOWN arrow keys to change the displayed value.
• Submerge the electrode approx. 4 cm (1½") into the solution, place the temperature probe as close as possible to the electrode and stir gently.
• The LCD will flash the "WAIT NOT READY" message.
• Once the reading is stable, if it is not close to the selected buffer, "WRONG " will blink; if it is close to the selected buffer the display will change to "READY" and blinking "CFM".
• Press the CFM key to confirm the calibration: the meter stores the offset calibration point. The calibrated reading is then displayed on the primary LCD while the secondary LCD will show the second buffer to be used for calibration (pH 4.01).
• After the first calibration point is confirmed, immerse the electrode into the second buffer (pH 4.01, 10.01 or 9.18) and stir gently.

Choose pH 4.01 for acidic samples, and pH 10.01 or 9.18 for alkaline solutions.

• Submerge the electrode approx. 4 cm (1½") into the solution, place the temperature probe as close as possible to the electrode and stir gently.
• Select the second buffer value on the secondary display by pressing the UP and DOWN arrow keys.

Temperature Correlation for pH Sensitive Glass

The resistance of glass electrodes partially depends on the temperature. The lower the temperature, the higher the resistance. It takes more time for the reading to stabilize if the resistance is higher. In addition, the response time will suffer to a greater degree at temperatures below 25 °C.

Since the resistance of the pH electrode is in the range of 50 – 200 Mohms, the current across the membrane is in the pico Ampere range.

Large currents can disturb the calibration of the electrode for many hours.

For these reasons high humidity environments, short circuits and static discharges can be detrimental to a stable pH reading.

The pH electrode's life also depends on the temperature. If constantly used at high temperatures, the electrode life is drastically reduced. Typical electrode life at ambient temperatures is 1 – 3 years

One Point Calibration

For optimum accuracy it is always recommended to perform a two-point calibration, but for a faster operation a single-point calibration can be used. pH 7.01 or pH 6.86 (NIST) are normally used for this purpose, even though the meters can be calibrated with any of the 5 memorized calibration values.

After calibrating the first point (see above), press the CAL key to end the calibration procedure.

Appendix 3

Standard Operating Procedure
For
Collecting Environmental Water Samples

Standard Operating Procedure for Collecting Environmental Water Samples.

1. Principle

This Standard Operating Procedure provides guidance on the collection of environmental water samples at the Meliadine Gold Project.

2. Materials

The person collecting the samples will require the following to collect samples:

- A map showing the sample locations and the GPS coordinates, see figure 2 and table 4 at the end of the SOP.
- A Chain of Custody form to record the sample location, date and time of sample collection,
- A worksheet to record field data, climate at the time, and any observations relevant to the environmental conditions at the time of collection.

The materials required include:

- A cooler to hold the samples,
- Ice packs to keep the samples cool,
- pH and temperature meter,
- A beaker or wide mouth sample bottle to measure pH and temperature in the field,
- the proper sample bottles for the parameters being analysed. (Refer to table 3 above),
- Disposable latex gloves,
- A GPS,
- A radio for emergencies.

3. Procedure

Before going into the field to collect the samples:

- Do a two point calibration on the pH meter using 2 buffer solutions,
- Label all the sample bottles using a water proof marker for all locations excepting the time of collection. This can be written on the bottle in the field or directly afterwards when back in camp,
- Take sufficient ampoules of preservatives into the field for all samples. Each sample needing preservation gets a different preservative. The ampoules are colour coded to match the colour coding on the bottles,
- Check the GPS to ensure it is working,
- Take sufficient disposal latex gloves into the field, one set for each sample location. These should be placed in a new Ziploc locked bag or the like so they do not get contaminated,
- Put two ice packs in the cooler along with the labelled, empty bottles.

Collecting the samples:

- Check the GPS against the field sheet to ensure you are at the correct sampling location,
- Rinse the beaker used for pH and temperature measurements three times,
- Fill the beaker with water and immerse the pH/temperature probe
- Record the temperature immediately,
- Stir the pH probe in the beaker without touching the sides if possible until the readings stabilize. This may take some time seeing the water is normally cold,
- Check to see that the correct bottles are assembled for the sampling location,
- Put on a set of clean, disposable latex gloves,
- Rinse the sample bottle 3 times before collecting the sample. Dispose of the rinse water away from where the sample is to be collected, preferably on land or downstream,
- After collecting the sample, leave enough head space in the bottle to add the preservative,
- **ENSURE THE RIGHT PERSERVATIVE IS USED FOR THE SAMPLE COLLECTED,**
- Upon adding the preservative, tighten the cap and invert the bottle three or four times to cause thorough mixing of the sample water and preservative,
- Samples bottles for faecal coliforms, oil and grease and PAHs should **not** be rinsed before taking the sample,
- Place the sample bottles in the cooler right side up for transport,
- It is best to collect samples for time sensitive parameters the morning the cooler is to be sent to the laboratory.

4. Reporting

- Complete the chain of custody form recording the field pH and temperature on the form, (see figure 1),
- Keep the yellow copy for camp records. Put the remaining copies in a Ziploc bag and place it in the cooler,
- Check the freezer packs to ensure they are frozen. That way they will keep the samples cool until they arrive at the laboratory,
- Securely seal the cooler,
- Contact M&T Enterprises and tell them that a cooler with environmental samples is coming. Emphasize the samples have to be on the next plane to the laboratory,
- Get the waybill number from M&T and transmit it to the laboratory contact telling them what plane the cooler will be on. They will meet the plane and take the cooler to the laboratory.

Table 4. GPS coordinates for Water Sampling Locations

Water Sampling Location	Easting	Northing
Pond A13	539828	6988676
Pond A15	539731.8	6988798
Pond A9	540194	6988142
Lake A54 (Peanut Lake)	540135	6988794
Pond A38	540500	6988254
Stream A8-7	540748	6986690
Control Lake	535000.8	6986333
ML-R (Meliadine River)	544778.3	6971712
Primary Containment P1	539901	6988966
Service Pad Sump	539936.4	6988825
MEL-1	541934.2	6989173
MEL-2	540681	6986702
MEL3	542083	6989004
MEL-3A	542083	6989004
MEL-4	542092	6989012
MEL-5	541131	6988535
MEL-6	539870	6989025
MEL-7	542001	6989066

538250 mE
538750 mE
539250 mE
539750 mE
540250 mE
540750 mE
541250 mE
541750 mE
542250 mE
542750 mE
6989250 mN
6988750 mN
6988250 mN
N
MEL- 6
Contaminated Soils
Discharge
Woody Lake
Primary
Containment
Operations
Pad
Primary Containment (P1)
Sump
Services Pad
Pond A15
Pond A13
Portal
Peanut
Lake (A54)
Underground
Development
Pond A9
Pond A38
Meliadine Lake
Camp Raw (MEL-1)
Bulk Fuel (Diesel)
MEL - 7
Biodisk
Discharge
Camp Grey Water (MEL-3, 3a)
Meliadine Lake -
grey water outflow (MEL-4)
Camp
Area
Kitchen Tap (Tap)
MEL-5
Bermed Fuel Area
Bulk Fuel (Diesel)
Bulk Fuel (Jet A)
Meliadine
Lake
0 100 200 300
Meters
Scale: 1:12,500
Grid: NAD83 Z15
Containment Pond
Blue line is water surface
outline at maximum fill
Stream Flow Direction
Watershed Boundary
Project Water Sample Location (Mandated)
Other Project Water Sample Location
Receiving Waters
Pump Lake (Lake A8 - MEL-2)
Pump Lake
Stream (A8-7)
To Meliadine Lake
Meliadine River (ML-R)
near Rankin Inlet
Other Water
Sampling Sites
Meliadine River
6975000 mN
540000 mE
Meliadine Lake
Control Lake
Fig. 2
6985000 mN
0 1 2 3
Kilometres

PROJECT	MELIADINE GOLD PROJECT
PROJECT DETAIL	QA - QC MANUAL - WATER SAMPLING
TITLE	WATER LICENSE 2BB-MEL0914 Water Sampling Locations
DRAWING	JW, SB
DATE	Oct 2009
PROJECT No.	3.393
	COMAPLEX MINERALS CORP. CALGARY - CANADA
File:	CMF GIS Database
	Figure 2