Table 6-1: Sediment Quality Data Baseline Studies, 1994 to 2009

Report Author(s)	Publication Year	Report Title	Drainages Sampled
M.M. Dillon Ltd. (Dillon)	1994	Meliadine Project – Baseline Surface Water and Lake Sediment Sampling	Peninsula Basins A, B, C, D; Atulik Lake; DI2
Dillon	1995	Discovery Project – Rankin Inlet Area 1995 Environmental Investigations	Meliadine Lake; Atulik Lake
RL&L Environmental Services Ltd. (RL&L)	1999	Meliadine West Baseline Aquatic Studies: 1998 Data Report	Peninsula Basins A, B; Meliadine Lake; Control Lake; Peter Lake; Little Meliadine Lake; Hudson Bay
Golder Associates Ltd. (Golder)	2008	Meliadine West Gold Project: Water Quality Baseline Studies 2008	Peninsula Basins A, B; Meliadine Lake; Control Lake; Atulik Lake
Golder	2009	Not applicable – data are summarized in this report	Peninsula Basin A

6.1.2 Water Quality Parameters

Physical and chemical parameters were used to describe the sediment quality of the different lakes in the study area. Parameters can be classed into major categories that are used to describe different aspects of the sediment. The major categories of parameters used in this baseline report are detailed below.

6.1.2.1 Physical Parameters and Nutrients

This group of parameters is measured in the laboratory and indicates the major constituents of the sediment. The following parameters were analyzed during most sampling events:

- Particle size distribution and texture describes the relative proportion of sand, silt, and clay in the sediment.
- Total organic carbon (TOC) and total inorganic carbon measure the amount of organic matter and inorganic material, respectively, found within the sediment.
- Total nitrogen and total phosphorus are measured to determine the potential productivity of the sediment.

6.1.2.2 Cyanide

Cyanide is a process chemical used in gold mining. Total cyanide concentrations are typically present at low levels in water and sediment not affected by anthropogenic inputs.

6.1.2.3 Total Metals

Sediments are sinks for metals[10] present in surface waters. Higher metal concentrations in surface water are usually associated with suspended sediments, which tend to settle out and accumulate on the lake bottom over time. Metals in sediment, if bioavailable, can cause toxicity to aquatic organisms.

6.1.2.4 Organic Compounds

Organic compounds are defined as chemicals made up of mainly carbon and hydrogen; they include a vast number of natural and synthetic compounds. The following parameters were analyzed at some sampling locations, particularly in lakes close to the proposed mine site:

- Polycyclic aromatic hydrocarbons (PAHs) are generated by incomplete combustion of organic material. Concentrations of PAHs in aquatic ecosystems are generally highest in sediments, intermediate in aquatic biota, and lowest in the water column (Canadian Council of Resource and Environment Ministers [CCREM] 1987).
- Pesticides are chemicals that are used to kill pests. Most pesticides are applied to farmer's fields or used to control biting insects (e.g., mosquitoes) in southern latitudes. Some pesticides, particularly chlorinated pesticides, are volatile and relatively persistent and can be transported to the Arctic in air, where rain deposits the pesticides into surface waters and ultimately into sediments.
- Hydrocarbons can be present in sediment as a result of petroleum contamination (e.g., gasoline, diesel, oil) or as naturally occurring organic compounds. Inferences can be made on the source of the hydrocarbon (anthropogenic or natural) based on the carbon range observed during chromatographic analysis.
- Volatile organic compounds include benzene, toluene, ethylbenzene, and xylene. These compounds are used as solvents (e.g., in paints) and are found in petroleum derivatives such as gasoline and kerosene.

6.1.3 Water Quality Trends

6.1.3.1 Seasonal

Sediment deposition rates are known to be low in Arctic regions (e.g., Peramaki and Stone 2007). In the absence of anthropogenic inputs, sediment concentrations are likely to be relatively similar over time.

Future uses of the baseline sediment data will be two-fold: 1) to assess exposure of benthic organisms; and 2) to detect changes in concentrations due to mine activities. Older sampling programs (i.e., 1998) analyzed sediment from the top 5 to 10 cm profile, which is appropriate to assess ecological effects. However, sampling of a shallow profile provides enhanced sensitivity for monitoring potential temporal trends in sediment chemistry. Therefore, both shallow (0 to 2 cm) and deeper (0 to 10 cm) profiles were analyzed in 2008. Concentrations of metals that were detected in all sediment samples (i.e., arsenic, chromium, copper, and zinc) were compared graphically to determine if the shallow profile differed in metal concentrations from the deeper profile. Metal concentrations were generally similar between two profiles, suggesting that there were no differences in contaminant chemistry between the profiles. Therefore, more current (2008 and 2009) and future data from the shallow (0 to 2 cm) profile are comparable to the historical dataset, which was based on the deeper (0 to 10 cm) profile.

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[10] For brevity, metals and metalloids are referred to as metals.

6.1.3.2 Spatial

Sediment quality may vary among lakes as a result in differences in overlying water quality (see Section 5.1.3.2).

6.1.4 Sample Collection

Surface grab sediment samples were collected in all studies; however, the profile depth and the number of field replicates varied among studies. For example, Dillon (1994, 1995) did not specify profile depth or the type of sampler used. It is assumed that grab samples were collected with a dredge. RL&L (1999) collected sediment from the top 5 to 10 cm using an Ekman grab sampler. In 2008, the same type of sampler was used and each sediment sample was split in half so that shallow (0 to 2 cm) and deep (0 to 10 cm) profiles could be analyzed from the same grab sample. As noted in Section 6.1.3.1, this procedure was performed to verify that parameter concentrations in the shallow and deep profiles were similar. The 2009 sediment sample was collected from the 0 to 2 cm profile using an Ekman sampler.

The number of replicates collected varied among baseline studies. Dillon (1994, 1995) collected one replicate per station, RL&L (1999) collected 5 replicates per station, and Golder (2008) collected 4 replicates per station (two replicates of each profile). One replicate per station was collected in 2009.

Sediment samples were collected from several lake stations. Most stations were in the deepest area of the lakes, with the exception of Meliadine Lake, which had multiple stations. Most stations were sampled once or twice between 1994 and 2009.

Sample locations were accessed by boat or helicopter in the summer. Sediment sampling occurred concurrently with water sampling during the summer programs. For most sampling events, coordinates for each sampling location were recorded using a global positioning system (GPS) unit. The available coordinates are included in the sediment quality tables presented in Appendix C, Tables C1-1 and C1-11.

6.1.5 Sample Analysis

6.1.5.1 Parameter Groups

All sediment samples were analyzed for moisture content and total metals. Texture, carbon content, and total nitrogen[11] were analyzed in sediment samples collected during the 1998 study (RL&L 1999) and during recent studies (i.e., 2008 and 2009). A subset of sediment samples collected in 1998 and 2008 was analyzed for PAHs, pesticides, and other organic compounds.

6.1.5.2 Analytical Methods

Samples were shipped to an accredited environmental laboratory for analysis (Table 5-9). Analytical methods were described in Dillon (1994, 1995) and Golder (2008)[12] but not in RL&L (1999). Thus a full discussion of the methods used by the different studies is limited to comparing the 1994/1995 studies with the 2008/2009 studies.

Moisture content was measured in all sediment samples; however, moisture contents in the 1994/1995 samples were appreciably lower than in the other studies. This result suggests that the moisture content data reported by Dillon (1994, 1995) were calculated differently and are not comparable to the other studies.

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[11] Total phosphorus was measured in one sample in 2009 (Lake A6).

[12] Sediments were analyzed by the same analytical methods in 2008 and 2009.

Particle size was only assessed in the 1998 and 2008/2009 samples (i.e., not in 1994/1995). RL&L (1999) reported the relative weight fractions retained on 20 sizes of sieves ranging from 0.691 to 500 µm. There were no sieve sizes between 44.194 and 62.5 µm. The fractions were summed to calculate relative percentage of sand, silt, and clay, assuming the following:

- sand was retained on 62.5 µm or larger sieves;
- silt was retained on sieves ranging from 2.762 to 44.194 µm; and
- clay was retained on sieves smaller than 2.762 µm (i.e., 0691 to 1.953 µm).

This size classification is different than what was reported for the 2008 samples. For the 2008 samples, sand size ranged from 50 to 2000 µm, silt from 2 to 50 µm, and clay was less than 2 µm. Therefore, some observed differences between years may be due to how the sand fraction was calculated in 1998 (particles greater than 62.5 µm) compared to 2008 (particles greater than 50 µm).

Total nitrogen was analyzed in 2008/2009 samples using LECO combustion method and reported as a percentage (Golder 2008). Although total nitrogen concentrations were reported in units of mg/kg dw in 1998, it is likely that total nitrogen was analyzed by the LECO method or by the older Kjeldahl nitrogen method. Both methods would produce similar results and should be reported as percentages (J. Ashworth, ALS Laboratory Group, 2009, pers. comm.). Therefore, it is assumed that incorrect units were reported in RL&L (1999) and that the total nitrogen results are comparable between the two years.

For analysis of metals in sediments, samples were digested in nitric and hydrochloric acids and the extracts analyzed by either inductively coupled argon plasma/atomic emission spectrophotometry (Dillon 1994, 1995) or inductively coupled plasma mass spectrophotometry (Golder 2008). Analytical methods used in the 1998 sampling program were not described by RL&L (1999), but were assumed to be similar to those used in the 2008 and 2009 sampling programs because detection limits were similar. Detection limits in the Dillon studies were higher.

6.1.5.3 Quality Assurance/Quality Control

Limited information on QA/QC programs was presented in the older baseline reports (Dillon 1994, 1995; RL&L 1999). No field replicates were collected in 1994 or 1995. Five field replicates were collected in 1998. The results of laboratory quality control samples, such as method blanks, duplicates, matrix spikes, or certified reference materials, were not reported.

Sediment samples in 2008 and 2009 were collected in accordance with Golder Technical Procedure 8.2-3 Sediment Sampling (unpublished file information), which are consistent with standard methods (e.g., APHA 1992, Environment Canada 1993) and include standard collection, preservation, storage, and shipping protocols. Field personnel also used Specific Work Instructions (SWI), which detailed project-specific sampling instructions. Quality assurance procedures included the use of nitrile gloves during sample collection to prevent cross-contamination of the samples. Sampling equipment (e.g., Ekman dredge, stainless steel mixing bowl and spoons) were cleaned with detergent and rinsed thoroughly with ultra pure water and site water between replicates. Samples were submitted to an accredited analytical laboratory (i.e., ALS Laboratory Group, Edmonton, Alberta) for analysis.

Field QC procedures in the 2008 sediment sampling included the collection of field duplicates (two replicates for each profile). Field duplicates were not collected for the 2009 sample. Laboratory QC protocols included the analysis of one or more method blanks, internal or certified reference materials, matrix spikes, and laboratory replicates.

6.1.6 Data Analysis

All historical and recent sediment data were compiled into a database organized by drainage basin, location, and sampling date (Appendix C, Tables C1-1 to C1-11).

Sediment chemistry was compared to the Interim Sediment Quality Guidelines (ISQG) and Probable Effect Level (PEL) guidelines for the protection of aquatic life (CCME 2002; Table 6-2). The ISQG were derived solely from the threshold effects level (CCME 2001). The threshold effects level represents the concentration below which adverse biological effects are expected to occur rarely.

Table 6-2: Sediment Quality Guidelines for the Protection of Aquatic Life

Parameter	Units	Freshwater		Marine	
		ISQG[a]	PEL[b]	ISQG	PEL
Total Metals					
Arsenic	mg/kg dw	5.9	17.0	7.24	41.6
Cadmium	mg/kg dw	0.6	3.5	0.7	4.2
Chromium	mg/kg dw	37.3	90.0	52.3	160
Copper	mg/kg dw	35.7	197	18.7	108
Lead	mg/kg dw	35.0	91.3	30.2	112
Mercury	mg/kg dw	0.17	0.486	0.13	0.70
Zinc	mg/kg dw	123	315	124	271
PAHs					
Acenaphthene	mg/kg dw	0.00671[c]	0.0889[d]	0.00671	0.0889
Acenaphthylene	mg/kg dw	0.00587[c]	0.128[d]	0.00587	0.128
Anthracene	mg/kg dw	0.0469[c]	0.245[d]	0.0469	0.245
Benz(a)anthracene	mg/kg dw	0.0317	0.385	0.0748	0.693
Benzo(a)pyrene	mg/kg dw	0.0319	0.782	0.0888	0.763
Chrysene	mg/kg dw	0.0571	0.862	0.108	0.846
Dibenzo(a,h)anthracene	mg/kg dw	0.00622[c]	0.135[d]	0.00622	0.135
Fluoranthene	mg/kg dw	0.111	2.355	0.113	1.494
Fluorene	mg/kg dw	0.0212[c]	0.144[d]	0.0212	0.144
2-Methylnaphthalene	mg/kg dw	0.0202[c]	0.201[d]	0.0202	0.201
Naphthalene	mg/kg dw	0.0346[c]	0.391[d]	0.0346	0.391
Phenanthrene	mg/kg dw	0.0419	0.515	0.0867	0.544
Pyrene	mg/kg dw	0.0530	0.875	0.153	1.398
Organochlorines					
Arochlor 1254	mg/kg dw	0.060	0.340	0.0633	0.709
Gamma-BHC[e]	mg/kg dw	0.00094	0.00138	0.00032	0.00099
Chlordane (alpha)	mg/kg dw	0.0045[f]	0.00887[f]	0.00226[f]	0.00479[f]
Chlordane (gamma)	mg/kg dw	0.0045[f]	0.00887[f]	0.00226[f]	0.00479[f]
Dieldrin	mg/kg dw	0.00285	0.00667	0.00071	0.0043

Table 6-2: Sediment Quality Guidelines for the Protection of Aquatic Life (continued)

Parameter	Units	Freshwater		Marine	
		ISQG [a]	PEL [b]	ISQG	PEL
Endrin	mg/kg dw	0.00267	0.0624	0.00267 [g]	0.0624 [h]
Heptachlor	mg/kg dw	0.00060 [i]	0.00274 [i]	0.00060 [gi]	0.00274 [hi]
Oxychlordane	mg/kg dw	0.0045 [f]	0.00887 [f]	0.00226 [f]	0.00479 [f]
pp-DDD	mg/kg dw	0.00354 [j]	0.00851 [j]	0.00122 [j]	0.00781 [j]
pp-DDE	mg/kg dw	0.00142 [j]	0.00675 [j]	0.00207 [j]	0.374 [j]
pp-DDT	mg/kg dw	0.00119 [j]	0.00477 [j]	0.00119 [j]	0.00477 [j]

Notes: mg/g dw = milligrams per gram dry weight; CCME = Canadian Council of Ministers of the Environment; PAH = polycyclic aromatic hydrocarbons; gamma-BHC = benzene hexachloride; DDD = dichlorodiphenyldichloroethane; DDE = dichlorodiphenyldichloroethylene; DDT = dichlorodiphenyltrichloroethane.

[a] ISQG = Interim sediment quality guideline (CCME 2002).
[b] PEL = Probable effect level (CCME 2002).
[c] Provisional guideline; adoption of marine ISQG.
[d] Provisional guideline; adoption of marine PEL.
[e] Also known as lindane.
[f] Guideline for chlordane.
[g] Provisional guideline; adoption of freshwater ISQG.
[h] Provisional guideline; adoption of freshwater PEL.
[i] Guideline for heptachlor epoxide.
[j] Guideline is for sum of p,p' and o,p' isomers.

6.2 Lakes

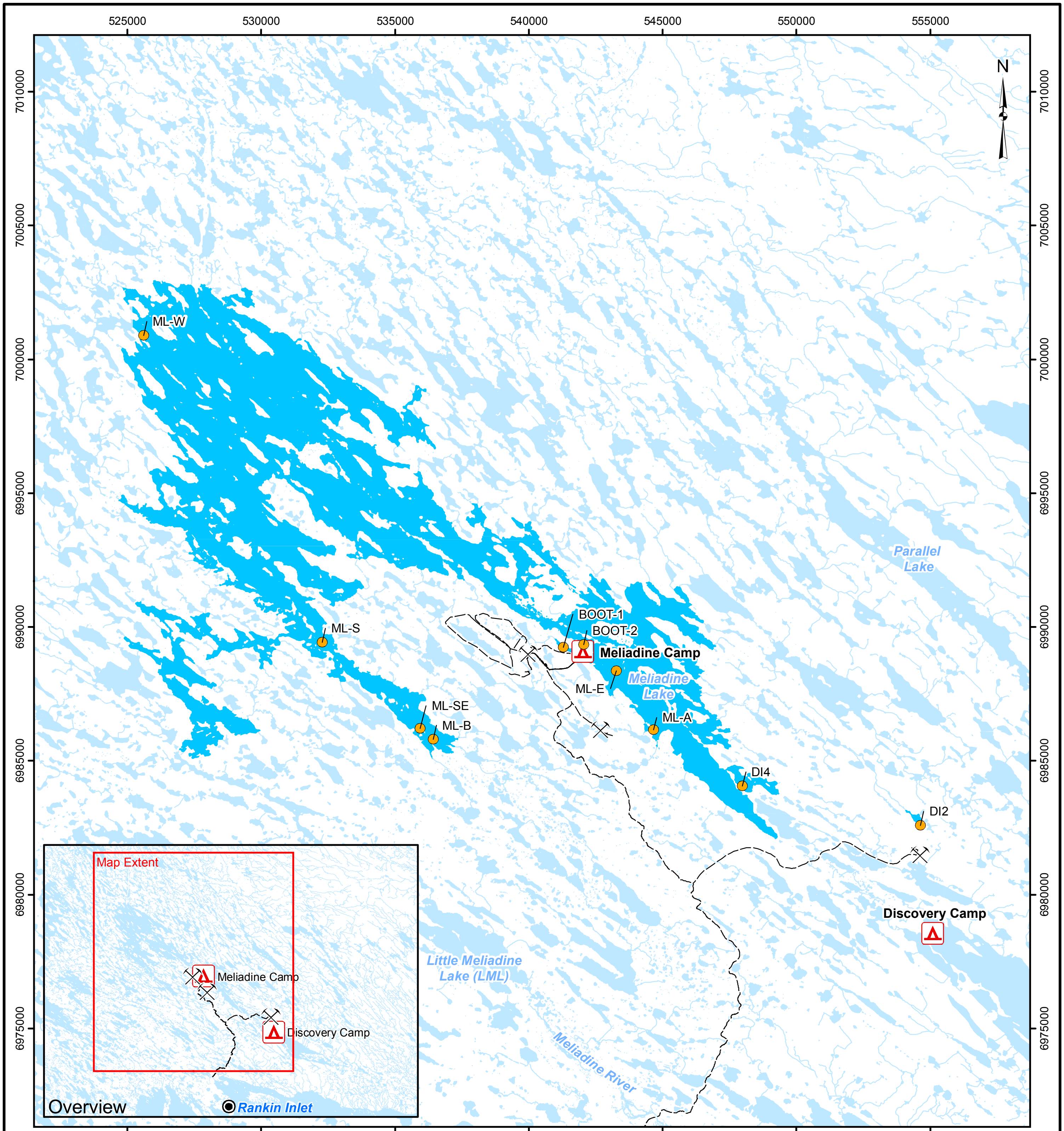
6.2.1 Meliadine Lake Drainage

6.2.1.1 Meliadine Lake

Sediment samples were collected from 9 stations in Meliadine Lake between 1994 and 2008 (Figure 6-1; Appendix C, Table C1-1):

- DI4 (1995, 2008; small bay that empties into east basin of Meliadine Lake);
- ML-E (1998, 2008; east basin of Meliadine Lake);
- ML-A (1994, 1998, 2008; near outlet of Basin A in Meliadine Lake);
- BOOT-1 (2008; east basin of Meliadine Lake in the "toe of the boot");
- BOOT-2 (2008; east basin of Meliadine Lake at the outlet of the "toe of the boot");
- ML-W (1998, 2008; west basin of Meliadine Lake);
- ML-S (1998, 2008; south basin of Meliadine Lake);
- ML-SE (2008; southeast basin of Meliadine Lake); and
- ML-B (1998, 2008; near outlet of Basin B in Meliadine Lake).

Sediments were dominated by sand (22 to 83%) and silt (14 to 75%) with very little clay (0 to 9%). Stations ML-E, ML-A, ML-W, and ML-S had a higher proportion of silt in 1998 than in 2008. This difference is likely due to how the sand fraction was calculated in 1998 (particles greater than 62.5 µm) than in 2008 (particles greater than 50 µm).



5,000 0 5,000

SCALE 1:200,000 METRES

LEGEND

- ● Sediment Sampling Location
- ⛺ Camp
- ✕ Proposed Mine Site
- — — Proposed Road
- — Watercourse
- ▇ Sampled Waterbody
- ▇ Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

DRAFT

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SEDIMENT QUALITY SAMPLING LOCATIONS IN MELIADINE LAKE

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009	FIGURE 6-1	
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\WaterQuality\figure_06-01_sediment-sampling-meliadine-lake.mxd

Moisture contents were generally similar among years with a few exceptions. Moisture contents measured in 1994 and 1995 were lower than those measured in 1998 and 2008. For example, Lake DI4 had a moisture content of 23% in 1995 but 66 to 79% in 2008. Station ML-A had a moisture content of 52% in 1994 compared to 64 to 75% in 1998 and 2008. Only station ML-E had different moisture contents between 1998 (75 to 79%) and 2008 (50 to 63%). Most sediments had moisture contents of 64% or higher with the exception of stations ML-E (50 to 63% in 2008), BOOT-1 (37 to 55%), and ML-B (40 to 55%).

Total organic carbon was generally similar between years and followed a similar pattern as moisture content. Total organic carbon ranged from 0.7 to 8.1% and was lowest in samples with lower moisture content. The lowest total organic carbon was measured at stations ML-E (1.1 to 1.9% in 2008), BOOT-1 (0.8 to 1.6%), and ML-B (0.7 to 1.2%). Total nitrogen concentrations were between 0.07 and 0.78%.

Total cyanide concentrations were also similar among stations. Total cyanide concentrations in sediment ranged from less than the detection limit of 0.5 mg/kg dw to 7 mg/kg dw. Higher concentrations were measured in 1998 compared to 2008, particularly at stations ML-E, ML-W, and ML-S. At these stations, total cyanide concentrations ranged from 3.1 to 7 mg/kg dw in 1998 compared to 0.9 to 2.4 mg/kg dw in 2008.

Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (38 out of 63 samples), cadmium (3 out of 63 samples), chromium (20 out of 63 samples), and copper (31 out of 63 samples):

- Arsenic concentrations ranged from 1.6 to 67.8 mg/kg dw; 38 samples were above ISQG of 5.9 mg/kg dw and 19 of these samples were also above PEL of 17 mg/kg dw.
- Cadmium concentrations were generally at or less than the detection limit of 0.5 mg/kg dw except 3 samples from station ML-S, which had cadmium concentrations equal to the ISQG of 0.6 mg/kg dw.
- Chromium concentrations ranged from 13.2 to 53.4 mg/kg dw. Twenty samples had chromium concentrations that exceeded the chromium ISQG of 37.3 mg/kg dw.
- Copper concentrations ranged from 6 to 92 mg/kg dw; 31 samples were above the ISQG of 35.7 mg/kg dw.

Concentrations of PAHs were measured in some 1998 samples from stations ML-A and ML-B and in the 2008 samples from stations BOOT-1 and BOOT-2. Concentrations of PAHs were either below the detection limits and/or below the ISQGs and PELs. Detection limits were higher in 1998 than in 2008, and a few parameters (i.e., acenaphthene, acenaphthylene and dibenzo(a,h)anthracene) had detection limits that were higher than guidelines.

Volatile organic compounds such as BTEX, total volatile hydrocarbons, and total extractable hydrocarbons were measured in six 1998 samples from stations ML-A and ML-B. Concentrations were reported at or below detection limits with the exception of 2 samples from station ML-A and one sample from station ML-B. These samples had total volatile hydrocarbon concentrations of 0.6 to 2.1 mg/kg dw.

Organochlorines were measured in 1998 in one sample from each of stations ML-E, ML-W, and ML-S. All concentrations were either below detection limits or below applicable aquatic life guidelines with the exception of DDTs in station ML-E. Concentrations of pp-DDD (0.008 mg/kg dw) and pp-DDE (0.002 mg/kg dw) were above their associated ISQGs of 0.00354 mg/kg and 0.00142 mg/kg dw, respectively. Concentration of pp-DDT

(0.070 mg/kg dw) was higher than both its ISQG of 0.00119 mg/kg dw and PEL of 0.00477 mg/kg dw. This substance may enter the aquatic environment via atmospheric deposition or soil erosion (CCREM 1987). Because pp-DDT has a low solubility to water, the dominant transport mechanisms in the aquatic environments are volatilization, sorption to biota and sediments, and bioaccumulation.

Concentrations of gamma-BHC and heptachlor were less than the detection limits; however, the detection limits were higher than the respective guidelines.

Aroclor 1254 was present at station ML-W at a concentration of 0.16 mg/kg dw. This substance is a polychlorinated biphenyl (PCB) formerly used in hydraulic fluids, transformers, and electrical capacitors. The major source of its release to the environment is a cycling process that involves volatilization from ground surfaces (water, soil) into the atmosphere, with subsequent removal via wet or dry deposition (CCREM 1987).

6.2.1.2 Peninsula Lakes

Peninsula Basin A

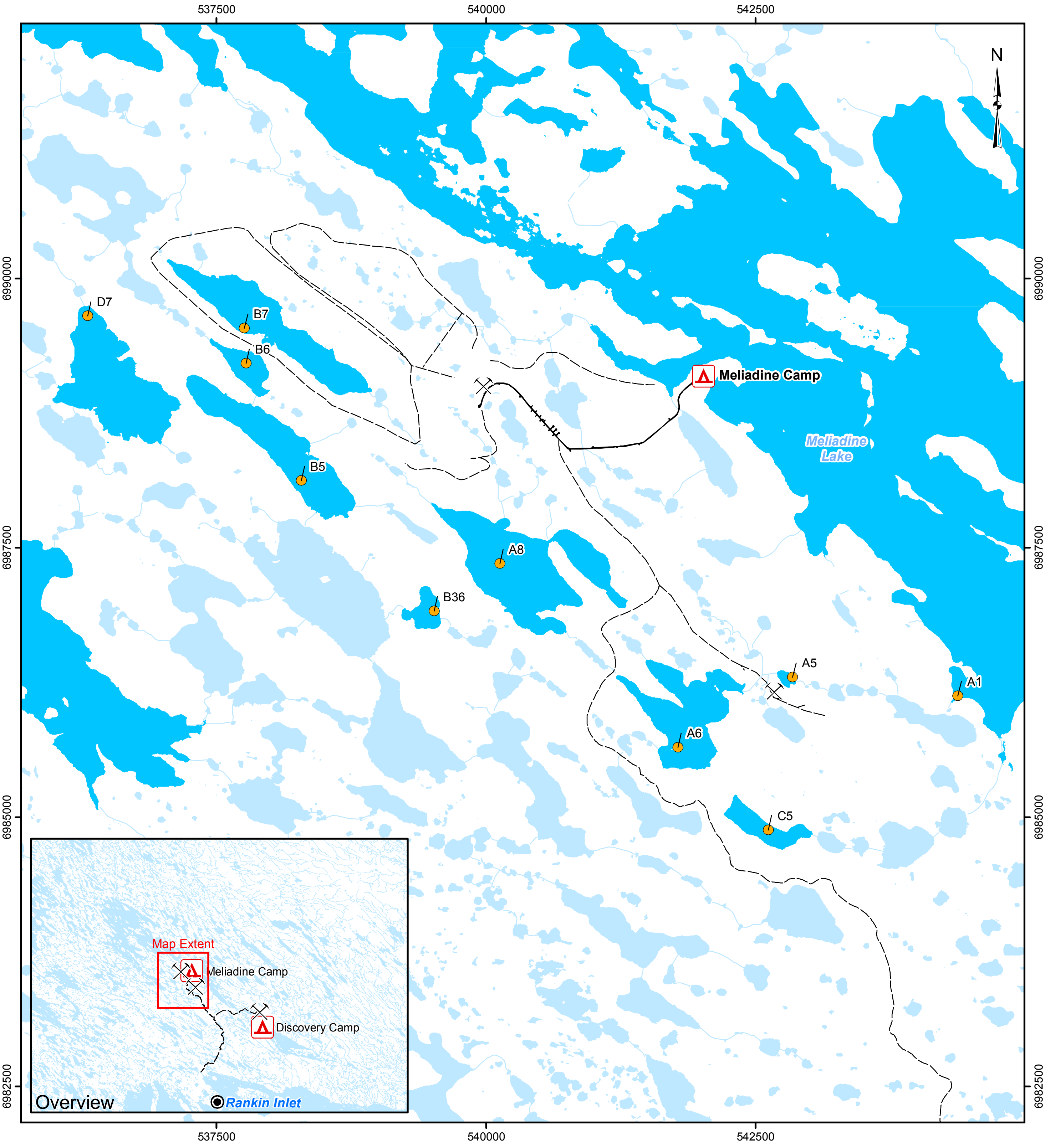
Sediment samples were collected from 4 lakes in Basin A between 1994 and 2009 (Figure 6-2; Appendix C, Table C1-2):

- A1 (1994, near the outlet into Meliadine Lake);
- A5 (1994);
- A6 (1994, 1998, 2009); and
- A8 (1994, 1998, 2008).

Sediments in these lakes were dominated by sand (33 to 82%) and silt (15 to 63%) with low clay content (0.4 to 11%). Particle size distribution differed between years. For example, sediments from lake A6 had 36 to 47% sand in 1998, but had 82% sand in 2009. Lake A8 sediments were more variable in 2008 with the shallow profile (0 to 2 cm) having higher sand content (61 to 70%) than the deeper profile (0 to 10 cm; 33 to 42% sand). In 1998, lake A8 sediments had approximately equal proportions of sand and silt.

Sediment moisture ranged from 77 to 97%, except for the 3 samples collected in 1994 in which moisture was below 20%. Total organic carbon was similar among sediment samples and ranged from 5.5 to 13.3%. Total nitrogen concentrations ranged from 0.41 to 1.23%. Total phosphorus was analyzed in one sample (i.e., lake A6 in 2009); the concentration was 407 mg/kg dw.

Total cyanide concentrations were slightly lower in 2008 and 2009 than in 1998. Total cyanide concentrations in sediment ranged from 1.5 to 4 mg/kg dw in 2008/2009 and from 4 to 5 mg/kg dw in 1998.



1,250 0 1,250

SCALE 1:50,000 METRES

LEGEND

- ● Sediment Sampling Location
- ⚠ Camp
- ✕ Proposed Mine Site
- — — Proposed Road
- — Watercourse
- 🟦 Sampled Waterbody
- 🟦 Waterbody

REFERENCE

DRAFT

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX
MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SEDIMENT QUALITY SAMPLING LOCATIONS IN PENINSULA BASINS

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009	**FIGURE 6-2**	
REVIEW	PMC	27 Oct. 2009		