Baffinland
Iron Mines Corporation

RECEIVED
By Richard Dwyer at 5:20 pm, Mar 31, 2011

2011 ABANDONMENT AND RECLAMATION PLAN

Appendix C-1
2008 Geochemical Testing Program
(*Included with Electronic Version Only*)

Knight Piésold
CONSULTING

MEMORANDUM

To:	Jim Millard, Mr. Derek Chubb	Date:	March 12, 2009
Copy To:	Steve Aiken, Houston Kempton, Knight Piésold	File No.:	NB102-181/15.01
From:	Quentin U.I. Hamilton	Cont. No.:	NB09-00189
Re:	Environmental Assessment of Waste Materials Originating from the Bulk Sample Program from Deposit No. 1, Baffinland Mary River Project		

1.0 INTRODUCTION

Baffinland Iron Mines Corporation ('Baffinland') carried out a bulk sample program at its Mary River Project Site in 2008 to further evaluate the metallurgical properties of iron ore from Deposit No. 1. Bulk sampling is a standard phase in mine feasibility assessment that allows testing of full-scale metal recovery on a representative sample of ore. In this case, approximately 130,000 tonnes of ore was obtained by blasting and excavating a small bench on the side of Deposit No. 1.

This work follows predictive studies on representative drill cores that were completed as part of the Bulk Sampling Management Plan. The study results in that plan indicated that there would be a very low potential arising from acid rock drainage (ARD)/metal leaching (ML) of residual materials that remained after the completion of the Bulk Sampling Program. The environmental geochemical testing program that is reported, herein, was designed to validate these previous results.

In addition to the metallurgical testing on ore, an environmental geochemical testing program was conducted to assess the potential for excavated materials (i.e. waste ore and surplus ore) and exposed excavation faces to leach metals and/or acidity that could degrade the quality of receiving surface waters. This memo presents the results of the environmental assessment of the bulk sample program wastes, including a map of the environmental sample locations relative to the excavation, a list of analytical methods, tables of analytical results from tests conducted on the samples, and conclusions on the potential for environmental degradation attributable to the long-term storage of bulk sample wastes left on site.

In general, mine wastes have the potential to degrade water quality when they contain sulphide minerals, which oxidize when exposed to the atmosphere and release soluble acidity and metals, or when they contain soluble minerals, which will leach metals when they dissolve in percolating water. The environmental assessment of the bulk sample wastes evaluated the following residual materials as potential sources of metals and / or acidity (see table below).

1650 Main Street West, North Bay, ON P1B 8G5
Phone: 705-476-2165 Facsimile: 705-474-8095

Summary of Bulk Sample Program Wastes

Waste	Description	Location	Estimated Stockpile Mass (Tonnes)
Weathered ore	Surficial ore excavated from the surface of Deposit No. 1	On Deposit No. 1 (at Mary River site)	28,800
Representative ore	Ore left exposed in the bench walls and surplus ore grade material	On Deposit No. 1 (at Mary River site)	6,500
		Milne Inlet	6,000
Non-representative ore	High manganese 'waste' ore	By crusher (at Mary River site)	31,900
		Used to construct the ore stockpile pad at Milne Inlet	23,700

Figures 1 and 2 show the approximate location of the waste materials.

The methods of sampling and analysis used in this program generally followed those prescribed in Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia (Price, 1997), which is the standard guide used by the mining industry and regulators for Canadian projects.

2.0 BULK SAMPLE WASTE GEOCHEMISTRY

2.1 Methods

The methods used in this assessment generally followed the recommended practices as set out in the Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia (Price, 1997). The specific number of samples required to adequately characterize the geochemical characteristics of mined rock is somewhat arbitrary. The British Columbia guidelines for evaluating metal leaching from mine rock provides preliminary guidance on the number of samples required based upon tonnage of waste.1 The Price guidance acknowledges that the required number of samples is approximate, and that the decision is influenced by supporting information such as knowledge and spatial variability of geology and mineralogy on a site by site basis. For a deposit with highly predictable mineralogy and where the results of initial geochemical characterization studies indicate a low risk of metal leaching and/or ARD, it is our opinion that it is reasonable and appropriate to reduce sampling intensity accordingly.

The estimated number of samples required for environmental characterization of the bulk sample wastes (based on tonnages and the British Columbia Guidance, Price, 1997) are:

- 5 samples of weathered ore (based on 28,800 t)
- 3 samples of representative ore (based on 12,500 t)
- 7 samples of non-representative ore (based on 55,600 t)

[1] Number of samples estimated according to the equation: No. of samples = 0.0347 * (tonnes rock)$^{0.479}$ (based on extrapolation of Price 1997 sample numbers).

The total number of samples selected for laboratory testing met the guidelines suggested by Price, with 2008 sampling including collection of:

- 3 samples of weathered ore consisting of samples of surficial, oxide material stockpiled on Deposit No. 1
- 15 samples of representative ore consisting of ore-grade material stored at Mary River and at Milne Inlet (mixed magnetite dominant and hematite dominant ore), as well as material representative of the exposed bulk sample bench surfaces (predominantly hematite dominant ore)
- 5 samples of non-representative ore consisting of high manganese ore stockpiled at the Mary River site and used to form the pad for the ore stockpile located at Milne Inlet (composite samples)

In accordance with the requirements of the Bulk Sample Water License (Nunavut Water Board, 2007), during 2008 a monitoring program was initiated to monitor seepage / runoff quality at a number of locations in the vicinity of the bulk sample waste storage areas. During 2008 a total of four water samples were collected, with details as follows:

- Sample MRY-9 collected on July 25, 2008 downgradient from the bulk sample pit. This water sample was likely representative of subsurface flow from the hematite/magnetite pit area.
- Sample MRY 10 collected on August 16, 2008 from the weathered ore stockpile located adjacent to the bulk sample pit. This water sample was likely representative of surface runoff with a possible minor seepage component.
- Sample MRY 11 collected on August 20, 2008 from the crusher area. This water sample was likely representative of surface runoff from the coarse and fine ore stockpiles located at the Mary River site.
- Sample MRY 12 - collected on June 14, 2008 which consisted of snowmelt runoff from the east side of the ore stockpile located at Milne Inlet

Sampling locations are shown on Figures 1 and 2.

2.2 Laboratory Analysis

In total, 23 samples were submitted to the analytical laboratory at SGS Lakefield Research Ltd. in Ontario for the following analyses:

- Major element and trace element content (by ICP-MS)
- Major element content (by XRF)
- Modified acid base accounting (Lawrence, 1997) to assess acid generating characteristics
- Susceptibility to leach metals measured using a short-term leach test (modified SPLP (EPA 1312))[2.]

3.0 RESULTS

Analytical test results are presented on Tables 1 to 4. Results of acid base accounting (ABA) analyses are presented on Figure 3, and short-term leach test results (in comparison to water quality criteria) are presented on Figures 4 to 6.

[2] Synthetic Precipitation Leaching Procedure using deionized water and a liquid to solid ratio (by wt.) of 3:1.

3.1 Weathered Ore

The weathered ore contained iron at between 37 and 60 % (w/w). Manganese and aluminum were also relatively elevated in comparison to other major and trace elements.

All three weathered ore samples contained sulphide-sulphur below the laboratory detection limit of 0.01 % (w/w).The neutralization potential: acid potential (NP/AP) ratio for weathered ore samples ranged from 5.8 to 13.5 with a mean value of 9.8. Carbonate neutralization potential (Ca-NP) exceeded NP in all 3 samples; average Ca-NP (16.4 t $CaCO_3$/t) exceeded average NP (3.0 t $CaCO_3$/t), suggesting that there is some iron carbonate in the ore (i.e., minerals that contain carbonate but that do not contribute to actual acid neutralization when subjected to conditions that oxidize the iron).

3.2 Representative Ore

While the Bulk Sample ore samples were not submitted for mineralogical testing, the results of XRD testing on other ore samples collected from elsewhere within Deposit No. 1 indicated the presence of minor amounts of siderite ($FeCO_3$), along with a similar discrepancy between NP and Ca-NP values

The representative ore material contained iron concentrations ranging from 34 to 68 % (w/w). (Tables 1 and 2). Manganese and aluminum were also relatively elevated in comparison to other major and trace elements.

All but one of the 15 representative ore samples contained sulphide at concentrations below the laboratory detection limit of 0.01 % (w/w), and the one exception (sample 08ARD01) had a very low sulphide concentration of 0.01 % (w/w) (Figure 3). This indicates that there is virtually no potential for enhanced release of acidity or metals in response to oxidative weathering of the materials, and that the risk of metals release can be qualitatively estimated from the short-term leach tests described below.

The neutralization potential: acid potential (NP/AP) ratio for representative ore samples ranged from 3.9 to 14.5 with a mean value of 7.0. Carbonate neutralization potential (Ca-NP) exceeded NP in the majority of samples; average Ca-NP (15.0 t CaCO3/t) exceeded average NP (2.2 t CaCO3/t), suggesting that there is some iron carbonate in the ore (i.e., minerals that contain carbonate but that do not contribute to actual acid neutralization when subjected to conditions that oxidize the iron).

Sulphate concentrations in the short-term leach test leachate ranged from 4 to 46 mg/L. Generally only minor leaching of metals was observed (Table 4 and Figures 4 and 5). Compared to other trace metals, barium leaching was moderately elevated with concentrations ranging from 0.2 to 0.6 mg/L.

The final pH observed in the short-term leach test ranged from 5.4 to 7.9, with an average value of 6.2.

3.3 Non-representative Ore

The non-representative ore samples contained average iron concentrations ranging from 71 to 74% (w/w)[3] (Tables 1 and 2). Aluminum and manganese were relatively elevated in comparison to other parameters.

[3] Note that the analytical method for determining iron concentrations (ICP-MS) is prone to interference at elevated iron concentrations, hence, these values are indicative only.

The sulphide-sulphur concentration was below detection limits at less than 0.01 % (w/w) in all 5 samples, with the exception of Composite No. 2 which had a sulphide concentration of 0.02 % (w/w) (Table 3, Figure 3). Ca-NP values exceeded NP values in all 5 samples with respective mean values of 10.4 and 1.9 t Ca CO_3/1000 t. NP/AP values ranged from 1.6 to 8.1, with a mean value of 5.9. Again, results indicate the likely presence of some iron carbonate, but the absence of sulphide sulphur indicates that there is virtually no potential for enhanced release of acidity or metals in response to oxidative weathering of the HMO and that the risk of metals release can be qualitatively estimated from the short-term leach test results.

Metal leaching from HMO observed in the short-term leach tests was low to negligible for all 5 samples. The final pH observed in the short-term leach test ranged from 7.1 to 8.2, with an average value of 7.6.

3.4 Seepage and Runoff

The results of seepage / runoff monitoring during 2008 are summarised in Table 5 in comparison to the Bulk Sample water license / Metal Mine Effluent Regulation (MMER[4]) parameter limits. During 2008 only a single monitoring event was carried out due to a lack of surface flow throughout the majority of the year.

All water license parameters were present at concentrations below the water license / MMER limits for a grab sample.

4.0 DISCUSSION

4.1 Risk of Acid Generation

Based upon the test results it is concluded that the waste ore and the exposed bench and wall rock surfaces have virtually no risk of generating acidic leachate. This is based on the absence of detectable sulphide sulphur in most samples, and the very low concentrations (below 0.02% (w/w)) in the few samples with detectable sulphide-sulphur.

The screening criteria used to evaluate the ABA results were based on Price, 1997. The risk of acid generation was based on the ratio of NP/AP, as summarized in the table below.

ABA Screening Criteria (Based on Price, 1997)

Potential for ARD	Initial Screening Criteria	Conclusions
Likely	NP/AP <1	Likely acid generating, unless sulphide minerals are non-reactive
Possibly	1<NP/AP<2	Possibly acid generating if NP is insufficiently reactive or is depleted at a rate faster than sulphides
Low	NP/AP 2-4	Low risk of acid generation
None	NP/AP >4	Non-acid generating

[4] MMER Schedule 4 list of parameters (MMER, 2002).

Based on the NP/AP ratio, all waste ore samples have excess neutralizing potential. This, in conjunction with the very low sulphide content, further supports the finding that none of the bulk sample waste ore or bench material will generate acidic leachate.

The British Columbia metal leaching guidance (Price, 1997) also concludes that samples containing less than 0.3% (w/w) sulphide-sulphur and which have a rinse pH greater than 5.5 can be considered to be non-acid generating. This is because any acidity arising from the oxidation of such minor amounts of sulphide minerals will be neutralized by acid neutralizing minerals present in the rock. Generally, this 0.3% (w/w) sulphide-sulphur cut off value is useful for broadly classifying such low sulphide material as non-acid generating.

The exception to the above general rule occurs when the rock is comprised entirely of minerals which are poor at neutralizing acidity (i.e. silicates, potassium feldspar, phyllosilicates (e.g. mica) etc.). This is the case with Deposit No. 1 waste rock, and hence, the acid generating status of rock containing less than 0.3% (w/w) sulphide-sulphur is less certain.

For completeness, the following sections discuss the acid base accounting results for the individual ore types.

4.2 Weathered Ore

Figure 3 shows a plot of acid potential versus neutralization potential. All 3 weathered ore samples were classified as likely non-acid generating according to the ABA screening criteria presented by Price.

The carbonate neutralization potential (Ca-NP) values were higher than neutralization potential (NP) values for all 3 weathered ore samples. This has been observed in other rock types present in Deposit No. 1 and is likely attributable to the presence of iron carbonates (e.g. siderite) which provide no net NP. For evaluating acid production potential, the more conservative NP data (not the Ca-NP) are used.

4.2.1 Representative Ore

Figure 3 shows a plot of acid potential versus neutralization potential. All 15 residual ore samples were classified as likely non-acid generating according to the ABA screening criteria presented by Price. All 15 samples contained sulphide-sulphur at or below the analytical detection limit of 0.01% (w/w) and all 15 samples had an NP/AP ratio above 4 (i.e., there was at least a 4-fold excess of acid neutralizing potential in all waste rock samples), with the exception of sample 08ARD07 which had an NP/AP ratio of 3.9 (i.e. very marginally below the threshold value of 4). The presence of sulphate in the short-term leach test leachate may indicate residual sulphate produced by sulphide minerals that oxidized over geologic time.

The carbonate neutralization potential (Ca-NP) values were typically higher than neutralization potential (NP) values for the majority of the representative ore samples, as discussed above.

4.2.2 Non-representative Ore

Figure 3 shows a plot of acid potential versus neutralization potential. Review of this figure indicates that 4 of the 5 non-representative ore samples are predicted to be likely non-acid generating, with the exception of sample Composite No. 2 which was predicted to be possibly acid generating. However, in reality with a sulphide-sulphur concentration of 0.02 % (w/w), it is unlikely that this sample would actually generate acidity.

As with the other ore samples, the carbonate neutralization potential (Ca-NP) values significantly exceeded the neutralization potential (NP) values for all samples, which is likely indicative of the presence of iron carbonate minerals present in the ore samples.

4.3 Risk of Metal Leaching

4.3.1 Short-term Leach Tests

Results of the short-term leach tests (i.e., modified Synthetic Precipitation Leach Procedure tests, based on extraction of rock samples in a 24-hr reactor at 1:3 rock: water ratio (by weight)) are presented in Table 4. Figures 4 and 5 show a comparison between leach test results and Water License and MMER parameter concentration limits, respectively. This comparison indicates roughly those parameters which may have a greater potential to cause degradation of water quality in receiving waters. However, the test results are 'operationally defined', meaning that the specific concentration values are influenced by the laboratory test methods. An assessment of actual degradation of receiving water would need to consider site-specific field conditions, including water: rock ratio, dilution and attenuation during transport, and volumetric flow of receiving waters.

Results of the short-term leach tests were compared to:

- The Bulk Sample Program Water License concentration limits - These limits represent the maximum allowable concentrations of selected parameters in drainage emanating from the bulk sample bench area and stockpiled waste materials/ore.
- Metal Mine Effluent Regulations (MMER) Schedule 4 concentration limits - Anticipated to apply as end-of-pipe discharge limits for any impacted drainage arising from mine wastes for the Mary River Project.

Figures 4 to 5 show plots of the maximum leached metal concentrations from the short-term leach tests (for all samples) in comparison to the Water License, MMER and CCME PAL criteria.

These plots indicate:

- Concentrations of parameters listed in the Bulk Sample Water License (arsenic, copper, nickel, lead and zinc) were all below (and for some parameters significantly below) the maximum allowable weekly average concentrations. The maximum allowable concentrations for a grab sample stipulated in the Bulk Sample Water License are 50% of the allowable weekly average concentrations, which further illustrates the low potential for trace element leaching from the waste materials.
- Concentrations of MMER parameters (arsenic, copper, nickel, lead and zinc) observed in the short-term leach tests were all below MMER Schedule 4 concentration limits for a grab sample

Overall the short-term leach test data presented in Table 4 indicates a low potential of the Bulk Sample waste materials to leach significant quantities of metals and non-metals. Solutes released from the bulk sample waste ore will be leached out over time, and during transport these solutes will be attenuated by dilution during transport and in receiving waters, and by precipitation and adsorption to minerals. An assessment of actual effects on receiving water would need to quantitatively consider these effects.

However, the results of the short-term leach tests (Table 4) do indicate that the waste ore materials have a low risk of leaching significant quantities of metals.

The lowest final pH observed in the short-term leach tests was 5.4 (for residual ore sample 08ARD05). Overall, the average final effluent pH observed in the short-term leach tests for all samples was 6.3, which is above the MMER Schedule 4 lower pH limit of pH 6.0

4.3.2 Seepage / Runoff Monitoring

The results of the single monitoring event carried out during 2008 indicate that the Bulk Sample wastes and exposed benches have a low potential for leaching metals and/or acidity.

5.0 CONCLUSIONS

Key conclusions regarding potential water quality degradation attributable to wastes generated during the bulk sample program were:

1. Based upon the test results, it is concluded that the excavation surfaces and ore form the bulk sample program have essentially no potential to produce acid rock drainage.
2. Metal concentrations in laboratory leach tests for all samples were below the Bulk Sample Water License and MMER Schedule 4 limits (i.e., the latter being standards generally applicable to mine drainage effluents released during mining operations).
3. The results of the short-term leach tests indicate that overall it is not anticipated that the Bulk Sample waste materials will leach significant quantities of metals / non-metals, and consequently, potential impacts to receiving waters will likely be negligible.
4. NP is considered to be a more reliable measure of acid neutralizing capacity than Ca-NP for all of the bulk sample waste ore samples.
5. Near complete freezing of permanently stockpiled rock will occur relatively quickly, leaving meteoric water to interact only with the near-surface active zone and reducing the volume of ore or bench material available as a source of solutes to runoff.
6. Ongoing monitoring of seepage / runoff from the Bulk Sample wastes and exposed benches is required to confirm the expected low potential for leaching of metals and/or acidity.

6.0 MONITORING PROGRAM

During 2008 Baffinland began a proactive monitoring program to monitor drainage emanating from stockpiled material located at the Mary River site and at Milne Inlet, and from the bulk sample bench area.

Due to intermittent precipitation, this monitoring program consists of seasonal monitoring of general parameters in the field (flow rate, pH, temperature and conductivity) and submission of water samples for laboratory analysis of trace and major metals, arsenic and sulphate.

The results of this ongoing monitoring program will be used to assess the environmental reactivity of the materials under actual site conditions and will be used to assess potential future remediation options, if required.

7.0 REFERENCES

CCME PAL, 2007 Canadian Council of Ministers of the Environment Update Table 7.0 for Canadian Water Quality Guidelines for the Protection of Aquatic Life; September, 2007.

Knight Piésold, 2008 Mary River Project Environmental Impact Assessment, Appendix 6A Draft Report on Geochemical Characterization Program - unissued

Lawrence, R.W. and Wang, Y., 1997 Determination of Neutralization Potential in the Prediction of Acid Rock Drainage, Proc. 4th International Conference on Acid Rock Drainage, Vancouver, BC, p449-464.
MMER, 2002 P.C. 2002-987 6 June, 2002.

MMER, 2002 *Metal Mine Effluent Regulations, June 6, 2002.*

Nunavut Water Board, 2007 Bulk Sample Water License No. 2BB-MRY0710, issued to BIMC on July 27, 2007.

Nunavut Water Board, 2007 Bulk Sample Water License No. 2BB-MRY0710, issued to BIMC on July 27, 2007.

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

Signed: for
Quentin U.I. Hamilton
Senior Scientist

Approved:
For
Ken D. Embree, P.Eng.
Managing Director

Attachments:

Table 1 Rev 0	Elemental Composition (ICP) Results for Bulk Sample Waste Ore Samples
Table 2 Rev 0	Whole Rock Analysis (XRF) Results for Bulk Sample Waste Ore Samples
Table 3 Rev 0	Modified Acid Base Accounting Results for Bulk Sample Waste Ore Samples
Table 4 Rev 0	Short-Term Leach Test Results for Bulk Sample Waste Ore Samples
Table 5 Rev 0	Seepage and Runoff Water Quality Results
Figure 1 Rev 0	Bulk Sampling Program Waste Locations (and Monitoring Locations) at Mary River
Figure 2 Rev 0	Bulk Sampling Program Waste Locations (and Monitoring Locations) at Milne Inlet
Figure 3 Rev 0	Bulk Sample Waste Ore - Acid Potential (AP) vs. Neutralization Potential (NP)
Figure 4 Rev 0	Bulk Sample Waste Ore - Short-Term Leach Test Results in Comparison to Bulk Sample Water License Limits
Figure 5 Rev 0	Bulk Sample Waste Ore - Short-Term Leach Test Results in Comparison to MMER Limits

Knight Piésold
CONSULTING

TABLE 1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

ELEMENTAL COMPOSITION (ICP) RESULTS FOR BULK SAMPLE WASTE ORE SAMPLES

Print Mar/12/09 13:30:00

Parameter		Units	08ARD01	08ARD02	08ARD03	08ARD04	08ARD05	08ARD07	08ARD08	08ARD11	08ARD12	08HEM01	08HEM02	08HEM03	08HEM04	08HEM05	08HEM06	08ARD06	08ARD09	08ARD10	Composite No 1 (1373,1374,1375,1376)	Composite No 2 (1372,1389,1392)	Composite No 3 (1377,1378,1390,1391,1393)	Composite No 4 (1370,1371,1382,1383,1386)	Composite No 5 (1379,1380,1381,1384,1385,1387,1388)
Sample Description			magnetite + hematite + minor limonite (medium weathering)	magnetite + hematite (medium weathering)	hematite + limonite + magnetite (medium weathering)	magnetite + limonite + hematite (medium weathering)	hematite + minor magnetite + minor limonite (medium weathering)	hematite + magnetite (medium weathering)	hematite + magnetite (medium weathering)	magnetite + hematite + limonite (medium weathering)	hematite + minor magnetite + minor limonite (medium weathering)	Hematite + minor magnetite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	magnetite + hematite + limonite + minor altered schist (highly weathered)	magnetite + hematite + limonite + minor altered schist (highly weathered)	hematite + limonite + magnetite + minor altered schist (highly weathered)	High Manganese Ore	High Manganese Ore	High Manganese Ore	High Manganese Ore	High Manganese Ore
Sample Location	**N**		7915155	7915171	7915190	7915202	7915214	7915178	7915160	7915197	7915188	7914720	7914697	7914673	7914659	7914638	7914614	7915195	7915177	7915193	Composite of material stockpiled at Mary River site and material used for the construction of the ore stockpile pad at Milne Inlet				
	E		563455	563472	563488	563461	563432	563403	563419	563443	563453	563305	563288	563269	563244	563228	563206	563395	563422	563422					
			Representative Ore															**Weathered Ore**			**Non-representative Ore**				
Mercury (Hg)		µg/g	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nd	nd	nd	nd	nd
Silver (Ag)		µg/g	0.06	0.11	0.11	0.08	0.45	< 0.01	< 0.01	0.14	0.22	0.26	0.05	0.04	0.06	0.06	0.07	0.07	0.13	0.16	0.27	0.12	0.10	0.09	0.06
Aluminum (Al)		µg/g	1,100	5,700	15,000	7,800	40,000	1,300	4,100	6,700	13,000	2,700	750	1,000	980	800	3,730	16,000	30,000	21,000	2300	2400	2600	2100	2000
Arsenic (As)		µg/g	73	42	34	25	21	90	60	14	12	11	8.9	7.1	6.0	7.5	5.9	90	17	13	1.7	1.8	1.7	3.6	2.3
Barium (Ba)		µg/g	17	18	8.5	6.3	14	6.5	7	13	9.3	10	13	4.5	15	13	14	3.3	18	17	10	9.8	4.8	11	3.8
Beryllium (Be)		µg/g	0.5	0.5	0.2	0.4	1.1	0.1	0.2	0.7	0.6	0.6	0.2	0.6	0.4	0.2	0.3	0.2	1.1	2.1	0.33	0.27	0.30	0.29	0.30
Bismuth (Bi)		µg/g	0.58	0.65	0.42	0.77	6.3	< 0.09	0.56	0.67	3.8	0.87	1.0	< 0.09	0.16	< 0.09	0.10	1	2	1.2	1.6	1.6	1.5	3.3	2.9
Calcium (Ca)		µg/g	140	69	250	170	200	70	51	160	110	60	62	71	73	66	73	190	180	250	340	180	410	480	410
Cadmium (Cd)		µg/g	< 0.02	< 0.02	0.07	< 0.02	0.18	< 0.02	< 0.02	0.14	0.06	0.02	< 0.02	< 0.02	0.04	< 0.02	< 0.02	0.05	0.05	0.05	0.04	< 0.02	< 0.02	< 0.02	0.03
Cobalt (Co)		µg/g	9.6	36	19	6.4	15	4.5	4.5	22	24	10	16	6.1	22	9.5	13	5.2	30	31	15	16	15	18	15
Chromium (Cr)		µg/g	150	120	94	88	99	49	32	140	240	220	200	150	190	210	180	35	66	160	200	150	130	170	160
Copper (Cu)		µg/g	19	14	7.5	18	60	2	5	7.2	7	5.2	1.3	< 0.1	0.8	< 0.1	14	71	45	21	46	39	31	35	27
Iron (Fe)		µg/g	360,000	630,000	610,000	630,000	370,000	630,000	650,000	640,000	620,000	650,000	650,000	600,000	340,000	640,000	680,000	600,000	410,000	370,000	710000	730000	720000	720000	740000
Potassium (K)		µg/g	78	120	92	130	190	83	140	220	160	90	68	100	80	76	90	48	160	290	510	970	160	550	190
Lithium (Li)		µg/g	< 3	4	< 3	< 3	66	< 3	< 3	< 3	31	< 3	< 3	< 3	< 3	< 3	< 3	< 3	83	40	< 2	< 2	< 2	< 2	< 2
Magnesium (Mg)		µg/g	180	110	2,800	1,100	3,100	160	660	830	9,000	190	90	67	56	100	190	2,200	9,000	6,800	630	540	870	540	610
Manganese (Mn)		µg/g	1,400	2,100	4,800	2,800	4,200	1,100	1,600	2,200	1,200	820	1,100	300	1,100	870	1,030	4,700	2,900	2,700	3100	3500	2800	2600	3000
Molybdenum (Mo)		µg/g	5.1	8.1	3.5	8.6	6.3	1.8	2	8.2	11	4.5	7.1	2.9	9.0	5.0	4.8	1.8	2.7	2.5	7.5	6.8	6.5	7.0	7.4
Sodium (Na)		µg/g	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	600	290	90	260	88
Nickel (Ni)		µg/g	25	52	33	21	47	22	19	45	61	53	37	30	31	34	69	28	82	91	34	36	35	35	34
Lead (Pb)		µg/g	5.4	5.1	4.8	4.1	13	1.4	1.3	7.4	7.5	3.2	9.9	3.6	12	4.2	7.6	3.1	3.5	4.3	8.9	8.9	8.4	8.0	8.0
Antimony (Sb)		µg/g	6.1	4	2.7	2	1.5	8.7	5.2	0.9	0.8	0.8	0.5	0.7	0.1	0.4	0.2	8	1.3	0.9	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Selenium (Se)		µg/g	< 1	1	1	< 1	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1.1	1.5	0.7	0.7	0.9
Tin (Sn)		µg/g	0.8	< 0.6	< 0.6	1.8	2	1	0.8	1.1	1.4	< 0.6	< 0.6	< 0.6	0.7	< 0.6	< 0.6	0.9	< 0.6	< 0.6	< 0.5	< 0.5	0.7	< 0.5	0.6
Strontium (Sr)		µg/g	2.6	2.76	1.27	2.1	4.2	1.01	2.37	4.75	3.31	1.84	1.90	2.48	2.28	1.60	1.68	0.74	4.13	3.44	4.6	3.6	2.5	3.7	1.9
Titanium (Ti)		µg/g	39	330	760	340	3200	51	180	300	780	120	17	22	28	23	170	1100	2500	1700	64	73	98	76	82
Thallium (Tl)		µg/g	< 0.02	0.04	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Uranium (U)		µg/g	2.3	2.6	1.5	0.97	1.5	0.24	0.56	2.4	3.2	2.8	3.0	0.79	2.1	0.97	1.3	0.3	1.5	1.8	2.9	3.1	2.9	2.8	2.8
Vanadium (V)		µg/g	5.8	15	27	33	130	7	14	25	36	13	3.3	4.0	5.7	4.8	8.6	44	89	57	6	7	8	6	6
Yttrium (Y)		µg/g	5.5	4.8	4.5	3.4	4.4	1.2	1.5	11	8.8	6.7	3.5	3.0	5.9	4.6	4.6	2.4	4.9	4.8	5.1	4.0	4.4	3.9	4.0
Zinc (Zn)		µg/g	17	20	30	17	88	21	25	22	34	13	12	16	13	18	19	41	160	59	28	28	29	28	25

I:\102-00181-15\Assignment\Correspondence\NB09-00189\[Tables for NB09-00189.xls]Table 1 - ICP

NOTES:

1. ND : NOT DETERMINED.
2. WEATHERED ORE = SURFICIAL ORE STOCKPILED ON DEPOSIT NO. 1.
3. REPRESENTATIVE ORE = EXPOSED BULK SAMPLE BENCHES AND ORE STOCKPILED AT MILNE INLET.
4. NON-REPRESENTATIVE ORE = HIGH MANGANESE ORE STOCKPILED AT MARY RIVER SITE AND USED TO CONSTRUCT THE ORE STOCKPILE PAD AT MILNE INLET.

0	MAR12'09	ISSUED WITH MEMO NB09-00189	QUIH	SRA	KDE
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

Knight Piésold
CONSULTING

TABLE 2

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

WHOLE ROCK ANALYSIS (XRF) RESULTS FOR BULK SAMPLE WASTE ORE SAMPLES

Print Mar/12/09 13:33:09

Parameter		Units	08ARD01	08ARD02	08ARD03	08ARD04	08ARD05	08ARD07	08ARD08	08ARD11	08ARD12	08HEM01
Sample Description			magnetite + hematite + minor limonite (medium weathering)	magnetite + hematite (medium weathering)	hematite + limonite + magnetite (medium weathering)	magnetite + limonite + hematite (medium weathering)	hematite + minor magnetite + minor limonite (medium weathering)	hematite + magnetite (medium weathering)	hematite + magnetite (medium weathering)	magnetite + hematite + limonite (medium weathering)	hematite + minor magnetite + minor limonite (medium weathering)	Hematite + minor magnetite (low weathering)
Sample Location		N	7915155	7915171	7915190	7915202	7915214	7915178	7915160	7915197	7915188	7914720
		E	563455	563472	563488	563461	563432	563403	563419	563443	563453	563305
Sample representative of			Representative Ore									
Silicon (as SiO_2)		%	0.34	1.24	3.68	1.94	11.2	0.33	0.93	1.63	3.15	0.62
Aluminum (as Al_2O_3)		%	0.24	1.16	3.02	1.56	8.78	0.29	0.84	1.34	2.54	0.55
Iron (as Fe_2O_3)		%	100.0	96.5	91.1	95.3	72.8	97.1	96.0	96.2	91.0	97.0
Magnesium (as MgO)		%	0.04	< 0.01	0.50	0.20	0.76	0.04	0.13	0.16	1.60	0.03
Calcium (as CaO)		%	0.02	< 0.01	0.04	0.02	0.03	< 0.01	< 0.01	0.02	0.01	< 0.01
Sodium (as Na_2O)		%	< 0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	< 0.01	0.02	0.01	< 0.01
Potassium (as K_2O)		%	0.01	0.01	< 0.01	0.01	0.02	< 0.01	0.01	0.02	0.01	< 0.01
Titanium (as TiO_2)		%	0.01	0.06	0.14	0.06	0.55	< 0.01	0.03	0.07	0.14	0.03
Phosphorus (as P_2O_5)		%	0.03	0.06	0.02	0.03	0.06	0.02	0.04	0.09	0.07	0.04
Manganese (as MnO)		%	0.36	0.28	0.64	0.36	0.59	0.17	0.24	0.29	0.18	0.12
Chromium (as Cr_2O_3)		%	0.07	0.03	0.02	0.03	0.04	0.02	0.02	0.02	0.04	0.04
Vanadium (as V_2O_5)		%	< 0.01	< 0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Parameter		Units	08HEM02	08HEM03	08HEM04	08HEM05	08HEM06	08ARD06	08ARD09	08ARD10	Composite No 1 (1373,1374,1375,1376)	Composite No 2 (1372,1389,1392)	Composite No 3 (1377,1378,1390,1391,1393)	Composite No 4 (1370,1371,1382,1383,1386)	Composite No 5 (1379,1380,1381,1384,1385,1387,1388)
Sample Description			Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	magnetite + hematite + limonite + minor altered schist (highly weathered)	magnetite + hematite + limonite + minor altered schist (highly weathered)	hematite + limonite + magnetite + minor altered schist (highly weathered)	High Manganese Ore	High Manganese Ore	High Manganese Ore	High Manganese Ore	High Manganese Ore
Sample Location		N	7914697	7914673	7914659	7914638	7914614	7915195	7915177	7915193	Composite of material stockpiled at Mary River site and material used for the construction of the ore stockpile pad at Milne Inlet				
		E	563288	563269	563244	563228	563206	563395	563422	563422					
Sample representative of			Representative Ore					Weathered Ore			Non-representative Ore				
Silicon (as SiO_2)		%	0.22	0.28	0.33	0.24	0.84	4.15	7.24	6.06	0.75	1.10	1.03	0.95	0.67
Aluminum (as Al_2O_3)		%	0.17	0.30	0.24	0.18	0.77	3.35	6.46	4.86	0.40	0.44	0.47	0.37	0.36
Iron (as Fe_2O_3)		%	99.6	98.8	99.3	98.9	95.5	87.0	79.8	82.1	97.7	98.2	98.9	97.6	97.7
Magnesium (as MgO)		%	0.01	< 0.01	< 0.01	0.02	0.04	0.40	1.73	1.42	0.11	0.08	0.13	0.08	0.11
Calcium (as CaO)		%	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.03	0.02	0.04	0.04	0.01	0.04	0.06	0.05
Sodium (as Na_2O)		%	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.09	0.03	< 0.01	0.44	< 0.01
Potassium (as K_2O)		%	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	0.03	0.05	0.10	0.02	0.05	0.02
Titanium (as TiO_2)		%	0.01	< 0.01	< 0.01	< 0.01	0.03	0.21	0.40	0.29	0.02	0.02	0.02	0.03	0.02
Phosphorus (as P_2O_5)		%	0.02	0.03	0.04	0.02	0.03	0.02	0.06	0.14	0.02	0.02	0.02	0.03	0.02
Manganese (as MnO)		%	0.17	0.05	0.29	0.15	0.16	0.64	0.39	0.40	0.47	0.55	0.44	0.39	0.46
Chromium (as Cr_2O_3)		%	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.04	0.04	0.02	0.03	0.03	0.02
Vanadium (as V_2O_5)		%	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.02	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

I:\102-00181-15\Assignment\Correspondence\NB09-00189\[Tables for NB09-00189.xls]Table 2 - Whole Rock

NOTES:

1. WEATHERED ORE = SURFICIAL ORE STOCKPILED ON DEPOSIT NO. 1.
2. REPRESENTATIVE ORE = EXPOSED BULK SAMPLE BENCHES AND ORE STOCKPILED AT MILNE INLET.
3. NON-REPRESENTATIVE ORE = HIGH MANGANESE ORE STOCKPILED AT MARY RIVER SITE AND USED TO CONSTRUCT THE ORE STOCKPILE PAD AT MILNE INLET.

0	MAR12'09	ISSUED WITH MEMO NB09-00189	QUIH	SRA	KDE
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

Knight Piésold CONSULTING

TABLE 3

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

MODIFIED ACID BASE ACCOUNTING RESULTS FOR BULK SAMPLE WASTE ORE SAMPLES

Print Mar/12/09 13:35:13

Parameter	Units	08ARD01	08ARD02	08ARD03	08ARD04	08ARD05	08ARD07	08ARD08	08ARD11	08ARD12	08HEM01	08HEM02	08HEM03	08HEM04	08HEM05	08HEM06	08ARD06	08ARD09	08ARD10	Composite No 1 (1373,1374,1375,1376)	Composite No 2 (1372,1389,1392)	Composite No 3 (1377,1378,1390,1391,1393)	Composite No 4 (1370,1371,1382,1383,1386)	Composite No 5 (1379,1380,1381,1384,1385,1387,1388)
Sample Description		magnetite + hematite + minor limonite (medium weathering)	magnetite + hematite (medium weathering)	hematite + limonite + magnetite (medium weathering)	magnetite + limonite + hematite (medium weathering)	hematite + minor magnetite + minor limonite (medium weathering)	hematite + magnetite (medium weathering)	hematite + magnetite (medium weathering)	magnetite + hematite + limonite (medium weathering)	hematite + minor magnetite + minor limonite (medium weathering)	Hematite + minor magnetite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	magnetite + hematite + limonite + minor altered schist (highly weathered)	magnetite + hematite + limonite + minor altered schist (highly weathered)	hematite + limonite + magnetite + minor altered schist (highly weathered)	High manganese ore	High manganese ore	High manganese ore	High manganese ore	High manganese ore
Sample Location	**N**	7915155	7915171	7915190	7915202	7915214	7915178	7915160	7915197	7915188	7914720	7914697	7914673	7914659	7914638	7914614	7915195	7915177	7915193	Composite of material stockpiled at Mary River site and material used for the construction of the ore stockpile pad at Milne Inlet				
	E	563455	563472	563488	563461	563432	563403	563419	563443	563453	563305	563288	563269	563244	563228	563206	563395	563422	563422					
Sample representative of		**Representative Ore**															**Weathered Ore**			**Non-representative Ore**				
Paste pH		7.49	6.29	6.82	6.87	5.75	6.54	6.91	7.14	8.02	6.57	6.83	6.92	6.79	6.81	6.08	5.90	7.47	7.68	7.49	7.23	7.42	7.59	7.52
Neutralization Potential (NP)	t $CaCO_3$/1000t	2.5	2.7	2.5	2.3	1.5	1.2	2.0	2.5	4.5	2.0	2.3	2.0	2.0	1.7	1.5	1.8	3.1	4.2	2.2	1.0	2.1	2.5	1.8
Carbonate-NP (Ca-NP)	t $CaCO_3$/1000t	7.7	13.2	4.2	8.7	10.1	58.5	37.3	1.9	5.6	1.5	2.3	8.5	2.7	8.7	54.8	40.5	3.7	4.9	9.2	9.7	10.7	10.7	11.8
NP/AP	ratio	6.1	8.7	8.1	7.4	4.8	3.9	6.5	8.1	14.5	6.5	7.4	6.5	6.5	5.5	4.8	5.8	10.0	13.5	7.1	1.6	6.8	8.1	5.8
Ca-NP/AP	ratio	18.9	42.5	13.4	27.9	32.5	188.6	120.4	6.2	18.0	4.8	7.5	27.4	8.6	27.9	176.8	130.6	11.8	15.9	29.8	15.6	34.4	34.4	38.2
Acid Potential (AP)	t $CaCO_3$/1000 t	0.41	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.62	0.31	0.31	0.31
Total Carbon	%	0.093	0.158	0.050	0.104	0.121	0.702	0.448	0.023	0.067	0.018	0.028	0.102	0.032	0.104	0.658	0.486	0.044	0.059	0.111	0.116	0.128	0.128	0.142
Net Neutralization Potential (NNP)	t $CaCO_3$/1000 t	2.1	2.4	2.2	2.0	1.2	0.9	1.7	2.2	4.2	1.7	2.0	1.7	1.7	1.4	1.2	1.5	2.8	3.9	1.9	0.38	1.8	2.2	1.5
Sulphide	%	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01

I:\102-00181-15\Assignment\Correspondence\NB09-00189\[Tables for NB09-00189.xls]Table 3 - ABA Data

NOTES:

1. WEATHERED ORE = SURFICIAL ORE STOCKPILED ON DEPOSIT NO. 1.
2. REPRESENTATIVE ORE = EXPOSED BULK SAMPLE BENCHES AND ORE STOCKPILED AT MILNE INLET.
3. NON-REPRESENTATIVE ORE = HIGH MANGANESE ORE STOCKPILED AT MARY RIVER SITE AND USED TO CONSTRUCT THE ORE STOCKPILE PAD AT MILNE INLET.

0	MAR12'09	ISSUED WITH MEMO NB09-00189	QUIH	SRA	KDE
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

Knight Piésold
CONSULTING

TABLE 4

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

SHORT-TERM LEACH TEST RESULTS FOR BULK SAMPLE WASTE ORE SAMPLES

Print Mar/12/09 13:35:13

Parameter	Units	08ARD01	08ARD02	08ARD03	08ARD04	08ARD05	08ARD07	08ARD08	08ARD11	08ARD12	08HEM01	08HEM02	08HEM03
Sample Description		magnetite + hematite + minor limonite (medium weathering)	magnetite + hematite (medium weathering)	hematite + limonite + magnetite (medium weathering)	magnetite + limonite + hematite (medium weathering)	hematite + minor magnetite + minor limonite (medium weathering)	hematite + magnetite (medium weathering)	hematite + magnetite (medium weathering)	magnetite + hematite + limonite (medium weathering)	hematite + minor magnetite + minor limonite (medium weathering)	Hematite + minor magnetite (low weathering)	Hematite (low weathering)	Hematite (low weathering)
Sample Location	**N**	7915155	7915171	7915190	7915202	7915214	7915178	7915160	7915197	7915188	7914720	7914697	7914673
	E	563455	563472	563488	563461	563432	563403	563419	563443	563453	563305	563288	563269
Sample representative of		**Representative Ore**											
Sample	weight(g)	600	600	600	600	600	600	600	600	600	600	600	600
ExtVolume	ml	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
InitialpH	units	7.68	5.33	5.94	6.29	5.10	5.75	5.98	6.42	5.92	5.42	5.54	6.29
Final pH	units	7.94	5.76	6.70	6.80	5.40	6.56	7.46	7.01	7.67	6.13	6.52	6.96
Sulphate (SO_4)	mg/L	9.3	14	19	5.5	46	8.3	5.2	18	29	30	15	3.6
Mercury (Hg)	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Silver (Ag)	mg/L	0.00001	< 0.00001	0.00003	0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	0.0638	0.0512	0.0652
Aluminum (Al)	mg/L	0.0474	0.0534	0.0583	0.0639	0.0341	0.0683	0.0840	0.0630	0.0600	< 0.0002	< 0.0002	< 0.0002
Arsenic (As)	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0003	< 0.0002	< 0.0002	< 0.0002	0.0002	< 0.00001	< 0.00001	< 0.00001
Barium (Ba)	mg/L	0.415	0.319	0.298	0.455	0.226	0.411	0.447	0.320	0.259	0.290	0.327	0.581
Beryllium (Be)	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Bismuth (Bi)	mg/L	0.00003	0.00001	0.00002	0.00001	0.00001	0.00002	0.00004	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Boron (B)	mg/L	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Calcium (Ca)	mg/L	6.17	1.50	2.33	1.38	3.98	2.36	0.84	2.02	1.57	1.23	1.79	1.13
Cadmium (Cd)	mg/L	0.000007	0.000023	0.000021	0.000010	0.000047	0.000012	0.000008	0.000011	0.000007	0.000022	0.000017	0.000005
Cobalt (Co)	mg/L	0.000031	0.00783	0.00203	0.000232	0.0130	0.000062	< 0.000002	0.000336	0.000151	0.00403	0.00395	0.000008
Chromium (Cr)	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Copper (Cu)	mg/L	< 0.0005	0.0005	0.0012	0.0007	0.0010	< 0.0005	< 0.0005	< 0.0005	0.0005	< 0.0005	< 0.0005	< 0.0005
Iron (Fe)	mg/L	0.01	< 0.01	0.02	0.03	< 0.01	< 0.01	0.13	< 0.01	< 0.01	< 0.01	< 0.01	0.10
Potassium (K)	mg/L	0.32	0.55	0.28	0.29	0.42	0.26	0.26	0.52	0.46	0.44	0.25	0.35
Lithium (Li)	mg/L	0.002	0.021	0.009	0.009	0.163	0.002	0.032	0.019	0.032	0.025	0.013	0.002
Magnesium (Mg)	mg/L	1.28	1.66	3.46	1.07	8.62	0.730	1.53	3.35	7.17	6.21	1.90	0.26
Manganese (Mn)	mg/L	0.00241	0.871	0.785	0.229	0.915	0.0866	0.00845	0.124	0.0255	1.45	1.45	0.00713
Molybdenum (Mo)	mg/L	0.00050	< 0.00001	0.00007	0.00022	< 0.00001	< 0.00001	0.00065	0.00003	0.00066	< 0.00001	< 0.00001	< 0.00001
Nickel (Ni)	mg/L	0.0002	0.0412	0.0040	0.0013	0.0249	0.0013	0.0003	0.0011	0.0005	0.0199	0.0053	0.0002
Lead (Pb)	mg/L	0.00059	0.00058	0.00046	0.00034	0.00029	0.00051	0.00030	0.00032	0.00031	0.00015	0.00026	0.00028
Antimony (Sb)	mg/L	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Selenium (Se)	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Sodium (Na)	mg/L	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Tin (Sn)	mg/L	0.00003	0.00002	0.00006	0.00002	0.00002	0.00002	0.00001	0.00002	0.00001	0.00001	0.00002	0.00001
Strontium (Sr)	mg/L	0.0365	0.0179	0.0193	0.0166	0.0207	0.0266	0.0156	0.0165	0.0145	0.0226	0.0405	0.0253
Titanium (Ti)	mg/L	< 0.0001	0.0004	0.0004	0.0004	0.0010	0.0003	0.0007	0.0002	0.0004	0.0003	0.0002	0.0010
Thallium (Tl)	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Tungsten (W)	mg/L	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Uranium (U)	mg/L	< 0.000001	< 0.000001	0.000002	< 0.000001	< 0.000001	< 0.000001	0.000001	< 0.000001	< 0.000001	< 0.000001	< 0.000001	< 0.000001
Vanadium (V)	mg/L	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Yttrium (Y)	mg/L	0.000016	0.000016	0.000020	0.000021	0.000011	0.000020	0.000030	0.000019	0.000016	0.000017	0.000015	0.000023
Zinc (Zn)	mg/L	0.064	0.103	0.082	0.082	0.088	0.090	0.083	0.089	0.081	0.095	0.067	0.077

Parameter	Units	08HEM04	08HEM05	08HEM06	08ARD06	08ARD09	08ARD10	Composite No 1 (1373,1374,1375,1376)	Composite No 2 (1372,1389,1392)	Composite No 3 (1377,1378,1390,1391,1393)	Composite No 4 (1370,1371,1382,1383,1386)	Composite No 5 (1379,1380,1381,1384,1385,1387,1388)
Sample Description		Hematite (low weathering)	Hematite (low weathering)	Hematite (low weathering)	magnetite + hematite + limonite + minor altered schist (highly weathered)	magnetite + hematite + limonite + minor altered schist (highly weathered)	hematite + limonite + magnetite + minor altered schist (highly weathered)	High manganese ore	High manganese ore	High manganese ore	High manganese ore	High manganese ore
Sample Location	**N**	7914659	7914638	7914614	7915195	7915177	7915193	Composite of material stockpiled at Mary River site and material used for the construction of the ore stockpile pad at Milne Inlet				
	E	563244	563228	563206	563395	563422	563422					
Sample representative of		**Representative Ore**			**Weathered Ore**			**Non-representative Ore**				
Sample	weight(g)	600	600	600	600	600	600	300	300	300	300	300
ExtVolume	ml	1800	1800	1800	1800	1800	1800	900	900	900	900	900
InitialpH	units	5.12	5.02	5.58	5.42	6.41	6.44	6.95	6.35	7.10	7.60	7.82
Final pH	units	6.04	6.28	6.04	5.79	7.40	7.66	7.69	7.10	7.87	8.08	8.18
Sulphate (SO_4)	mg/L	13	10	16	30	16	33	19	18	19	21	17
Mercury (Hg)	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Silver (Ag)	mg/L	0.0679	0.0630	0.0511	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Aluminum (Al)	mg/L	< 0.0002	< 0.0002	< 0.0002	0.0512	0.0697	0.0475	< 0.01	< 0.01	0.02	< 0.01	0.01
Arsenic (As)	mg/L	< 0.00001	< 0.00001	0.00001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Barium (Ba)	mg/L	0.345	0.389	0.297	0.244	0.318	0.236					
Beryllium (Be)	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Bismuth (Bi)	mg/L	< 0.00001	0.00001	0.00001	0.00001	< 0.00001	< 0.00001	0.00005	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Boron (B)	mg/L	nd	nd	nd	nd	nd	nd	0.0240	0.0204	0.0242	0.0228	0.0258
Calcium (Ca)	mg/L	1.71	1.49	1.77	1.47	1.84	2.08	8.75	3.17	7.78	12.6	11.9
Cadmium (Cd)	mg/L	0.000028	0.000016	0.000014	0.000027	0.000013	0.000006	0.000006	0.000004	< 0.000003	< 0.000003	0.000013
Cobalt (Co)	mg/L	0.00556	0.00174	0.00107	0.00347	0.000198	0.000184	0.000032	0.000498	0.000019	0.000031	0.000025
Chromium (Cr)	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Copper (Cu)	mg/L	< 0.0005	< 0.0005	< 0.0005	0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Iron (Fe)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.03	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Potassium (K)	mg/L	0.40	0.26	0.29	0.29	0.46	0.44	4.27	2.48	2.14	2.86	2.17
Lithium (Li)	mg/L	0.010	0.003	0.039	0.022	0.030	0.021	0.010	0.014	0.013	0.020	0.012
Magnesium (Mg)	mg/L	1.48	0.99	2.58	6.50	4.19	8.34	4.95	3.51	8.08	4.61	5.84
Manganese (Mn)	mg/L	1.06	1.07	0.481	0.893	0.0377	0.0144	0.00535	0.561	0.00953	0.00282	0.00344
Molybdenum (Mo)	mg/L	0.00001	< 0.00001	< 0.00001	< 0.00001	0.00020	0.00008	0.00143	0.00013	0.00208	0.00123	0.00457
Nickel (Ni)	mg/L	0.0059	0.0038	0.0144	0.0083	0.0008	0.0007	0.0002	0.0020	0.0002	0.0002	0.0002
Lead (Pb)	mg/L	0.00035	0.00030	0.00040	0.00030	0.00020	0.00022	0.00003	0.00006	< 0.00002	0.00003	0.00002
Antimony (Sb)	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Selenium (Se)	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001
Sodium (Na)	mg/L	nd	nd	nd	nd	nd	nd	1.18	0.68	0.83	0.78	0.66
Tin (Sn)	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00003	< 0.00001	< 0.00001	< 0.00001	0.00005	< 0.00001
Strontium (Sr)	mg/L	0.0366	0.0331	0.0208	0.0124	0.0145	0.0109	0.0186	0.0178	0.0118	0.0201	0.0185
Titanium (Ti)	mg/L	0.0003	0.0002	0.0003	0.0010	0.0005	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Thallium (Tl)	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00006	0.00006	< 0.00002	0.00003	0.00003
Tungsten (W)	mg/L	nd	nd	nd	nd	nd	nd	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Uranium (U)	mg/L	< 0.000001	< 0.000001	< 0.000001	< 0.000001	< 0.000001	< 0.000001	0.000263	0.000012	0.000165	0.000048	0.000142
Vanadium (V)	mg/L	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	0.00006	< 0.00003	< 0.00003	< 0.00003	0.00003
Yttrium (Y)	mg/L	0.000020	0.000017	0.000017	0.000012	0.000024	0.000013	< 0.000001	0.000001	< 0.000001	< 0.000001	0.000009
Zinc (Zn)	mg/L	0.086	0.076	0.074	0.078	0.090	0.064	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

I:\102-00181-15\Assignment\Correspondence\NB09-00189\[Tables for NB09-00189.xls]Table 4 - Mod SPLP

NOTES:

1. TEST CARRIED OUT USING MODIFIED SYNTHETIC PRECIPITATION LEACHING PROCEDURE (EPA 1312) WITH A 3: 1 LIQUID TO SOLID RATIO (BY WT.) AND A DEIONIZED WATER LEACHING AGENT.
2. ND : NOT DETERMINED.
3. WEATHERED ORE = SURFICIAL ORE STOCKPILED ON DEPOSIT NO. 1.
4. REPRESENTATIVE ORE = EXPOSED BULK SAMPLE BENCHES AND ORE STOCKPILED AT MILNE INLET.
5. NON-REPRESENTATIVE ORE = HIGH MANGANESE ORE STOCKPILED AT MARY RIVER SITE AND USED TO CONSTRUCT THE ORE STOCKPILE PAD AT MILNE INLET.

0	MAR12'09	ISSUED WITH MEMO NB09-00189	QUIH	SRA	KDE
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

Knight Piésold CONSULTING

TABLE 5

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

SEEPAGE AND RUNOFF WATER QUALITY RESULTS

Print Mar/16/09 14:51:51

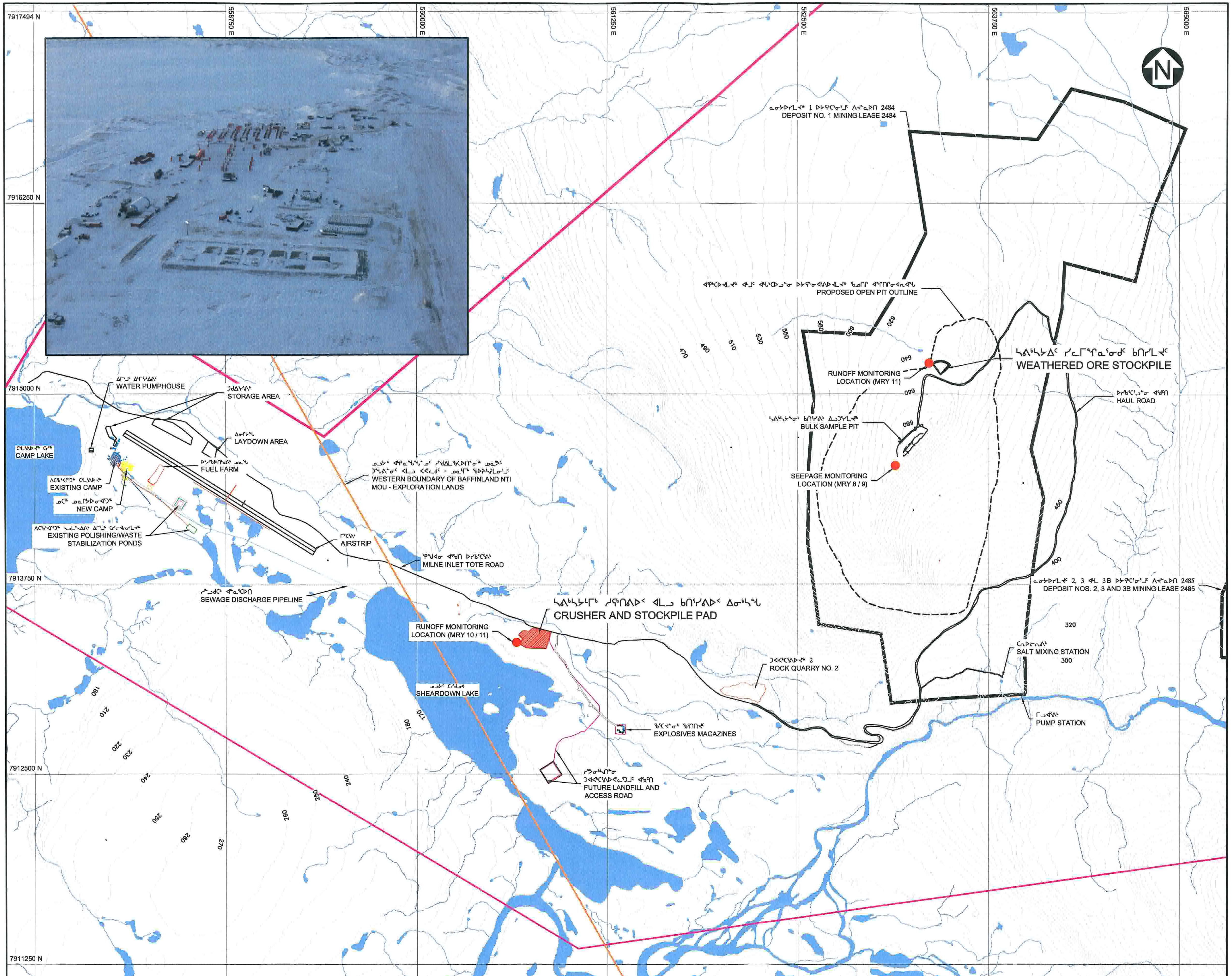
PARAMETER	UNITS	Water License/MMER Limits		MRY-9		MRY-10		MRY-11		MRY-12	
Sampling Date		Maximum Allowable Concentration		July 25, 2008		August 16, 2008		August 20, 2008		June 14, 2008	
		Average	Grab Sample	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Sample Location				*downgradient from pit, spring along side of mountain*		*weathered ore stockpile*		*crusher area, runoff from crushed ore*		*Milne Inlet, runoff from ore*	
pH		6.0 to 9.5		7.31	na	7.65	na	8.05	na	7.89	na
Total Suspended Solids		15	50[4i)] / 30[4ii)]	15	na	7	na	24	na	10	na
Oil & Grease - Total	mg/L	No visible sheen		<1	na	<1	na		na	nd	na
Arsenic	mg/L	0.5	1.0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002
Copper	mg/L	0.3	0.6	0.005	<0.001	<0.001	<0.001	0.003	0.002	0.002	0.001
Lead	mg/L	0.2	0.4	0.016	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Nickel	mg/L	0.5	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.5	1.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01

I:\102-00181-15\Assignment\Correspondence\NB09-00189\[Tables for NB09-00189.xls]Table 5 - Water License Data

NOTES:

1. MRL = METHOD REPORTING LIMIT.
2. nd = NOT DETERMINED.
3. na = NOT APPLICABLE.
4. i) Water License Limit.
   ii) MMER limit.

0	MAR12'09	ISSUED WITH MEMO NB09-00189	QUIH	SRA	KDE
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



LEGEND:

- WATER
- RIVER/STREAM/DRAINAGE
- BAFFINLAND'S COMMERCIAL LEASE ON INUIT OWNED LAND
- MINING LEASE BOUNDARY
- WESTERN BOUNDARY OF BAFFINLAND NTI MOU - EXPLORATION LANDS
- MONITORING LOCATION

NOTE(S):

1. COORDINATE GRID IS UTM (NAD83) ZONE 17 AND IS IN METRES.
2. CONTOUR INTERVAL IS 10 METRES.
3. TOPOGRAPHY PROVIDED BY EAGLE MAPPING (2005).
4. MINE SITE INFORMATION PROVIDED BY GENIVAR DECEMBER 9, 2008.
5. REFER TO PHOTO SHEETS FOR ADDITIONAL DETAIL OF CAMP AREA.

SCALE 250 125 0 250 500 750 1000 1250 m

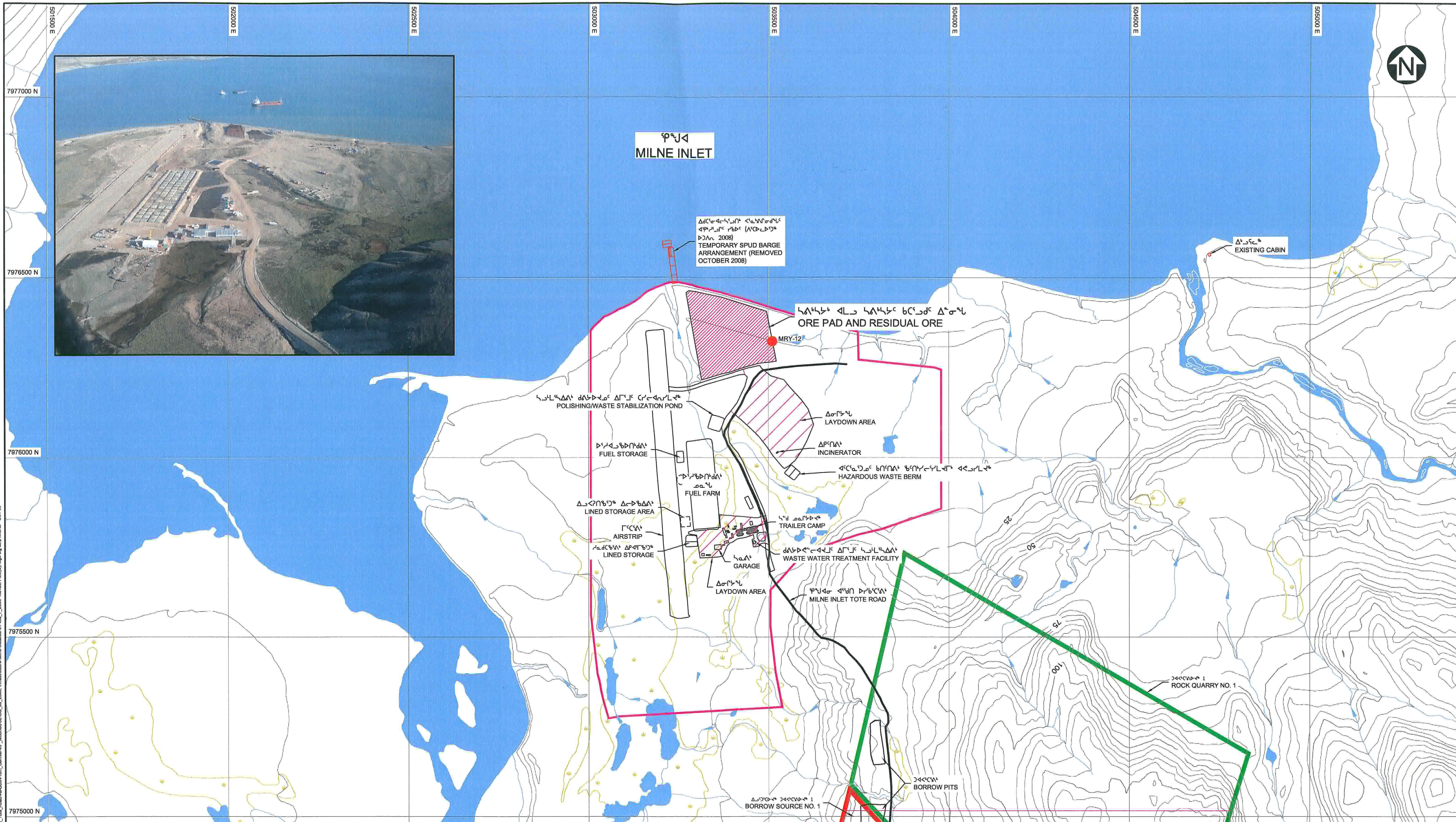
Baffinland Iron Mines Corporation

MARY RIVER PROJECT

BULK SAMPLING PROGRAM WASTE LOCATIONS (AND MONITORING LOCATIONS) AT MARY RIVER

P/A NO.	REF.	REV.
NB102-181/15	NB09-00189	0

FIGURE: 1



LEGEND:

- WATER
- WETLAND
- LAYDOWN AREA
- BAFFINLAND'S COMMERCIAL LEASE ON INUIT OWNED LAND
- RIVER/STREAM/DRAINAGE
- DIRECTION OF SURFACE WATER RUNOFF
- MILNE INLET TOTE ROAD
- ROAD
- EXISTING ROCK QUARRY (IOL COMMERCIAL LEASE)
- EXISTING BORROW AREA (IOL COMMERCIAL LEASE)
- MONITORING LOCATION

1. EAGLE MAPPING (2005)
2. UTM (NAD83) ZONE 17
3. 5 Γᑦ

NOTE(S):

1. TOPOGRAPHY PROVIDED BY EAGLE MAPPING (2005).
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. CONTOURS ARE IN METRES. CONTOUR INTERVAL IS 5 METRES.

SCALE 100 50 0 100 200 300 400 500 m

Baffinland Iron Mines Corporation

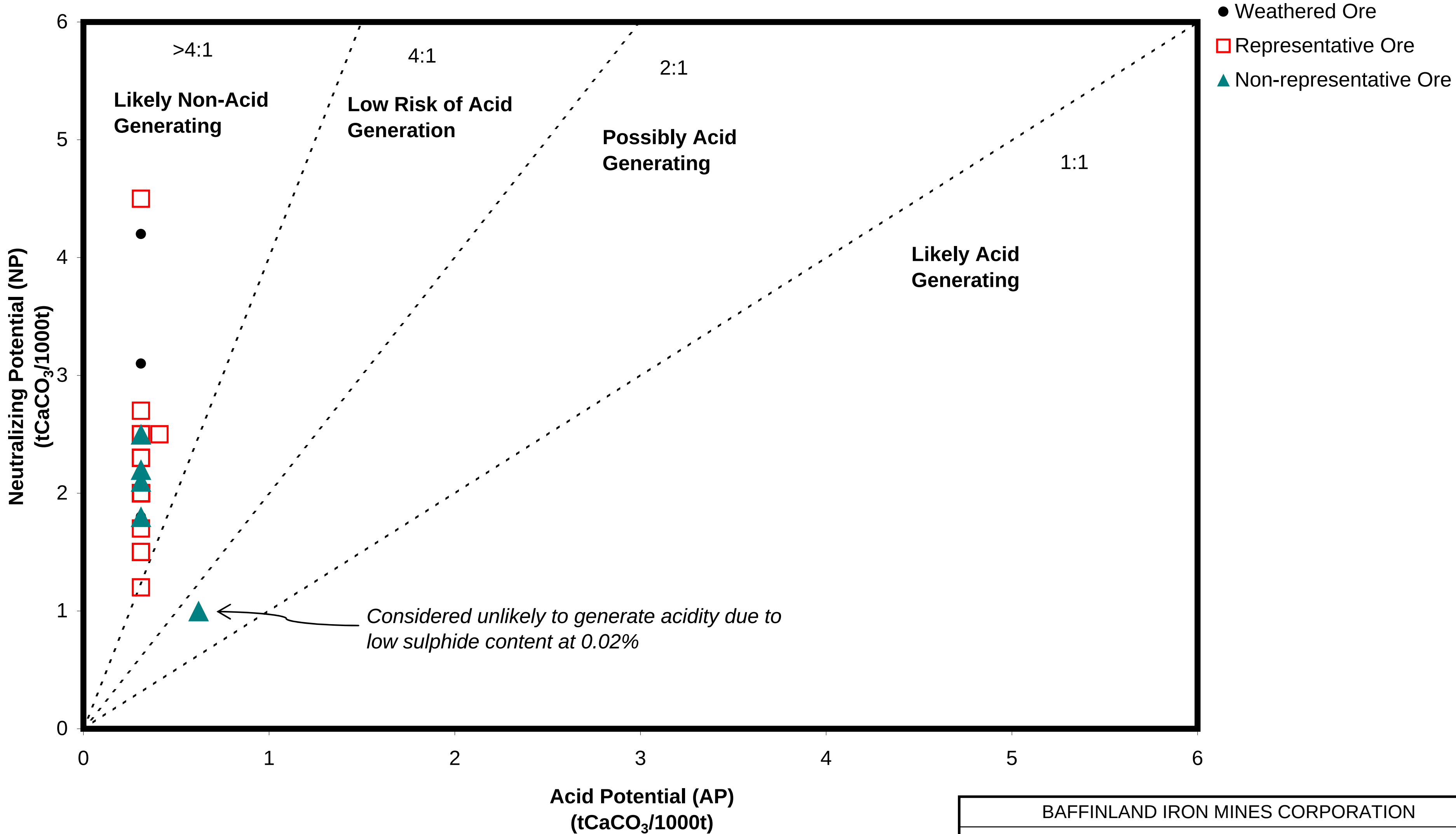
MARY RIVER PROJECT

BULK SAMPLING PROGRAM WASTE LOCATIONS (AND MONITORING LOCATIONS) AT MILNE INLET

P/A NO.	REF.	REV.
NB102-181/15	NB09-00189	0

FIGURE 2

XREF FILE(S): Contours-5m_Interval-01-Sep_18_2008; Milne_Inlet_Tote_Road-As-Built-From_Genivar-KP_Modified-02-Oct_08_2008; Infrastructure-Milne-Detailed-01-Oct_7_2008 IMAGE FILE(S): logo-big corp MILNE - OCT 08



NOTE:
1. ACID GENERATING CRITERIA TAKEN FROM DRAFT GUIDELINES AND RECOMMENDED METHODS FOR THE PREDICTION OF METAL LEACHING AND ACID ROCK DRAINAGE AT MINESITES IN BRITISH COLUMBIA, 1997.

0	MAR12'09	ISSUED WITH MEMO NB09-00189	QUIH	SRA	KDE
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

BULK SAMPLE WASTE ORE
ACID POTENTIAL (AP) vs. NEUTRALIZATION POTENTIAL (NP)

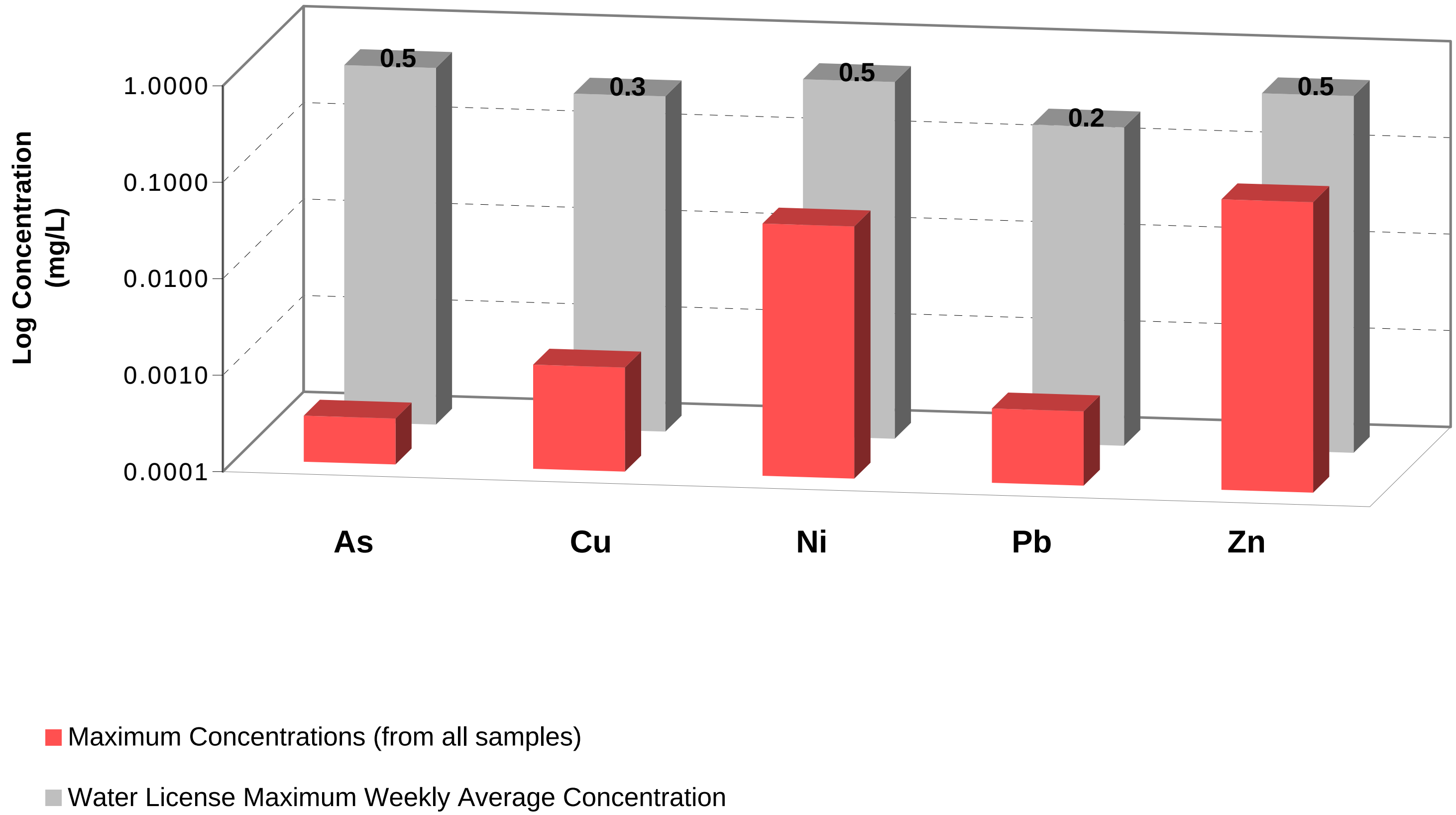
Knight Piésold CONSULTING

P/A NO. NB102-181/15

REF. NO. NB09-00189

FIGURE 3

REV 0



NOTES:
1. MMER : METAL MINING EFFLUENT REGULATIONS CONCENTRATION LIMITS FOR GRAB SAMPLES.
2. NOTE THAT MMER LIMIT FOR CYANIDE EXCLUDED SINCE ON-SITE MILLING USING CYANIDE WILL NOT BE USED.

0	MAR12'09	ISSUED WITH MEMO NB09-00189	QUIH	SRA	KDE
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

BAFFINLAND IRON MINES CORPORATION

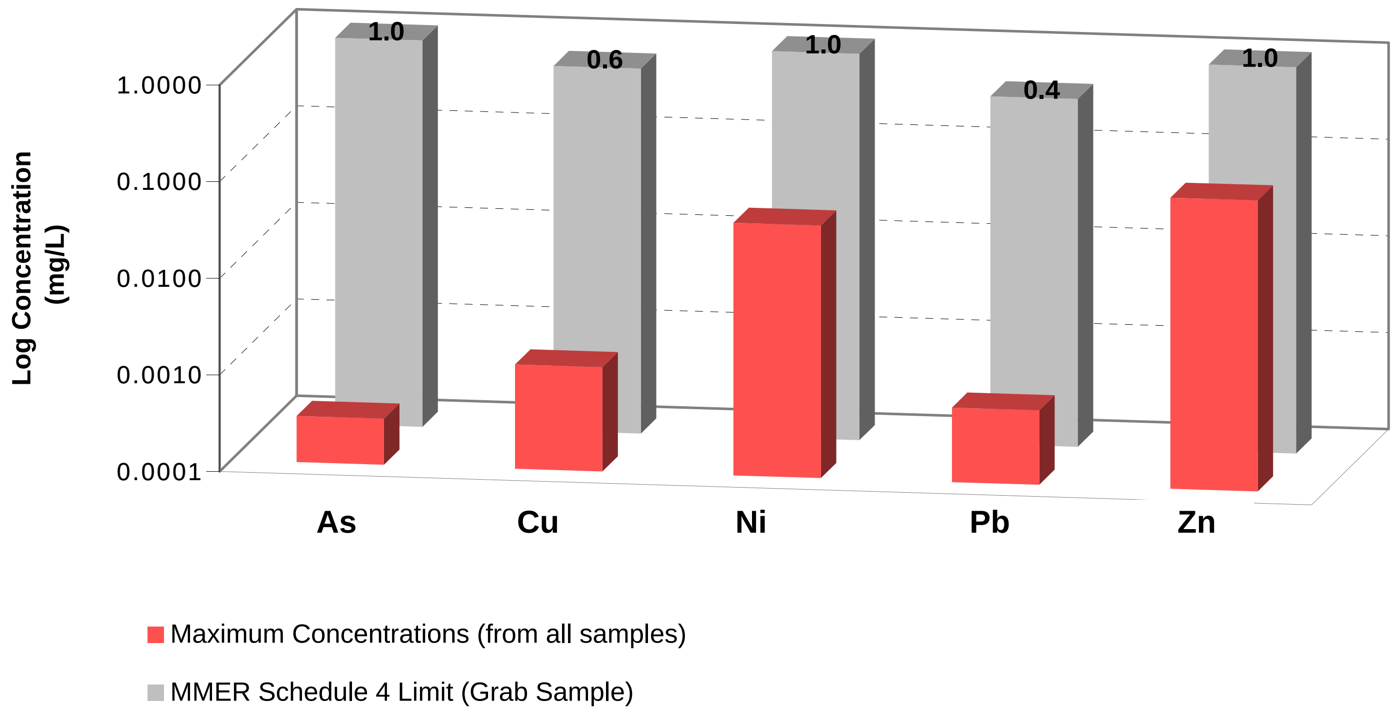
MARY RIVER PROJECT

BULK SAMPLE WASTE ORE
SHORT-TERM LEACH TEST RESULTS IN COMPARISON TO BULK SAMPLE WATER LICENSE LIMITS

Knight Piésold CONSULTING

P/A NO.	REF. NO.
NB102-181/15	NB09-00189

FIGURE 4 REV 0



NOTES:
1. MMER : METAL MINING EFFLUENT REGULATIONS CONCENTRATION LIMITS FOR GRAB SAMPLES.
2. NOTE THAT MMER LIMIT FOR CYANIDE EXCLUDED SINCE ON-SITE MILLING USING CYANIDE WILL NOT BE USED.

0	MAR12'09	ISSUED WITH MEMO NB09-00189	QUIH	SRA	KDE
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

BULK SAMPLE WASTE ORE SHORT-TERM LEACH TEST RESULTS IN COMPARISON TO MMER LIMITS

Knight Piésold CONSULTING

P/A NO. NB102-181/15

REF. NO. NB09-00189

FIGURE 5

REV 0