JANUARY 1993 DATA COLLECTION PROGRAM

Niagara Cold Drawn Corporation
Buffalo, New York

MAY 1993

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CONESTOGA-ROVERS & ASSOCIATES

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1.0 INTRODUCTION

In January 1993, Conestoga-Rovers & Associates ("CRA") implemented a Data Collection Program ("the January 1993 Data Collection Program") at the Niagara Cold Drawn Corporation facility ("Site") located in Buffalo, New York. Data obtained during this investigation will be used to supplement data previously collected to provide:

i) an assessment of soil quality around the Site;

ii) information regarding the presence and extent of residual polychlorinated biphenyls ("PCBs") reported previously along the northern perimeter of the Site;

iii) information regarding the presence of lead reported previously on the adjacent property; and,

iv) an assessment and characterization of oil-stained soil located in the northeast quadrant of the Site.

The location of the Site is illustrated on Figure 1.1. The layout of the Site is illustrated on Figure 1.2.

A description of the sampling performed, the data obtained during this and previous sampling programs performed at the Site, as well as recommendations for subsequent action are provided in the sections which follow.

2.0 HISTORIC SAMPLING RESULTS

The results of previous sampling activities conducted at the Site are contained in the following reports:

December 1984	Site Inspection Hazardous Ranking System Model, Ramco Steel, Buffalo, New York prepared by NUS Corporation for the United States Environmental Protection Agency;
July 1989	Phase I Investigation, Ramco Steel, Buffalo, New York prepared by Recra Environmental, Inc. for the New York State Department of Environmental Conservation;
December 1990	Draft of Phase I Real Estate Environmental Report, Niagara Cold Drawn Corp., Buffalo, New York prepared by Earth Investigations, Ltd. for Niagara Cold Drawn Corporation; EIL
March 1991	Supplemental Data Report, Former Ramco Steel Site prepared by Conestoga-Rovers & Associates for Niagara Cold Drawn Corporation;
March 1991	Soil test sampling results taken by the New York State Department of Environmental Conservation at the Niagara Cold Drawn facility; and,
June 1992	Radiological Survey of the Former Bliss-Laughlin Steel facility, Buffalo, New York prepared by J.D. Berger for the Department of Energy Office of Environmental Restoration.

The pertinent results from these reports are summarized as follows:

The 1984 testing conducted by NUS Corporation on behalf of the USEPA did not indicate hazardous waste at the Site, with the exception of one soil sample which showed the presence of cadmium (2.5, 13.2 ppm), chromium (304 ppm), vanadium (144 ppm), zinc (2,100, 24,400 ppm), PCBs (PCB 1254 at 62 ppm and PCB 1260 at 123 ppm), phenanathrene (1.4, 4.1 ppm), benzo (a) fluoranthene (2.8, 5.4 ppm) and chrysene (0.5, 1.6 ppm). An oil-stained area was also observed at the Site. These results are discussed in Recra's 1989 report prepared for the NYSDEC and, with the exception of the PCBs detected, are consistent with area background.

In December 1990 draft Phase I investigation Report prepared by EIL does not indicate elevated levels of hazardous waste at the Site.

In CRA's March 1991 Supplemental Data Collection Report, field investigations were conducted to confirm and determine the extent of residual PCB contamination previously detected in 1984 by NUS for the USEPA. Three soil samples were collected (SO-07, SO-08, SO-09) along the northern perimeter of the Site and one composite soil sample in the oil-stained area (sample number SO-10) located northeast of the Plant. PCBs were not detected in any of the areas where PCBs were previously found. Although the detection limits at SO-07, SO-09, SO-10 were 200 ppb or less, the achievable detection limit for sample SO-08 was 200 ppm.

Soil sampling conducted by the NYSDEC in March 1991 failed to detect elevated levels of any hazardous waste, although slightly elevated levels of lead (151 ppm) and leachable lead (4.13 ppm) were noted in one discrete soil sample.

Finally, a radiological survey conducted at the Plant facility by J.D. Berger on behalf of the USDOE in March of 1992 showed residual uranium activity on the floor of the special finishing area within the Plant which exceeds the DOE surface contamination guideline. J.D. Berger determined that this contamination appeared to be fixed and that this contamination could be removed consistent with DOE guideline levels. In a March 27, 1992 letter to Niagara Cold Drawn, Dr. W. Alexander Williams of the DOE noted that the area of elevated radioactivity "is very limited and ... there is no danger to health and safety of workers under current facility operating conditions."[1]

The January 1993 Data Collection Program, discussed in this report, is intended to assess those areas of the Site which have been previously identified as areas of possible concern and to make a recommendation on the basis of these results about whether further investigatory or remedial activities are appropriate at the Site prior to delisting by the NYSDEC.

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[1] In October of 1992, the Plant facility was included in DOE's Formerly Utilized Sites Remedial Action Program. According to DOE officials, the full cost of the investigation and remediation of the Plant, if any, will be borne by the DOE. At the present time, it is anticipated that the DOE will put together a schedule to further characterize the conditions at the Plant and, beginning in 1994 or 1995, will conduct a remedial program which is expected to take between 8 and 10 weeks to complete. Given the above, CRA believes that no further work is warranted by Niagara Cold Drawn with respect to the radiological conditions at the Site.

3.0 SAMPLE COLLECTION

3.1 GENERAL

The January 1993 Data Collection Program consisted of the collection of surface and subsurface soil samples as follows:

i) three composite surface soil samples were collected from the perimeter of the Site and analyzed for the USEPA Target Analyte List ("TAL") metals; one off-Site background sample was also collected and analyzed for these same parameters;

ii) five composite surface soil samples were collected adjacent to the northern fence line at the Site, in an area where PCBs were previously reported, and analyzed for PCBs; and,

iii) thirteen discrete surface and subsurface soil samples were collected from five locations within an identified area of oil-stained soil and the collected samples were inspected for visual and olfactory evidence of petroleum contamination. The samples were then analyzed for Total Petroleum Hydrocarbons ("TPHs") and those which presented visual or olfactory evidence of petroleum contamination were also subjected to the Toxicity Characteristic Leaching Procedure ("TCLP") with the resultant extract analyzed for Target Compound List ("TCL") volatile organic compounds ("VOCs") and base neutral/acid extractable compounds ("BNAs").

Composite surface soil samples (described in 3.1(i) and 3.1(ii) above) were collected by CRA on January 19, 1993 while discrete surface and subsurface soil samples (described in Section 3.1(iii) above) were collected by CRA on January 21, 1993. These samples were collected from the Site using the methodologies described in Section 3.2 below. Table 3.1 summarizes the samples collected. Approximate locations of the samples collected are shown on Figure 2.1.

3.2 SOIL SAMPLING PROTOCOLS

A total of three on-Site composite surface soil samples, plus one off-Site composite sample were collected and analyzed for TAL metals. A total of five composite surface soil samples were collected and analyzed for PCBs at the Site. Each PCB composite sample was collected within an area of 10 feet by 5 feet approximately 0.5 feet away from the northern fence. A total of thirteen discrete soil samples (five surface, seven subsurface, and one duplicate sample) were collected for TCLP extraction and analyses of TCL VOCs and BNAs, as required. Locations for the various composite and discrete soil samples are indicated on Figure 2.1.

Composite surface soil samples were collected using the following protocols:

i) personnel wore a new pair of disposable latex gloves to collect and prepare each sample submitted for chemical analyses;

ii) a) dedicated surface soil sampling equipment for collection of soil samples for TAL metal analyses was precleaned prior to use by the following decontamination sequence: detergent wash, rinse with 10 percent nitric acid, rinse with distilled water, air dry, and wrap in aluminum foil;

b) dedicated surface soil sampling equipment for collection of samples for PCB analyses was precleaned prior to use by the following decontamination sequence: detergent wash, rinse with isopropanol, rinse with hexane, rinse with isopropanol, rinse with distilled water, air dry, and wrap in aluminum foil;

iii) a) composite surface soil samples for the analyses of TAL metals and PCBs were collected from the upper 6 inches of soil using a precleaned chisel and a hammer to break the soil loose;

b) loose soil was then collected by using a precleaned stainless steel spoon and placed into a precleaned stainless steel bowl;

c) sample material was homogenized in the bowl once all sample aliquot locations had been sampled;

d) homogenized sample material was transferred to a precleaned sample jar provided by the analytical laboratory; and

e) samples were logged, labeled and placed on ice in a cooler (samples were picked up by the analytical laboratory under approved chain of custody procedures).

Discrete surface and subsurface samples were collected using the following protocols:

i) personnel wore a new pair of disposable latex gloves to collect and prepare each sample submitted for chemical analyses;

ii) all drilling equipment (e.g., augers), sampling apparatus (e.g., split spoon samplers), and field sampling tools were decontaminated prior to use, between boreholes and prior to removal from the Site by the following decontamination sequence: steam clean, detergent wash, rinse with distilled water, air dry and wrap in aluminum foil.

iii) a) discrete surface and subsurface soil samples for the analyses of TPHs were collected using a split spoon sampler (two feet in length) in advance of hollow-stem augering;

b) upon retrieval of the split spoon sampler, the sampler was laid on a surface which was covered with new aluminum foil and was carefully opened to avoid sample disturbance;

c) using a precleaned stainless steel knife, a thin section was removed from the top and bottom of the sample and discarded;

d) the remainder of the core was then cut longitudinally with a clean cutting tool and a soil sample taken from the center of the core using a precleaned stainless steel spatula;

e) samples were placed directly into precleaned sample jars provided by the analytical laboratory; and,

f) samples were logged, labeled and placed on ice in a cooler (samples were picked up by the analytical laboratory under approved chain of custody procedures).

Discrete surface and subsurface soil samples were collected from five boreholes located around and within the limits of the oil-stained area to characterize the extent and magnitude of residual petroleum contamination following the procedure summarized below: Discrete surface soil samples were typically collected from the uppermost split spoon sample (0 to 2 feet BGS) except at BH-1, where one foot of asphalt was penetrated prior to sampling the 1 to 3-foot interval. Four boreholes (BH-1 to BH-4) were advanced from ground surface to a depth of 5 to 6 feet below ground surface ("BGS"), while a fifth borehole (BH-5) was advanced to 12 feet BGS in order to identify local geologic stratigraphy. In conjunction with the borehole advancement, discrete subsurface soil samples were collected from the next two-foot interval below any subsurface soil sample which evidenced visual or olfactory-identified residual oil contamination. If insufficient or inadequate soils were present in the first subsurface soil sample, the split spoon sampler was reinserted and a sample collected from the next two-foot interval. Table 3.1 summarizes the samples collected.

All discrete surface and subsurface soil samples collected from the boreholes installed in the oil-stained area were submitted for analyses for TPHs as noted on Table 3.1. One exception occurred for sample BH3-2-4' where the TPH sample was erroneously omitted; however, samples for TPH analyses were submitted for the intervals above and below this sample. As a result of visual or olfactory evidence of residual oil contamination during TPH sampling, surface soil samples BH2-0-2' and BH5-0-2' and subsurface soil sample BH3-2-4' were also subjected to the TCLP extraction procedure and the resultant extract analyzed for TCL VOCs and BNAs.

4.0 SAMPLE ANALYSES

All collected samples were submitted to Huntingdon Analytical Services ("HAS"), a division of Empire Soils Investigations, Inc. of Middleport, New York, for analyses.

Composite surface soil samples collected from the perimeter of the Site, as shown on Figure 2.1 (SS-A through SS-C), were analyzed for TAL metals. Composite surface soil samples collected adjacent to the northern fenceline at the Site, as shown on Figure 2.1 (SS-1 through SS-5), were analyzed for PCBs. Discrete surface and subsurface soil samples were collected northeast of the Site in the vicinity of the oil-stained area, as shown on Figure 2.1 (BH-1 through BH-5), were analyzed for TPHs. In addition, surface soil samples within BH-2 and BH-5 and the subsurface soil sample within BH-3 were observed to exhibit evidence of residual oil contamination and therefore these samples were also subjected to TCLP with the resultant extract analyzed for TCL VOCs and BNAs.

Analytical data, as received from the laboratory, are included in Appendix A, and these analytical results are summarized on Table 4.1. Validation of the analytical data was performed and is presented in Appendix B. Based on the assessment and validation, the data produced by the laboratory are acceptable with the specific qualifications noted in Appendix B. The analytical methods utilized by the laboratory are also identified in Appendix B.

5.0 DATA EVALUATION

Pursuant to the Work Plan, analyses of the collected soil samples were performed for either 1) TAL metals, 2) PCBs or 3) TPHs (with TCLP extract analyses for TCL VOCs and BNAs, where evidence of petroleum contamination was observed). The following subsections discuss the analytical results for these three sample groupings.

5.1 TAL METALS RESULTS

TAL metal concentrations in the on-Site composite soil samples collected during implementation of this program are generally consistent with the concentrations reported in the background soil sample (SS-OS) collected from the off-Site area. On-Site and off-Site sample data were also compared to typical published background metal concentrations as well as more specific local background data. The analytical data, as summarized on Table 4.1, indicate metal concentrations reported at the Site to be consistent with the local background conditions and reflect the industrial nature of the area. The sources of the typical background and industrial area metals data are as listed below:

- Typical and industrial area ranges as reported in "Trace Elements in Soils and Plants", CRC Press, Inc., 1985.
- Typical soil mean values as reported in the "Handbook on the Toxicity of Metals", Second Edition, Volume II.

- Local background data as reported in "Preliminary Evaluation of Chemical Migration to Groundwater and the Niagara River from Selected Waste Disposal Sites", EPA-905/4-85-001, March 1985.

Because lead was detected by the NYSDEC in one sample in March 1991, a specific review of the lead analyses was conducted. Lead was detected in the on-Site surface soil sample, SS-A, at a concentration of 215 ppm; however, lead was not detected in the other two on-Site surface soil samples, SS-B and SS-C. Lead was also detected in the off-Site surface soil sample, SS-OS, at a concentration of 148 ppm. Because sampling of undisturbed soils in different locations around the Buffalo area (Forest Lawn Cemetery, Martin Luther King Park and Holy Cross Cemetery) evidence lead at 20 to 290 ppm in these areas, and at 500 ppm to 6,500 ppm in industrial areas, the lead concentration detected on-Site at SS-A is typical of local background concentrations.

5.2 PCB RESULTS

PCBs were not detected on-Site except at a trace concentration for Aroclor 1254 (0.23 µg/g; or 0.03 µg/g above the detection limit) in one surface soil sample (SS-02) collected adjacent to the northern boundary of the site. No PCBs were detected in the previous surface soil sampling program conducted by CRA in 1991 in this area. The results of these two sampling events suggest that the previous reported concentrations of PCBs detected in one sample collected by NUS in 1984 were either an error or were confined to a very limited area. No further sampling or action is warranted in this area.

5.3 OIL-STAINED AREA

TPHs were present in four of the ten samples submitted for TPH analyses (BH-1-1-3', BH-2-0-2', BH-3-0-2' and BH-4-0-2') with the highest concentration being 1,972 mg/kg at BH-3-0-2'. The four samples where TPHs were present were all in the uppermost sample (surface soil) collected at that particular borehole. The underlying sample collected at each of these locations did not contain TPHs above the detection limit of 100 mg/kg. TPHs were not detected at BH5 in either of the surface or subsurface samples. These results confirm that the TPHs are limited to the surface soil layer only in this area.

Three samples from the five borehole locations were submitted for TCLP extraction and subsequent analyses on the basis of olfactory or visual evidence of petroleum contamination: BH-2-0-2', BH-3-2-4' and BH-5-0-2'. Only one of these samples was previously found to contain TPHs (BH-2-0-2', 708 mg/kg). The analytical results from each of the three TCLP samples met the standards of the New York State Department of Environmental Conservation ("NYSDEC") for petroleum-contaminated soils based on the results of the TCLP extraction and subsequent analyses. See NYSDEC Petroleum-Contaminated Soil Guidance Policy, August 1992. According to this guidance document, benzene is the primary compound of concern with respect to petroleum-contaminated soil. If the benzene concentration in a TCLP extract is equal to or greater than 500 ppb, the material is considered a characteristic hazardous waste. Benzene was not detected in any of the three samples analyzed for TCLP VOCs. Although methylene chloride and acetone were detected in all three TCLP extract samples, the detected levels of each are attributable to laboratory contamination as explained in Appendix B - Analytical Data Assessment and Validation. No other chemical compound was detected in the TCLP extraction from any of the three samples analyzed. As such, no action is warranted to address the residual oil on-Site.

6.0 SUMMARY

The January 1993 Data Collection Program at the Niagara Cold Drawn Site has confirmed that there is a very limited chemical presence at the Site. The samples analyzed for metals (including lead) revealed analytical results that were typical of local background conditions and reflect the industrial nature of the area. Although PCBs were detected in a single sample at concentrations between 62 and 123 ppm by NUS in 1984, CRA's January 1993 Data Collection Program and its previous March 1991 Data Collection Program were unable to confirm this finding. This suggests that NUS' earlier results were either in error or were confined to a very limited area. The oil-stained area on-Site does contain low concentrations of TPHs (up to 1,972 mg/kg) but no TCLP extract parameters were detected in any sample collected of petroleum-contaminated soils identified by visual or olfactory means.

Based on the above, no additional assessment or action is required at the Site prior to delisting.

FIGURES

FIGURES

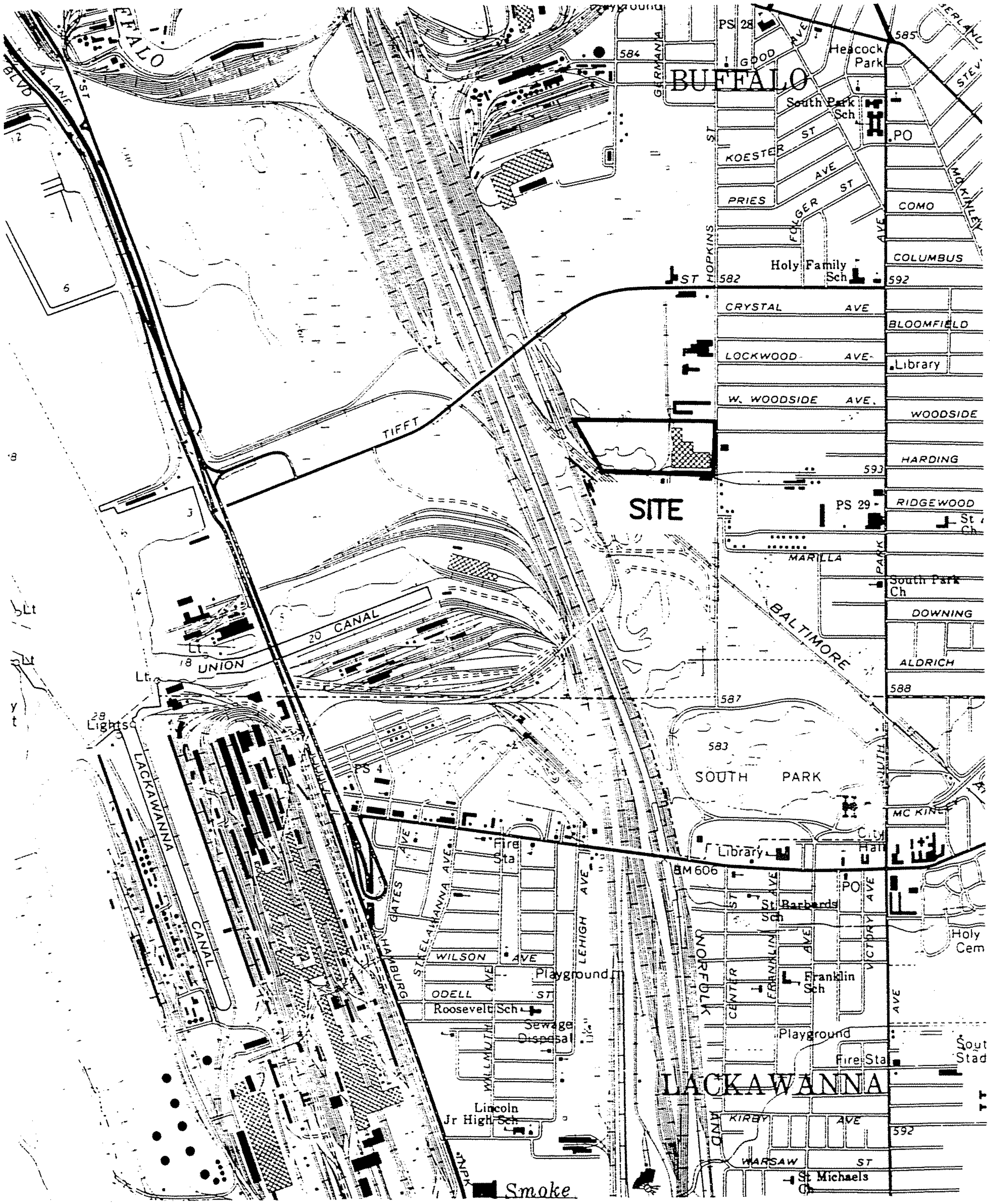

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figure 1.1

SITE LOCATION MAP
NIAGARA COLD DRAWN STEL
Buffalo, New York

CRA

3829(L)-05MAR/93-REV.0 (NF)

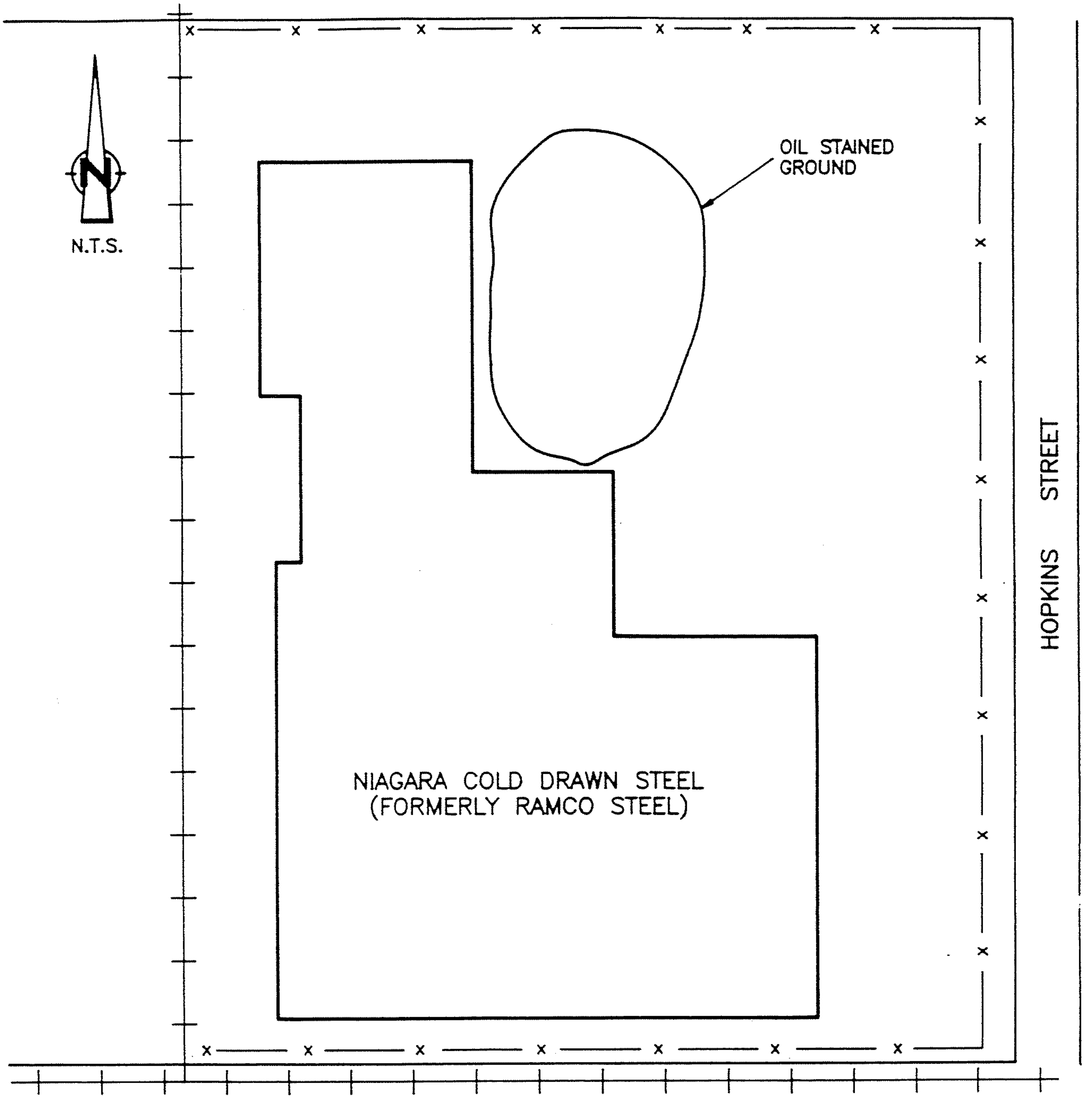
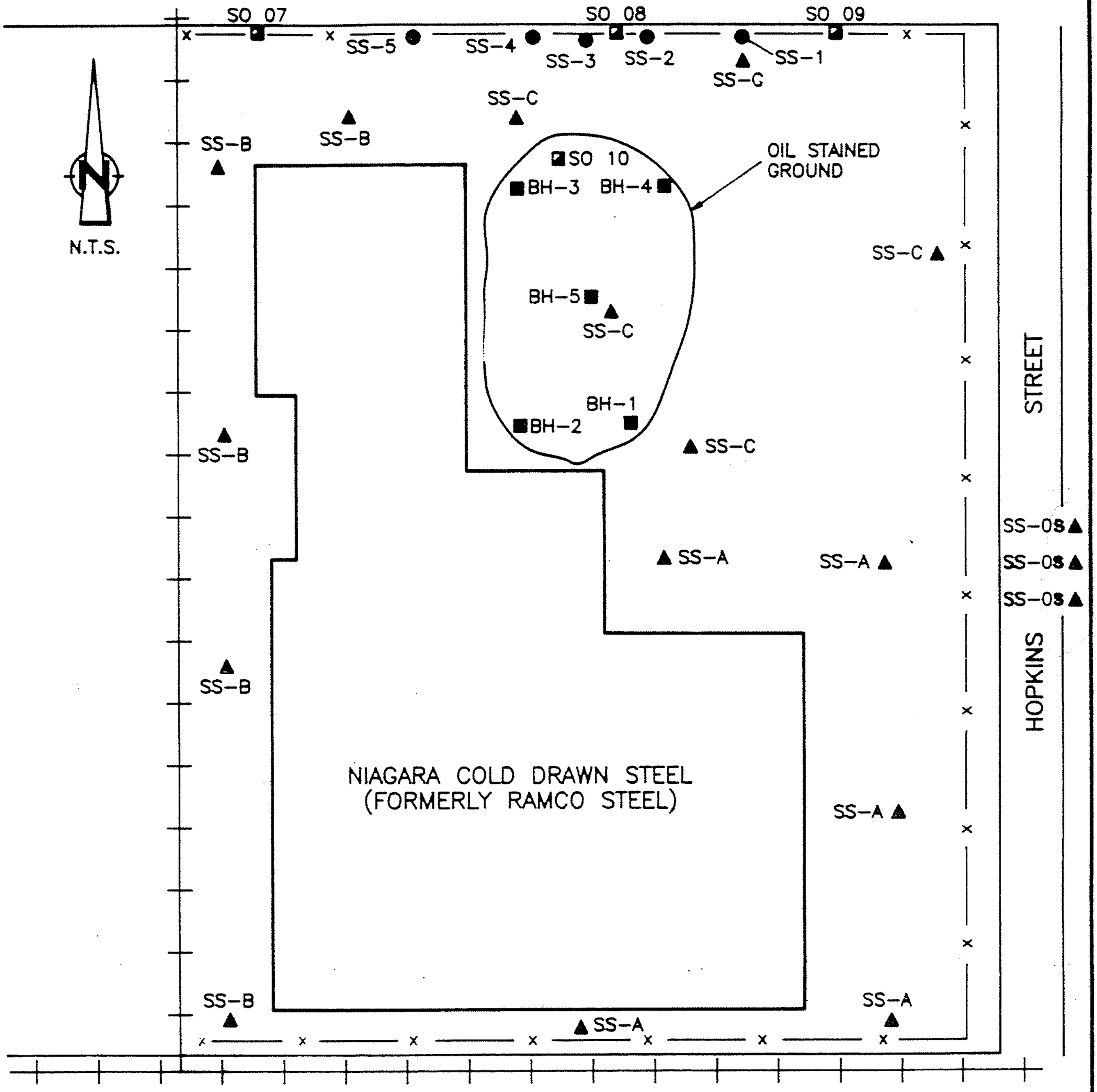


figure 1.2

SITE MAP
NIAGARA COLD DRAWN STEL
Buffalo, New York

CRA

3829(L)—05MAR/93—REV.0 (NF) (P—02)



LEGEND

● COMPOSITE surface SOIL SAMPLE LOCATION FOR PCB ANALYSIS

▲ COMPOSITE SURFACE SOIL SAMPLE LOCATION FOR TAL METAL ANALYSIS

■ SUBSURFACE BOREHOLE SAMPLE LOCATION FOR TPH/TCLP ANALYSIS

◪ COMPOSITE SOIL SAMPLE COLLECTED IN 199: ANALYZED FOR PCB

NOTE:

COMPOSITE SAMPLES FOR PCB ANALYSIS WERE COLECTED WITHIN AN AREA OF 10'x5' APPROXIMATELY 0.5' FROM THE FENCE.

figure 2.1

SAMPLE LOCATIONS
NIAGARA COLD DRAWN STEEL
Buffalo, New York

CRA

3829(L)-05MAR/93-REV.0 (NF) (P-03)

TABLES

TABLES

TABLE 2.1

ANALYTICAL DATA SUMMARY
1991 SUPPLEMENTAL DATA COLLECTION PROGRAM
NIAGARA COLD DRAWN CORPORATION
BUFFALO, NEW YORK

		Soil			
PCBs	*Units*	*SO-07*	*SO-08*	*SO-09*	*SO-010*
PCB 1016	μg/kg	ND(200)	ND(200,000)	ND(100)	ND(200)
PCB 1221	μg/kg	ND(200)	ND(200,000)	ND(100)	ND(200)
PCB 1232	μg/kg	ND(200)	ND(200,000)	ND(100)	ND(200)
PCB 1242	μg/kg	ND(200)	ND(200,000)	ND(100)	ND(200)
PCB 1248	μg/kg	ND(200)	ND(200,000)	ND(100)	ND(200)
PCB 1254	μg/kg	ND(200)	ND(200,000)	ND(100)	ND(200)
PCB 1260	μg/kg	ND(200)	ND(200,000)	ND(100)	ND(200)

Notes:

ND(200) Not detected at method detection level.

TABLE 3.1

SAMPLE KEY
JANUARY 1993 DATA COLLECTION PROGRAM
NIAGARA COLD DRAWN CORPORATION
BUFFALO, NEW YORK

Sample Identification	*Date Collected*	*Type*	*Matrix*	*Volume*	*Parameters*
SS-A	01/19/93	Comp.	Soil	1 x 500 ml	TAL Metals
SS-B	01/19/93	Comp.	Soil	1 x 500 ml	TAL Metals
SS-C	01/19/93	Comp.	Soil	1 x 500 ml	TAL Metals
SS-D	01/19/93	Comp.	Soil	1 x 500 ml	TAL Metals, Duplicate of SS-B
SS-0S	01/19/93	Comp.	Soil	1 x 500 ml	TAL Metals Off-site
SS-1	01/19/93	Comp.	Soil	1 x 500 ml	PCBs
SS-2	01/19/93	Comp.	Soil	1 x 500 ml	PCBs
SS-3	01/19/93	Comp.	Soil	1 x 500 ml	PCBs
SS-4	01/19/93	Comp.	Soil	1 x 500 ml	PCBs
SS-5	01/19/93	Comp.	Soil	1 x 500 ml	PCBs
SS-6	01/19/93	Comp.	Soil	1 x 500 ml	PCBs, Duplicate of SS-1
BH-1-1-3'	01/21/93	Discrete	Soil	1 x 250 ml	TPH
BH-1-3-5'	01/21/93	Discrete	Soil	1 x 250 ml	TPH
BH-2-0-2'	01/21/93	Discrete	Soil	1 x 250 ml, 1 x 125 ml 2 x 500 ml	TPH, TCLP VOCs, BNAs
BH-2-4-6'	01/21/93	Discrete	Soil	1 x 250 ml	TPH
BH-3-0-2'	01/21/93	Discrete	Soil	1 x 250 ml	TPH
BH-3-2-4'	01/21/93	Discrete	Soil	1 x 125 ml, 2 x 500 ml	TCLP, VOCs, BNAs
BH-3-4-6'	01/21/93	Discrete	Soil	1 x 250 ml	TPH
BH-4-0-2'	01/21/93	Discrete	Soil	1 x 250 ml	TPH
BH-4-4-6'	01/21/93	Discrete	Soil	2 x 250 ml	TPH, MS/MSD
BH-5-0-2'	01/21/93	Discrete	Soil	1 x 250 ml, 1 x 125 ml 2 x 500 ml	TPH, TCLP, VOCs, BNAs
BH-5-2-4'	01/21/93	Discrete	Soil	1 x 250 ml	TPH
BH-6-2-4'	01/21/93	Discrete	Soil	1 x 250 ml	TPH, Duplicate of BH-5-2-4'
RB-01	01/21/93	Discrete	Water	1 x 1 liter	TPH

Notes:

TAL	USEPA Target Analyte List
PCBs	Polychlorinated Biphenyls
TPH	Total Petroleum Hydrocarbons
TCLP	Toxicity Characteristic Leaching Procedure
VOCs	Volatile Organic Compounds
BNAs	Base/Neutral Acid Compounds

TABLE 4.1

SOIL SAMPLE DATA
JANUARY 1993 DATA COLLECTION PROGRAM
NIAGARA COLD DRAWN CORPORATION
BUFFALO, NEW YORK

Borehole Numbers:	*BH-2-0-2'*	*BH-3-2-4'*	*BH-5-0-2'*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*
TCLP VOLATILE ORGANIC COMPOUNDS			
Chloromethane	ND(10)	ND(10)	ND(10)
Bromomethane	ND(10)	ND(10)	ND(10)
Vinyl Chloride	ND(10)	ND(10)	ND(10)
Chloroethene	ND(10)	ND(10)	ND(10)
Methylene Chloride	ND(10)	11	ND(10)
Acetone	150	55	13000
Carbon Disulfide	ND(10)	ND(10)	ND(10)
1,1-Dichloroethene	ND(10)	ND(10)	ND(10)
1,1-Dichloroethane	ND(10)	ND(10)	ND(10)
1,2-Dichloroethene (Total)	ND(10)	ND(10)	ND(10)
Chloroform	ND(10)	ND(10)	ND(10)
1,2-Dichloroethane	ND(10)	ND(10)	ND(10)
2-Butanone	ND(10)	ND(10)	ND(10)
1,1,1-Trichloroethane	ND(10)	ND(10)	ND(10)
Carbon Tetrachloride	ND(10)	ND(10)	ND(10)
Bromodichloromethane	ND(10)	ND(10)	ND(10)
1,2-Dichloropropane	ND(10)	ND(10)	ND(10)
cis-1,3-Dichloropropene	ND(10)	ND(10)	ND(10)
Trichloroethane	ND(10)	ND(10)	ND(10)
Dibromochloromethane	ND(10)	ND(10)	ND(10)
1,1,2-Trichloroethane	ND(10)	ND(10)	ND(10)
Benzene	ND(10)	ND(10)	ND(10)
trans-1,3-Dichloropropene	ND(10)	ND(10)	ND(10)
Bromoform	ND(10)	ND(10)	ND(10)
4-Methyl-2-Pentanone	ND(10)	ND(10)	ND(10)
2-Hexanone	ND(10)	ND(10)	ND(10)
Tetrachloroethene	ND(10)	ND(10)	ND(10)
1,1,2,2-Tetrachloroethane	ND(10)	ND(10)	ND(10)
Toluene	ND(10)	ND(10)	ND(10)

TABLE 4.1

SOIL SAMPLE DATA
JANUARY 1993 DATA COLLECTION PROGRAM
NIAGARA COLD DRAWN CORPORATION
BUFFALO, NEW YORK

Borehole Numbers: *Units:*	*BH-2-0-2'* *(μg/L)*	*BH-3-2-4'* *(μg/L)*	*BH-5-0-2'* *(μg/L)*
TCLP SEMI-VOLATILE ORGANIC COMPOUNDS			
Chlorobenzene	ND(10)	ND(10)	ND(10)
Ethylbenzene	ND(10)	ND(10)	ND(10)
Styrene	ND(10)	ND(10)	ND(10)
Xylene (Total)	ND(10)	ND(10)	ND(10)
Acenaphthene	ND(10)	ND(10)	ND(10)
Acenaphthylene	ND(10)	ND(10)	ND(10)
Anthracene	ND(10)	ND(10)	ND(10)
Benzo(a)anthracene	ND(10)	ND(10)	ND(10)
Benzo(b)fluoranthene	ND(10)	ND(10)	ND(10)
Benzo(k)fluoranthene	ND(10)	ND(10)	ND(10)
Benzo(a)pyrene	ND(10)	ND(10)	ND(10)
Benzo(g,h,i)perylene	ND(10)	ND(10)	ND(10)
Benzyl Alcohol	ND(10)	ND(10)	ND(10)
Bis(2Chloroethoxy)rnethane	ND(10)	ND(10)	ND(10)
Bis(2-Chloroethyl)ether	ND(10)	ND(10)	ND(10)
Bis(2-Chloroisopropyl)ether	ND(10)	ND(10)	ND(10)
Bis(2-Ethylhexyl)phthalate	ND(10)	ND(10)	ND(10)
Butylbenzyl Phthalate	ND(10)	ND(10)	ND(10)
4-Bromophenyl-Phenyl Ether	ND(10)	ND(10)	ND(10)
4-Chloroaniline	ND(10)	ND(10)	ND(10)
2-Chloroanaphthalene	ND(10)	ND(10)	ND(10)
4-Chlorophenyl-Phenyl Ether	ND(10)	ND(10)	ND(10)
Chrysene	ND(10)	ND(10)	ND(10)
Dibenzo(a,h)anthracene	ND(10)	ND(10)	ND(10)
Dibenzofuran	ND(10)	ND(10)	ND(10)
Di-n-butylphthalate	ND(10)	ND(10)	ND(10)
1,2-Dichlorobenzene	ND(10)	ND(10)	ND(10)
1,3-Dichlorobenzene	ND(10)	ND(10)	ND(10)
1,4-Dichlorobenzene	ND(10)	ND(10)	ND(10)
3,3-Dichlorobenzidine	ND(20)	ND(20)	ND(20)

TABLE 4.1

SOIL SAMPLE DATA
JANUARY 1993 DATA COLLECTION PROGRAM
NIAGARA COLD DRAWN CORPORATION
BUFFALO, NEW YORK

Borehole Numbers: *Units:*	*BH-2-0-2'* *(μg/L)*	*BH-3-2-4'* *(μg/L)*	*BH-5-0-2'* *(μg/L)*
TCLP SEMI-VOLATILE ORGANIC COMPOUNDS			
Diethyl Phthalate	ND(10)	ND(10)	ND(10)
Dimethyl Phthalate	ND(10)	ND(10)	ND(10)
2,4-Dinitrotoluene	ND(10)	ND(10)	ND(10)
2,6-Dinitrotoluene	ND(10)	ND(10)	ND(10)
Di-n -octyl Phthalate	ND(10)	ND(10)	ND(10)
Fluoranthene	ND(10)	ND(10)	ND(10)
Fluorene	ND(10)	ND(10)	ND(10)
Hexachlorobenzene	ND(10)	ND(10)	ND(10)
Hexachlorobutadiene	ND(10)	ND(10)	ND(10)
Hexachlorocyclopentadiene	ND(10)	ND(10)	ND(10)
Hexachloroethane	ND(10)	ND(10)	ND(10)
Indeno(1,2,3-cd)pyrene	ND(10)	ND(10)	ND(10)
Isophorone	ND(10)	ND(10)	ND(10)
2-Methyl Naphthalene	ND(10)	ND(10)	ND(10)
Naphthalene	ND(10)	ND(10)	ND(10)
2-Nitroaniline	ND(50)	ND(50)	ND(50)
3-Nitroaniline	ND(50)	ND(50)	ND(50)
4-Nitroaniline	ND(50)	ND(50)	ND(50)
Nitrobenzene	ND(10)	ND(10)	ND(10)
N-Nitrosodiphenylamine	ND(10)	ND(10)	ND(10)
N-Nitros-Di-n-Propylamine	ND(10)	ND(10)	ND(10)
Phenanthrene	ND(10)	ND(10)	ND(10)
Pyrene	ND(10)	ND(10)	ND(10)
1,2,4-Trichlorobenzene	ND(10)	ND(10)	ND(10)
Carbazole	ND(10)	ND(10)	ND(10)
Pyridine	ND(10)	ND(10)	ND(10)
Benzoic Acid	ND(50))	ND(50)	ND(50)
4-Chloro-3-Methylphenol	ND(10)	ND(10)	ND(10)
2-Chlorophenol	ND(10)	ND(10)	ND(10)
2,4-Diclorophenol	ND(10)	ND(10)	ND(10)
2,4-Dimethyl Phenol	ND(10)	ND(10)	ND(10)
2,4-Dinitrophenol	ND(50)	ND(50)	ND(50)

TABLE 4.1

SOIL SAMPLE DATA
JANUARY 1993 DATA COLLECTION PROGRAM
NIAGARA COLD DRAWN CORPORATION
BUFFALO, NEW YORK

Borehole Numbers:	*BH-2-0-2'*	*BH-3-2-4'*	*BH-5-0-2'*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*
TCLP SEMI-VOLATILE ORGANIC COMPOUNDS			
4,6-Dinitro-2-Methylphenol	ND(50)	ND(50)	ND(50)
2-Methyl Phenol	ND(10)	ND(10)	ND(10)
4-Methyl Phenol	ND(10)	ND(10)	ND(10)
Creosols(Total)	ND(10)	ND(10)	ND(10)
2-Nitrophenol	ND(10)	ND(10)	ND(10)
4-Nitrophenol	ND(50)	ND(50)	ND(50)
Pentachlorophenol	ND(50)	ND(50)	ND(50)
Phenol	ND(10)	ND(10)	ND(10)
2,4,5-Trichlorophenol	ND(50)	ND(50)	ND(50)
2,4,6-Trichlorophenol	ND(10)	ND(10)	ND(10)

TABLE 4.1

SOIL SAMPLE DATA
JANUARY 1993 DATA COLLECTION PROGRAM
NIAGARA COLD DRAWN CORPORATION
BUFFALO, NEW YORK

Borehole Numbers:	*SS-1*	*SS-2*	*SS-3*	*SS-4*	*SS-5*	*SS-6 (Dup. of SS-1)*
Units:	*(µg/g)*	*(µg/g)*	*(µg/g)*	*(µg/g)*	*(µg/g)*	*(µg/g)*
PCBs						
Aroclor 1016	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20) J
Aroclor 1221	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20) J
Aroclor 1232	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20) J
Aroclor 1242	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20) J
Aroclor 1248	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20) J
Aroclor 1254	ND(0.20)	0.23	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20) J
Aroclor 1260	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20) J

TABLE 4.1

SOIL SAMPLE DATA
JANUARY 1993 DATA COLLECTION PROGRAM
NIAGARA COLD DRAWN CORPORATION
BUFFALO, NEW YORK

Borehole Numbers:	*SS-A*	*SS-B*	*SS-C*	*SS-D** *(Dup. of SS-B)*	*SS-OS**	*Typical Soils (1)*	*Typical Soils (3)*	*Industrial Area (1)*	*Local Background(2)*
Units:	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg) Range*	*(mg/kg) Mean*	*(mg/kg) Range*	*(mg/kg) Range*
METALS									
Aluminum	8340	36000	17200	28100	6380	4500-100000	NR		
Antimony	ND(143)	ND(120)	ND(125)	ND(121)	ND(117)	0.25-0.6	NR	0 - 10	
Arsenic	ND(28.7)	ND(24)	ND(25.1)	ND(24.2)	ND(23.4)	<1.0 - 93.2	7		
Barium	123	271	141	220	100	>0 - 3000	560		
Beryllium	ND(14.3)	13	ND(12.5)	ND(12.1)	ND(11.7)	<1-5	1.6		
Cadmium	ND(14.3)	ND(12)	ND(12.5)	ND(12.1)	ND(11.7)	0.4 - 1.1	NR	26-160	5-9
Calcium	74800	219000	230000	185000	180000	NR	0.5		
Chromium	37.5	46.8	605	131	1120	7-15000	10.5		8-30
Cobalt	ND(28.7)	ND(24)	ND(25.1)	ND(24.2)	ND(23.4)	3 - 50	50		
Copper	52.4	ND(24)	81.6	37.5	52.3	3-300	26	7000-550000	7-40
Iron	64200	26900	141000	90000	114000	0.5 - 50000	NR		
Lead	215	ND(120)	ND(125)	ND(121)	148	<10 - 70	0.17	500-6500	20-290
Magnesium	8370	54400	24700	42300	13000	NR	NR		
Manganese	1360	2230	9760	2880	15200	20-3000	NR		
Mercury	0.141	ND(0.104)	ND(0.106)	ND(0.101)	ND(0.117)	0.02-1.5	490		0.1-0.28
Nickel	ND(115)	ND(95.9)	ND(100)	ND(96.7)	ND(93.8)	<5-150	NR		10-40
Potassium	ND(8600)	ND(7190)	ND(7530)	ND(7260)	ND(7030)	NR	18.5		
Selenium	ND(1.43)	ND(12)	ND(12.5)	ND(12.1)	ND(1.17)	<0.1 - 4.0	26		
Silver	ND(28.7)	ND(24)	ND(25.1)	ND(24.2)	ND(23.4)	NR	NR		
Sodium	ND(143)	1500	479	796	122	NR	0.31		
Thallium	ND(2.87)	ND(2.4)	ND(2.51)	ND(2.42)	ND(2.34)	0.02 - 2.8	NR		
Vanadium	ND(57.3)	ND(48)	203	ND(48.4)	223	0.7 - 98	NR		
Zinc	456	ND(48)	57	ND(48.4)	102	13-300	73.5		31-160

Notes:

*	SS-D is a duplicate sample of SS-B
**	SS-0S represents a sample collected off-site
ND	Non-detected at the associated value
NR	Not Reported
(1)	Data reported in "Trace Elements in Soils and Plants", CRC Press, Inc., 1985.
(2)	Data reported in "Preliminary Evaluation of Chemical Migration to Groundwater and the Niagara River from Selected Waste Disposal Sites", EPA-905/4-85-001, March 1985.
(3)	Normal range in earth's crust from "Handbook on the Toxicity of Metals", Second Edition, Volume II. Data are reported for various types of surface soils in the United States.

TABLE 4.1

SOIL SAMPLE DATA
JANUARY 1993 DATA COLLECTION PROGRAM
NIAGARA COLD DRAWN CORPORATION
BUFFALO, NEW YORK

Borehole No.: *Units:*	*BH-1-1-3'* *(mg/kg)*	*BH-1-3-5'* *(mg/kg)*	*BH-2-0-2'* *(mg/kg)*	*BH-2-4-6'* *(mg/kg)*	*BH-3-0-2'* *(mg/kg)*	*BH-3-4-6'* *(mg/kg)*	*BH-4-0-2'* *(mg/kg)*	*BH-4-4-6'* *(mg/kg)*	*BH-5-0-2'* *(mg/kg)*	*BH-5-2-4'* *(mg/kg)*
TPH										
TPH*	1119	ND(100)	708	ND(100)	1972	ND(100)	131	ND(100)	ND(100)	ND(100)

Borehole No.:	*BH-6-2-4'* *Dup. of BH-5-2-4'*	*RB-01* *Rinse Blank*
Units:	*(mg/kg)*	*(mg/kg)*
TPH		
TPH*	ND(100)	ND(2.0)

Notes:

ND(100)	Not detected at the method detection level.
J	Associated value is estimated.
*	TPH results are based upon wet weight

APPENDIX B

ANALYTICAL DATA ASSESSMENT AND VALIDATION

APPENDICES

A

APPENDIX A

ANALYTICAL DATA ASSESSMENT AND VALIDATION

.0 OVERVIEW

The following details an analytical data assessment and validation of analytical results reported by Huntingdon Analytical Services (HAS) for environmental samples collected in January 1993, at the Niagara Cold Drawn Corporation Site in Buffalo, New York. The samples submitted for analysis consist of the following:

Parameter	*Method (1)*	*Matrix*	*Number of Investigative Samples*	*Field Duplicates*	*MS/MSD*	*Rinse Blank*
TAL Metals	SW846 6000/7000 Series	Surface Soil	5	-	-/-	-
PCB	SW846-8080	Surface Soil	5	1	-/-	-
TPH	USEPA Method 418.1	Borehole Soil	10	1	1/1	1
TCLP VOC/BNA	SW846 1311 SW846 8240/8270	Borehole Soil	3	-	-/-	-

Notes:

(1) SW846 methods referenced from "Test Methods for Evaluating Solid Waste Physical/Chemical Methods" USEPA SW-846, 3rd Edition, 1986.

Evaluation of the data was based on information derived from the finished data sheets, chain of custody forms, blank data, field duplicate data, and recovery data for matrix and surrogate spikes. The assessment of analytical and in-house data included checks for: data consistency; adherence to accuracy and precision criteria; transmittal errors; and anomalously high and low parameter values.

The QA/QC criteria by which these data have been assessed are outlined in the methods referenced and the following documents:

i) "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses", (July 1, 1988);

ii) "National Functional Guidelines for Organic Data Review" (December 1990) revised June 1991.

The data quality assessment and validation is presented in the subsections which follow.

2.0 SAMPLE HOLDING TIMES

Based on the criteria outlined in the relevant methods and USEPA sample holding time protocols, the following sample holding times requirements have been established for soil matrices:

TAL Metals (Mercury)	6 months from collection to analysis (28 days from collection to analysis)
PCBs	7 days from collection to extraction 40 days from extraction to analysis
TPH	14 days from collection to analysis
TCLP VOC	14 days from collection to TCLP extraction 14 days from TCLP extraction to analysis
TCLP BNA	14 days from collection to TCLP extraction 7 days from TCLP extraction to BNA extraction 40 days from BNA extraction to analysis

Comparison of the collection date (from the notation on the chain of custody) with the reported dates of extraction and analyses indicated that all samples submitted were analyzed within the established holding times. Qualification of sample data was not required.

3.0 SURROGATE SPIKE RECOVERIES

Laboratory performance on individual samples was assessed on the basis of surrogate spike recoveries. When properly employed in conjunction with sample preparation, surrogates can be used to determine the effectiveness of sample cleanup or matrix modifying techniques. In addition, fortifying the sample with a known amount of the surrogate compound prior to sample preparation serves as an indicator of the efficiency of analyte extraction, dissolution, or other analyte-matrix separation techniques.

Samples submitted for PCB, TCLP VOCs and TCLP BNAs were spiked with surrogate compounds specified in the methods used. Dibutyl chlorendate (DBC) yielded low recovery for sample SS-6 during PCB analysis and required qualification as presented in Table 1. All remaining surrogate recoveries were within the method control limits established for soils.

4.0 LABORATORY BLANK ANALYSES

The purpose of assessing the results of laboratory blank analyses was to determine the effects on sample results due to laboratory contamination. With the exception of VOC method blanks, all blanks reported for each parameter yielded non-detected results. Acetone, methylene chloride and chloroform were detected in the VOC method blanks. However, methylene chloride was detected below the detection limit and was reported as <10 µg/L. Chloroform was not present in any of the investigative samples and required no qualification. However, acetone and methylene chloride results required qualification as non-detect (ND) and is presented in Table 2.

5.0 MATRIX SPIKE ANALYSES

The recoveries of matrix spike analysis were used to assess the analytical accuracy on an individual sample basis. Sample, SS-A, was analyzed as a matrix spike sample for arsenic, mercury, and selenium. All matrix spike percent recoveries were within the acceptable control limits (75-125 percent).

6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

The recoveries of MS/MSD analyses are used to assess the analytical accuracy on an individual sample basis, while the relative percent difference (RPD) between the MS and MSD indicates the analytical precision achieved for that sample.

Sample BH4-4-6' was analyzed as an MS/MSD sample for TPH. All MS/MSD recovery and RPD criteria were met indicating acceptable laboratory accuracy and precision for TPH analyses.

7.0 LABORATORY DUPLICATE ANALYSES

The RPD between duplicate analyses indicates analytical precision achieved for that sample. Sample SS-A was analyzed in duplicate for TAL metals. All RPD values were within the acceptable control limits (<35 percent for soils).

8.0 LABORATORY PERFORMANCE SAMPLES

Performance samples serve as a monitor of the overall performance of all steps in the analysis, including the sample preparation. Performance samples were evaluated for metals and TPH analyses. All recoveries were within acceptable control limits (80 -120 percent).

FIELD QA/QC

9.1 FIELD DUPLICATES

Two field duplicate samples were collected and submitted "blind" to the laboratory to assess the aggregate analytical and sampling protocol precision. Sample SS-6 (duplicate of SS-1) was submitted for PCB analysis and sample BH6-2-4' (duplicate of BH5-2-4') was submitted for TPH analysis. All duplicate results showed equal results for the parameters of interest, indicating adequate analytical and sampling protocol precision.

9.2 RINSE BLANKS

To eliminate sources of contamination from sampling equipment, one rinse blank sample was submitted to the laboratory for TPH analysis. The rinse blank yielded non-detected results for TPH analysis, indicating contamination from field equipment was minimal.

10.0 CONCLUSION

Based on the assessment and validation, the data produced by HAS are acceptable with the specific qualifications noted herein. A summary of the analytical data with qualifiers is presented in Table 4.1 of the text of the main report.

TABLE 1

QUALIFICATION OF SAMPLE DATA
DUE TO OUTLYING SURROGATE RECOVERY
NIAGARA COLD DRAWN STEEL
SITE INVESTIGATION
BUFFALO, NEW YORK

Sample ID	*Parameter*	*Compound*	*Surrogate Percent Recovery*	*Qualified Sample Result (µg/g)*
SS-6	PCB	Arochlor 1016	53	ND(0.20)J
		Arochlor 1221	53	ND(0.20)J
		Arochlor 1232	53	ND(0.20)J
		Arochlor 1242	53	ND(0.20)J
		Arochlor 1248	53	ND(0.20)J
		Arochlor 1254	53	ND(0.20)J
		Arochlor 1260	53	ND(0.20)J

Notes:

PCB	Surrogate used was Dibutyl chlorendate (DBC).
ND	Non-detected at the associated value.
J	Associated value is estimated.

TABLE 2

QUALIFICATION OF SAMPLE DATA DUE TO METHOD BLANK CONTAMINATION NIAGARA COLD DRAWN STEEL SITE INVESTIGATION BUFFALO, NEW YORK

Sample ID	*Parameter*	*Compound*	*Sample Result (µg/L)*	*Method Blank Result (µg/L)*	*Qualified Sample Result (µg/L)*
BH2-0-2'	TCLP VOC	Acetone	150	18,000	ND(150)
BH3-2-4'	TCLP VOC	Acetone	55	5,500	ND(55)
BH5-0-2'	TCLP VOC	Acetone	13,000	18,000	ND(13,000)
BH3-2-4'	TCLP VOC	Methylene Chloride	11	7.61*	ND(11)

Notes:

ND Non-detect at the associated value.

* Value is less than reported detection limit, therefore it was not reported in the analytical report. Blank concentration was quantitated from the raw data.

B

APPENDIX B

ENVIRONMENTAL ANALYTICAL REPORTS PREPARED BY HUNTINGDON ANALYTICAL SERVICES

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ENVIRONMENTAL ANALYTICAL REPORT

REPORT NUMBER: 93-0104

PREPARED FOR:

CONESTOGA ROVERS & ASSOCIATES
651 COLBY DRIVE
WATERLOO, ONTARIO
CANADA N2V 1C2

RE: 3829; NIAGARA COLD DRAWN STEEL

PREPARED BY:

HUNTINGDON ANALYTICAL SERVICES
DIVISION OF EMPIRE SOILS INVESTIGATIONS, INC.
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FEBRUARY 3, 1993

HUNTINGDON ANALYTICAL SERVICES
ELAP #10833
ENVIRONMENTAL REPORT

Report Number: 93-0104

Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act", October 26, 1984 (Federal Register) U. S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste - Physical/Chemical Methods", Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.

This report contains analytical data based on our examination of the sample(s) presented to us. This report contains (except where explicitly stated) a complete account of the analyses requested to be performed on the sample(s). Information which was not requested to be reported is not included.

Andrew P. Clifton February 3, 1993
Environmental Laboratory Director

REPORT CODE LEGEND:

<DL = Less than detection limit
ND = Not detected
NA = Not applicable
INP = Information not provided
MB = Method blank

Huntingdon
Analytical Laboratory

HUNTINGDON ANALYTICAL SERVICES

Sample ID: SS-A
HAS Sample #93-0104-01
Date Sampled: 1/19/93
Date Prepared: 1/26/93

ANALYTE	EPA METHOD	DATE ANALYZED	DET.LIMIT (ug/kg)	RESULT ug/kg	QC	SPIKE %REC	RPD
ALUMINUM	6010	1/28/93	86000	8340000	*95		
ANTIMONY	6010	1/28/93	143000	<DL	*95		<1.0
ARSENIC	7060	2/02/93	28700	<DL	*95	96.8	
BARIUM	6010	1/28/93	28700	123000	*95		<1.0
BERYLLIUM	6010	1/28/93	14300	<DL	*95		<1.0
CADMIUM	6010	1/28/93	14300	<DL	*95		<1.0
CALCIUM	6010	1/28/93	57300	74800000	*95		
CHROMIUM	6010	1/28/93	28700	37500	*95		
COBALT	6010	1/28/93	28700	<DL	*95		<1.0
COPPER	6010	1/28/93	28700	52400	*95		
IRON	6010	1/28/93	57300	64200000	*95		
LEAD	7421	2/01/93	143000	215000	*95		
MAGNESIUM	6010	1/28/93	115000	8370000	*95		3.5
MANGANESE	6010	1/28/93	28700	1360000	*95		
MERCURY	7471	1/27/93	136	141	*95	92.8	<1.0
NICKEL	6010	1/28/93	115000	<DL	*95		<1.0
POTASSIUM	6010	1/28/93	8600000	<DL	*95		<1.0
SELENIUM	7740	2/01/93	1430	<DL	*95	90.2	<1.0
SILVER	6010	1/28/93	28700	<DL	*95		<1.0
SODIUM	6010	1/28/93	143000	<DL	*95		<1.0
THALLIUM	7841	2/02/93	2870	<DL	*95		<1.0
VANADIUM	6010	1/28/93	57300	<DL	*95		<1.0
ZINC	6010	1/28/93	57300	456000	*95		

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT.

HUNTINGDON ANALYTICAL SERVICES

Sample ID: SS-B
HAS Sample #93-0104-02
Date Sampled: 1/19/93
Date Prepared: 1/26/93

ANALYTE	EPA METHOD	DATE ANALYZED	DET.LIMIT (ug/kg)	RESULT ug/kg	QC
ALUMINUM	6010	1/28/93	71900	36000000	*95
ANTIMONY	6010	1/28/93	120000	<DL	*95
ARSENIC	7060	2/02/93	24000	<DL	*95
BARIUM	6010	1/28/93	24000	271000	*95
BERYLLIUM	6010	1/28/93	12000	13000	*95
CADMIUM	6010	1/28/93	12000	<DL	*95
CALCIUM	6010	1/28/93	48000	219000000	*95
CHROMIUM	6010	1/28/93	24000	46800	*95
COBALT	6010	1/28/93	24000	<DL	*95
COPPER	6010	1/28/93	24000	<DL	*95
IRON	6010	1/28/93	48000	26900000	*95
LEAD	7421	2/01/93	120000	<DL	*95
MAGNESIUM	6010	1/28/93	95900	54400000	*95
MANGANESE	6010	1/28/93	24000	2230000	*95
MERCURY	7471	1/27/93	104	<DL	*95
NICKEL	6010	1/28/93	95900	<DL	*95
POTASSIUM	6010	1/28/93	7190000	<DL	*95
SELENIUM	7740	2/01/93	12000	<DL	*95
SILVER	6010	1/28/93	24000	<DL	*95
SODIUM	6010	1/28/93	120000	1500000	*95
THALLIUM	7841	2/02/93	2400	<DL	*95
VANADIUM	6010	1/28/93	48000	<DL	*95
ZINC	6010	1/28/93	48000	<DL	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT.

HUNTINGDON ANALYTICAL SERVICES

Sample ID: SS-C
HAS Sample #93-0104-03
Date Sampled: 1/19/93
Date Prepared: 1/26/93

ANALYTE	EPA METHOD	DATE ANALYZED	DET.LIMIT (ug/kg)	RESULT ug/kg	QC
ALUMINUM	6010	1/28/93	75300	17200000	*95
ANTIMONY	6010	1/28/93	125000	<DL	*95
ARSENIC	7060	2/02/93	25100	<DL	*95
BARIUM	6010	1/28/93	25100	141000	*95
BERYLLIUM	6010	1/28/93	12500	<DL	*95
CADMIUM	6010	1/28/93	12500	<DL	*95
CALCIUM	6010	1/28/93	50200	230000000	*95
CHROMIUM	6010	1/28/93	25100	605000	*95
COBALT	6010	1/28/93	25100	<DL	*95
COPPER	6010	1/28/93	25100	81600	*95
IRON	6010	1/28/93	50200	141000000	*95
LEAD	7421	2/01/93	125000	<DL	*95
MAGNESIUM	6010	1/28/93	100000	24700000	*95
MANGANESE	6010	1/28/93	25100	9760000	*95
MERCURY	7471	1/27/93	106	<DL	*95
NICKEL	6010	1/28/93	100000	<DL	*95
POTASSIUM	6010	1/28/93	7530000	<DL	*95
SELENIUM	7740	2/01/93	12500	<DL	*95
SILVER	6010	1/28/93	25100	<DL	*95
SODIUM	6010	1/28/93	125000	479000	*95
THALLIUM	7841	2/02/93	2510	<DL	*95
VANADIUM	6010	1/28/93	50200	203000	*95
ZINC	6010	1/28/93	50200	57000	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT.

HUNTINGDON ANALYTICAL SERVICES

Sample ID: SS-D
HAS Sample #93-0104-04
Date Sampled: 1/19/93
Date Prepared: 1/26/93

ANALYTE	EPA METHOD	DATE ANALYZED	DET.LIMIT (ug/kg)	RESULT ug/kg	QC
ALUMINUM	6010	1/28/93	72600	28100000	*95
ANTIMONY	6010	1/28/93	121000	<DL	*95
ARSENIC	7060	2/02/93	24200	<DL	*95
BARIUM	6010	1/28/93	24200	220000	*95
BERYLLIUM	6010	1/28/93	12100	<DL	*95
CADMIUM	6010	1/28/93	12100	<DL	*95
CALCIUM	6010	1/28/93	48400	185000000	*95
CHROMIUM	6010	1/28/93	24200	131000	*95
COBALT	6010	1/28/93	24200	<DL	*95
COPPER	6010	1/28/93	24200	37500	*95
IRON	6010	1/28/93	48400	90000000	*95
LEAD	7421	2/01/93	121000	<DL	*95
MAGNESIUM	6010	1/28/93	96700	42300000	*95
MANGANESE	6010	1/28/93	24200	2880000	*95
MERCURY	7471	1/27/93	101	<DL	*95
NICKEL	6010	1/28/93	96700	<DL	*95
POTASSIUM	6010	1/28/93	7260000	<DL	*95
SELENIUM	7740	2/01/93	12100	<DL	*95
SILVER	6010	1/28/93	24200	<DL	*95
SODIUM	6010	1/28/93	121000	796000	*95
THALLIUM	7841	2/02/93	2420	<DL	*95
VANADIUM	6010	1/28/93	48400	<DL	*95
ZINC	6010	1/28/93	48400	<DL	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT.

HUNTINGDON ANALYTICAL SERVICES

Sample ID: SS-OS
HAS Sample #93-0104-05
Date Sampled: 1/19/93
Date Prepared: 1/26/93

ANALYTE	EPA METHOD	DATE ANALYZED	DET.LIMIT (ug/kg)	RESULT ug/kg	QC
ALUMINUM	6010	1/28/93	70300	6380000	*95
ANTIMONY	6010	1/28/93	117000	<DL	*95
ARSENIC	7060	2/02/93	23400	<DL	*95
BARIUM	6010	1/28/93	23400	100000	*95
BERYLLIUM	6010	1/28/93	11700	<DL	*95
CADMIUM	6010	1/28/93	11700	<DL	*95
CALCIUM	6010	1/28/93	46900	180000000	*95
CHROMIUM	6010	1/28/93	23400	1120000	*95
COBALT	6010	1/28/93	23400	<DL	*95
COPPER	6010	1/28/93	23400	52300	*95
IRON	6010	1/28/93	46900	114000000	*95
LEAD	7421	2/01/93	117000	148000	*95
MAGNESIUM	6010	1/28/93	93800	13000000	*95
MANGANESE	6010	1/28/93	23400	15200000	*95
MERCURY	7471	1/27/93	117	<DL	*95
NICKEL	6010	1/28/93	93800	<DL	*95
POTASSIUM	6010	1/28/93	7030000	<DL	*95
SELENIUM	7740	2/01/93	1170	<DL	*95
SILVER	6010	1/28/93	23400	<DL	*95
SODIUM	6010	1/28/93	117000	122000	*95
THALLIUM	7841	2/02/93	2340	<DL	*95
VANADIUM	6010	1/28/93	46900	223000	*95
ZINC	6010	1/28/93	46900	102000	*95

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*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT.

HUNTINGDON ANALYTICAL SERVICES

Sample ID: SOIL BLANK
HAS Sample #93-0104-SB
Date Sampled: NA
Date Prepared: 1/26/93

ANALYTE	EPA METHOD	DATE ANALYZED	DET.LIMIT (ug/kg)	RESULT ug/kg	QC
ALUMINUM	6010	1/28/93	6000	<DL	*95
ANTIMONY	6010	1/28/93	10000	<DL	*95
ARSENIC	7060	2/02/93	2000	<DL	*95
BARIUM	6010	1/28/93	2000	<DL	*95
BERYLLIUM	6010	1/28/93	1000	<DL	*95
CADMIUM	6010	1/28/93	1000	<DL	*95
CALCIUM	6010	1/28/93	4000	<DL	*95
CHROMIUM	6010	1/28/93	2000	<DL	*95
COBALT	6010	1/28/93	2000	<DL	*95
COPPER	6010	1/28/93	2000	<DL	*95
IRON	6010	1/28/93	4000	<DL	*95
LEAD	7421	2/01/93	1000	<DL	*95
MAGNESIUM	6010	1/28/93	8000	<DL	*95
MANGANESE	6010	1/28/93	2000	<DL	*95
MERCURY	7471	1/27/93	100	<DL	*95
NICKEL	6010	1/28/93	8000	<DL	*95
POTASSIUM	6010	1/28/93	600000	<DL	*95
SELENIUM	7740	2/01/93	1000	<DL	*95
SILVER	6010	1/28/93	2000	<DL	*95
SODIUM	6010	1/28/93	10000	<DL	*95
THALLIUM	7841	2/02/93	2000	<DL	*95
VANADIUM	6010	1/28/93	4000	<DL	*95
ZINC	6010	1/28/93	4000	<DL	*95

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*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YO SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT.

HUNTINGDON ANALYTICAL SERVICES

METHOD 8080
POLYCHLORINATED BIPHENYLS

SAMPLE IDENTIFICATION	SS-1	SS-2	SS-3	SS-4
HAS SAMPLE #930104	06	07	08	09
COMPOUND	RESULT ug/g	RESULT ug/g	RESULT ug/g	RESULT ug/g
PCB-1016	<0.20	<0.20	<0.20	<0.20
PCB-1221	<0.20	<0.20	<0.20	<0.20
PCB-1232	<0.20	<0.20	<0.20	<0.20
PCB-1242	<0.20	<0.20	<0.20	<0.20
PCB-1248	<0.20	<0.20	<0.20	<0.20
PCB-1254	<0.20	0.23	<0.20	<0.20
PCB-1260	<0.20	<0.20	<0.20	<0.20
DBC Surrogate Recovery (%)	63	84	65	79
DATE EXTRACTED:	1-22-93	1-22-93	1-22-93	1-22-93
DATE ANALYZED:	1-25-93	1-26-93	1-25-93	1-25-93

HUNTINGDON ANALYTICAL SERVICES

METHOD 8080
POLYCHLORINATED BIPHENYLS

SAMPLE IDENTIFICATION	SS-5	SS-6	METHOD BLANK
HAS SAMPLE #930104	10	11	--
COMPOUND	RESULT ug/g	RESULT ug/g	RESULT ug/g
PCB-1016 -------------------------	<0.20	<0.20	<0.20
PCB-1221 -------------------------	<0.20	<0.20	<0.20
PCB-1232 -------------------------	<0.20	<0.20	<0.20
PCB-1242 -------------------------	<0.20	<0.20	<0.20
PCB-1248 -------------------------	<0.20	<0.20	<0.20
PCB-1254 -------------------------	<0.20	<0.20	<0.20
PCB-1260 -------------------------	<0.20	<0.20	<0.20
DBC Surrogate Recovery (%)	99	53	103
DATE EXTRACTED:	1-22-93	1-22-93	1-22-93
DATE ANALYZED:	1-25-93	1-25-93	1-24-93

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): HAS 93-0104

CHAIN OF CUSTODY RECORD

PROJECT Nº: 3829

PROJECT NAME: NIAGARA COLD DRAWN STEEL

SAMPLER'S SIGNATURE ______ (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
01	SS-A	1/19/92		0-6"	SOIL	1	TAL METALS
02	SS-B	↓		↓	↓	1	↓
03	SS-C	↓		↓	↓	1	↓
04	SS-D	↓		↓	↓	1	↓
05	SS-05	↓		↓	↓	1	
06	SS-1	↓		↓	↓	1	PCBs
07	SS-2	↓		↓	↓	1	↓
08	SS-3	↓		↓	↓	1	↓
09	SS-4	↓		↓	↓	1	↓
10	SS-5	↓		↓	↓	1	↓
11	SS-6	↓		↓	↓	1	↓
				TOTAL NUMBER OF CONTAINERS		11	

ANTICIPATED CHEMICAL HAZARDS: UNKNOWN

RELINQUISHED BY: 1 R.P. Bauer (SIGN)	DATE/TIME 1/20/92 11:35	RECEIVED BY: 2 Pearson (SIGN)
RELINQUISHED BY: 2 ______ (SIGN)	DATE/TIME	RECEIVED BY: 3 ______ (SIGN)
RELINQUISHED BY: 3 ______ (SIGN)	DATE/TIME	RECEIVED BY: 4 ______ (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: PICKUP	SHIPPED BY: R. BAUER	RECEIVED FOR LABORATORY BY: (SIGN) Pearson	DATE/TIME 1/20/93 1236
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN) ______	DATE/TIME

WHITE	– CRA OFFICE COPY
YELLOW	– RECEIVING LABORATORY COPY
PINK	– CRA LABORATORY COPY
GOLDEN ROD	– SHIPPERS

Nº 013050

ENVIRONMENTAL ANALYTICAL REPORT

REPORT NUMBER: 93-0112

PREPARED FOR:

CONESTOGA ROVERS & ASSOCIATES
651 COLBY DRIVE
WATERLOO, ONTARIO
CANADA N2V 1C2

RE: 3829; NIAGARA COLD DRAWN STEEL

PREPARED BY:

HUNTINGDON ANALYTICAL SERVICES
DIVISION OF EMPIRE SOILS INVESTIGATIONS, INC.
P.O. BOX 250
MIDDLEPORT, NEW YORK 14105
TELEPHONE: 716/735-3400; FAX: 716/735-3653

FEBRUARY 8, 1993

HUNTINGDON ANALYTICAL SERVICES
ELAP #10833
ENVIRONMENTAL REPORT

Report Number: 93-0112

Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act", October 26, 1984 (Federal Register) U. S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste - Physical/Chemical Methods", Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.

This report contains analytical data based on our examination of the sample(s) presented to us. This report contains (except where explicitly stated) a complete account of the analyses requested to be performed on the sample(s). Information which was not requested to be reported is not included.

Andrew P. Clifton February 8, 1993
Environmental Laboratory Director

REPORT CODE LEGEND:

<DL = Less than detection limit
ND = Not detected
NA = Not applicable
INP = Information not provided
MB = Method Blank

Huntingdon
Analytical Laboratory
Analytical Services Division

HUNTINGDON ANALYTICAL SERVICES

Analyte: Total Petroleum Hydrocarbons

EPA Method No.: 418.1/Miran 1FF

Sample Date	HAS Sample #93-	Client I.D.	Date Prepared	Date Analyzed	Method Detection Limit	Result	Units	QC in %
1/21/93	0112-01	BH-1-1-3'	1/26/93	1/26/93	100	1119	mg/kg	100*
1/21/93	0112-02	BH-1-3-5	1/26/93	1/26/93	100	<100	mg/kg	100*
1/21/93	0112-03	BH-2-0-2'	1/26/93	1/26/93	100	708	mg/kg	100*
1/21/93	0112-04	BH-2-4-6	1/26/93	1/26/93	100	<100	mg/kg	100*
1/21/93	0112-05	BH-3-0-2'	1/26/93	1/26/93	100	1972	mg/kg	100*
1/21/93	0112-07	BH-3-4-6	1/26/93	1/26/93	100	<100	mg/kg	100*

* A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

HUNTINGDON ANALYTICAL SERVICES

Analyte: Total Petroleum Hydrocarbons

EPA Method No.: 418.1/Miran 1FF

Sample Date	HAS Sample #93-	Client I.D.	Date Prepared	Date Analyzed	Method Detection Limit	Result	Units	QC in %
1/21/93	0112-06	BH-4-0-2'	1/26/93	1/26/93	100	131	mg/kg	100* 63.4** 67***
1/21/93	0112-09	BH-4-4-6'	1/26/93	1/26/93	100	<100	mg/kg	100*
1/21/93	0112-10	BH-5-0-2'	1/26/93	1/26/93	100	<100	mg/kg	100*
1/21/93	0112-11	BH-5-2-4'	1/26/93	1/26/93	100	<100	mg/kg	100*
1/21/93	0112-12	BH-6-2-4'	1/26/93	1/26/93	100	<100	mg/kg	100*
1/21/93	0112-13	RB-01	1/26/93	1/26/93	2.0	<2.0	mg/L	100*
1/21/93	0112-MB		1/26/93	1/26/93	2.0	<2.0	mg/L	100*

* A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

** A matrix spike duplicate of this sample was analyzed with the percent recovery and RPD indicated above.

*** A matrix spike of this sample was analyzed with the percent recovery indicated above.

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

EPA METHOD 8240
TCL VOLATILE ORGANICS
ON TCLP EXTRACTS

SAMPLE IDENTIFICATION :	BH-2-0-2'	BH-3-2-4'	BH-5-0-2'	METHOD BLANK	METHOD BLANK	
HAS SAMPLE #930112	03	06	10	—	—	
COMPOUND	RESULT ug/l	RESULT ug/l	RESULT ug/l	RESULT ug/l	RESULT ug/l	DL ug/l
CHLOROMETHANE	<10	<10	<10	<10	<10	<10
BROMOMETHANE	<10	<10	<10	<10	<10	<10
VINYL CHLORIDE	<10	<10	<10	<10	<10	<10
CHLOROETHANE	<10	<10	<10	<10	<10	<10
METHYLENE CHLORIDE	<10	11	<10	<10	<10	<10
ACETONE	150	55	13,000*	18,000*	5,500*	<10
CARBON DISULFIDE	<10	<10	<10	<10	<10	<10
1,1-DICHLOROETHENE	<10	<10	<10	<10	<10	<10
1,1-DICHLOROETHANE	<10	<10	<10	<10	<10	<10
1,2-DICHLOROETHENE (TOTAL)	<10	<10	<10	<10	<10	<10
CHLOROFORM	<10	<10	<10	<10	11	<10
1,2-DICHLOROETHANE	<10	<10	<10	<10	<10	<10
2-BUTANONE	<10	<10	<10	<10	<10	<10
1,1,1-TRICHLOROETHANE	<10	<10	<10	<10	<10	<10
CARBON TETRACHLORIDE	<10	<10	<10	<10	<10	<10
BROMODICHLOROMETHANE	<10	<10	<10	<10	<10	<10
1,2-DICHLOROPROPANE	<10	<10	<10	<10	<10	<10
cis-1,3-DICHLOROPROPENE	<10	<10	<10	<10	<10	<10
TRICHLOROETHENE	<10	<10	<10	<10	<10	<10
DIBROMOCHLOROMETHANE	<10	<10	<10	<10	<10	<10
1,1,2-TRICHLOROETHANE	<10	<10	<10	<10	<10	<10
BENZENE	<10	<10	<10	<10	<10	<10
trans-1,3-DICHLOROPROPENE	<10	<10	<10	<10	<10	<10
BROMOFORM	<10	<10	<10	<10	<10	<10
4-METHYL-2-PENTANONE	<10	<10	<10	<10	<10	<10
2-HEXANONE	<10	<10	<10	<10	<10	<10
TETRACHLOROETHENE	<10	<10	<10	<10	<10	<10
1,1,2,2-TETRACHLOROETHANE	<10	<10	<10	<10	<10	<10
TOLUENE	<10	<10	<10	<10	<10	<10
CHLOROBENZENE	<10	<10	<10	<10	<10	<10
ETHYL BENZENE	<10	<10	<10	<10	<10	<10
STYRENE	<10	<10	<10	<10	<10	<10
XYLENE (TOTAL)	<10	<10	<10	<10	<10	<10
SURROGATES	%REC.	%REC.	%REC.	%REC.	%REC.	
1,2-DICHLOROETHANE d4	104	107	100	105	105	
TOLUENE d8	104	110	105	101	110	
BROMOFLUOROBENZENE	83 ok	86	83 ok	84 ok	90	
DATE SAMPLED:	01-21-93	01-21-93	01-21-93	01-21-93	01-21-93	
DATE RECEIVED:	01-22-93	01-22-93	01-22-93	01-22-93	01-22-93	
TCLP DATE:	02-02-93	02-03-93	02-02-93	02-02-93	02-03-93	
DATE ANALYZED:	02-03-93	02-04-93	02-03-93	02-03-93	02-04-93	

* ESTIMATED VALUE

ACETONE AND METHYLENE CHLORIDE ARE LABORATORY CONTAIMINATES.

METHOD 8270
TCLP SEMI-VOLATILE ORGANICS

SAMPLE IDENTIFICATION :	BH-2-0-2'	BH-3-2-4'	BH-5-0-2'	TCLP BLANK		TCLP REGULATORY LIMITS
HAS SAMPLE #930112	03	06	10	----		
BASE/NEUTRAL COMPOUNDS	RESULT ug/L	RESULT ug/L	RESULT ug/L	RESULT ug/L	MDL ug/L	ug/L
ACENAPHTHENE	<10	<10	<10	<10	<10	
ACENAPHTHYLENE	<10	<10	<10	<10	<10	
ANTHRACENE	<10	<10	<10	<10	<10	
BENZO(a)ANTHRACENE	<10	<10	<10	<10	<10	
BENZO(b)FLUORANTHENE	<10	<10	<10	<10	<10	
BENZO(k)FLUORANTHENE	<10	<10	<10	<10	<10	
BENZO(a)PYRENE	<10	<10	<10	<10	<10	
BENZO(g,h,i)PERYLENE	<10	<10	<10	<10	<10	
BENZYL ALCOHOL	<10	<10	<10	<10	<10	
BIS(2-CHLOROETHOXY)METHANE	<10	<10	<10	<10	<10	
BIS(2-CHLOROETHYL)ETHER	<10	<10	<10	<10	<10	
BIS(2-CHLOROISOPROPYL)ETHER	<10	<10	<10	<10	<10	
BIS(2-ETHYLHEXYL)PHTHALATE	<10	<10	<10	<10	<10	
BUTYLBENZYL PHTHALATE	<10	<10	<10	<10	<10	
4-BROMOPHENYL-PHENYL ETHER	<10	<10	<10	<10	<10	
4-CHLOROANILINE	<10	<10	<10	<10	<10	
2-CHLORONAPHTHALENE	<10	<10	<10	<10	<10	
4-CHLOROPHENYL-PHENYL ETHER	<10	<10	<10	<10	<10	
CHRYSENE	<10	<10	<10	<10	<10	
DIBENZ(a,h)ANTHRACENE	<10	<10	<10	<10	<10	
DIBENZOFURAN	<10	<10	<10	<10	<10	
DI-N-BUTYLPHTHALATE	<10	<10	<10	<10	<10	
1,2-DICHLOROBENZENE	<10	<10	<10	<10	<10	
1,3-DICHLOROBENZENE	<10	<10	<10	<10	<10	
1,4-DICHLOROBENZENE	<10	<10	<10	<10	<10	7,500
3,3-DICHLOROBENZIDINE	<20	<20	<20	<20	<20	
DIETHYL PHTHALATE	<10	<10	<10	<10	<10	
DIMETHYL PHTHALATE	<10	<10	<10	<10	<10	
2,4-DINITROTOLUENE	<10	<10	<10	<10	<10	130
2,6-DINITROTOLUENE	<10	<10	<10	<10	<10	
DI-N-OCTYL PHTHALATE	<10	<10	<10	<10	<10	
FLUORANTHENE	<10	<10	<10	<10	<10	
FLUORENE	<10	<10	<10	<10	<10	
HEXACHLOROBENZENE	<10	<10	<10	<10	<10	130
HEXACHLOROBUTADIENE	<10	<10	<10	<10	<10	500
HEXACHLOROCYCLOPENTADIENE	<10	<10	<10	<10	<10	
HEXACHLOROETHANE	<10	<10	<10	<10	<10	3,000
INDENO(1,2,3-cd)PYRENE	<10	<10	<10	<10	<10	
ISOPHORONE	<10	<10	<10	<10	<10	
2-METHYL NAPHTHALENE	<10	<10	<10	<10	<10	
NAPHTHALENE	<10	<10	<10	<10	<10	
2-NITROANILINE	<50	<50	<50	<50	<50	
3-NITROANILINE	<50	<50	<50	<50	<50	
4-NITROANILINE	<50	<50	<50	<50	<50	

HUNTINGDON ANALYTICAL SERVICES

METHOD 8270
TCLP SEMI-VOLATILE ORGANICS

SAMPLE IDENTIFICATION :	BH-2-0-2'	BH-3-2-4'	BH-5-0-2'	TCLP BLANK		TCLP REGULATORY LIMITS
HAS SAMPLE #930112	03	06	10	----		
BASE/NEUTRAL COMPOUNDS	RESULT ug/L	RESULT ug/L	RESULT ug/L	RESULT ug/L	MDL ug/L	ug/L
NITROBENZENE	< 10	< 10	< 10	< 10	< 10	2,000
N-NITROSODIPHENYLAMINE	< 10	< 10	< 10	< 10	< 10	
N-NITROS-DI-N-PROPYLAMINE	< 10	< 10	< 10	< 10	< 10	
PHENANTHRENE	< 10	< 10	< 10	< 10	< 10	
PYRENE	< 10	< 10	< 10	< 10	< 10	
1,2,4-TRICHLOROBENZENE	< 10	< 10	< 10	< 10	< 10	
CARBAZOLE	< 10	< 10	< 10	< 10	< 10	
PYRIDINE	< 10	< 10	< 10	< 10	< 10	5,000
ACID COMPOUNDS	RESULT ug/L	RESULT ug/L	RESULT ug/L	RESULT ug/L	MDL ug/L	
BENZOIC ACID	<50	<50	<50	<50	<50	
4-CHLORO-3-METHYLPHENOL	< 10	< 10	< 10	< 10	< 10	
2-CHLOROPHENOL	< 10	< 10	< 10	< 10	< 10	
2,4-DICHLOROPHENOL	< 10	< 10	< 10	< 10	< 10	
2,4-DIMETHYL PHENOL	< 10	< 10	< 10	< 10	< 10	
2,4-DINITROPHENOL	<50	<50	<50	<50	<50	
4,6-DINITRO-2-METHYLPHENOL	<50	<50	<50	<50	<50	
2-METHYL PHENOL	< 10	< 10	< 10	< 10	< 10	200,000
4-METHYL PHENOL	< 10	< 10	< 10	< 10	< 10	200,000
CRESOLS (TOTAL)	< 10	< 10	< 10	< 10	< 10	200,000
2-NITROPHENOL	< 10	< 10	< 10	< 10	< 10	
4-NITROPHENOL	<50	<50	<50	<50	<50	
PENTACHLOROPHENOL	<50	<50	<50	<50	<50	100,000
PHENOL	< 10	< 10	< 10	< 10	< 10	
2,4,5-TRICHLOROPHENOL	<50	<50	<50	<50	<50	400,000
2,4,6-TRICHLOROPHENOL	< 10	< 10	< 10	< 10	< 10	2,000

SURROGATE % RECOVERY	% REC	% REC	% REC	% REC	NYSDEC ASP 12/91 % RECOVERY LIMITS
NITROBENZENE d5	113	54	105	111	35 -- 114
2-FLUOROBIPHENYL	84	87	72	83	43 -- 116
TERPHENYL d14	113	123	88	112	33 -- 141
PHENOL d5	53	50	46	51	10 -- 110
2-FLUOROPHENOL	70	62	73	79	21 -- 110
2,4,6-TRIBROMOPHENOL	98	100	98	106	10 -- 123

TCLP DATE:	1-28-93	1-28-93	1-28-93	1-28-93
DATE EXTRACTED:	2-1-93	2-1-93	2-1-93	2-1-93
DATE ANALYZED:	2-1-93	2-1-93	2-1-93	2-1-93

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): HAS 93-0112

CHAIN OF CUSTODY RECORD

PROJECT Nº: 3829

PROJECT NAME: NIAGARA COLD DRAWN STEEL - Boreholes

SAMPLER'S SIGNATURE Robert B. Baur (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
01	BH-1-1-3'	1/21/92	—				
02	BH-1-3-5'		—		SOIL	1	1x250ml/ TPH
03	BH-2-0-2'		—			1	1x250ml/ TPH
04	BH-2-4-6'		—			4	TPH, TCLP
05	BH-3-0-2'		—			1	TPH
06	BH-3-2-4'		—			1	TPH
07	BH-3-4-6'		—			3	TCLP
08	BH-4-0-2'		—			1	TPH
09	BH-4-4-6'		—			1	TPH
10	BH-5-0-2'		—			2	TPH, MS/MSD
11	BH-5-2-4'		—			4	TPH, TCLP
12	BH-6-2-4'		—			1	TPH
13	RB-01		—			1	TPH
14					WATER	1	TPH Rinse Blank
				TOTAL NUMBER OF CONTAINERS			

ANTICIPATED CHEMICAL HAZARDS: UNKNOWN

RELINQUISHED BY: 1 Robert B. Baur (SIGN)	DATE/TIME 1/22/92 0820	RECEIVED BY: ② Pam Pearson (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: ③ (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: ④ (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: Pickup	SHIPPED BY: R. BAUER	RECEIVED FOR LABORATORY BY: (SIGN) Pam Pearson	DATE/TIME 1/22/92 9:10
CONDITION OF SEAL UPON RECEIPT:		COOLER OPENED BY: (SIGN)	DATE/TIME
GENERAL CONDITION OF COOLER:			

WHITE - CRA OFFICE COPY
YELLOW - RECEIVING LABORATORY COPY
PINK - CRA LABORATORY COPY
GOLDEN ROD - SHIPPERS

Nº 012009