SITE INVESTIGATION REPORT AND PROPOSED SOILS REMEDIATION PLAN

ALBANY MIRON LUMBER
GUILDERLAND, NEW YORK

Prepared by:
Conestoga-Rovers
& Associates

2055 Niagara Falls Blvd.
Suite Three
Niagara Falls, NY 14304

Office: 716-297-6150
Fax: 716-297-2265

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1.0 INTRODUCTION

Five environmental investigations were performed at the Albany Miron Lumber Corporation property (Site) on Railroad Avenue in the Town of Guilderland, Albany County, New York between 1989 and 2001. The results of these investigations revealed the presence of chromium, copper, and arsenic, the Compounds of Concern (COCs), in on-site soil and groundwater. The COCs were found in the south central area of the Site surrounding the former location of a wood preserving operation (Osmose Area) that used chromated copper arsenate (CCA). The location of the Site is shown on Figure 1.1. A Site Plan showing the Osmose Area is presented on Figure 1.2.

The five investigations conducted at the Site in the 1989 to 2001 time period consist of:

i) installation of shallow soil borings with collection and analyses of soil samples (Richard H. Burns, P.E., 1989);

ii) installation of five boreholes with soil sample collection and analyses and subsequent installation of monitoring wells (The Chazen Companies, August 1996);

iii) installation of shallow test pits (The Chazen Companies, December 1996);

iv) installation of 13 boreholes with collection and analyses of soil samples (The Chazen Companies, March 1999); and

v) the Baseline Investigation (Conestoga-Rovers & Associates, October 2001).

The Site investigations were conducted over a period of 12 years and the matrices investigated included on-Site soil, concrete, and groundwater. The Baseline Investigation (BI) conducted in 2001 was the most comprehensive of the investigations performed and was designed to confirm and supplement the data existing at that time. The BI was conducted in accordance with written Field Sampling and Quality Assurance Plans which met the requirements of New York State Department of Environmental Conservation (NYSDEC) for use in a Site Investigation. For reference purposes, the field procedures and Quality Assurance Project Plan (QAPP) are presented in Appendices A and B. All sample analyses were performed at an Environmental Laboratory Approval Program (ELAP) and Contract Laboratory Program (CLP) certified laboratory and the resultant data were reviewed for quality assurance prior to use in the site characterization. The data review was conducted in accordance with the NYSDEC Division of Environmental Remediation "Guidance for the Development of Data Usability Summary Reports".

Albany Miron Lumber Corporation entered into a Voluntary Cleanup Agreement ("the Agreement") with NYSDEC on March 19, 2002 under the Voluntary Cleanup Program. The Agreement arises, however, in the context of Federal litigation involving the Site. This Site is now the subject of litigation in the United States Court for the Northern District of New York (*Albany Miron Lumber Corp. v. Paulsen and Sons, et. al. CIV-99-CV 900*). This litigation has been in process for over 3 years. In 2002, the District Court approved a deferral of certain proceedings in the Federal litigation, pending the filing of a Voluntary Cleanup Application. It is important to note that this application is a part of a continuing Federal litigation process. On November 8, 2002 Albany Miron Lumber Corporation submitted a "Soils Remediation Work Plan" (Work Plan) to NYSDEC. The purpose of the Work Plan was to present the proposed remediation plan for COC impacted on-Site soils. The Work Plan was also intended to assist the United States District Court in achieving a reasonable, timely, and efficient technical approach to the remediation of the Site in aid of the Federal litigation. NYSDEC reviewed the Work Plan and, in the letter from W. Wintsch (NYSDEC) to W. Marsh (Hancock & Estabrook, LLP) dated December 31, 2002, requested that a comprehensive report of the findings of the Site investigations be prepared and submitted.

This report has been prepared to address the NYSDEC request for a comprehensive investigation report and includes the following:

i) the results of the previous investigations;

ii) a characterization of the site including geology, hydrogeology, and the identified extent of COC presence in on-Site soil and groundwater;

iii) identification of remaining data gaps; and

iv) the proposed Soils Remediation Work Plan.

The report is organized as follows:

- Section 1 - Introduction. An overview of the project is presented in Section 1.
- Section 2 - Site Location and Description. Descriptions of Site location, property ownership, physical features of the Site, and historic operations are presented in Section 2.
- Section 3 - Historic Investigations. An overview of the historic site investigations, those conducted prior to the BI, is presented in Section 3.
- Section 4 - Baseline Investigation Scope of Work. The Scope of Work for the BI is summarized in Section 4.

- Section 5 - Geology and Hydrogeology. Brief descriptions of the geology and hydrogeology of the Site and surrounding area are presented in Section 5.
- Section 6 - Analytical Results. The analytical data generated from the investigations performed at the Site are presented in Section 6.
- Section 7 - Discussion of Results. The results of the Site investigations are evaluated and discussed in Section 7.
- Section 8 - Evaluation of Soil Remedial Alternatives. An evaluation of soil remedial alternatives, including derivation of risk-based site-specific soil cleanup criteria, is presented in Section 8.
- Section 9 - Identification of Data Gaps. The identification of existing data gaps is presented in Section 9.
- Section 10 - Proposed Soils Remediation Plan. A proposed on-site Soils Remediation Plan is presented in Section 10.

2.0 SITE LOCATION AND DESCRIPTION

The following information has been compiled from verbal accounts, Site records, and from Site reconnaissance.

2.1 SITE LOCATION

The Site is located at 54 Railroad Avenue in the Town of Guilderland, Albany County, New York. The location of the Site is shown on Figure 1.1.

2.2 SITE OWNERSHIP

Mixer and Company, a business headquartered in Buffalo, New York, began operating an Osmose treating facility at the Site during World War II. The Site was granted as an easement by New York Central Railroad to Mixer and Company in January 1947.

In May 1961, Mixer and Company sold the property to H.R. Mayfield (Mayfield). Mayfield leased the property to May-Chris Lumber and continued to operate the Osmose facility until March 1964. Mayfield transferred a portion of the property to City Lumber Co., Inc. (City Lumber) in March 1964 and the remaining portion also to City Lumber in January 1966.

In 1965, Holbrook Lumber (Holbrook) purchased the Osmose operation from May-Chris and operated between 1965 and 1984 as a tenant on the Site.

In April 1980, Albany Miron Lumber began to lease space on Site from City Lumber. Through merger, the Site ownership was transferred to Paulsen and Sons, Inc. which, in May 1986, transferred the Site to William F. Paulsen. The deed of the property to William F. Paulsen was subject to lease with an option to purchase by Albany Miron Lumber. Albany Miron Lumber obtained the property in February 1991 and is the current owner.

2.3 SITE DESCRIPTION

The Site consists of approximately 8.8 acres of property located on the south side of Railroad Avenue. Nine structures, including six buildings and three sheds, are present on the Site. A survey plan dated May 8, 1990, believed to be the most recent, is provided as an insert in the back of this report.

The Site is currently used only for parking tractor trailers. Previous operations at the Site included storage and sales of lumber products, sales and repair of construction equipment, and pressure treatment of lumber using the Osmose process.

The Osmose operation was located in the area referred to on the Site Plan as the Osmose Area and was operated by various parties between approximately the mid-1940s and 1984.

2.4 SURFACE CHARACTERISTICS

The surface cover in the Osmose Area consists primarily of concrete and asphalt in poor condition. Small vegetated areas with sandy and gravelly soils are also present.

A plan of the Osmose Area showing the identified surface characteristics is presented on Figure 2.1.

2.5 OSMOSE PROCESS AND OPERATION

The Osmose process involved pressure treating lumber by introducing a CCA mixture into lumber pieces in a pressure vessel. Following treatment, the lumber was removed from the vessel and placed on rack(s) to air dry.

The original Osmose equipment was located on a bermed concrete pad in the Osmose Area. The pad is labeled "Old Osmose Pad" on Figure 1.2.

Plot plans showing the locations of the Osmose process equipment and associated storage tanks are not available. Site photographs and verbal accounts indicate that the retort (treatment chamber) and solution storage tanks were located immediately northwest of the garage. The original equipment was operated until 1979 when Holbrook removed it and replaced it with a new Osmose system entirely within a diked containment area (also shown on Figure 1.2).

Holbrook continued to operate the Osmose treatment facility until 1984 when it removed the system and moved from the Site to another location. When the Osmose treatment operation at the Site was discontinued, all equipment and machinery were removed. The bermed Osmose pad remains in place and is visible at the ground surface. The containment area is also believed to be present but has been filled with soil to an elevation matching the present ground surface. It was reported that 1 to 2 feet of soil exhibiting evidence of petroleum contamination is present as fill within the containment area.

It was also reported that a piping system and possibly storage tanks were associated with the Osmose facility and that a sump was present at the south end of the containment area. A plugged pipe of unknown origin was observed outside the southwest side of the containment area during a site reconnaissance in the fall of 2000. Wood timbers and a depressed area in the surface grade were noted near the pipe at that time. In addition, a backfilled manhole was observed northeast of the containment area during the BI. Due to the reported possible presence of underground tanks and piping, test pits were excavated in the vicinity of the pipe and backfilled manhole to investigate the possible function of these features and determine whether the pipe and manhole were connected. No underground tanks were encountered in the test pits and it was determined that the unknown pipe was not connected to the manhole. The locations of the pipe, BI test pits, and identified route of the pipe underground are shown on Figure 2.2. Observations from test pits installed in December 1996 are also shown on the figure.

3.0 HISTORIC INVESTIGATIONS

The investigations listed in Section 1 provide the data utilized in this report. Descriptions of the historic investigations, including presentation of the resultant data, are presented in the following subsections. The known locations of the test pits, soil borings, and monitoring wells installed in the vicinity of the Osmose Area are shown on Figure 3.1.

3.1 SOIL

3.1.1 1989

Three borings (Test Holes 1 through 3) were advanced during a site assessment conducted in July 1989. Two soil samples ("Sample 1" and "Sample 2") were collected from Test Hole 1 and analyzed for total and EP Toxicity (EP Tox) concentrations of COCs. Two samples, "Sample 3" and "Sample 4" collected from Test Holes 2 and 3 respectively, were analyzed for COCs in EP Tox extract only. The locations of the borings from which the 1989 samples were collected are shown on Figure 3.1. The results of the soils analyses are presented with the other soils historic analytical data in Table 3.1.

The 1989 soils analytical data indicate the presence of COCs in Samples 1 and 2 at concentrations which exceed the current New York State Recommended Soil Cleanup Objectives (NYS objectives) for these metals. The total concentrations in Sample 1 collected 3.0 to 3.25 feet below grade are up to an order of magnitude higher than the concentrations in Sample 2 collected from 6.7 to 7.0 feet below grade. In the four EP Tox extract samples analyzed, the only detection of COCs was arsenic in Sample 1 at a concentration of 0.1 milligrams per liter (mg/L).

3.1.2 1996

In December 1996, several test pits were dug around the containment area. Observation of the soils within the test pits reportedly revealed the following:

i) green discoloration of soil and gravel approximately 1 to 2 feet below grade adjacent to the southeast side of the containment area;

ii) a mixture of green wood timbers, green soil, and green "sludge-like" material in an area east of the containment area, at a depth of approximately 1 foot below grade; and

iii) unstained native sandy soil west, north, and northeast of the containment area.

The areas in which evidence of COC presence were reportedly observed are shown on Figure 2.2.

During the drilling of borings for the installation of monitoring wells in 1996, two samples, MLSP-2 and MLAF-2, were collected from the drilling spoils of borehole B-2. Monitoring well ML-2 was subsequently installed in this borehole. Sample MLSP-2 was collected from the drill cuttings returned to the surface from the 0 to 7 foot depth interval and MLAP-2 was collected from soil remaining around the auger flights at the 5 to 7 foot depth interval. These samples were analyzed for total concentrations of the Resource Conservation and Recovery Act (RCRA) metals and Toxicity Characteristic Leaching Procedure (TCLP) concentrations of COCs (NYS standards). The results of the analyses are presented in Table 3.1. Field sampling records are contained in Appendix C.

The total concentrations of arsenic and chromium detected in the samples from borehole B-2 exceed the NYS standards by two to nearly three orders of magnitude. Analyses for total concentrations of copper were not performed. The concentrations of arsenic in the TCLP extract, 17.9 and 19.4 mg/L, are higher than the concentration of 5 mg/L used to define the toxicity characteristic of a hazardous waste. Chromium was not detected in the TCLP extract.

3.1.3 1999

In March 1999, 16 borings (SB-1 through SB-16) were advanced and analytical soil samples were collected from 13 of the boreholes, 10 within the Osmose Area and three background locations. The analytical samples were generally collected from intervals between 0 and 4 feet below grade and analyzed for total and TCLP concentrations of COCs. The locations of the borings within and surrounding the Osmose Area from which samples were collected are shown on Figure 3.1. The analytical data are presented in Table 3.1. The total concentrations of COCs detected in the borings advanced in and adjacent to the Osmose Area are presented on Figure 3.2.

The 1999 soils analytical data indicate that the highest concentrations of COCs are in the borings installed in the vicinity of the south corner of the Osmose pad (SB-1, SB-2, and SB-5) and along the north side of the containment area (SB-8). The concentrations of COCs decrease by an order of magnitude or more in the borings located outside these areas.

3.2 GROUNDWATER

As described in Section 3.1, in August 1996 five shallow borings were drilled and monitoring wells installed in each. Two of these monitoring wells (ML-1 and ML-3) are located hydraulically upgradient of the Osmose Area, one well (ML-2) is located at the south corner of the Osmose pad within the area of elevated soil concentrations of COCs, and two wells (ML-4 and ML-5) are located hydraulically downgradient of the Osmose Area. The locations of the monitoring wells are shown on Figure 3.1. Stratigraphic and well installation logs are contained in Appendix D.

3.2.1 GROUNDWATER QUALITY

Based on the available historic data, the groundwater monitoring wells were sampled on only one occasion prior to the BI, in August 1996 following installation. The samples collected during that event were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and RCRA metals plus copper. The field sampling records are contained in Appendix C and the compiled analytical results are presented in Table 3.2. The concentrations of COCs in groundwater have been plotted on the Site Plan shown on Figure 3.3.

The groundwater analytical data indicate that concentrations of two organic chemical compounds, tetrachloroethene in upgradient monitoring well ML-1 and 1,2,4-trichlorobenzene in monitoring well ML-2, marginally exceed the NYS criteria for Class GA (potable) groundwater. The concentrations of arsenic, cadmium, chromium, and copper in monitoring well ML-2 and of arsenic and chromium in wells ML-4 and ML-5 also exceed these criteria. Significant reductions in the concentrations of arsenic and chromium occur as the downgradient distance from ML-2 increases.

3.3 CONCLUSIONS

Based on the historic analytical data it was concluded that both soil and groundwater in the Osmose Area were impacted by historic operations.

The BI described in Section 4.0 was designed to further characterize soils and groundwater in the Osmose Area.

4.0 BASELINE INVESTIGATION SCOPE OF WORK

The Scope of Work (SOW) for the BI was designed to define the extent of impacted soils within the Osmose Area and confirm the groundwater analytical data generated during the historic investigations described in Section 3.

4.1 BI OBJECTIVES

The objectives of the BI were to collect the data required to:

i) define the extent of COCs in soil in the Osmose Area;
ii) confirm the previously reported groundwater analytical data; and
iii) develop a soils remediation plan for the Osmose Area.

4.2 INVESTIGATION TASKS

The tasks performed during the BI were:

i) Task 1: Definition of the Extent of Impacted Soils Within the Osmose Area;
ii) Task 2: Characterization of Impacted Soils and Concrete;
iii) Task 3: Investigation of Identified Features with Unknown Characteristics; and
iv) Task 4: Collection of Current Groundwater Analytical Data.

Descriptions of the specific work activities performed to complete each task are presented in the following Sections. A BI sample collection and analysis summary is presented in Table 4.1 and the sample locations are shown on Figure 3.1. Stratigraphic logs of all borings advanced during the BI are presented in Appendix D.

4.2.1 TASK 1: DEFINITION OF THE EXTENT OF IMPACTED SOILS WITHIN THE OSMOSE AREA

The delineation of the vertical and horizontal extent of CCA presence in soils within the Osmose Area was not accomplished with the historic data. Therefore, additional soil sampling and analyses were performed to generate the data necessary to characterize the area, select an appropriate remedial technology, and prepare a remediation plan.

Soil borings were advanced at 17 locations in and adjacent to the Osmose Area for the collection of analytical soil samples. In general, soils were sampled continuously from ground surface (or immediately below the asphalt or concrete surface cover where present) to 12 feet below grade. The depth of 12 feet was chosen for termination of the borings because it was the shallowest depth at which groundwater had been observed prior to the BI and would represent the soils which are generally unsaturated. The samples collected from each 2-foot interval were submitted for analyses as listed in Table 4.1.

The depth of borings SB-11, SB-27, SB-28, and SB-29 was limited to 2 feet below grade due to the presence of subsurface concrete. These borings are located within the limit of the former Containment Area.

4.2.2 TASK 2: CHARACTERIZATION OF IMPACTED SOILS AND CONCRETE

The evaluation of the remedial technology alternatives considers relative cost. In order to prepare preliminary cost estimates for the alternative technologies evaluation, the characteristics of the impacted soils and other materials (i.e., concrete pads) required definition. The soil characteristics investigated included the leachability of constituents and petroleum presence.

Samples representative of the 0 to 4-foot depth interval, the interval exhibiting the highest CCA concentrations in historic samples, were collected to define the characteristics of the soils for disposal evaluation. The disposal characterization soil samples were collected from borings installed adjacent to historic borings SB-5 and SB-11 and new boring SB-30.

Samples of the concrete former Osmose pad were collected at three locations (C-1 through C-3), composited, and submitted for TCLP and analyses of the RCRA analyte list for determination of the toxicity characteristics of solid waste.

To evaluate the reported petroleum presence in fill soils within the containment area, three samples were collected and analyzed for the complete Target Compound and Target Analyte Lists (TCL/TAL) and cyanide. Each sample was a composite representative of the total fill depth at the boring location. The samples collected for VOC analyses were selected from the discrete interval at each location which exhibited evidence of the highest potential VOC concentrations. This evidence primarily consisted of organic vapor readings or, if readings were not elevated, visual or olfactory observations. Composite samples were not submitted for VOC analyses.

4.2.3 TASK 3: INVESTIGATION OF IDENTIFIED FEATURES WITH UNKNOWN CHARACTERISTICS

A plugged pipe of unknown origin was observed outside the southwest side of the Containment Area during a Site reconnaissance in the fall of 2000. Wood timbers and a depressed area in the surface grade were also noted near the pipe at that time. Test pits were excavated in the vicinity of the pipe during the BI to investigate its possible function.

A backfilled manhole was observed northeast of the Containment Area during the BI. Two test pits were excavated in this area to determine whether the unknown pipe was connected to the backfilled manhole.

Observations made of the open test pits have been presented in the Site description in Section 2.5.

4.2.4 TASK 4: COLLECTION OF CURRENT GROUNDWATER DATA

An attempt was made during the BI to update the definition of groundwater quality within in the Osmose Area. However, the amount of new analytical data collected was limited by the depressed elevation of the water table at the time the BI was performed. The top of the groundwater surface was generally below the installed depths of the existing monitoring wells.

During the BI, a Site reconnaissance was conducted to locate and inspect the groundwater monitoring wells installed during the historic investigation(s). All wells except ML-2 were located, opened, and found to be in good condition. No water was observed in any of the monitoring wells.

According to a representative of The Chazen Companies, a consultant which conducted previous Site investigations, monitoring well ML-2 had been destroyed previously. Therefore, ML-2 was replaced during the BI and sampled following development. The replacement well was designated ML-2R. A stratigraphic and instrumentation log for well ML-2R in Appendix D.

5.0 GEOLOGY AND HYDROGEOLOGY

5.1 GEOLOGY

5.1.1 REGIONAL

The location of the Site has been plotted on the NYS Surficial Geology Map as shown on Figure 5.1. The Site is located in an area of lacustrine silt and clay deposited in proglacial lakes. These materials are generally calcareous with low permeability. The thickness of the materials is variable, ranging up to approximately 165 feet. Lacustrine sand ranging between 6 and 60 feet in thickness is the primary component in the overburden north and south of the Site.

According to the New York State Bedrock Geology Map, the bedrock beneath the Site consists of the Normanskill Shale of the Lorraine and Trenton and Black River Groups.

5.1.2 SITE

The stratigraphic information from the Site borings is limited to shallow soils extending from ground surface to a depth of approximately 20 feet below grade. The available logs of borings advanced within and adjacent to the Osmose Area are contained in Appendix D. In general, the surface conditions consist of asphalt, concrete, topsoil, or sand fill. Underlying the surface materials, the subsurface conditions consist of sand fill materials, to a depth of approximately 2 to 3 feet below grade. The sand fill is typically brown in color, fine grained, and poorly graded.

The upper sand fill is underlain by native fine sand, which extends to the explored depth of 12 to 20 feet below grade. The native sand is fine grained, poorly graded, and is brown in color. The upper fill at the site is reworked or disturbed native soil. Standard penetration (N) values recorded during the sampling of the borings ranged from 7 to 35 blows per foot, indicating generally loose to compact conditions. Most of the sand samples were slightly moist to moist.

Information regarding deeper overburden materials is not available for the Site. However, information obtained from logs of borings advanced at the State of New York Campus Building 7 and Fuller Road Exploration projects approximately one-half mile south and southwest of the Site indicate that the upper fine sand extends to approximately 20 feet below grade . Below the fine sand to a depth of approximately 40 feet is a gray silt with traces of clay. The gray silt transitions to a soft and plastic gray clay which extends to the top of bedrock. The top of bedrock was encountered at the Campus Building 7 at approximately 207 feet below grade. These soil types and depths are consistent with the lacustrine silt and clay shown on the regional map and described in Section 5.1.1.

5.2 SITE HYDROGEOLOGY

Due to the lowered water table which prevented the measurement of the water table surface in the existing monitoring locations during the BI, hydraulic data at the Site is limited to two rounds of data collected at unknown dates prior to the BI. The Site hydraulic monitoring data are presented in Table 5.1. The data set presented in Table 5.1 as "Round 2" is the most complete; therefore, these data have been plotted on Figure 5.2. The depth to groundwater in shallow soils at the Site has been observed to range between approximately 12 and greater than 17 feet. The depths to groundwater during the BI were approximately 16.5 feet in MW-2R and greater than 17 feet in the remaining wells. This information demonstrates that there is significant variability in the water table elevation in this area, most likely due to seasonal conditions.

Based on the limited hydraulic monitoring data available, groundwater flow in the immediate vicinity of the Osmose Area is from north to south; however, the elevations reported in monitoring wells ML-1 and ML-3 are the highest on Site and, based on the available measurements, groundwater flow is radial from this area. The water level elevations in ML-4 and ML-5, which are downgradient from the Osmose Area and along the west property boundary, are higher than in on-Site wells ML-8 and ML-9 to the east indicating a possible groundwater divide along the property boundary.

6.0 ANALYTICAL RESULTS

The following subsections present summaries of the analytical data collected to date. The analytical database and data quality assurance review and report for the BI are presented in Appendix E.

As described in Section 1, the BI was performed in accordance with current NYSDEC guidance and, where discrepancies between the historic and BI data exist, the BI data have been deemed the most accurate or representative of current conditions.

6.1 SOILS AND CONCRETE

Soil and concrete samples have been collected and analyzed to provide the data necessary to:

i) define the extent of the presence of COCs at elevated concentrations;

ii) identify the presence of organic chemical compounds and other metals in soils in the Osmose Area; and

iii) determine the toxicity characteristics of these materials in the event that they are removed and require disposal.

6.1.1 COCS AND OTHER TAL METALS

Ninety-five soil samples from 26 borings were analyzed for COCs and/or the TAL metals during the investigations conducted at the Site between 1996 and 2001. Eighty-six of the 95 samples were collected from borings located in or immediately adjacent to the Osmose Area. The data from the analyses of the remaining samples, from soil borings SB-14, -15, -16, and -31, represent background conditions for the Osmose Area.

Summaries of the soils metals analytical data are presented in Tables 6.1 through 6.3. To assist in the evaluation of the data, the recommended cleanup objectives of the NYSDEC are also presented in the tables and the detected concentrations exceeding these objectives are highlighted. Due to the intervening time (13 years) since the data from Test Hole 1 were collected, those data are not presented in this section.

6.1.2 ORGANIC CHEMICAL COMPOUNDS

Eleven samples from five borings have been analyzed for organic chemical compounds included in the TCL. Four of these 11 samples were analyzed for the complete TCL list and seven were analyzed for VOCs only.

The borings from which the samples for TCL analyses were collected were advanced within the former containment area. No VOCs or polychlorinated biphenyls (PCBs) were detected in any of these samples. The analytical data indicate that neither VOCs nor PCBs are of concern for soil in the Osmose Area.

The concentrations of SVOCs and pesticides detected in the soil samples collected from within the former containment area are presented in Table 6.4. Also presented in Table 6.4 are the NYSDEC recommended cleanup level objectives for the compounds detected.

6.1.3 TOXICITY CHARACTERISTIC

Samples for EP Tox and TCLP preparation and analyses were collected during the 1989 through 1999 Site investigations as well as the BI. Due to the intervening time (13 years) since the 1989 data were collected and the changes in analytical methodology, those data are not included in this section. The data from samples collected from boring B-2 in 1996 and samples collected from borings SB-1 and SB-2 located in the near vicinity of B-2 in 1999 were inconsistent. Therefore, the data from those locations are also not presented.

Soil samples from borings SB-5 and SB-30 located along the southeast side of the Osmose Pad were collected and submitted for TCLP analyses during the BI. In addition, one boring, SB-11 located within the former containment area, was sampled for TCLP and a composite sample of the concrete Osmose Pad was collected for TCLP analyses. The TCLP analytical data are presented in Table 6.5.

6.2 GROUNDWATER

Groundwater samples were collected from site monitoring wells on two occasions; in 1996 following installation and in 2001 during the BI. The groundwater samples were analyzed for the TCL/TAL parameters. Due to the depressed water table at the time the BI was conducted, all wells except ML-2R were dry and not sampled. During the sampling of well ML-2R, the turbidity reading of a sample collected at the end of purging prior to sampling was greater than 50 nephelometric turbidity unit (NTU); therefore, both total and dissolved metals were analyzed.

All groundwater analytical data are presented in Table 6.6.

7.0 DISCUSSION OF [redacted]

7.1 SOILS

7.1.1 ORGA[redacted]CALS

As discussed in Se[redacted]he soil samples collected during the BI for analyses of the TCL parameters w[redacted]rings advanced within the containment area. No VOCs or PCBs were detect[redacted]mples. Therefore, neither VOCs nor PCBs are of concern for soils in the co[redacted]rea. These compounds are not discussed further in this report.

The concentratio[redacted]and pesticides detected in the soil samples collected within the former contai[redacted]are presented in Table 6.4. Also presented in Table 6.4 are the NYSDEC gen[redacted]level objectives for the compounds detected.

Several pesticides[redacted]cted in the samples from soils in the containment area. None of the dete[redacted]rations of pesticides exceed the NYSDEC generic cleanup level objectives. [redacted]pesticides are not of concern for soils in the containment area.

Review of the S[redacted]cal data relative to the generic objectives shows that the concentrations of[redacted]ynuclear aromatic hydrocarbon (PAH) compounds exceed their respective g[redacted]tives. It has been reported previously that soils excavated during a tank r[redacted] placed inside the containment area and that these soils exhibited eviden[redacted]um presence. The SVOC presence in the soil samples from the borings inst[redacted] the containment area is consistent with the presence of petroleum conta[redacted]s and/or may reflect the presence of asphalt in the backfill material. The d[redacted] in the duplicate SVOC analytical data for the samples collected from th[redacted]nt area was investigated to insure that the data are correct. No improper pro[redacted]e identified in either the field or laboratory. Therefore, the variability in the [redacted]ted to the matrix.

The SVOC prese[redacted] within the containment area would require additional characterization i[redacted]re to be removed and disposed.

7.1.2 METALS

The TAL metals analytical data are presented in Table 6.3. Review of these data indicates that, in addition to COCs, concentrations of beryllium, iron, and zinc exceed their respective NYSDEC generic cleanup level objectives. These metals were not associated with the materials used in the Osmose process. Thus, their presence in the Osmose Area at the concentrations detected is either reflective of Site background or is due to other activities conducted at the Site.

The soils COC analytical data are presented in Table 6.2. Review of these data shows that the primary COC exhibiting exceedances of the generic cleanup level objective is chromium. With the exception of some of the samples collected from borings SB-23 and -25, there are no exceedances of the generic objectives for arsenic or copper in the absence of an exceedance of the chromium generic objective. Arsenic is present at concentrations exceeding its generic objective in the samples referenced above while chromium and copper are not. Copper was detected at concentrations exceeding the generic objective in samples from borings located in two distinct areas of the Site; within the containment area (SB-27, -28, and -29) and in the immediate area of the Osmose process equipment (SB-1 through -5, SB-24, and SB-30). Exceedances of the generic objective for copper were not identified outside these areas.

The chromium and arsenic data have been used for the definition of the extent of COC impacted soils. Plot plans showing concentration isopleths for chromium and arsenic at each of the intervals sampled and analyzed are presented on Figures 7.1 through 7.6.

The highest concentrations of chromium in soil were detected in the 2 to 4 foot below grade interval of borings SB-1, -2 and -5 located northwest of the garage in the Osmose process area. The concentrations of chromium detected in the samples from these borings ranged from 1,480 to 3,540 milligrams per kilogram (mg/Kg). This was the only interval from which analytical samples were collected in these borings. The analytical data from SB-30 located approximately mid-way between SB-2 and SB-5 shows increasing concentrations of arsenic, chromium, and copper with depth. Elevated concentrations of chromium (705 mg/Kg) and arsenic (535 mg/Kg) were also detected at SB-21 in the 0 to 2-foot below ground surface (BGS) interval. Unlike the concentrations of these metals at SB-30, the concentrations of arsenic and chromium in the samples from SB-21, located away from the apparent primary source area, decrease with depth.

7.2 GROUNDWATER

As described in Section 2, five shallow boreholes were drilled and monitoring wells installed in each in August 1996. The monitoring wells are located as follows:

i) two, ML-1 and ML-3, hydraulically upgradient of the Osmose Area;

ii) one, ML-2/2R, within the Osmose Area and within the area in which the highest COC concentrations were detected in soil samples; and

iii) two, ML-4 and ML-5, hydraulically downgradient of the Osmose Area.

The locations of the monitoring wells are shown on Figure 3.1. Stratigraphic and well instrumentation logs are contained in Appendix D.

7.2.1 GROUNDWATER QUALITY

The groundwater quality data from the Site are limited. Wells ML-1 through -5 were sampled in August 1996 following installation. During the BI, the water level elevations in all but well ML-2R (the replacement for ML-2) were lower than the installed depths of the wells, greater than 17 feet BGS. Therefore, only well ML-2R could be sampled during the BI.

The groundwater samples collected at the Site have all been analyzed for the TCL/TAL parameters. The field sampling records are contained in Appendix C and the concentrations of the compounds detected in the samples are presented in Table 6.6. The NYSDEC criteria for Class GA, or potable, groundwater are also presented in Table 6.6.

7.2.1.1 ORGANIC CHEMICALS

The groundwater analytical data show that concentrations of two organic chemical compounds detected in 1996, tetrachloroethene in upgradient monitoring well ML-1 and 1,2,4-trichlorobenzene detected in monitoring well ML-2, marginally exceeded the NYS criteria for Class GA groundwater. These compounds were not detected in the sample from monitoring well ML-2R collected during the BI (October 2001). The concentrations of the other organic chemical compounds detected in this well in during the BI did not exceed the potable groundwater criteria.

7.2.1.2 METALS

The detected concentrations of several metals in groundwater (antimony, arsenic, chromium, copper, iron, and manganese) exceeded the NYSDEC potable groundwater criteria. Of these metals, only arsenic, chromium, and copper are associated with the Osmose process. Therefore, these are the only metals in groundwater which are discussed in this report.

No exceedances of the potable groundwater criteria for metals have been detected in the samples from upgradient wells ML-1 or ML-3. The highest concentrations of COCs have been detected in samples from monitoring well ML-2/2R. The concentrations of COCs detected in groundwater have been plotted on the Site Plan shown on Figure 7.7. Green-stained soils and wood were observed below grade in this area during the excavation of test pits in 1999 and in the boring for monitoring well ML-2R. The well is located within this area and, therefore, the presence of elevated concentrations of COCs in ML-2/2R is not unexpected. As described previously, both total and dissolved metals analyses were performed on the samples collected from ML-2R during the BI. These analyses show total and dissolved concentrations of COCs nearly an order of magnitude lower than the results of the total analyses performed in 1996. The differences in concentration are likely due to the presence of sediment in the samples collected in 1996. The sample logs presented in Appendix C indicate that the water purged from ML-2 was "turbid" and that samples were collected using a bailer. These descriptions of water quality and sample collection methods are highly suggestive of sediment influence on the analytical results. Low flow purging and sample collection techniques were implemented during the BI (see field procedures presented in Appendix A). In addition, both total and dissolved analyses were performed. The implementation of these techniques assured that the data obtained from well ML-2R (the only well with sufficient water volume to be sampled) are representative of the current groundwater quality at this location.

The current concentrations of arsenic and chromium in monitoring well ML-2R exceed their respective NYSDEC potable groundwater criteria. As shown on the plot of the analytical data presented in Figure 7.7, the concentrations of COCs in groundwater decrease with distance from the Osmose Area. Due to the absence of data from the downgradient wells during the BI and the likely influence of well purging and sampling techniques on the 1996 data, it is not possible to evaluate the current concentrations of COCs or compliance with potable groundwater criteria in the downgradient wells.

7.3 SUMMARY AND CONCLUSIONS

The following items summarize the current conditions of on-site soil and groundwater in the Osmose Area.

On-Site Soil:

i) on-Site soil has been impacted by historic operations in the Osmose Area;

ii) the presence of elevated chromium concentrations in soil is the primary indicator of impacted soils; elevated concentrations of copper and/or arsenic have generally not been identified in the absence of elevated concentrations of chromium;

iii) soils exhibiting the highest concentrations of the COCs are located at the northwest corners of the garage building and old Osmose Pad;

iv) the presence of metals other than the COCs in on-site soils at concentrations which exceed their respective NYSDEC objectives are due either to background conditions or historic operations not related to the Osmose process;

v) impacted soils do not exhibit the toxicity characteristic of a RCRA hazardous waste; and

vi) further definition of the extent of presence of soils exhibiting elevated concentrations of the COCs is necessary to complete the Site remediation plan.

Containment Area Fill Soil:

i) VOCs, PCBs, and pesticides are not present in the fill soils within the containment area at concentrations which exceed their respective NYSDEC objectives;

ii) SVOCs may be present in fill soils within the containment area at concentrations which exceed their respective NYSDEC objectives; and

iii) the fill soils within the containment area do not exhibit the toxicity characteristic of a RCRA hazardous waste.

Groundwater:

i) on-Site groundwater has been impacted by historic operations in the Osmose Area;

ii) current concentrations of arsenic and chromium in ML-2R exceed their respective NYSDEC potable groundwater criteria; and

iii) the current extent of groundwater exhibiting concentrations of COCs exceeding NYSDEC potable groundwater criteria is not defined.

Osmose Pad Concrete:

i) the concrete of the old Osmose Pad does not exhibit the toxicity characteristic of a RCRA hazardous waste.

8.0 EVALUATION OF SOIL REMEDIAL ALTERNATIVES

Remedial alternatives to address potential risks associated with the presence of COCs in on-Site soils are presented and evaluated in this section. The list of remedial alternatives has been focussed on capping and excavation alternatives, each of which would address potential contact concerns and have a positive impact on groundwater quality by controlling or removing the source of COCs. Additional investigative activities are required before the final design of any of the remedial alternatives can be completed. These investigative activities are discussed in detail in Section 9. For the purpose of evaluating the remedial activities, particularly the associated costs, investigative activities required for each alternative are included in the discussions presented in this section.

The remedial alternatives applicable to the Osmose Area and the COCs associated with it include:

i) capping of the area of impacted soils;
ii) excavation and disposal of COC impacted soils; and
iii) excavation and disposal of hotspot soils as defined in Section 8.3;

Each of these alternatives is described in the following subsections and preliminary cost estimates are provided for the evaluation of the alternatives relative to each other. A groundwater monitoring program may be required in addition to the remedial alternative selected. This monitoring program would be the same for each alternative; therefore, it is not a factor in the comparative evaluation of the alternatives.

8.1 CAPPING

The analytical data have demonstrated that reduction of infiltration can reduce the vertical transport of COC in soils (see Section 7.0) and presumably to groundwater.

The capping alternative is the simplest and most inexpensive to implement. However, it will not by itself remove or reduce the source of COCs. Any reduction in concentrations of COCs in soil or groundwater will be through natural attenuation. Capping of the area of impacted surface soils would prevent direct contact with those soils but construction-related activities (i.e., installation of underground utilities or building foundations) would require special safety procedures to prevent contact with impacted subsurface soils.

The maximum horizontal extent of impacted soils is defined by the surface soil concentrations (see Figures 7.1 through 7.6). The detected concentrations of arsenic and chromium in surface soils (0 to 2 feet below grade) are shown on Figure 8.1. The limit of surface soils with concentrations of arsenic and/or chromium exceeding their respective generic objectives has been estimated using the available analytical data and are shown on Figure 8.1. The area within this estimated boundary is approximately 13,200 square feet (ft^2). Sampling and analyses of surface soils is required to confirm the estimated limit and area of impact prior to constructing a cap.

To prevent later demolition of the garage and/or containment area with exposure of the soils beneath it to infiltration, it has been assumed that both would be demolished at the time of the remediation. It has been further assumed that the existing asphalt and concrete surface cover would be removed and disposed of as construction debris.

The activities included in this remedial option are:

i) confirmation of the limit of the impacted area;

ii) removal and disposal of all surface cover;

iii) demolition and removal of garage; and

iv) preparation of the exposed ground surface within the limit of COC impacted surface soils with subsequent placement of asphalt pavement over this area.

The preliminary estimated cost to define, prepare, and pave the area of impacted surface soils is $82,500 to $97,500.

A summary of the costs associated with capping the area shown on Figure 8.1 is presented in Table 8.1. A detailed cost estimate is presented in Appendix F.

8.2 EXCAVATE AND DISPOSE ALL IMPACTED SOIL

Removal of the source of COCs in unsaturated soil could be accomplished by the excavation and disposal of all impacted soil (soil exhibiting concentrations of COC which exceed their respective generic objectives) above the water table (12 feet below grade). Removal of soils to this depth, which is deeper than typical depths of underground construction (i.e., utilities, foundations), would effectively eliminate pathways of exposure through direct contact and would significantly reduce the mass of

COC through which infiltration would occur thus limiting the transport of COC to deeper soils and groundwater.

The activities associated with this remedial option include:

i) definition of the horizontal and vertical extent of the impacted area;
ii) definition of the geotechnical properties of the soil;
iii) demolition and removal of the garage;
iv) removal and disposal of all surface cover;
v) excavation and disposal of COC impacted soils to a depth of 12 feet below grade;
vi) confirmatory sampling; and
vii) backfill of the excavation with clean fill soils.

The existing data indicate that the impacted soils would be non-hazardous if sent for disposal. Therefore, in the preparation of the cost estimates in this report it has been assumed that the surface cover (asphalt) and excavated soils would be disposed of as a non-hazardous solid waste. Costs for disposal of the asphalt surface cover as construction debris may be lower. Disposal of soils as hazardous waste would be substantially higher.

Based on the profiles presented on Figures 7.1 through 7.6, the volume of COC impacted soil above the water table is approximately 3,200 cubic yards (yd^3).

The preliminary estimated cost to characterize and excavate all COC impacted soils and prepare and pave the area as currently defined is $1,046,000 to $1,236,000.

A summary of the costs associated with the excavation and disposal of all impacted soil is presented in Table 8.2. A detailed cost estimate is presented in Appendix F.

8.3 EXCAVATE AND DISPOSE HOTSPOT SOILS

The source of COCs to groundwater would be substantially reduced by the excavation of hotspot soils above the water table. In addition, the risks associated with exposure to the remaining impacted soils, which exhibit significantly lower concentrations of COCs would be reduced. Hotspot soils are defined in the context of this report as those having concentrations of arsenic greater than 200 mg/Kg. In support of this, the development of Site-specific risk-based soil cleanup criteria was undertaken as presented in Appendix G.

The assessment presented in Appendix G demonstrates that a criterion of 200 mg/Kg for arsenic will be protective under the envisioned future Site use scenario and reasonable exposure pathways. It is noted that the removal of soil containing arsenic at concentrations greater than 200 mg/Kg will also be protective with respect to the presence of chromium and copper. Based on the existing analytical data, the areas in which these hotspots are present are shown on Figure 8.2. The hotspot soils in the area around SB-8, -18, and -21 extends to approximately 3 feet below grade. The hotspot soils in the southeast corner of the Osmose Area extend to the water table, a depth of 12 feet below grade. Profiles of the arsenic and chromium concentrations are presented on Figures 7.1 through 7.6.

The activities included in this remedial option include:

i) definition of hotspot soils above the water table;
ii) definition of the geotechnical properties of the soil;
iii) removal and disposal of all surface cover;
iv) demolition and removal of the garage;
v) excavation and disposal of the hotspot soils;
vi) confirmatory sampling;
vii) backfill of excavations with clean fill soils; and
viii) paving of the entire impacted area.

In the preparation of this cost estimate it has been assumed that the excavated soils would be disposed of as a non-hazardous solid waste.

The estimated areas in which the hotspot soils are present are shown on Figure 8.2. The volume of hotspot soils above the water table is approximately 920 cubic yards (yd^3).

The preliminary estimated cost to excavate the hotspot soils and prepare and pave the area as currently defined is $.262,000 to $309,000.

A summary of the costs associated with the excavation and disposal of hotspot soils is presented in Table 8.3. A detailed cost estimate is presented in Appendix F.

8.4 RECOMMENDED SOILS REMEDIAL ACTION

A comparative analysis of the remedial alternatives evaluated in the preceding sections is presented in Table 8.4. Based on this analysis, the recommended soils remedial action is the excavation and disposal of hotspot soils combined with asphalt capping of the entire Osmose Area, implementation of deed restrictions to limit future area use, and groundwater monitoring. This remedial action will remove the ongoing source of COCs to groundwater and be protective of human health and the environment in the projected future use scenario.

9.0 IDENTIFICATION OF DATA GAPS

Additional data and Site information are required for the purpose of implementing the Remedial Action. The following gaps in Site characterization data have been identified:

i) definition of the vertical and horizontal extent of soils exhibiting elevated concentrations of COCs;

ii) soils stratigraphy below 20 feet along the southwest boundary of the Osmose Area;

iii) geotechnical properties of soil in the Osmose Area; and

iv) an accurate topographic survey of the Osmose Area.

In addition, the presence of COCs in of off-site groundwater has not been defined.

The work proposed to gather the data necessary to fill the identified data gaps is described in the following subsections.

The work proposed will be performed in accordance with the field procedures presented in Appendix A and the QAPP presented in Appendix B.

9.1 EXTENT OF IMPACTED SOILS

Further delineation of the extent of on-site soils containing elevated concentrations of COCs is required in order to define the final limits of the soils excavation. This additional work will, at a minimum, require the definition of the limits of hotspot soils.

The extent of hotspot soils, those exhibiting concentrations of arsenic greater than 200 mg/kg, in and around the Osmose Area, has not been defined. Additional borings and soil sampling will be required to complete the definition. A summary of the existing COC analytical data is presented in Table 6.1. The locations of the identified hotspot soils and proposed additional borings are shown on Figure 9.1. The defined depths of impacted soils in the borings installed to date are presented in Table 9.1.

As shown by the information in Table 9.1, the definition of the vertical extent of hotspot soils is limited. The locations at which the vertical extent is defined are shown on Figure 9.1. The estimated number of soil borings required to complete the delineation of the hotspot soils is 21. Three of these borings, SB-43, SB-46, and SB-53, will be sampled to obtain additional data to be used in the definition of the vertical extent within the defined hotspot area. These borings will be advanced adjacent to previously sampled locations and will be sampled only from the lower limit of the previous boring to the top of the water table. All other borings will be sampled from grade to the top of the water table. The locations of the proposed additional borings are shown on Figure 9.1.

All borings will be sampled at 2-foot intervals from ground surface to the bottom of the boring and samples for analyses of arsenic, chromium and copper will be collected and submitted to an analytical laboratory. At locations which are being sampled only to complete the definition of the vertical extent of COC impact, analytical samples will be collected only from the intervals below those previously sampled. A summary of the boring depths, sampling, and analyses to be performed is presented in Table 9.2.

The data collected from the soil analyses will be combined with the existing soils analytical database and used to define the limits of the hotspot soils.

9.2 STRATIGRAPHY AND GEOTECHNICAL PROPERTIES

The recommended soil Remedial Action consists of the excavation of hotspot soils within the Osmose Area (remedial alternatives are discussed in detail in Section 8.0). The excavated soils will then be disposed of at an appropriate, permitted, off-Site disposal facility. In order to select safe excavation techniques and protect adjacent property, the soil stratigraphy and geotechnical properties in this area require definition.

To supplement the existing stratigraphic database, continuous samples for soil logging will be collected from all borings advanced during the drilling program using split spoon samplers. Split spoon samplers will be advanced ahead of drilling in accordance with the Standard Penetration Test Method (American Society for Testing and Materials [ASTM] 1586). Soils will be logged according to the Unified Soils Classification System (USCS).

Samples for geotechnical testing will also be collected from three borings advanced during the analytical sampling program. The geotechnical testing conducted on soils from these borings will, at a minimum, consist of the following:

i) moisture content of the sand above the water table;

ii) grain size determinations of the sand above the water table;

iii) moisture content and grain size determinations of the upper 5 feet of the silt or clay unit; and

iv) moisture content and grain size determinations of the silt or clay unit to a depth of 50 feet below grade at 5-foot intervals at one location.

If soft clay is found to be present, additional testing consisting of the collection of undisturbed (Shelby tube) samples and/or shear vane testing may be performed.

The borings proposed for geotechnical testing are shown on Figure 9.1, and the sampling and testing is summarized in Table 9.2. If necessary to obtain sufficient sample volume for the required testing, additional borings may be installed around these proposed locations.

9.3 GROUNDWATER

Due to the fine-grained nature of the native soils, migration of impacted groundwater away from the Osmose Area is expected to be limited. To verify this, one shallow temporary groundwater monitoring well will be installed at a location hydraulically downgradient of the Osmose Area and sampled on one occasion. The well will be removed immediately following the completion of sampling. The location proposed for the monitoring well is on City of Albany property, approximately halfway between the property and Patroons Creek, the nearest potential receptor of groundwater flowing from the Albany Miron property. The approximate location of the off-Site monitoring well is shown on Figure 9.2.

To be consistent with the existing on-Site monitoring wells, the well will be installed within the upper fine sand overburden. If possible, the well will consist of a 9-foot screen length with a bottom depth approximately 7 feet below the observed water table elevation at the time of drilling. If necessary due to the thickness of the fine sand and/or depth to water table, the screen length and placement may be adjusted at the time of installation. The monitoring well will be developed following installation and will be sampled no sooner than seven days following the completion of development. Purging and sampling of the well will be accomplished using low flow techniques. The well will not be grouted in place and will be removed by pulling immediately following sample collection. The open annular space will be grouted to approximately 1-foot below grade and the remaining open borehole will be finished with materials consistent with the surrounding area. Field procedures for well installation, development, and purging and sampling are included with the BI field procedures presented in Appendix A.

Samples collected from the temporary monitoring well will be analyzed for both total and dissolved concentrations of COCs in accordance with the QAPP presented in

Appendix B. Upon completion of the sampling and receipt of validated analytical results, a summary letter report will be provided to NYSDEC documenting all field activities and providing all analytical data generated.

9.4 SITE SURVEY

In order to define the limits of the hotspot soils, excavation area, finish grade, etc., and evaluate the hydraulic monitoring data, an accurate survey of the ground surface in and adjacent to the Osmose Area is required. The survey will include: elevations of monitoring well tops of casings relative to an established vertical datum; accurate location of Site features including monitoring wells, buildings, fenceline, and utilities; and topography in and around the Osmose Area.

10.0 PROPOSED SOILS REMEDIATION PLAN

The recommended remedial action for soils impacted by COCs at the Site is the excavation and disposal of hotspot soils combined with asphalt pavement capping of the entire Osmose Area. The soil remediation will be conducted in steps as follows:

Step 1: Perform investigatory work, define horizontal and vertical limits of the excavation area, and define methods for soil excavation.

Step 2: Site Preparation.

Step 3: Excavate and Dispose of Contaminated Materials.

Step 4: Site Restoration.

Step 5: Short-Term Groundwater Monitoring.

The work to be performed in each of these phases of the program is described in the following subsections.

10.1 INVESTIGATORY WORK AND DEVELOPMENT OF EXCAVATION METHODS

As described earlier, the existing Site characterization is not sufficient to define the limits or methods of soil excavation. The investigatory work required to complete the Site characterization and prepare a detailed plan for the removal of the contaminated soils has been described in detail in Section 9 of this report.

Following the receipt and review of the additional data, the area to be excavated will be defined and a proposal for the extent of the excavation will be submitted to NYSDEC for pre-approval. Obtaining pre-approval of the excavation area will allow for the excavation and backfill of the area to be completed as quickly and efficiently as possible.

In addition to the definition of the excavation area, the proposal to NYSDEC will detail the method of excavation, and will include a Health and Safety Plan which will describe Site security, air monitoring for worker and community exposure, and other protective measures.

10.2 SITE PREPARATION

The scope of Site preparation activities will depend on the final limits of excavation established from the site investigation, but will generally include the following:

Garage Demolition: The garage adjacent to the Osmose Area will be demolished and the resultant debris will be removed for disposal. Prior to demolition an asbestos survey will be undertaken to determine if asbestos-containing materials (ACM) are present. ACM, if confirmed to be present, will be removed in accordance with State and Federal regulations prior to demolition.

Containment Area Soil Removal: If necessary to gain access for soil excavation, the containment area pad will be removed. The hydrocarbon-impacted soil, which is currently stored on the pad, will be removed for off-Site disposal.

Concrete Removal and Disposal: Concrete that will or may need to be removed includes that from the garage structure, the containment area pad, and the Osmose pad. Generally, the concrete will be removed to the extent necessary to allow soil excavation to be undertaken. The concrete from the garage will, if necessary, be removed for disposal as inert material. Any concrete removed from the containment area and the Osmose pad will be handled as outlined in Section 10.3.2.

10.3 EXCAVATE AND DISPOSE

Soils above the water table within the Osmose Area which contain concentrations of arsenic exceeding the proposed cleanup target of 200 mg/Kg will be removed and disposed of at a permitted, off-Site disposal facility.

10.3.1 EXCAVATION

The subsurface soil encountered at the Site consists of loose to compact native fine sands, with the upper 2 to 3 feet consisting of reworked disturbed native sand. Based on regulations of the Occupational Safety and Health Administration (OSHA), the fill and native sand is classified as a Type C soil. It is estimated that the maximum depth of the excavation will be between 15 and 20 feet, depending upon the depth to groundwater at the time the excavation takes place, with the deepest portions located in the southern portion of the Osmose Area.

For excavations in Type C soil that are less than 20 feet deep, the maximum allowable unsupported slope for the excavation side walls is 1.5 Horizontal to 1 Vertical (1.5 H to 1.0 V). If steeper slopes are necessary due to site limitations, these sidewalls are required to be supported.

Open-cut excavations require appropriate sloping of the side walls for safety and protection of adjacent property. Adjacent structures such as the garage and concrete slab along the east side of the Osmose Area may be compromised by open-cut excavations. It is probable that the garage and slab will be demolished as part of the excavation activities. Dewatering of the excavation will be minimal as the excavation will not extend any significant depth below the groundwater table.

10.3.2 DISPOSAL

The COC-impacted soil and concrete from the containment pad and the Osmose pad will be disposed of off-Site at secure disposal facilities. As shown by the TCLP data presented in Table 6.5, the contaminated soils do not exhibit the characteristics of a hazardous waste. However, the disposal requirements for the soil and concrete may be dictated by the RCRA classification for site-generated wastes, i.e., P012. This will be evaluated in further detail during the finalization of the excavation methods.

The options that will be considered for soil disposal include hazardous waste landfill disposal and non-hazardous waste landfill disposal (subject to further assessment of RCRA requirements).

The options that will be considered for disposal of concrete (from the containment pad and the Osmose pad) include the same identified above for soil disposal. In addition consideration will be given to cleaning the concrete and confirmatory sampling with non-hazardous disposal.

The options for disposal of soil and concrete will be reviewed to determine which is most cost-effective and acceptable to the disposal facility, and the option of choice will be proposed in the Final Remediation Work Plan.

10.4 CONFIRMATORY SAMPLING

As described in Section 10.1, the area and depths of excavation will be defined through the additional data collection activities prior to beginning the work. All soils within these limits will be excavated; therefore, confirmatory sampling will not be performed.

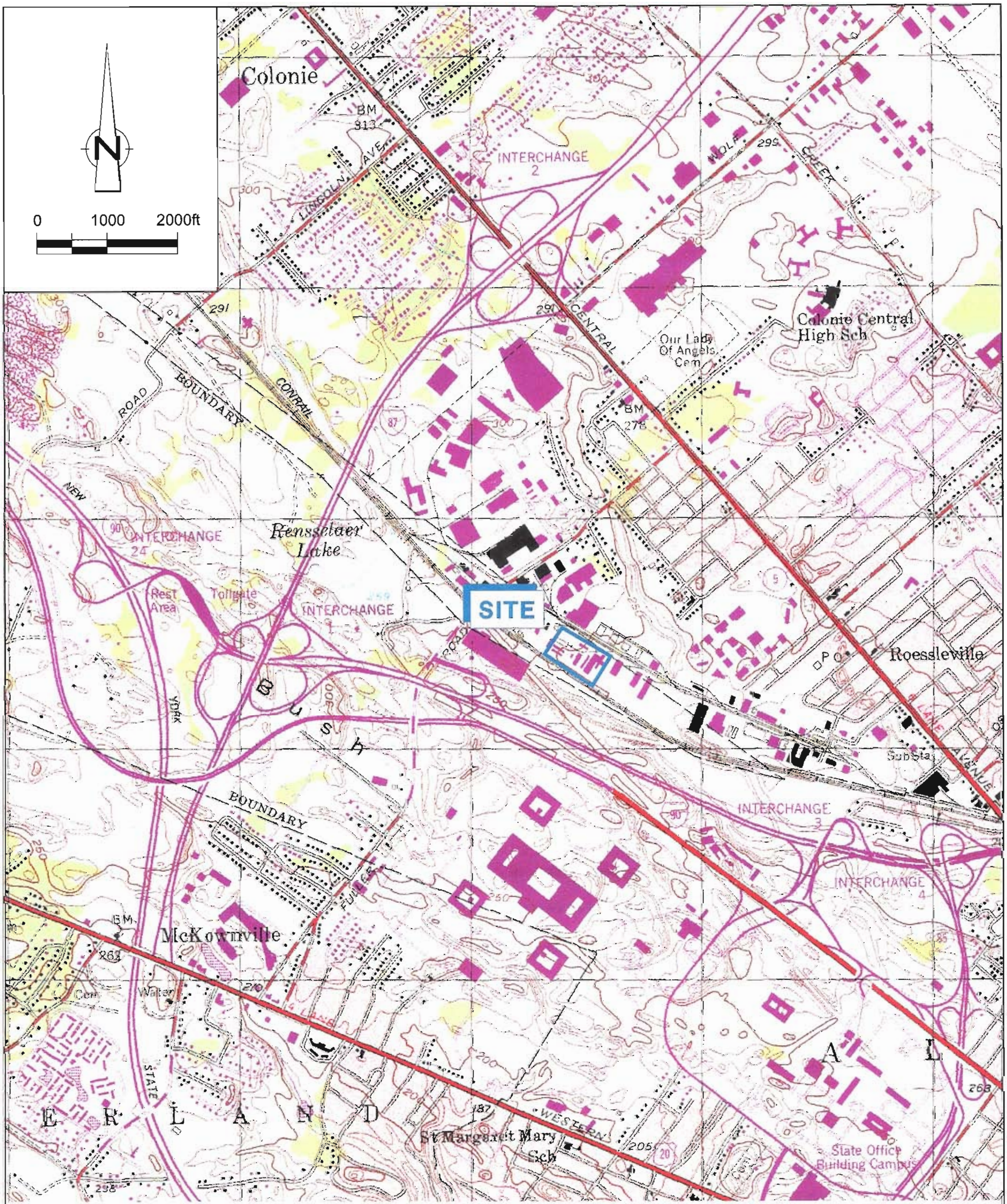
10.5 SITE RESTORATION

Restoration will consist of backfilling the excavation following removal of all soil exhibiting concentrations of arsenic exceeding the cleanup targets. The backfill will consist of free-draining granular sand or sand and gravel, similar to the native fine sand soils. Backfilling operations will be carried out such that adequate heavy vibration equipment is used to compact the material. The backfill will be placed in loose lifts not exceeding 1 foot in thickness, and will be compacted to a minimum of 95 percent Standard Proctor maximum dry density (SPMDD). Backfilling operations will be witnessed by a geotechnical engineer, and compaction testing will be performed at a sufficient frequency to document the placement and compaction results. Backfill placed in this manner would be suitable for support of future industrial use, such as parking and/or storage. If structural building loads are contemplated on the fill, these recommendations should be modified to support the structural loads.

Catch basins, storm drains and other utilities will be restored as necessary. Upon completion, the surface of the backfilled area will be covered with gravel or with topsoil and vegetative cover. If other cover(s) are required by the property owner, they may be substituted.

10.6 SHORT-TERM GROUNDWATER MONITORING

Following completion of the soil remediation, a routine groundwater monitoring program will be established at the Site and conducted for 1 year. This monitoring program will consist of both hydraulic and water quality monitoring. The groundwater monitoring program will be developed following the definition of the excavation limits and a proposal will be submitted to NYSDEC for approval prior to the commencement of the program.

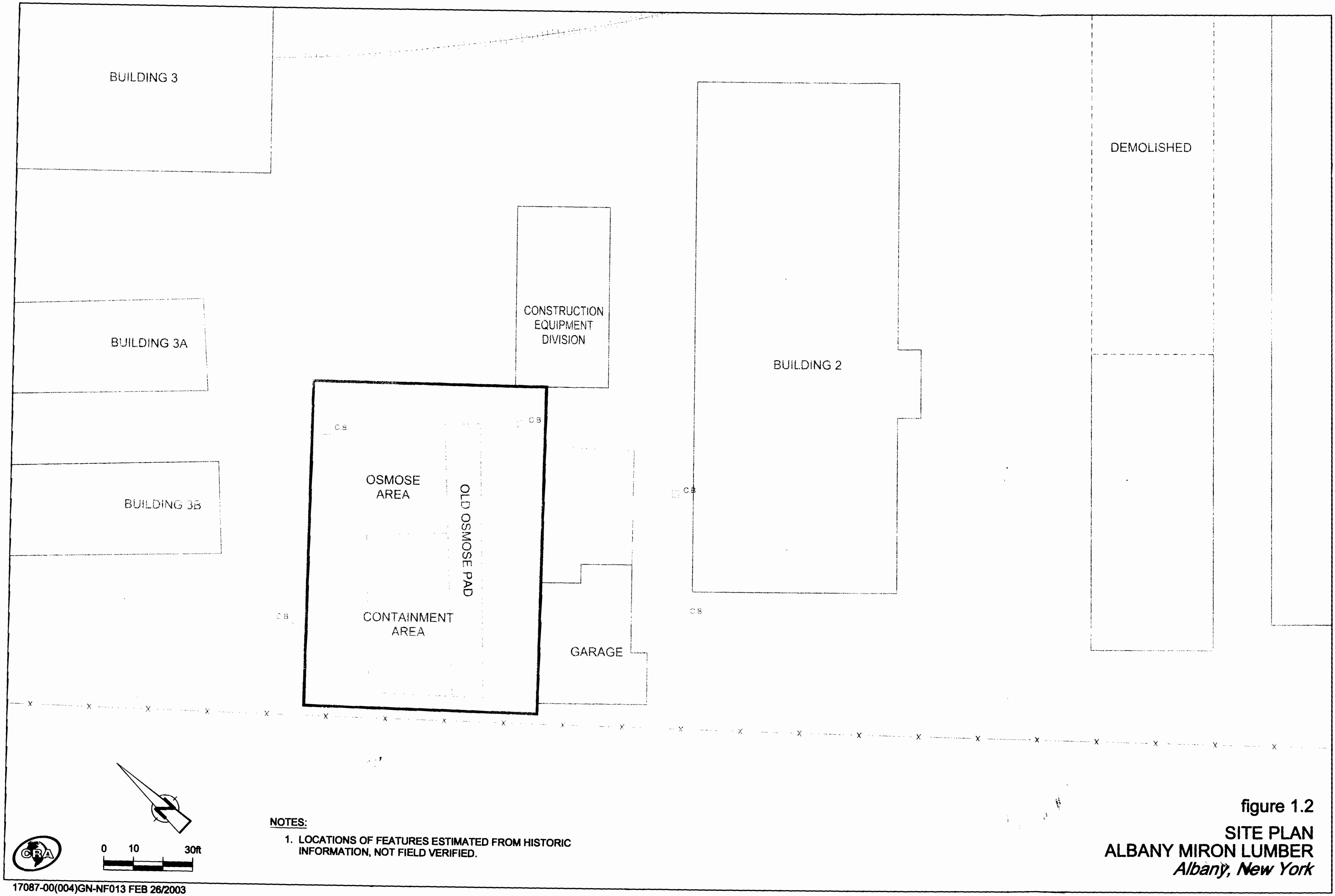


SOURCE:

USGS ALBANY, NEW YORK
QUADRANGLE, PHOTOREVISED 1980.

figure 1.1

SITE LOCATION
ALBANY MIRON LUMBER
Albany, New York

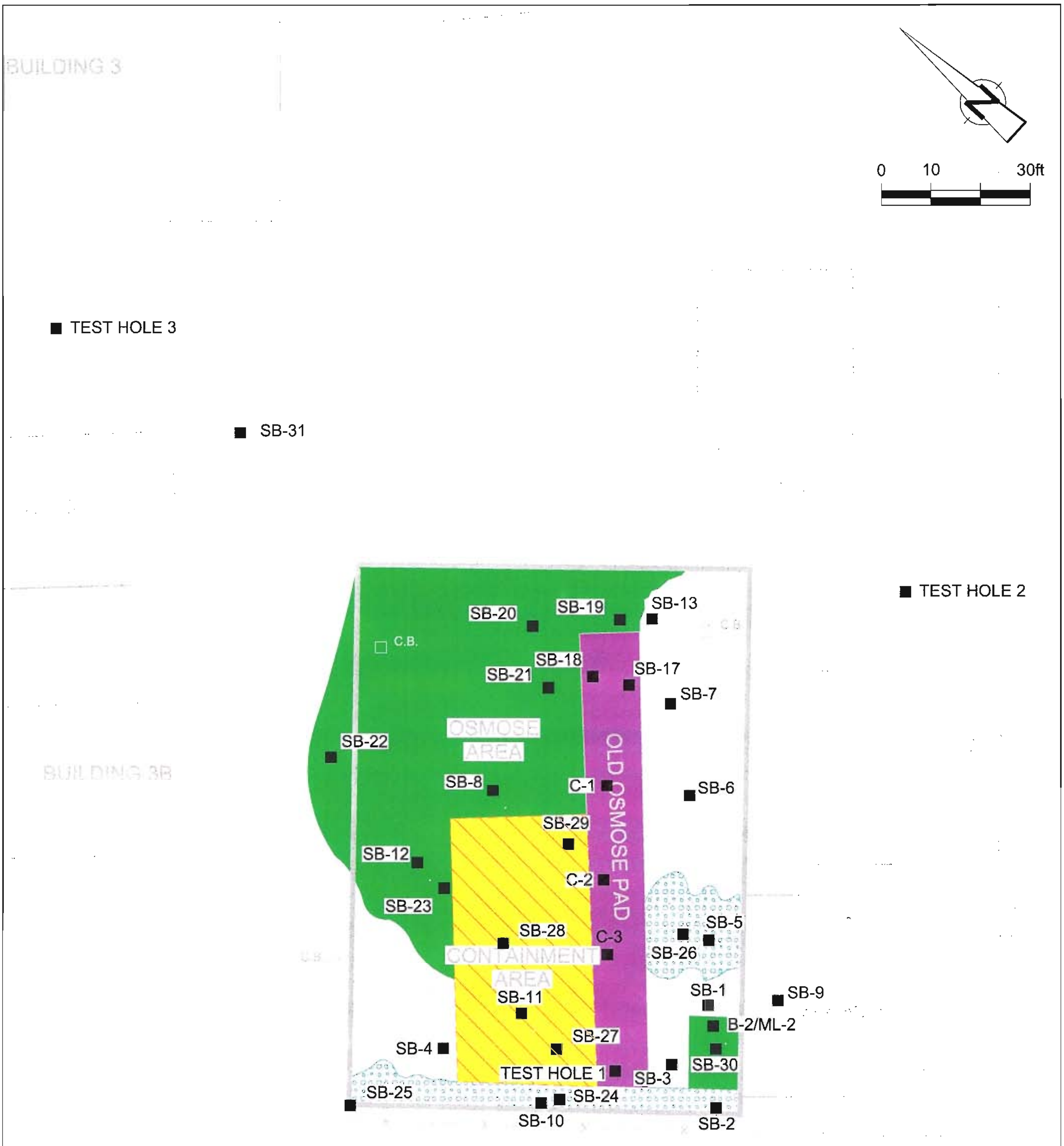


NOTES:

1. LOCATIONS OF FEATURES ESTIMATED FROM HISTORIC INFORMATION, NOT FIELD VERIFIED.

figure 1.2

SITE PLAN
ALBANY MIRON LUMBER
Albany, New York



LEGEND

■ SOIL BORING
🟩 ASPHALT
🟪 CONCRETE
▨ SOIL/GRAVEL
🟨 CONCRETE BASE

NOTES:

1. LOCATIONS OF FEATURES ESTIMATED FROM HISTORIC INFORMATION, NOT FIELD VERIFIED.

figure 2.1

SURFACE CHARACTERISTICS
ALBANY MIRON LUMBER
Albany, New York

17087-00(004)GN-NF015 FEB 26/2003

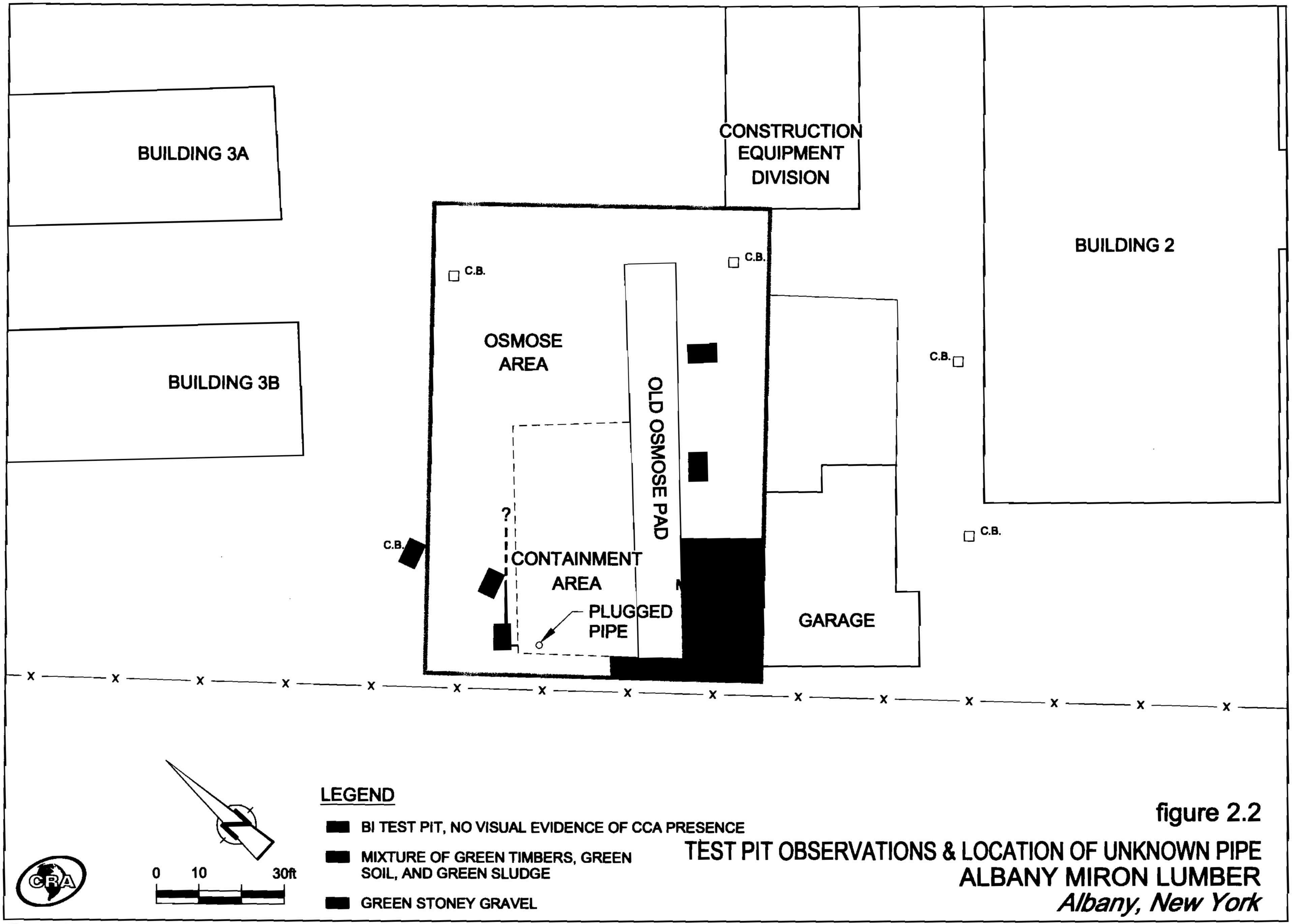


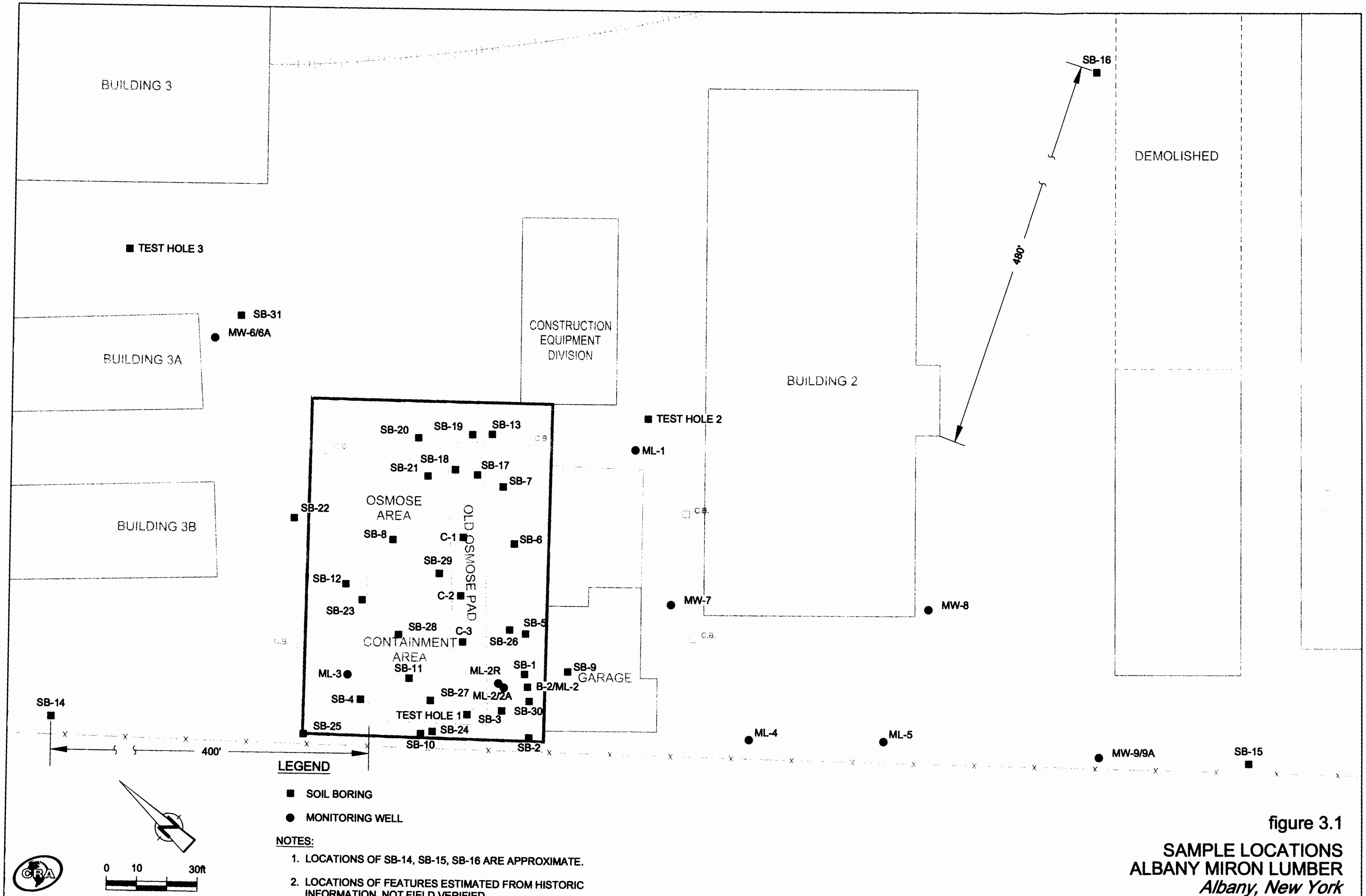
figure 2.2

TEST PIT OBSERVATIONS & LOCATION OF UNKNOWN PIPE

ALBANY MIRON LUMBER

Albany, New York

17087-00(004)GN-NF014 FEB 26/2003



LEGEND

■ SOIL BORING

● MONITORING WELL

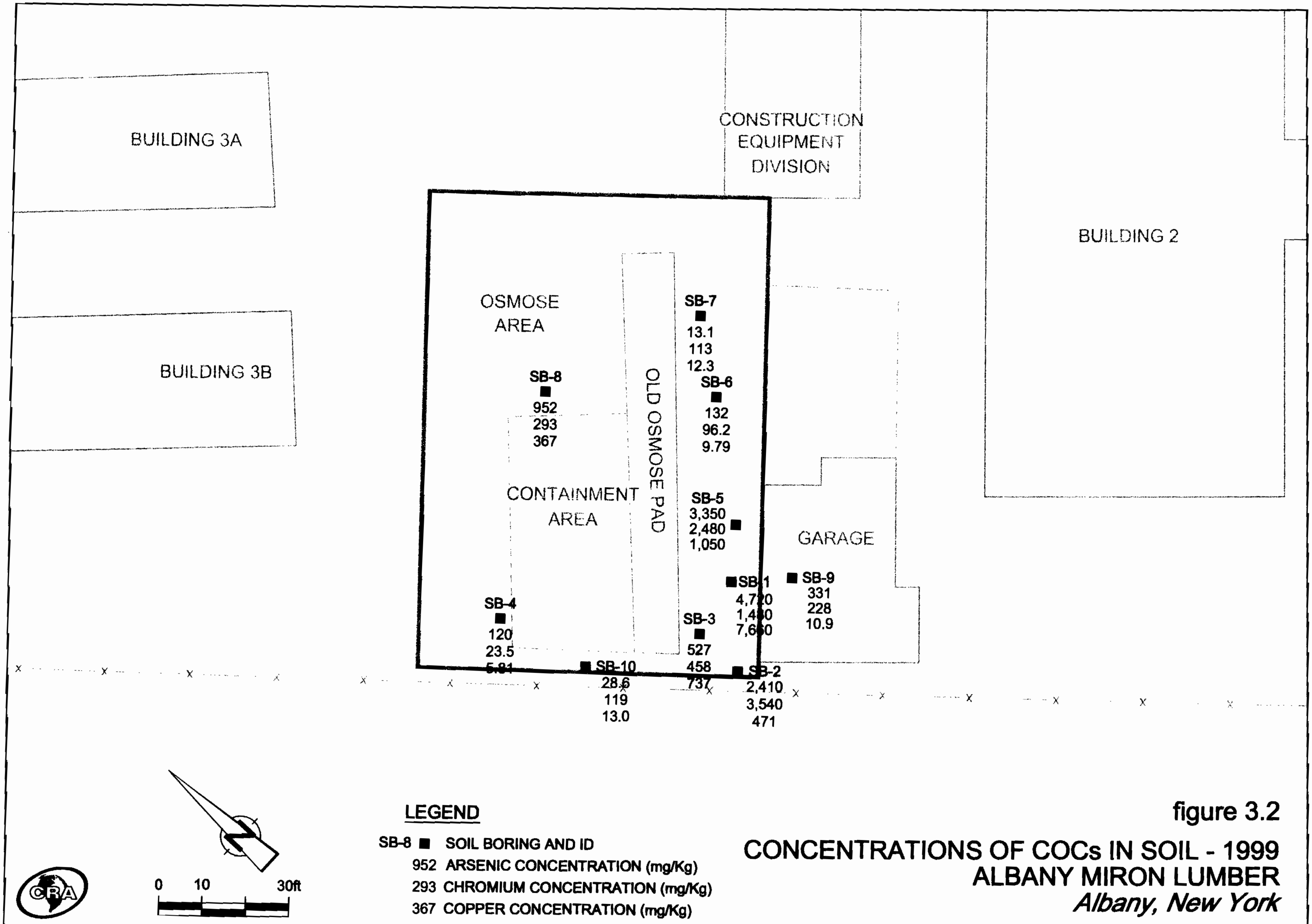
NOTES:

1. LOCATIONS OF SB-14, SB-15, SB-16 ARE APPROXIMATE.
2. LOCATIONS OF FEATURES ESTIMATED FROM HISTORIC INFORMATION, NOT FIELD VERIFIED.

figure 3.1

SAMPLE LOCATIONS
ALBANY MIRON LUMBER
Albany, New York

17087-00(004)GN-NF020 FEB 26/2003

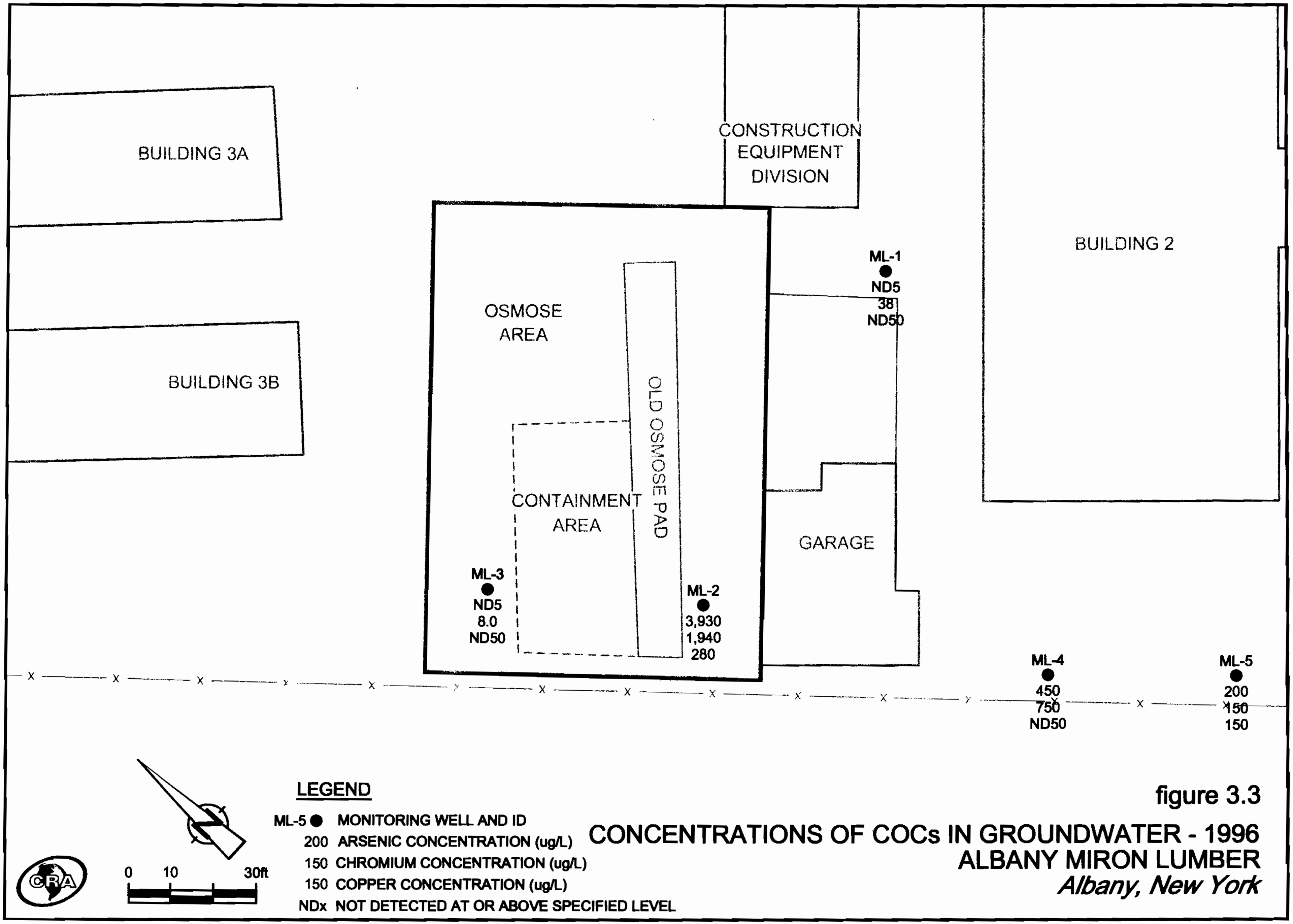


LEGEND

SB-8 ■ SOIL BORING AND ID
952 ARSENIC CONCENTRATION (mg/Kg)
293 CHROMIUM CONCENTRATION (mg/Kg)
367 COPPER CONCENTRATION (mg/Kg)

figure 3.2

CONCENTRATIONS OF COCs IN SOIL - 1999
ALBANY MIRON LUMBER
Albany, New York



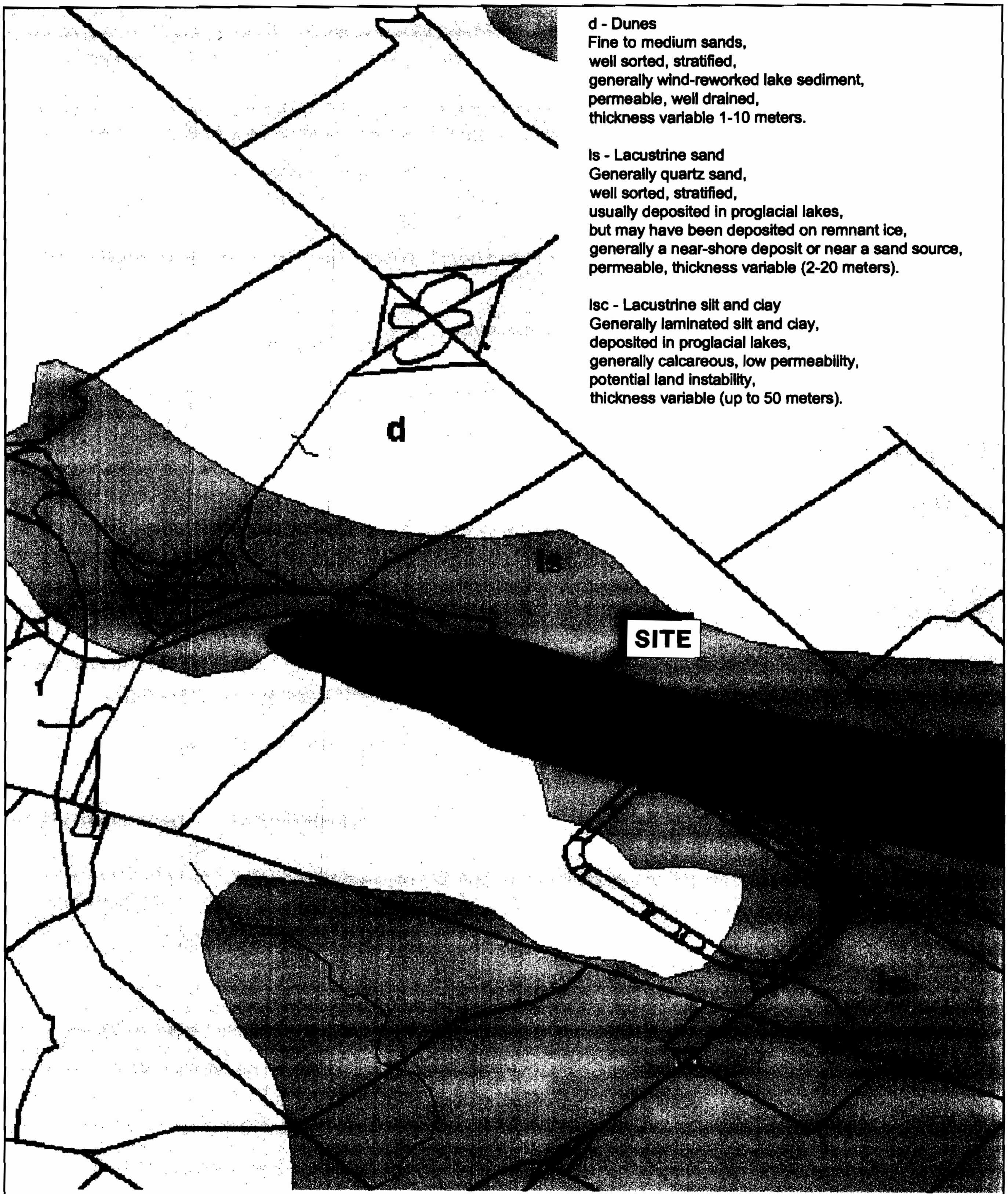
LEGEND

ML-5 ● MONITORING WELL AND ID
200 ARSENIC CONCENTRATION (ug/L)
150 CHROMIUM CONCENTRATION (ug/L)
150 COPPER CONCENTRATION (ug/L)
NDx NOT DETECTED AT OR ABOVE SPECIFIED LEVEL

figure 3.3

CONCENTRATIONS OF COCs IN GROUNDWATER - 1996
ALBANY MIRON LUMBER
Albany, New York

17087-00(004)GN-NF012 FEB 26/2003



d - Dunes
Fine to medium sands,
well sorted, stratified,
generally wind-reworked lake sediment,
permeable, well drained,
thickness variable 1-10 meters.

ls - Lacustrine sand
Generally quartz sand,
well sorted, stratified,
usually deposited in proglacial lakes,
but may have been deposited on remnant ice,
generally a near-shore deposit or near a sand source,
permeable, thickness variable (2-20 meters).

lsc - Lacustrine silt and clay
Generally laminated silt and clay,
deposited in proglacial lakes,
generally calcareous, low permeability,
potential land instability,
thickness variable (up to 50 meters).

figure 5.1

REGIONAL SURFACE GEOLOGY
ALBANY MIRON LUMBER
Albany, New York

17087-00(004)GN-NF018 FEB 26/2003

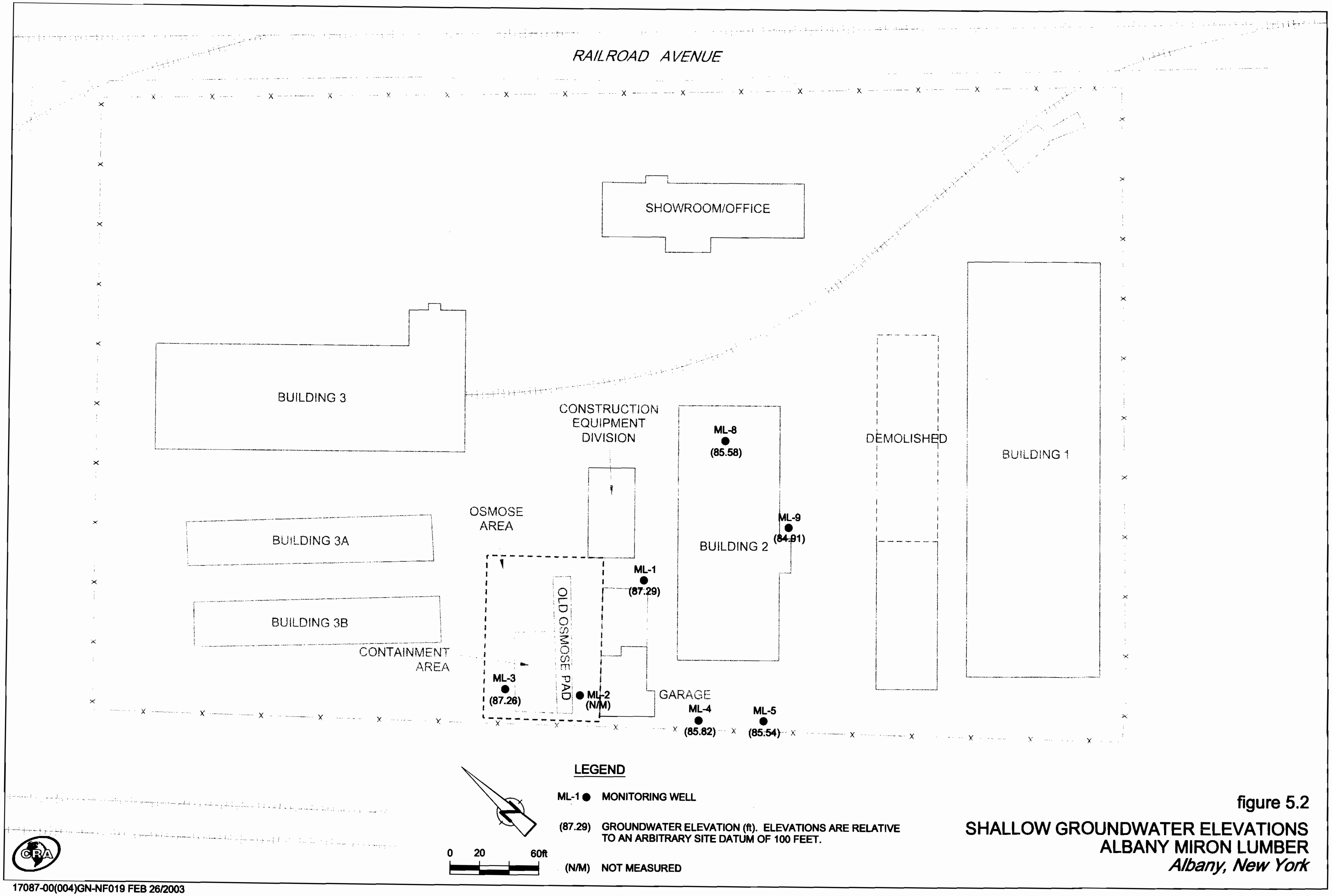
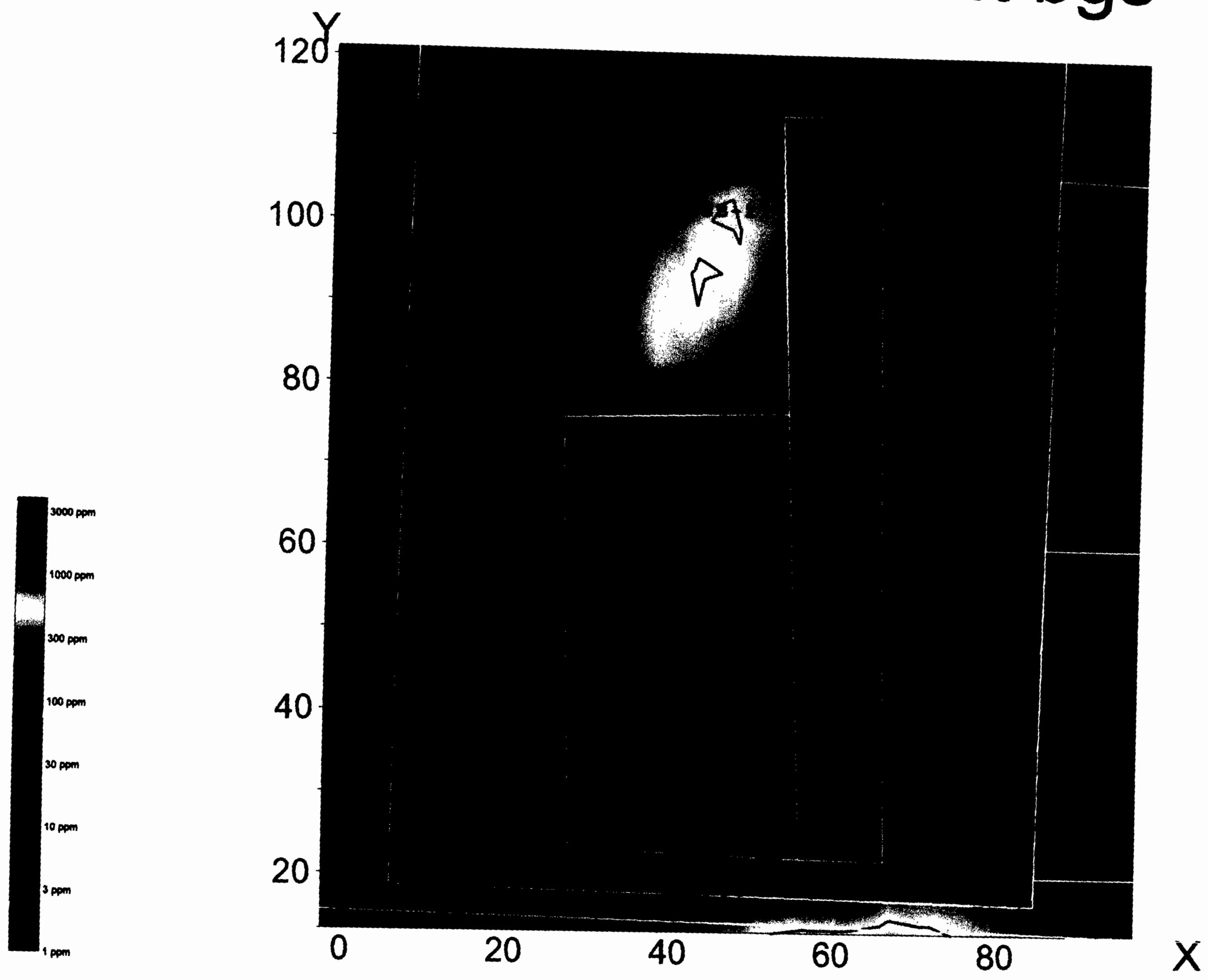


figure 5.2

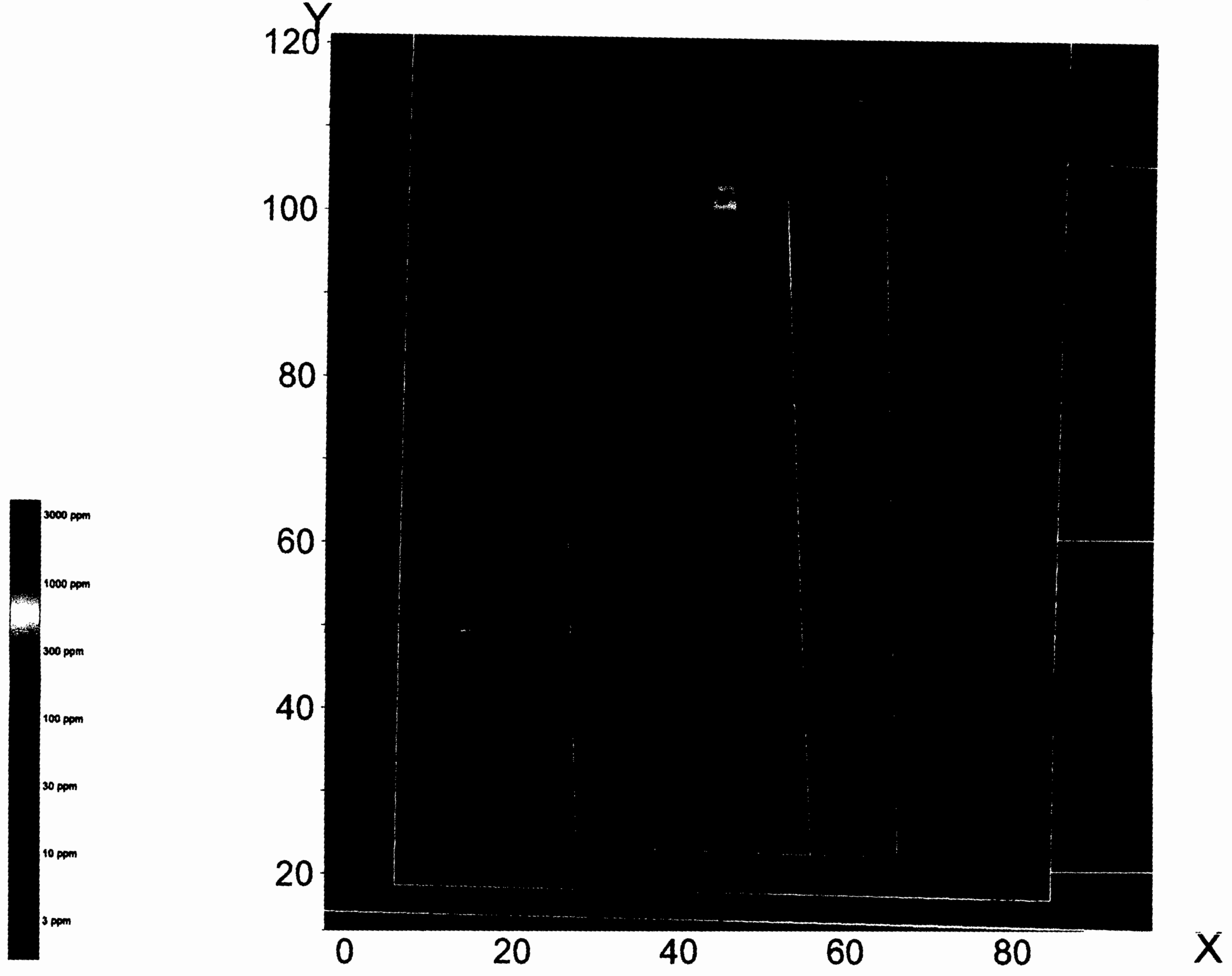
SHALLOW GROUNDWATER ELEVATIONS
ALBANY MIRON LUMBER
Albany, New York

17087-00(004)GN-NF019 FEB 26/2003

Arsenic in Soil at 1 ft bgs



Chromium in Soil at 1 ft bgs



LEGEND

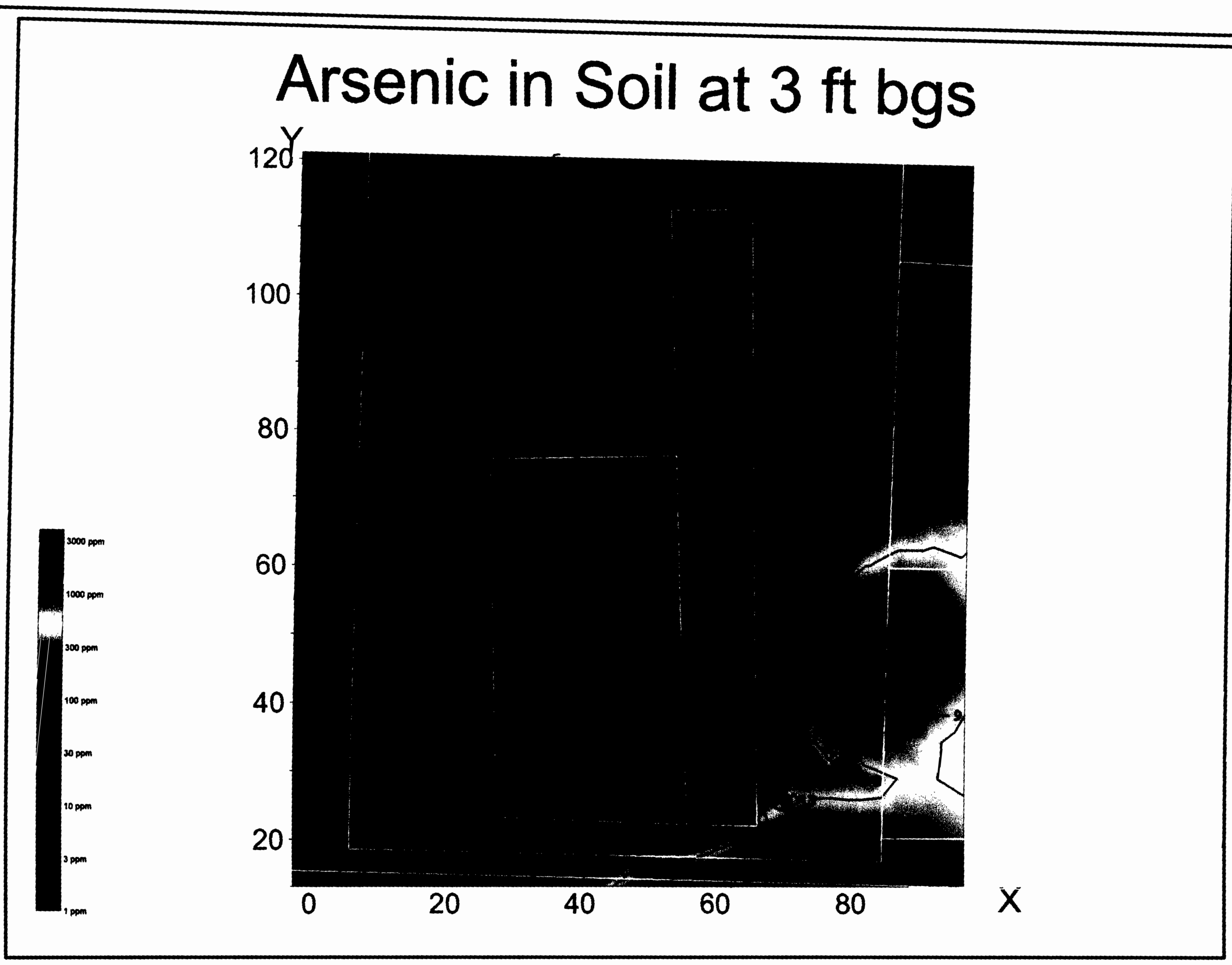
—— LIMIT OF EXCEEDANCE OF STANDARD

BGS BELOW GROUND SURFACE

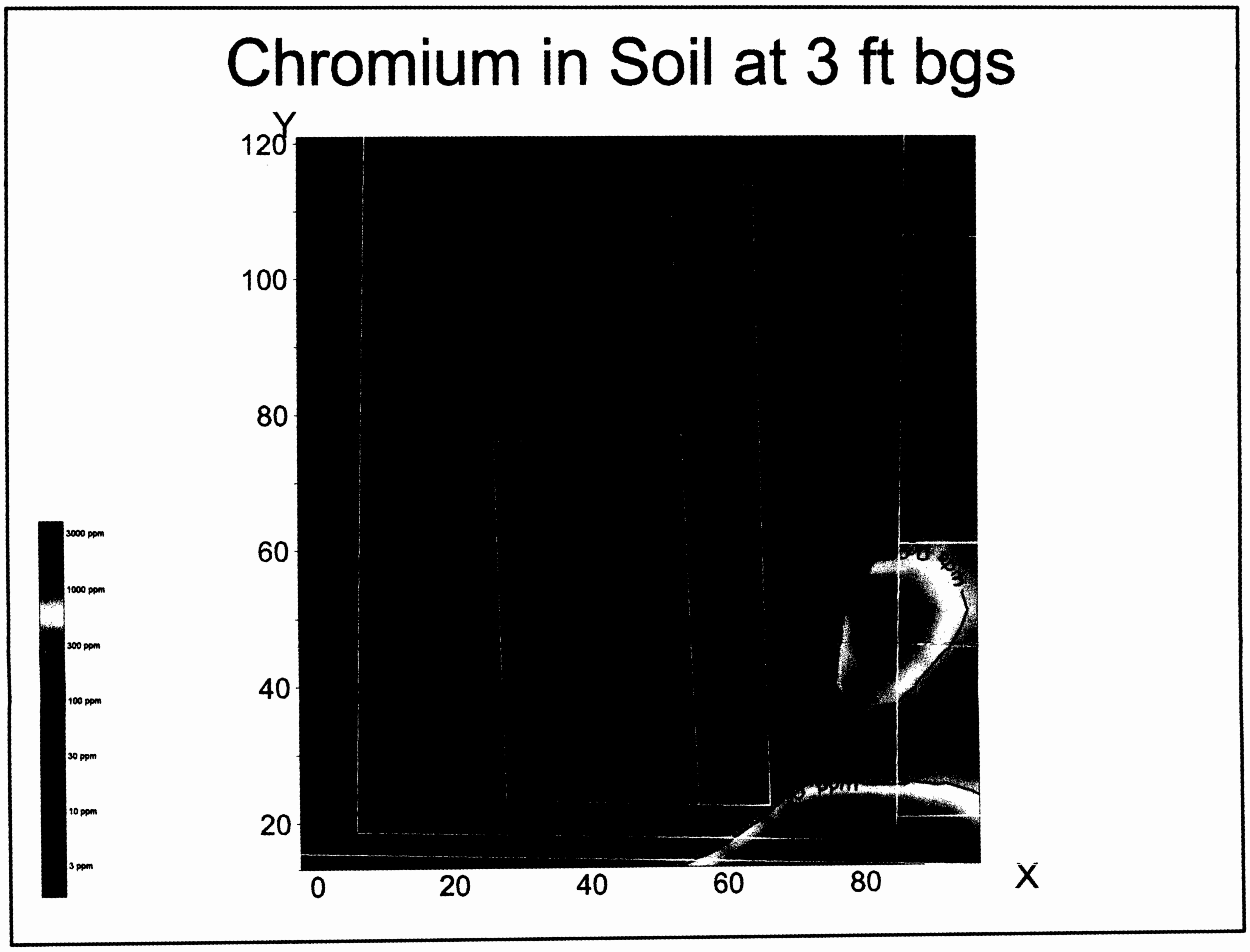
figure 7.1

ARSENIC AND CHROMIUM IN SOIL - 1 FOOT BGS
ALBANY LUMBER
Albany, New York

CRA



Arsenic in Soil at 3 ft bgs



Chromium in Soil at 3 ft bgs

LEGEND

—— LIMIT OF EXCEEDANCE OF STANDARD

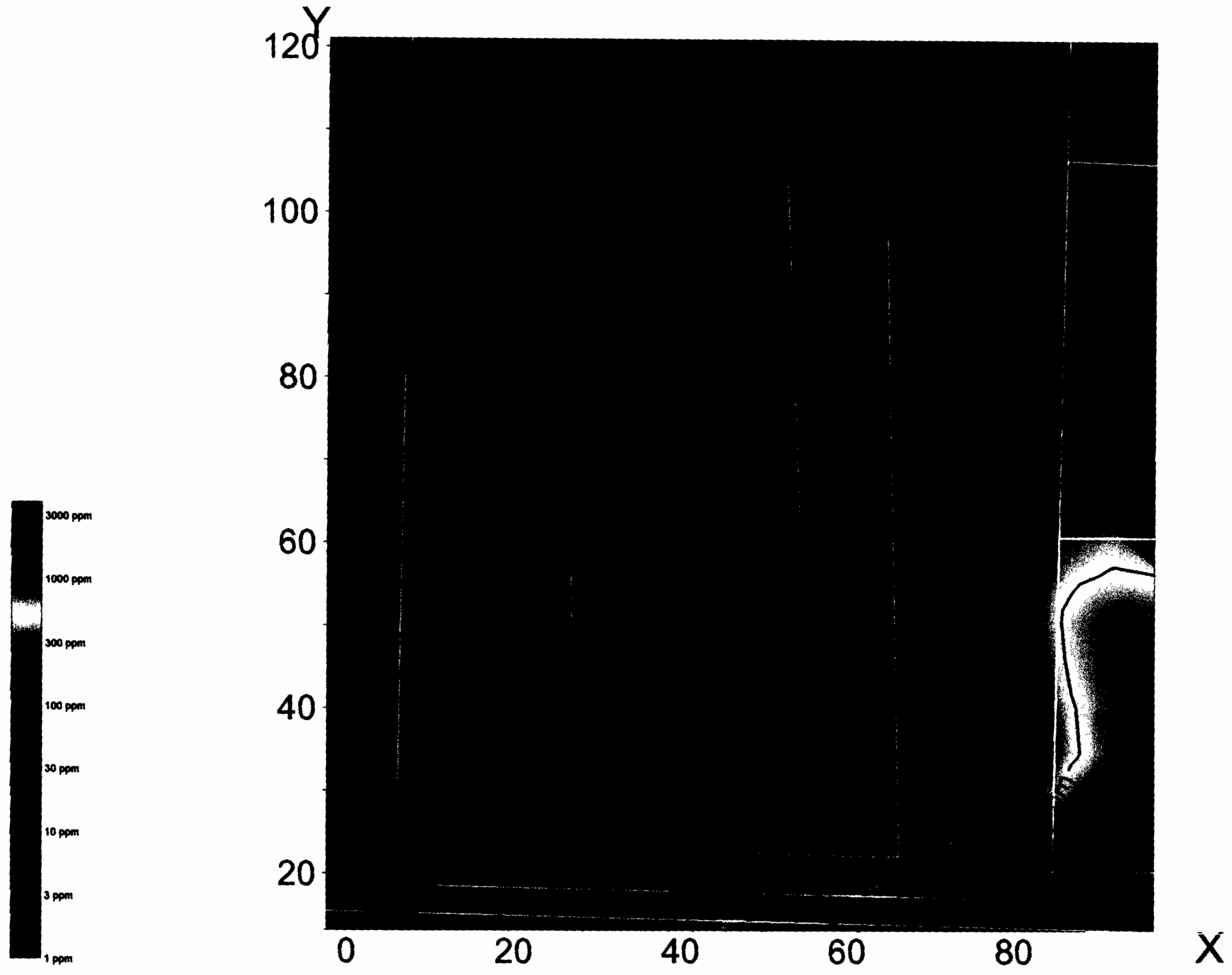
BGS BELOW GROUND SURFACE

figure 7.2

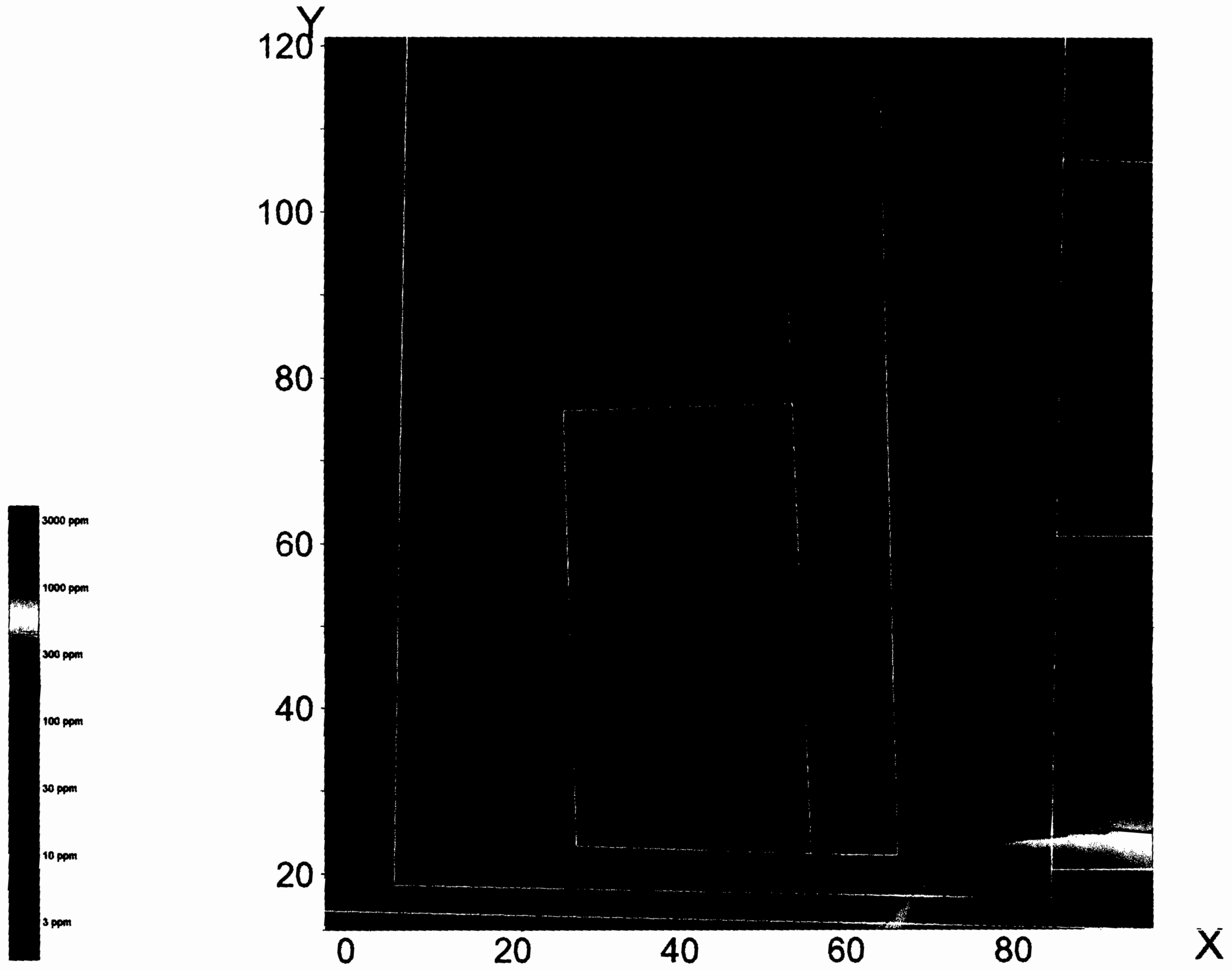
ARSENIC AND CHROMIUM IN SOIL - 3 FEET BGS
ALBANY LUMBER
Albany, New York

17087-00(004)GN-NF007 FEB 26/2003

Arsenic in Soil at 5 ft bgs



Chromium in Soil at 5 ft bgs



LEGEND

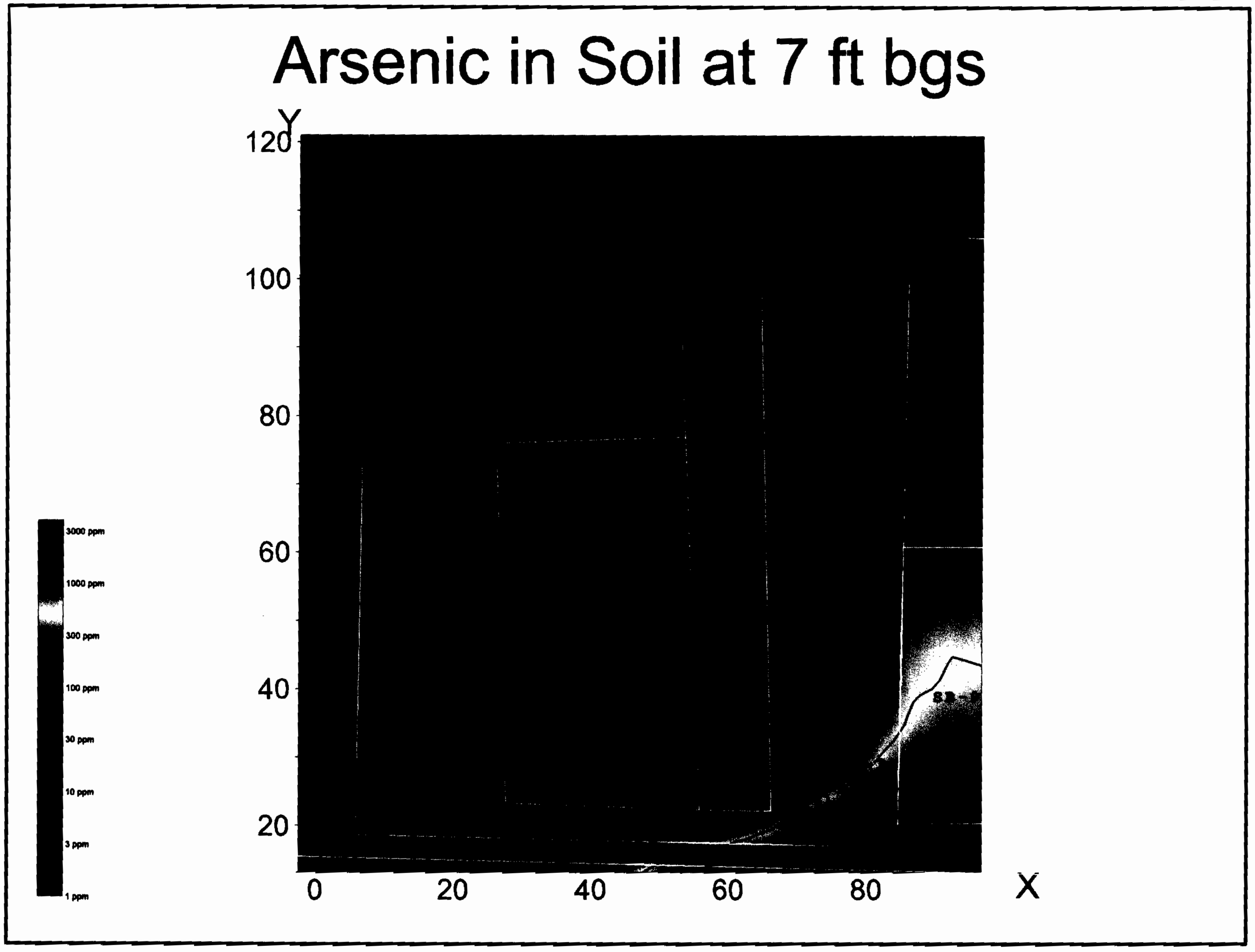
—— LIMIT OF EXCEEDANCE OF STANDARD

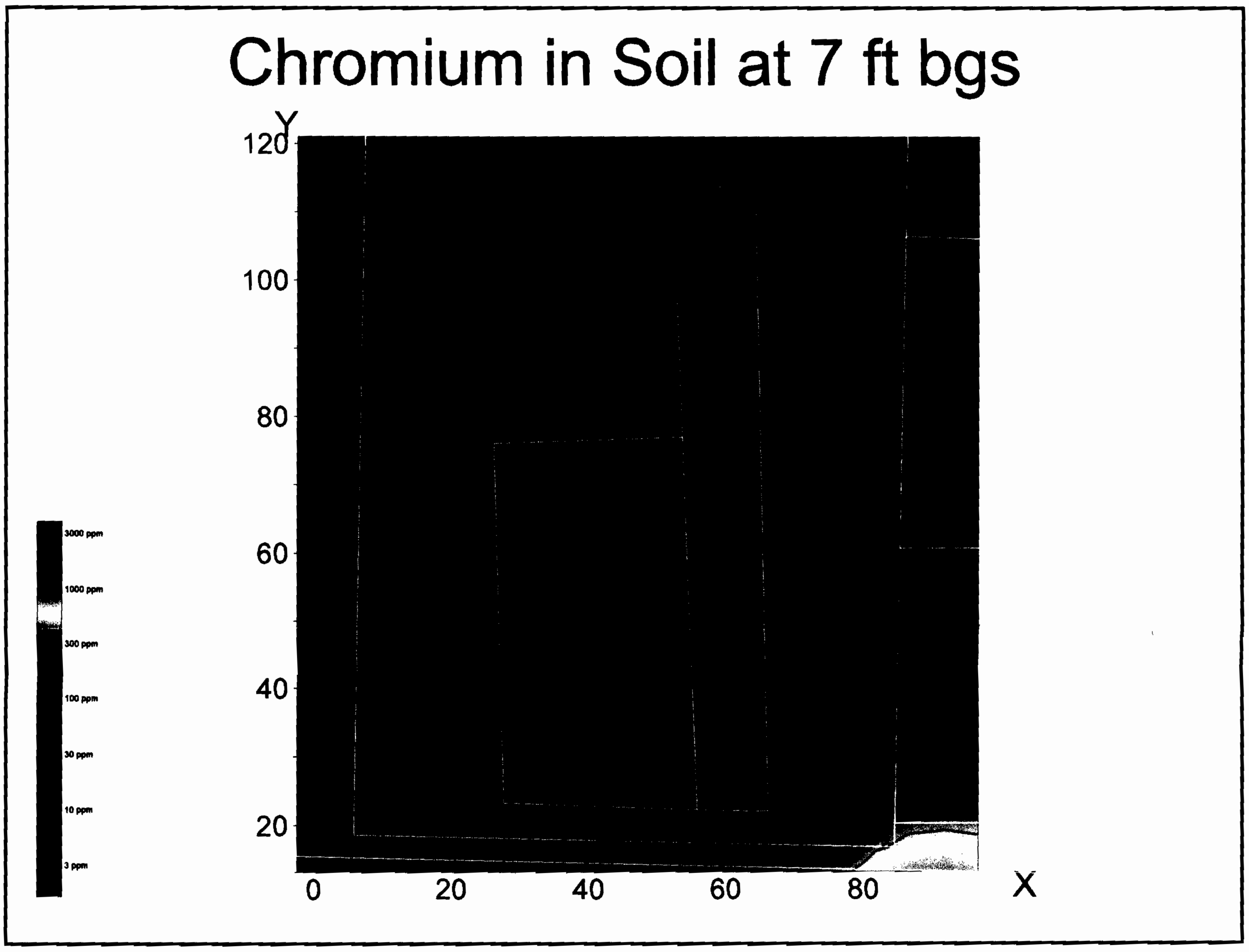
BGS BELOW GROUND SURFACE

figure 7.3

ARSENIC AND CHROMIUM IN SOIL - 5 FEET BGS
ALBANY LUMBER
Albany, New York

17087-00(004)GN-NF008 FEB 26/2003





LEGEND

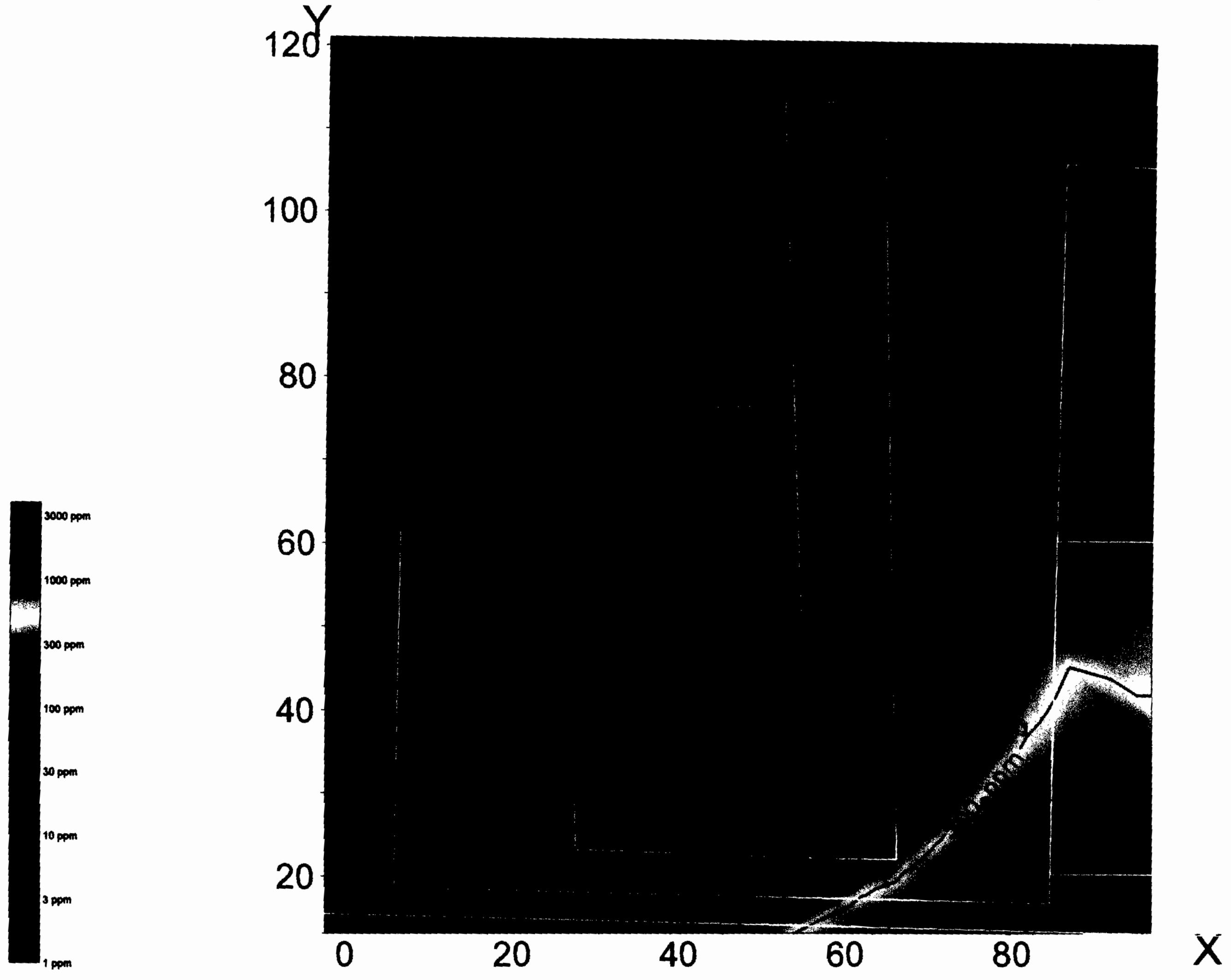
—— LIMIT OF EXCEEDANCE OF STANDARD

BGS BELOW GROUND SURFACE

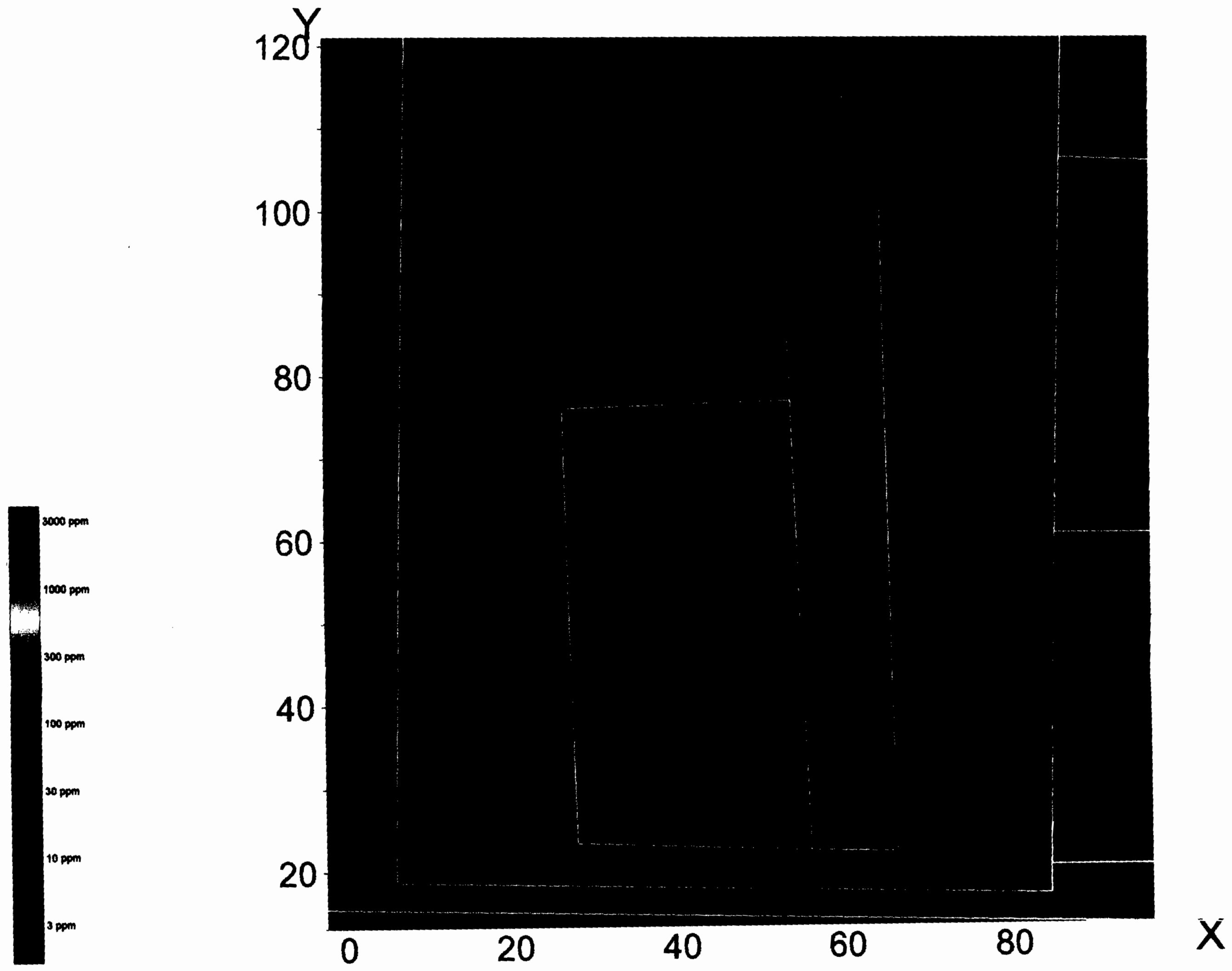
figure 7.4

ARSENIC AND CHROMIUM IN SOIL - 7 FEET BGS
ALBANY LUMBER
Albany, New York

Arsenic in Soil at 9 ft bgs



Chromium in Soil at 9 ft bgs



LEGEND

—— LIMIT OF EXCEEDANCE OF STANDARD

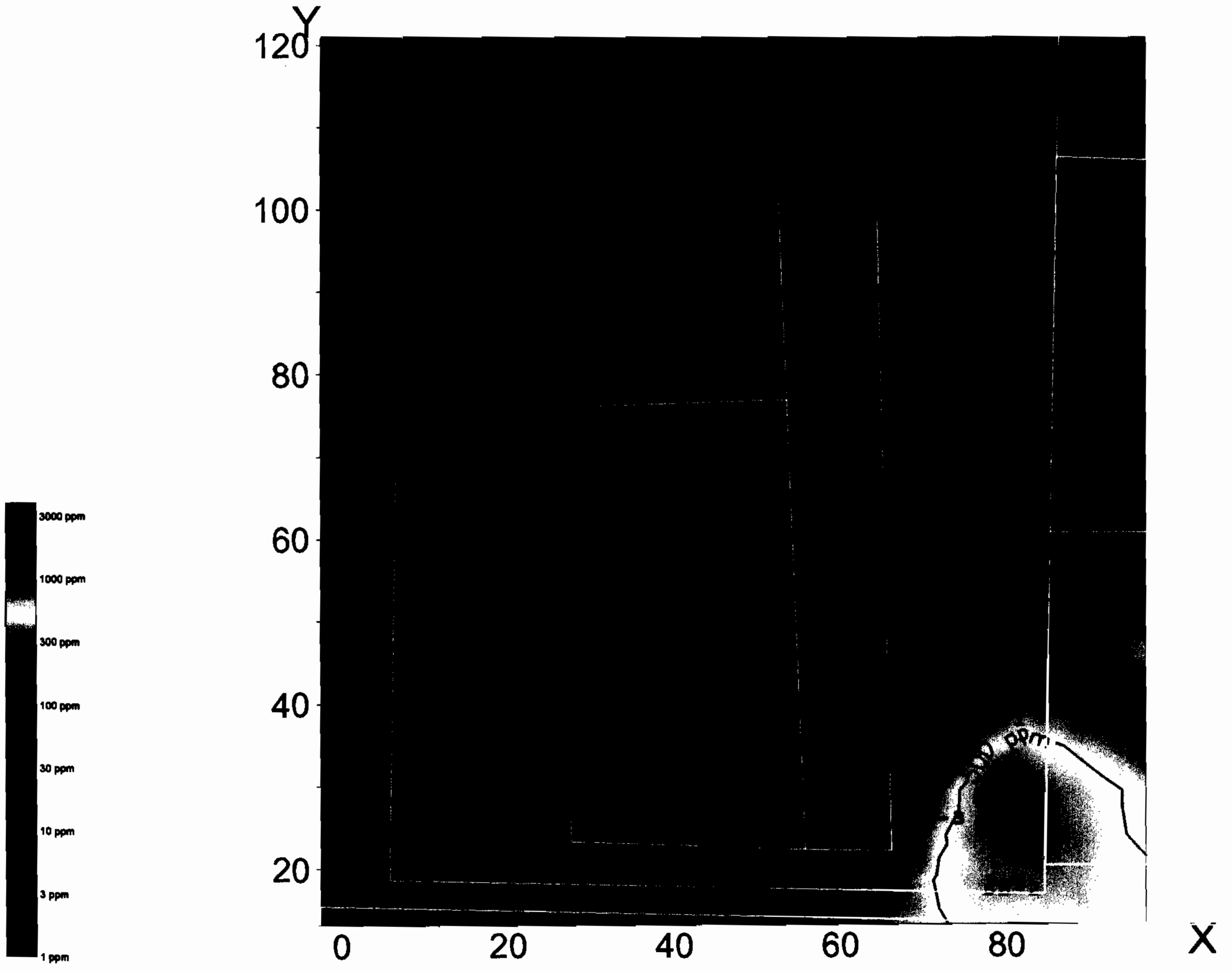
BGS BELOW GROUND SURFACE

figure 7.5

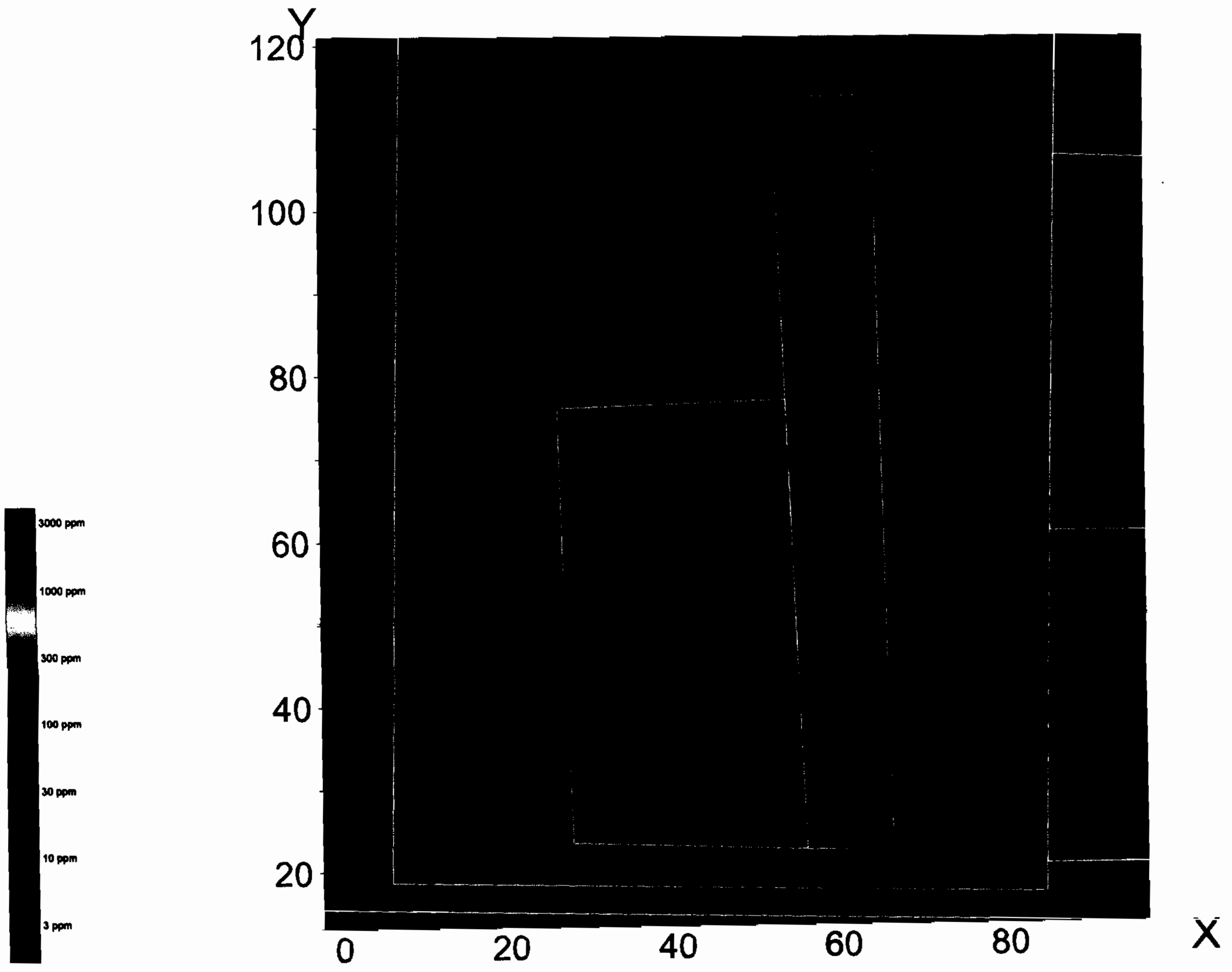
ARSENIC AND CHROMIUM IN SOIL - 9 FEET BGS
ALBANY LUMBER
Albany, New York

CRA

Arsenic in Soil at 11 ft bgs



Chromium in Soil at 11 ft bgs



LEGEND

—— LIMIT OF EXCEEDANCE OF STANDARD

BGS BELOW GROUND SURFACE

figure 7.6

ARSENIC AND CHROMIUM IN SOIL - 11 FEET BGS
ALBANY LUMBER
Albany, New York

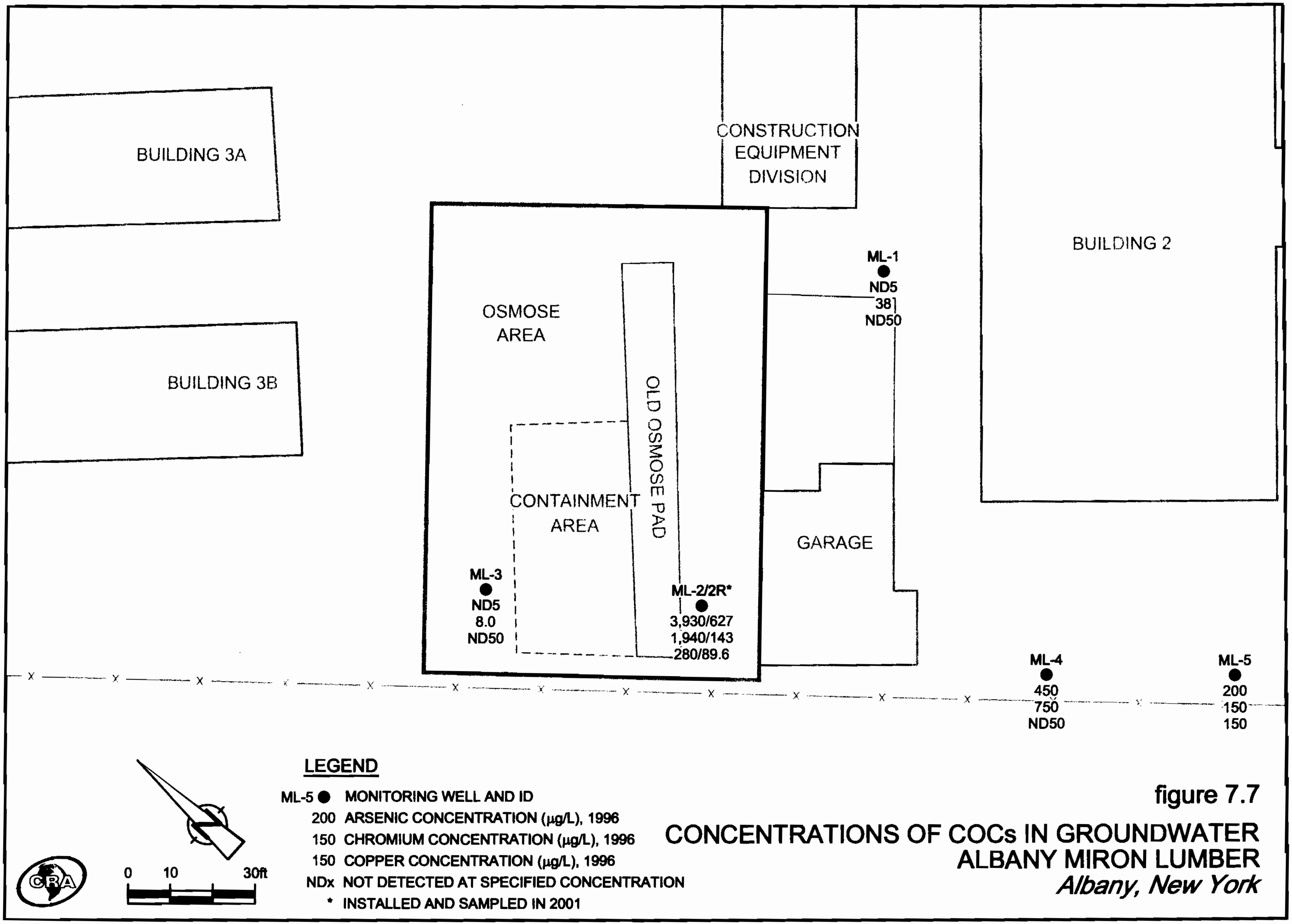


figure 7.7

CONCENTRATIONS OF COCs IN GROUNDWATER
ALBANY MIRON LUMBER
Albany, New York

17087-00(004)GN-NF005 FEB 26/2003

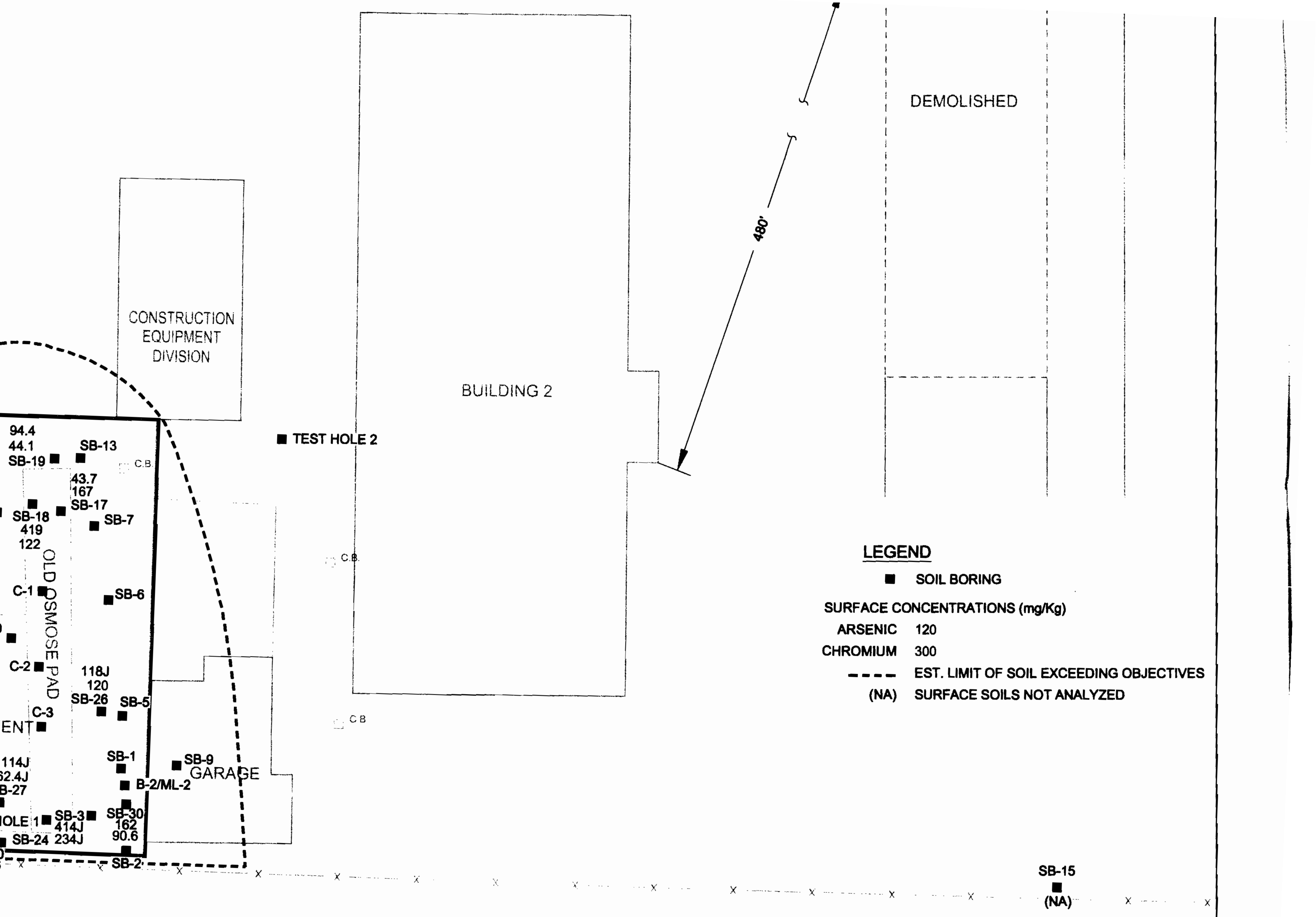
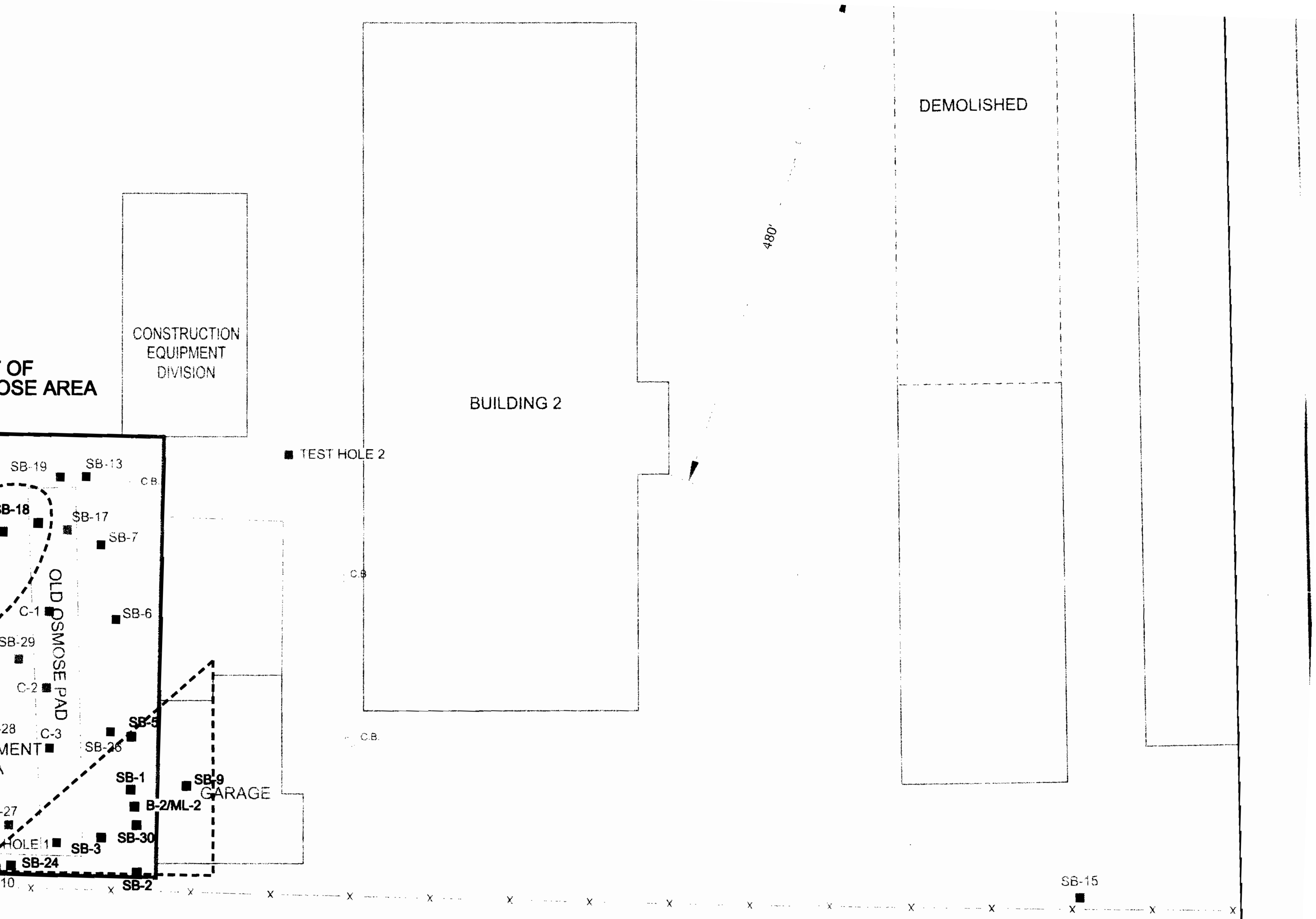


figure 8.1

ESTIMATED ON-SITE LIMIT OF SURFACE SOILS
EXCEEDING CLEANUP OBJECTIVES

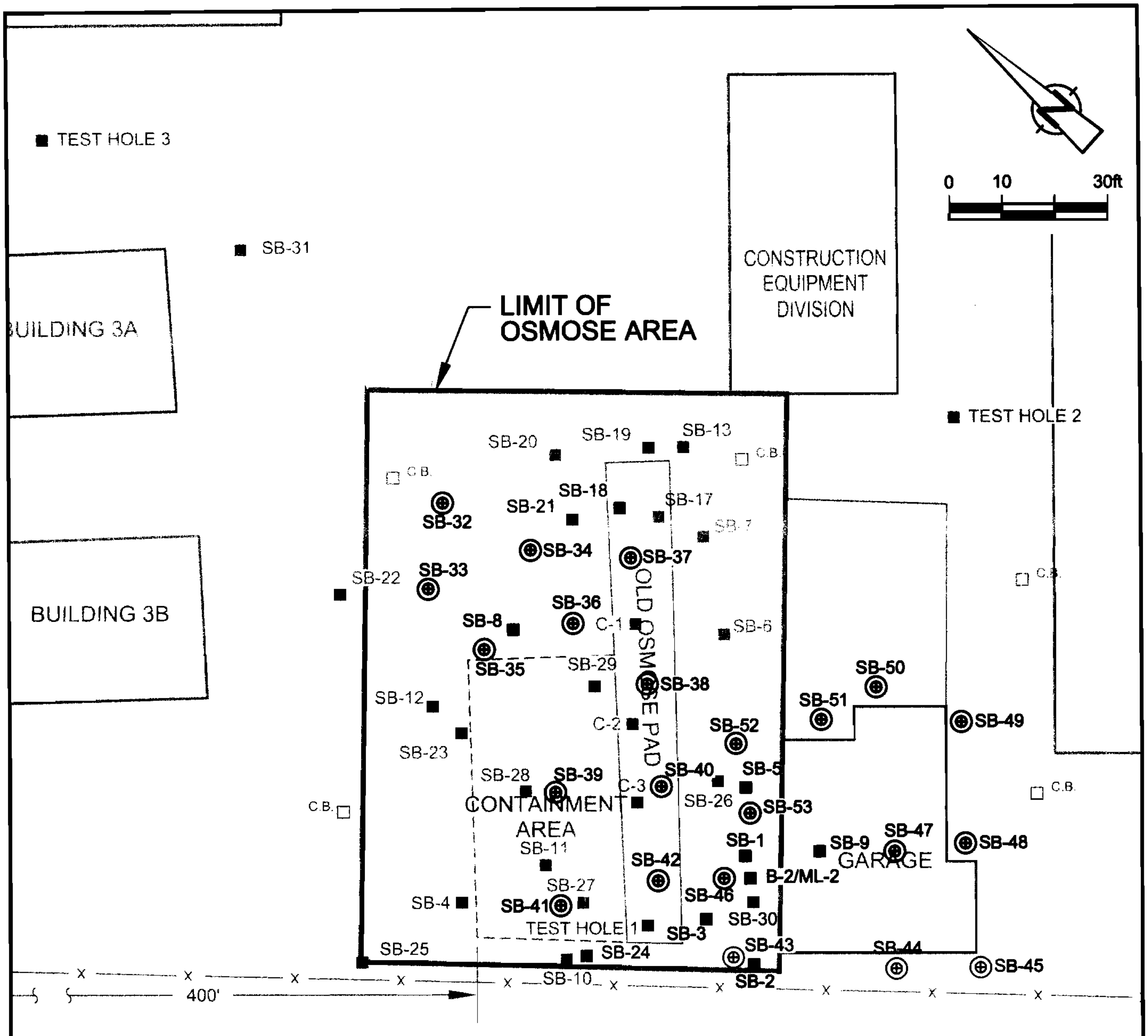


>200mg/kg PRESENT

NOTES:

figure 8.2

LOCATIONS OF HOTSPOT SOILS



LEGEND

■	PREVIOUSLY INSTALLED SOIL BORING
SB-3 ■	CONCENTRATIONS >200mg/kg PRESENT
SB-3 ■	HOTSPOT DEPTH DEFINED
SB-40 ◉	BORING TO BE SAMPLED FOR ANALYTICAL TESTING
SB-44 ⊕	BORING TO BE SAMPLED FOR ANALYTICAL AND GEOTECHNICAL TESTING

NOTES:

1. LOCATIONS OF FEATURES ESTIMATED FROM HISTORIC INFORMATION, NOT FIELD VERIFIED.

figure 9.1

PROPOSED ADDITIONAL BORINGS AND TESTING
ALBANY MIRON LUMBER
Albany, New York

SOURCE:

USGS ALBANY, NEW YORK
QUADRANGLE, PHOTOREVISED 1980.

● PROPOSED MONITORING WELL

figure 9.2

PROPOSED OFF-SITE WELL LOCATION
ALBANY MIRON LUMBER
Albany, New York

SUMMARY OF SOILS HISTORICAL ANALYTICAL DATA
ALBANY MIRON LUMBER OSMOSE AREA

		Sample Location/Number:	*Test Hole 1/ Sample 1*	*Test Hole 1/ Sample 2*	*Test Hole 2/ Sample 3*	*Test Hole 3/ Sample 4**	*B-2/MLSP-2*	*B-4/MLAF-2*	*SB-1*	*SB-2*	*SB-3*	*SB-4*
		Sample Date:	07/12/89	07/12/89	08/08/89	08/08/89	08/09/96	08/09/96	02/26/99	02/26/99	02/26/99	02/26/99
		Sample Depth (Ft. BG):	3.0-3.25	6.7-7.0	3.0	3.0	0-7	5-7	2-4	2-4	2-4	2-4
	Units	*TAGM Objective* (1)										
Total Concentration												
Arsenic	mg/Kg	7.5 or SB	$\boxed{132}$	$\boxed{30.9}$	NA	NA	$\boxed{5150}$	$\boxed{8900}$	$\boxed{4720}$	$\boxed{1640/2410}$	$\boxed{527}$	$\boxed{120}$
Barium	mg/Kg	300 or SB	NA	NA	NA	NA	18.0	31.0	NA	NA	NA	NA
Cadmium	mg/Kg	1.0 or SB	NA	NA	NA	NA	$\boxed{42.5}$	$\boxed{73.5}$	NA	NA	NA	NA
Chromium	mg/Kg	10 or SB	$\boxed{186}$	$\boxed{12.9}$	NA	NA	$\boxed{1540}$	$\boxed{3980}$	$\boxed{1480}$	$\boxed{3270/3540}$	$\boxed{458}$	$\boxed{23.5}$
Copper	mg/Kg	25 or SB	$\boxed{63.3}$	6.43	NA	NA	NA	NA	$\boxed{7660}$	$\boxed{280/471}$	$\boxed{737}$	5.81
Lead	mg/Kg	SB	NA	NA	NA	NA	10.5	30.0	NA	NA	NA	NA
Mercury	mg/Kg	0.1	NA	NA	NA	NA	$\boxed{0.11}$	$\boxed{0.22}$	NA	NA	NA	NA
Selenium	mg/Kg	2.0 or SB	NA	NA	NA	NA	ND2.5	ND2.5	NA	NA	NA	NA
Silver	mg/Kg	SB	NA	NA	NA	NA	ND1	ND1	NA	NA	NA	NA
	Units	*RCRA Standard* (2)										
EP/TCLP Concentration												
Arsenic	mg/L	5.0	0.1	ND0.05	ND0.05	ND0.05	$\boxed{19.4}$	$\boxed{17.9}$	4.03	1.07/0.370	4.26	1.4
Copper	mg/L	NS	ND0.05	ND0.05	ND0.05	ND0.05	17.7	13.8	89.5	0.481/ND0.02	4.92	ND0.02
Chromium	mg/L	5.0	ND0.05	ND0.05	ND0.05	ND0.05	ND0.05	ND0.05	0.137	0.309/0.168	0.0738	0.0231

Notes:

(1) Recommended Soil Cleanup Objective, NYSDEC Technical and Administrative Guidance Memorandum #4046, January 24, 1994 (TAGM).

(2) Toxicity Characteristic of Hazardous Waste, 40 CFR 261.

* Location of Sample 4 interpreted from Narrative of Richard H. Burns dated August 21, 1989.

Ft. BG	Feet Below Grade.
mg/Kg	Milligrams Per Kilogram.
mg/L	Milligrams Per Liter.
NA	Not Available.
ND	Not Detected.
NS	No Standard.
ppm	Parts Per Million.
RCRA	Resource Conservation and Recovery Act.
SB	Site Background
TCLP	Toxicity Characteristic Laeching Procedures.
☐	Concentration exceeds relevant standard.

TAL .1

SUMMARY OF SOILS HISTORICAL ANALYTICAL DATA
ALBANY MIRON LUMBER OSMOSE AREA

		Sample Location/Number:	*SB-5*	*SB-6*	*SB-7*	*SB-8*	*SB-9*	*SB-10*	*SB-14*	*SB-15*	*SB-16*
		Sample Date:	*02/26/99*	*02/26/99*	*02/26/99*	*02/26/99*	*02/26/99*	*02/26/99*	*02/26/99*	*02/26/99*	*02/26/99*
		Sample Depth (Ft. BG):	*2-4*	*2-4*	*2-4*	*0-4*	*1-4*	*0-4*	*0-4*	*3-6*	*1-4*
	Units	*TAGM Objective* (1)									
Total Concentration											
Arsenic	mg/Kg	7.5 or SB	3350	132	13.1	952	331	28.6	5.38	3.50	4.03
Barium	mg/Kg	300 or SB	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/Kg	1.0 or SB	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/Kg	10 or SB	2480	96.2	113	293	228	119	4.97	4.48	5.08
Copper	mg/Kg	25 or SB	1050	9.79	12.3	367	10.9	13.0	6.33	5.79	6.05
Lead	mg/Kg	SB	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/Kg	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/Kg	2.0 or SB	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/Kg	SB	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Units	*RCRA Standard* (2)									
EP/TCLP Concentration											
Arsenic	mg/L	5.0	4.6	0.609	0.329	24.0	0.937	0.464	0.032	ND0.01	ND0.01
Copper	mg/L	NS	6.07	ND0.02	ND0.02	36.6	ND0.02	ND0.02	ND0.02	ND0.02	ND0.02
Chromium	mg/L	5.0	0.248	0.0307	0.024	0.155	0.0724	0.0107	ND0.01	ND0.01	ND0.01

Notes:

(1) Recommended Soil Cleanup Objective, NYSDEC Technical and Administrative Guidance Memorandum #4046, January 24, 1994 (TAGM).

(2) Toxicity Characteristic of Hazardous Waste, 40 CFR 261.

* Location of Sample 4 interpreted from Narrative of Richard H. Burns dated August 21, 1989.

Ft. BG	Feet Below Grade.
mg/Kg	Milligrams Per Kilogram.
mg/L	Milligrams Per Liter.
NA	Not Available.
ND	Not Detected.
NS	No Standard.
ppm	Parts Per Million.
RCRA	Resource Conservation and Recovery Act.
SB	Site Background
TCLP	Toxicity Characteristic Laeching Procedures.
☐	Concentration exceeds relevant standard.

TABLE 3.2

SUMMARY OF GROUNDWATER HISTORICAL ANALYTICAL DATA
ALBANY MIRON LUMBER OSMOSE AREA

	Criteria [(1)]	*Units*	*ML-1* *08/09/96*	*ML-2* *08/09/96*	*ML-3* *08/09/96*	*ML-4* *08/09/96*	*ML-5* *08/09/96*
Organic Compounds							
Benzene	1.0	µg/L	ND1	ND1	ND1	ND1	ND1
Toluene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Ethylbenzene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
p-Xylene	NS	µg/L	ND1	ND1	ND1	ND1	ND1
1,2,3-Trichlorobenzene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
m-Xylene	NS	µg/L	ND1	ND1	ND1	ND1	ND1
o-Xylene	NS	µg/L	ND1	ND1	ND1	ND1	ND1
1,2-Dibromo-3-Chloropropane	0.04	µg/L	ND1	ND1	ND1	ND1	ND1
Isopropyl Benzene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Styrene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
n-Propylbenzene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Butylbenzene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
sec-Butylbenzene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
1,3,5-Trimethylbenzene	5.0	µg/L	ND1	3	ND1	ND1	ND1
p-Cymene	NS	µg/L	ND1	1	ND1	ND1	ND1
1,2,4-Trimethylbenzene	5.0	µg/L	ND1	6	ND1	ND1	ND1
n-Butylbenzene	5.0	µg/L	ND1	5	ND1	ND1	ND1
Hexachlorobutadiene	0.5	µg/L	ND1	ND1	ND1	ND1	ND1
1,2,4-Trichlorobenzene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Naphthalene	NS	µg/L	ND1	ND1	ND1	ND1	ND1
Bromobenzene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Bromochloromethane	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Bromodichloromethane	NS	µg/L	ND1	ND1	ND1	ND1	ND1
Bromoform	NS	µg/L	ND1	ND1	ND1	ND1	ND1
Bromomethane	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Carbon Tetrachloride	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Chlorobenzene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Chloroethane	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Chloroform	7.0	µg/L	ND1	ND1	ND1	1	ND1
Chloromethane	NS	µg/L	ND1	ND1	ND1	ND1	ND1
2-Chlorotoluene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
4-Chlorotoluene	5.0	µg/L	ND1	ND1	ND1	ND1	NR
Dibromochloromethane	NS	µg/L	ND1	ND1	ND1	ND1	NR
1,2-Dibromoethane	NS	µg/L	ND1	ND1	ND1	ND1	NR
Dibromomethane	5.0	µg/L	ND1	ND1	ND1	ND1	NR
1,2-Dichlorobenzene	3.0	µg/L	ND1	ND1	ND1	ND1	NR
1,3-Dichlorobenzene	3.0	µg/L	ND1	ND1	ND1	ND1	NR
1,4-Dichlorobenzene	3.0	µg/L	ND1	ND1	ND1	ND1	NR
Dichlorodifluoromethane	5.0	µg/L	ND1	ND1	ND1	ND1	NR
1,1-Dichloroethane	5.0	µg/L	ND1	ND1	ND1	ND1	NR
1,2-Dichloroethane	0.6	µg/L	ND1	ND1	ND1	ND1	NR
1,1-Dichloroethene	5.0	µg/L	ND1	ND1	ND1	ND1	NR
cIs-1,2-Dichloroethene	5.0	µg/L	ND1	ND1	ND1	ND1	NR
trans-1,2-Dichloroethene	5.0	µg/L	ND1	ND1	ND1	ND1	NR
1,2-Dichloropropane	1.0	µg/L	ND1	ND1	ND1	ND1	NR
1,3-Dichloropropane	5.0	µg/L	ND1	ND1	ND1	ND1	NR
2,2-Dichloropropane	5.0	µg/L	ND1	ND1	ND1	ND1	NR

TABLE 3.2

SUMMARY OF GROUNDWATER HISTORICAL ANALYTICAL DATA
ALBANY MIRON LUMBER OSMOSE AREA

	Criteria [(1)]	*Units*	*ML-1* *08/09/96*	*ML-2* *08/09/96*	*ML-3* *08/09/96*	*ML-4* *08/09/96*	*ML-5* *08/09/96*
Organic Compounds (Cont'd.)							
1,1-Dichloropropene	NS	µg/L	ND1	ND1	ND1	ND1	NR
Methylene chloride	5.0	µg/L	ND1	ND1	ND1	ND1	NR
1,1,1,2-Tetrachloroethane	5.0	µg/L	ND1	ND1	ND1	ND1	NR
1,1,2,2-Tetrachloroethane	5.0	µg/L	ND1	ND1	ND1	ND1	NR
Tetrachloroethene	5.0	µg/L	8	4	ND1	ND1	ND1
1,1,1-Trichloroethane	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
1,1,2-Trichloroethane	1.0	µg/L	ND1	ND1	ND1	ND1	ND1
Trichloroethene	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
Trichlorofluoromethane	5.0	µg/L	ND1	ND1	ND1	ND1	ND1
1,2,3-Trichloropropane	0.04	µg/L	ND1	ND1	ND1	ND1	ND1
Vinyl chloride	2.0	µg/L	ND1	ND1	ND1	ND1	ND1
cis-1,3-Dichloropropene	0.4	µg/L	ND1	ND1	ND1	ND1	ND1
trans-1,3-Dichloropropene	0.4	µg/L	ND1	ND1	ND1	ND1	ND1
Acenapthene	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Acenaphthylene	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Antracene	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Benzo(a)anthracene	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Benzo(b)fluoranthene	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Benzo(k)fluoroanthene	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Benzo(g,h,I)perylene	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Benzo(a)pyrene	ND	µg/L	ND10	ND10	ND10	ND10	ND10
Benzidine	5.0	µg/L	ND80	ND80	ND80	ND80	ND80
Butylbenzylphthalate	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Bis(2-chloroethoxy)methane	5.0	µg/L	ND10	ND10	ND10	ND10	ND10
Bis(2-chloroethyl)ether	1.0	µg/L	ND10	ND10	ND10	ND10	NR
Bis(2-chloroisopropyl)ether	NS	µg/L	ND10	ND10	ND10	ND10	NR
Bis(2-ethylhexyl)phthalate	5.0	µg/L	ND10	ND10	ND10	ND10	NR
Bromophenylphenyl ether	NS	µg/L	ND10	ND10	ND10	ND10	NR
2-Chloronaphthalene	NS	µg/L	ND10	ND10	ND10	ND10	NR
Chlorophenylphenyl ether	NS	µg/L	ND10	ND10	ND10	ND10	NR
Chrysene	NS	µg/L	ND10	ND10	ND10	ND10	NR
Dibenzo(a,h)anthracene	NS	µg/L	ND10	ND10	ND10	ND10	NR
Di-n-butylphthalate	50.0	µg/L	ND10	12	ND10	ND10	NR
3,3'-Dichlorobenzidine	5.0	µg/L	ND20	ND20	ND20	ND20	NR
Diethylphthalate	NS	µg/L	ND10	ND10	ND10	ND10	NR
Dimethylphthalate	NS	µg/L	ND10	ND10	ND10	ND10	NR
2,4-Dinitrotoluene	5.0	µg/L	ND10	ND10	ND10	ND10	NR
2,6-Dinitrotoluene	5.0	µg/L	ND10	ND10	ND10	ND10	NR
Di-n-octylphthalate	NS	µg/L	ND10	ND10	ND10	ND10	NR
Fluoranthene	NS	µg/L	ND10	ND10	ND10	ND10	NR
Fluorene	NS	µg/L	ND10	ND10	ND10	ND10	NR
Hexachlorobenzene	0.04	µg/L	ND10	ND10	ND10	ND10	NR
Hexachlorobutadiene	0.5	µg/L	ND10	ND10	ND10	ND10	NR
Hexachlorocyclopentadiene	5.0	µg/L	ND10	ND10	ND10	ND10	NR
Hexachloroethane	5.0	µg/L	ND10	ND10	ND10	ND10	NR
Indeno (1,2,3-cd) pyrene	NS	µg/L	ND10	ND10	ND10	ND10	NR
Isophorone	NS	µg/L	ND10	ND10	ND10	ND10	NR

TABLE 3.2

SUMMARY OF GROUNDWATER HISTORICAL ANALYTICAL DATA
ALBANY MIRON LUMBER OSMOSE AREA

			ML-1	***ML-2***	***ML-3***	***ML-4***	***ML-5***
	Criteria [(1)]	***Units***	***08/09/96***	***08/09/96***	***08/09/96***	***08/09/96***	***08/09/96***
Organic Compounds (Cont'd.)							
Naphthalene	NS	µg/L	ND10	ND10	ND10	ND10	NR
Nitrobenzene	0.4	µg/L	ND10	ND10	ND10	ND10	NR
N-Nirtoso-di-n-propylamine	NS	µg/L	ND10	ND10	ND10	ND10	NR
N-Nitrosodiphenylamine	NS	µg/L	ND10	ND10	ND10	ND10	NR
N-Nitrosodimethylamine	NS	µg/L	ND10	ND10	ND10	ND10	NR
1,2-Diphenylhydrazine	ND	µg/L	ND10	ND10	ND10	ND10	NR
Phenanthrene	NS	µg/L	ND10	ND10	ND10	ND10	NR
Pyrene	NS	µg/L	ND10	ND10	ND10	ND10	NR
1,2,4-Trichlorobenzene	5.0	µg/L	ND10	ND10	ND10	ND10	NR
4-Chloro-3-methylphenol	NS	µg/L	ND10	ND10	ND10	ND10	NR
2-chlorophenol	NS	µg/L	ND10	ND10	ND10	ND10	NR
2,4-Dichlorophenol	1.0	µg/L	ND10	ND10	ND10	ND10	NR
2,4-Dimethylphenol	1.0	µg/L	ND10	ND10	ND10	ND10	NR
2,4-Dinitrophenol	1.0	µg/L	ND50	ND50	ND50	ND50	ND50
4,6-Dinitro-2-methylphenol	NS	µg/L	ND50	ND50	ND50	ND50	ND50
4-Nitrophenol	NS	µg/L	ND50	ND50	ND50	ND50	ND50
2-Nitrophenol	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Pentachlorophenol	1.0	µg/L	ND50	ND50	ND50	ND50	ND50
Phenol	1.0	µg/L	ND10	ND10	ND10	ND10	ND10
2,4,6-Trichlorophenol	NS	µg/L	ND10	ND10	ND10	ND10	ND10
2-Methylnapthalene	NS	µg/L	ND10	ND10	ND10	ND10	ND10
Metals							
Arsenic	25	µg/L	ND5	3930	ND5	450	200
Barium	1000	µg/L	120	150	100	70	30
Cadmium	5.0	µg/L	ND5	32	ND5	ND5	ND5
Chromium	50	µg/L	38	1940	8	750	150
Copper	200	µg/L	ND50	280	ND50	ND50	150
Lead	25	µg/L	8	ND5	ND5	ND5	9
Mercury	0.7	µg/L	ND20	ND20	ND20	ND20	ND20
Selenium	10	µg/L	ND5	ND5	ND5	ND5	ND5
Silver	50	µg/L	ND20	ND20	ND20	ND20	ND20

Notes:

(1)	New York State Department of Environmental Conservation, Ambient Water Quality Standards (TOGS 1.1.1).
NDx	Not detected at or above x.
NR	Not Reported.
µg/L	Micrograms Per Liter.

TABLE 4.1

BASELINE INVESTIGATION SAMPLE COLLECTION AND ANALYSES SUMMARY
ALBANY MIRON LUMBER SITE

Matrix	*Sample ID*	*Location*	*Interval (Ft. BG)*	*Sample Date*	*Sample Time*	*Analytical Parameters*	*Comment*
Soil	S-17087-101501-RSH-001	SB-19	0-2	10/15/01	10:25	Chromium, Copper, Arsenic	
Soil	S-17087-101501-RSH-002	SB-19	2-4	10/15/01	10:35	Chromium, Copper, Arsenic	
Soil	S-17087-101501-RSH-003	SB-19	4-6	10/15/01	10:50	Chromium, Copper, Arsenic	
Soil	S-17087-101501-RSH-004	SB-19	6-8	10/15/01	11:05	Chromium, Copper, Arsenic	
Soil	S-17087-101501-RSH-005	SB-19	8-10	10/15/01	11:15	Chromium, Copper, Arsenic	
Soil	S-17087-101501-RSH-006	SB-19	10-12	10/15/01	11:20	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-007	SB-18	0-2	10/16/01	7:45	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-008	SB-18	2-4	10/16/01	8:00	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-009	SB-18	4-6	10/16/01	8:15	Chromium, Copper, Arsenic	MS/MSD
Soil	S-17087-101601-RSH-010	SB-18	6-8	10/16/01	8:20	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-011	SB-18	8-10	10/16/01	8:40	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-012	SB-18	10-12	10/16/01	8:45	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-013	SB-17	0-2	10/16/01	9:05	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-014	SB-17	2-4	10/16/01	9:10	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-015	SB-17	4-6	10/16/01	9:20	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-016	SB-17	6-8	10/16/01	9:28	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-017	SB-17	8-10	10/16/01	9:45	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-018	SB-17	10-12	10/16/01	9:50	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-019	SB-21	0-2	10/16/01	10:15	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-020	SB-21	2-4	10/16/01	10:20	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-021	SB-21	4-6	10/16/01	10:40	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-022	SB-21	6-8	10/16/01	10:45	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-023	SB-21	8-10	10/16/01	11:05	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-024	SB-21	10-12	10/16/01	11:10	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-025	SB-20	0-2	10/16/01	11:35	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-026	SB-20	2-4	10/16/01	11:37	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-027	SB-20	4-6	10/16/01	11:50	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-028	SB-20	8-10	10/16/01	13:30	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-029	SB-20	10-12	10/16/01	13:40	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-030	SB-22	0-2	10/16/01	14:10	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-031	SB-22	2-4	10/16/01	14:20	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-032	SB-22	4-6	10/16/01	14:25	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-033	SB-22	6-8	10/16/01	14:30	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-034	SB-22	8-10	10/16/01	14:45	Chromium, Copper, Arsenic	

TABLE 4.1

BASELINE INVESTIGATION SAMPLE COLLECTION AND ANALYSES SUMMARY
ALBANY MIRON LUMBER SITE

Matrix	*Sample ID*	*Location*	*Interval (Ft. BG)*	*Sample Date*	*Sample Time*	*Analytical Parameters*	*Comment*
Soil	S-17087-101601-RSH-035	SB-22	10-12	10/16/01	14:47	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-036	SB-23	0-2	10/16/01	15:10	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-037	SB-23	2-4	10/16/01	15:15	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-038	SB-23	4-6	10/16/01	15:25	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-039	SB-23	6-8	10/16/01	15:30	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-040	SB-23	8-10	10/16/01	15:50	Chromium, Copper, Arsenic	
Soil	S-17087-101601-RSH-041	SB-23	10-12	10/16/01	15:58	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-042	SB-29	0-2	10/17/01	7:30	TCL VOCs, TCL SVOCs, TCL Pest/PCBs, TAL Metals, Cyanide	
Soil	S-17087-101701-RSH-043	SB-28	0-2	10/17/01	7:50	TCL VOCs, TCL SVOCs, TCL Pest/PCBs, TAL Metals, Cyanide	
Soil	S-17087-101701-RSH-044	SB-28	0-2	10/17/01	8:05	TCL VOCs, TCL SVOCs, TCL Pest/PCBs, TAL Metals, Cyanide	Field Duplicate of -043
Soil	S-17087-101701-RSH-045	SB-11	0-2	10/17/01	8:20	RCRA TCLP	
Soil	S-17087-101701-RSH-046	SB-24	0-2	10/17/01	9:00	TCL VOCs, Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-047	SB-24	2-4	10/17/01	9:05	TCL VOCs, Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-048	SB-24	4-6	10/17/01	9:20	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-049	SB-24	6-8	10/17/01	9:22	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-050	SB-24	8-10	10/17/01	9:40	TCL VOCs, Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-051	SB-24	10-12	10/17/01	9:42	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-052	SB-27	0-2	10/17/01	10:10	TCL VOCs, TCL SVOCs, TCL Pest/PCBs, TAL Metals, Cyanide	
Soil	S-17087-101701-RSH-053	SB-5	0-4	10/17/01	10:50	RCRA TCLP	
Soil	S-17087-101701-RSH-054	SB-26	0-2	10/17/01	11:05	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-055	SB-26	2-4	10/17/01	11:10	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-056	SB-26	4-6	10/17/01	11:20	TCL VOCs, Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-057	SB-26	6-8	10/17/01	11:25	TCL VOCs, Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-058	SB-26	8-10	10/17/01	11:37	TCL VOCs, Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-059	SB-26	10-12	10/17/01	11:42	TCL VOCs, Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-060	SB-30	0-2	10/17/01	13:15	RCRA TCLP, Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-061	SB-30	2-4	10/17/01	13:20	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-062	SB-30	4-6	10/17/01	13:35	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-063	SB-30	6-8	10/17/01	13:37	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-064	SB-30	8-10	10/17/01	13:43	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-065	SB-30	10-12	10/17/01	13:50	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-066	SB-25	0-2	10/17/01	14:05	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-067	SB-25	2-4	10/17/01	14:10	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-068	SB-25	4-6	10/17/01	14:20	Chromium, Copper, Arsenic	

TABLE 4.1

BASELINE INVESTIGATION SAMPLE COLLECTION AND ANALYSES SUMMARY
ALBANY MIRON LUMBER SITE

Matrix	*Sample ID*	*Location*	*Interval (Ft. BG)*	*Sample Date*	*Sample Time*	*Analytical Parameters*	*Comment*
Soil	S-17087-101701-RSH-069	SB-25	6-8	10/17/01	14:25	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-070	SB-25	8-10	10/17/01	14:40	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-071	SB-25	10-12	10/17/01	14:45	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-072	SB-31	0-2	10/17/01	15:05	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-073	SB-31	2-4	10/17/01	15:08	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-074	SB-31	4-6	10/17/01	15:15	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-075	SB-31	6-8	10/17/01	15:17	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-076	SB-31	8-10	10/17/01	15:30	Chromium, Copper, Arsenic	
Soil	S-17087-101701-RSH-077	SB-31	10-12	10/17/01	15:35	Chromium, Copper, Arsenic	
Concrete	C-17087-101701-RSH-078	Concrete	NA	10/17/01	16:15	RCRA TCLP	
G/W	W-17087-101801-RSH-079	ML-2R	NA	10/18/01	10:00	TCL VOCs, TCL SVOCs, TAL Metals (Total and Dissolved), Cyanide (Total and Dissolved)	
	Trip Blank	NA	NA	10/18/01	10:00	TCL VOCs	

Notes:

Ft. BG	Feet Below Grade.
G/W	Groundwater.
MS	Matrix Spike.
MSD	Matrix Spike Duplicate.
NA	Not Applicable.
PCBs	Polychlorinated Biphenyls.
Pest	Pesticides.
RCRA	Resource Conservation and Recovery Act.
SVOCs	Semi-Volatile Organic Compounds.
TCL	Target Compound List.
TCLP	Toxicity Characteristic Leaching Procedure.
VOCs	Volatile Organic Compounds.

TABLE 5.1
WATER LEVEL ELEVATIONS [1]
ALBANY MIRON LUMBER SITE

	Round 1 [2]	*Round 2* [2]	*Oct-01*
ML-1	87.93	87.29	<83.00
ML-2/25	87.54	NM	83.40
ML-3	88.22	87.26	<83.00
ML-4	86.75	85.82	<83.00
ML-5	86.44	85.54	<83.00
ML-8	NM	85.58	<83.00
ML-9	NM	84.91	<83.00

Notes:

(1)	Elevations are relative to an arbitrary Site datum of 100 feet.
(2)	Dates of monitoring unknown.
NM	Not Measured.

TABLE 6.1

ANALYTICAL RESULTS SUMMARY - BACKGROUND SOILS
ALBANY MIRON LUMBER SITE

		Sample Location:	***SB-14***	***SB-15***	***SB-16***	***SB-31***	***SB-31***	***SB-31***	***SB-31***	***SB-31***	***SB-31***
		Sample Date:	***02/26/99***	***02/26/99***	***02/26/99***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
		Sample Depth (ft. BG):	***0-4***	***3-6***	***1-4***	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***
Parameter	***Unit***	***TAGM Objective (1)***									
Metals											
Arsenic	mg/Kg	7.5	5.38	3.50	4.03	1.6 J	1.1 J	1.5 J	1.7 J	3.5 J	2.0 J
Chromium	mg/Kg	10	4.97	4.48	5.08	4.1	4.6	3.6	3.8	8.2	4.4
Copper	mg/Kg	25	NA	NA	NA	11.8	3.2	5.5	5.0	15	8.1

Notes:

(1)	Recommended Soil Cleanup Objective, NYSDEC Technical and Administrative Guidance Memorandum #4046, January 24, 1994 (TAGM).
Ft. BG	Feet Below Grade.
J	Associated value is estimated.
mg/Kg	Milligrams per Kilogram.
NA	Not Analyzed.

TA .2

COC ANALYTICAL DATA - OSMOSE AREA SOILS
ALBANY MIRON LUMBER SITE

		Sample Location:	B-2	B-2	SB-1	SB-2	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7
		Sample Date:	08/09/96	08/09/96	02/26/99	02/26/99	02/26/99	02/26/99	02/26/99	02/26/99	02/26/99	02/26/99
		Sample Depth (feet BG):	0-7	5-7	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
							Duplicate					
Parameter	***Unit***	***TAGM Objective*** [(1)]										
Arsenic	mg/Kg	7.5 or SB	5150	8900	4720	1640	2410	527	120	3350	132	13.1
Chromium	mg/Kg	10.0 or SB	1540	3980	1480	3270	3540	458	23.5	2480	96.2	113
Copper	mg/kg	25.0 or SB	NA	NA	7660	280	471	737	5.81	1050	9.79	12.3

		Sample Location:	SB-8	SB-9	SB-10	SB-17	SB-17	SB-17	SB-17	SB-17	SB-17	SB-18
		Sample Date:	02/26/99	02/26/99	02/26/99	10/16/2001	10/16/2001	10/16/2001	10/16/2001	10/16/2001	10/16/2001	10/16/2001
		Sample Depth (feet BG):	0-4	1-4	0-4	(0-2)	(2-4)	(4-6)	(6-8)	(8-10)	(10-12)	(0-2)
Arsenic	mg/Kg	7.5 or SB	952	331	28.6	43.7	1.8	1.6	1.7	2.7	2.6	419
Chromium	mg/Kg	10.0 or SB	293	228	119	167	24.4	19.3	14.6	25.0	17.4	122
Copper	mg/kg	25.0 or SB	367	10.9	13.0	17.8	4.9	6.1	6.7	11.7	8.6	10.7

		Sample Location:	SB-18	SB-18	SB-18	SB-18	SB-18	SB-19	SB-19	SB-19	SB-19	SB-19
		Sample Date:	10/16/2001	10/16/2001	10/16/2001	10/16/2001	10/16/2001	10/15/2001	10/15/2001	10/15/2001	10/15/2001	10/15/2001
		Sample Depth (feet BG):	(2-4)	(4-6)	(6-8)	(8-10)	(10-12)	(0-2)	(2-4)	(4-6)	(6-8)	(8-10)
Arsenic	mg/Kg	7.5 or SB	158	6.1	2.5	186	2.5	94.4	1.6	2.0	1.6	1.4
Chromium	mg/Kg	10.0 or SB	456	105	46.0	188	43.3	44.1	111	90.6	30.3	31.4
Copper	mg/kg	25.0 or SB	5.4	6.2	9.5	10.4	10.8	15.2	3.0	6.4	6.0	6.1

COC ANALYTICAL DATA - OSMOSE AREA SOILS
ALBANY MIRON LUMBER SITE

		Sample Location:	***SB-19***	***SB-20***	***SB-20***	***SB-20***	***SB-20***	***SB-20***	***SB-21***	***SB-21***	***SB-21***	***SB-21***
		Sample Date:	***10/15/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***
		Sample Depth (feet BG):	***(10-12)***	***(0-2)***	***(2-4)***	***(4-6)***	***(8-10)***	***(10-12)***	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***
Parameter	***Unit***	***TAGM Objective*** ⁽¹⁾										
Arsenic	mg/Kg	7.5 or SB	2.5	113	5.2	1.5	1.7	1.5	535	160	1.5	1.6
Chromium	mg/Kg	10.0 or SB	26.1	84.7	33.9	9.3	9.3	10.1	705	82.7	32.5	29.4
Copper	mg/kg	25.0 or SB	8.5	12.6	5.3	5.8	6.0	5.1	22.0	9.1	5.9	6.2

		Sample Location:	***SB-21***	***SB-21***	***SB-22***	***SB-22***	***SB-22***	***SB-22***	***SB-22***	***SB-22***	***SB-23***	***SB-23***
		Sample Date:	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***
		Sample Depth (feet BG):	***(8-10)***	***(10-12)***	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***	***(0-2)***	***(2-4)***
Arsenic	mg/Kg	7.5 or SB	2.5	2.5	2.3	1.6	1.4	1.7	1.7	1.8	106	46.6
Chromium	mg/Kg	10.0 or SB	37.6	16.8	12.0	10.5	5.2	5.2	4.9	5.0	23.3	7.6
Copper	mg/kg	25.0 or SB	10.1	10.3	8.5	4.8	5.6	6.3	7.9	8.1	6.0	5.2

		Sample Location:	***SB-23***	***SB-23***	***SB-23***	***SB-23***	***SB-24***	***SB-24***	***SB-24***	***SB-24***	***SB-24***	***SB-24***
		Sample Date:	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
		Sample Depth (feet BG):	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***
Arsenic	mg/Kg	7.5 or SB	100	3.4	2.1	1.8 J	414 J	439 J	142 J	160 J	85.6 J	116 J
Chromium	mg/Kg	10.0 or SB	7.1	6.6	5.1	5.6	234 J	226 J	22.9 J	10.3 J	13.2 J	20.4 J
Copper	mg/kg	25.0 or SB	6.2	8.7	8.0	7.2	329	449	6.9	6.5	8.5	10.9

TAB. 2

COC ANALYTICAL DATA - OSMOSE AREA SOILS
ALBANY MIRON LUMBER SITE

		Sample Location:	***SB-25***	***SB-25***	***SB-25***	***SB-25***	***SB-25***	***SB-25***	***SB-26***	***SB-26***	***SB-26***	***SB-26***
		Sample Date:	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
		Sample Depth (feet BG):	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***
Parameter	***Unit***	***TAGM Objective*** (1)										
Arsenic	mg/Kg	7.5 or SB	30.7 J	4.3 J	1.7 J	1.5 J	153 J	2.0 J	118 J	42.7 J	52.9 J	128 J
Chromium	mg/Kg	10.0 or SB	6.4	6.9	4.5	4.1	80.1	4.5	120	19.8	38.2 J	15.8 J
Copper	mg/kg	25.0 or SB	6.5	6.3	5.2	5.0	10.0	7.2	8.9	10.4	6.9	8.3

		Sample Location:	***SB-26***	***SB-26***	***SB-27***	***SB-28***	***SB-28***	***SB-29***	***SB-30***	***SB-30***	***SB-30***	***SB-30***
		Sample Date:	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
		Sample Depth (feet BG):	***(8-10)***	***(10-12)***	***(0-2)***	***(0-2)***	***(0-2)*** ***Duplicate***	***(0-2)***	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***
Arsenic	mg/Kg	7.5 or SB	87.1 J	83.1 J	114 J	37.6 J	96.1 J	69.2 J	162	178 J	139 J	390 J
Chromium	mg/Kg	10.0 or SB	11.3 J	21.4 J	62.4 J	24.3 J	57.8 J	28.1 J	90.6	120	43.4	116
Copper	mg/kg	25.0 or SB	8.2	9.2	43.8	40.4 J	133 J	37.9 J	7.9	17.7	82.6	642

		Sample Location:	***SB-30***	***SB-30***
		Sample Date:	***10/17/2001***	***10/17/2001***
		Sample Depth (feet BG):	***(8-10)***	***(10-12)***
Arsenic	mg/Kg	7.5 or SB	723 J	1000 J
Chromium	mg/Kg	10.0 or SB	174	224
Copper	mg/kg	25.0 or SB	1250	1710

Notes:

(1)	Recommended Soil Cleanup Objective, NYSDEC Technical and Administrative Guidance Memorandum #4046, January 24, 1994 (TAGM).
J	Associated value is estimated.
BG	Below Grade.
mg/Kg	Milligrams per Kilogram.
NA	Not Analyzed.
☐	Value outside of associated proposed criteria.

TABLE 6.3

TARGET ANALYTE LIST ANALYTICAL DATA
ALBANY MIRON LUMBER SITE

Parameter	Unit	TAGM Objective (1)	SB-27	SB-28	SB-28	SB-29
		Sample Date:	10/17/2001	10/17/2001	10/17/2001	10/17/2001
		Sample Depth (ft. BG):	(0-2)	(0-2)	(0-2)	(0-2)
					Duplicate	
Metals						
Aluminum	mg/Kg	Background	4550	3380	3210	3300
Antimony	mg/Kg	Background	ND 7.6 J	ND 7	ND 6.4	ND 6.5
Arsenic	mg/Kg	7.5	114 J	37.6 J	96.1 J	69.2 J
Barium	mg/Kg	300	18.7	19.4	21.9	18.5
Beryllium	mg/Kg	0.16	ND 0.63	0.44	ND 0.45	ND 0.40
Cadmium	mg/Kg	1	0.13	0.11	0.26	0.11
Calcium	mg/Kg	Background	3750	5100 J	31600 J	9230 J
Chromium	mg/Kg	10	62.4 J	24.3 J	57.8 J	28.1 J
Cobalt	mg/Kg	30	3.7	2.7	2.7	2.6
Copper	mg/kg	25	43.8	40.4 J	133 J	37.9 J
Iron	mg/Kg	2000	10700	6800	7310	7250
Lead	mg/Kg	Background	8.6	25.0 J	25.1 J	63.8 J
Magnesium	mg/Kg	Background	1810	1750 J	4970 J	2170 J
Manganese	mg/Kg	Background	227 J	140	205	168
Mercury	mg/Kg	.1	0.049	0.041	ND 0.036	0.014
Nickel	mg/Kg	13	7.6	5.8	5.8	6.0
Potassium	mg/Kg	Background	343 J	265J	228 J	261 J
Selenium	mg/Kg	2	ND 0.63	ND 0.58	ND 0.54	ND 0.54
Silver	mg/Kg	Background	ND 1.3	ND 1.2	ND 1.1	ND 1.1
Sodium	mg/Kg	Background	ND 80.5	ND 98.2	ND 84.0	ND 78.5
Thallium	mg/Kg	Background	ND 0.79	ND 0.79	ND 1.1	ND 0.85
Vanadium	mg/Kg	150	12.9	7.6	7.9	7.7
Zinc	mg/Kg	20	118	121	142	45.0
Cyanide (total)	mg/Kg	NS	ND 0.19	ND 0.31	ND 0.31	ND 0.20

Notes:

(1)	Recommended Soil Cleanup Objective, NYSDEC Technical and Administrative Guidance Memorandum #4046, January 24, 1994 (TAGM).
Ft. BG	Feet Below Grade.
J	Associated value is estimated.
ND	Non-detect at associated value.
NS	No Standard.
☐	Value outside of associated standard.

TABLE 6.4

ORGANIC CHEMICAL COMPOUNDS DETECTED IN SOIL
ALBANY MIRON LUMBER SITE

		Sample Location:	*SB-27*	*SB-28*	*SB-28*	*SB-29*
		Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
		Sample Depth (ft. BG):	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*
					Duplicate	
Parameter	*Unit*	*TAGM Objective* (1)				
Semi - Volatiles						
2-Methyl naphthalene	µg/Kg	36,400	ND 420	ND 390 J	6800 J	ND 360
Acenaphthene	µg/Kg	50,000	ND 420	ND 390 J	3100 J	ND 360
Anthracene	µg/Kg	50,000	ND 420	ND 390 J	6900 J	ND 360
Benzo(a)anthracene	µg/Kg	224	ND 420	ND 390 J	10000 J	99 J
Benzo(a)pyrene	µg/Kg	61	ND 420	ND 390 J	7700 J	78 J
Benzo(b)fluoranthene	µg/Kg	1,100	ND 420	ND 390 J	7600 J	56 J
Benzo(g,h,i)perylene	µg/Kg	50,000	ND 420	ND 390 J	3400 J	61 J
Benzo(k)fluoranthene	µg/Kg	1,100	ND 420	ND 390 J	5400 J	94 J
Biphenyl	µg/Kg	-	ND 420	ND 390 J	560 J	ND 360
Bis(2-Ethyl hexyl)phthalate	µg/Kg	50,000	44J	ND 390 J	ND1800	ND 360
Carbazole	µg/Kg	-	ND 420	ND 390 J	3000 J	ND 360
Chrysene	µg/Kg	400	ND 420	ND 390 J	11000 J	110 J
Dibenz(a,h)anthracene	µg/Kg	14	ND 420	ND 390 J	1900 J	ND 360
Dibenzofuran	µg/Kg	6,200	ND 420	ND 390 J	1800 J	ND 360
Fluoranthene	µg/Kg	50,000	ND 420	ND 390 J	-	170 J
Fluorene	µg/Kg	50,000	ND 420	ND 390 J	3400 J	ND 360
Indeno(1,2,3-cd)pyrene	µg/Kg	3,200	ND 420	ND 390 J	3500 J	56 J
Naphthalene	µg/Kg	13,000	ND 420	ND 390 J	7800 J	ND 360
Phenanthrene	µg/Kg	50,000	ND 420	ND 390 J	28000 J	140 J
Pyrene	µg/Kg	50,000	ND 420	ND 390 J	21000 J	170 J
Pesticides						
4,4-DDD	µg/Kg	2,900	ND 2.1	ND 0.40	ND 0.45	0.63 J
4,4'-DDE	µg/Kg	2,100	ND 2.1	ND 0.63	ND 0.37	1.3 J
alpha-Chlordane	µg/Kg	540	ND 0.15	3.3 J	1.4 J	6.1
Dieldrin	µg/Kg	44	0.36 J	ND 2.0	ND 1.8	0.82 J
Endosulfan II	µg/Kg	900	0.70 J	0.61 J	0.67 J	0.39 J
gamma-Chlordane	µg/Kg	540	ND 2.1	3.4 J	1.3 J	5.2
Heptachlor epoxide	µg/Kg	20	ND 2.1	ND 0.17	0.22 J	ND 0.31

Notes:

(1)	Recommended Soil Cleanup Objective, NYSDEC Technical and Administrative Guidance Memorandum #4046, January 24, 1994 (TAGM).
-	Not applicable.
ft. BG	Feet Below Grade.
µg/Kg	Micrograms per Kilogram.
J	Associated value is estimated.
ND	Non-detect at associated value.
☐	Value outside of associated control limits.

TABLE 6.5

TCLP ANALYTICAL DATA - OSMOSE AREA SOILS
ALBANY MIRON LUMBER SITE

		Sample Location:	*SB-5*	*SB-11*	*SB-30*	*Concrete*
		Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
		Sample Depth (ft. BG):	*(0-4)*	*(0-2)*	*(0-2)*	
Parameter	*Regulatory Level (1)*	*Unit*				
Herbicides - TCLP						
2,4,5-TP (Silvex)	1.0	mg/L	ND 0.010	ND 0.010	ND 0.010	ND 0.010
2,4-Dichlorophenoxy-acetic acid (2,4-D)	10.0	mg/L	ND 0.040	ND 0.040	ND 0.040	ND 0.040
Metals - TCLP						
Arsenic	5.0	mg/L	1.3	ND 0.50	1.5	ND 0.50
Barium	100	mg/L	ND 10.0	ND 10.0	ND 10.0	ND 10.0
Cadmium	1.0	mg/L	ND 0.10	ND 0.10	ND 0.10	ND 0.10
Chromium	5.0	mg/L	ND 0.50	ND 0.50	ND 0.50	1.4
Lead	5.0	mg/L	ND 0.50	ND 0.50	ND 0.50	ND 0.50
Mercury	0.2	mg/L	ND 0.00020	ND 0.00020	ND 0.00020	ND 0.00020
Selenium	1.0	mg/L	ND 0.25	ND 0.25	ND 0.25	ND 0.25
Silver	5.0	mg/L	ND 0.50	ND 0.50	ND 0.50	ND 0.50
Pesticides - TCLP						
Chlordane	0.03	mg/L	ND 0.0050	ND 0.0050	ND 0.0050	ND 0.0050
Endrin	0.02	mg/L	ND 0.00050	ND 0.00050	ND 0.00050	ND 0.00050
gamma-BHC (Lindane)	0.4	mg/L	ND 0.00050	ND 0.00050	ND 0.00050	ND 0.00050
Heptachlor	0.008	mg/L	ND 0.00050	ND 0.00050	ND 0.00050	ND 0.00050
Heptachlor epoxide	0.008	mg/L	ND 0.00050	ND 0.00050	ND 0.00050	ND 0.00050
Methoxychlor	10.0	mg/L	ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010
Toxaphene	0.5	mg/L	ND 0.020	ND 0.020	ND 0.020	ND 0.020
RCRA - Characteristics						
Ignitability	-	deg. f.	neg	neg	neg	neg
Reactive Cyanide	-	mg/Kg	ND 200	ND 200	ND 200	ND 200
Reactive Sulfide	-	mg/Kg	ND 200	ND 200	ND 200	ND 200
Semi - Volatiles - TCLP						
1,4-Dichlorobenzene	7.5	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
2,4,5-Trichlorophenol	400	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
2,4,6-Trichlorophenol	2.0	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
2,4-Dinitrotoluene	0.13	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Hexachlorobenzene	0.13	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Hexachlorobutadiene	0.5	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Hexachloroethane	3.0	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Methylphenol (Cresol)	200	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Nitrobenzene	2.0	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Pentachlorophenol	100	mg/L	ND 0.25	ND 0.25	ND 0.25	ND 0.25
Pyridine	5.0	mg/L	ND 0.10	ND 0.10	ND 0.10	ND 0.10

TABLE 6.5

TCLP ANALYTICAL DATA - OSMOSE AREA SOILS
ALBANY MIRON LUMBER SITE

		Sample Location:	*SB-5*	*SB-11*	*SB-30*	*Concrete*
		Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
		Sample Depth (ft. BG):	*(0-4)*	*(0-2)*	*(0-2)*	
Parameter	*Regulatory Level [1]*	*Unit*				
Volatiles - TCLP						
1,1-Dichloroethene	0.7	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
1,2-Dichloroethane	0.5	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
2-Butanone	200	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Benzene	0.5	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Carbon tetrachloride	0.5	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Chlorobenzene	100	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Chloroform (Trichloromethane)	6.0	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Tetrachloroethene	0.7	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Trichloroethene	0.5	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Vinyl chloride	0.2	mg/L	ND 0.050	ND 0.050	ND 0.050	ND 0.050

Notes:

(1)	Toxicity Characteristic of Hazardous Waste, 40 CFR 261.
deg. f.	degrees fahrenheit
ft. BG	Feet Below Grade.
mg/Kg	Milligrams per Kilogram.
mg/L	Milligrams per Liter.
ND	Non-detect at associated value.
s.u.	Standard Units
TCLP	Toxicity Characteristic Leaching Procedure.

TABLE 6.6

COMPOUNDS DETECTED IN GROUNDWATER
ALBANY MIRON LUMBER SITE

Parameter	Unit	Criteria $^{(1)}$	Sample Location: ML-1 Sample Date: 08/09/96	ML-2 08/09/96	ML-2R 10/18/2001	ML-3 08/09/96	ML-4 08/09/96	ML-5 08/09/96
Volatiles								
1,3,5-Trimethylbenzene	µg/L	5	ND1	3	-	ND1	ND1	ND1
1,2,4-Trichlorobenzene	µg/L	5	ND1	6	ND 5.0	ND1	ND1	ND1
Chloroform (Trichloromethane)	µg/L	7	ND1	ND1	ND 5.0	ND1	1	ND1
Tetrachloroethene	µg/L	5	8	4	ND 5.0	ND1	ND1	ND1
Trichloroethene	µg/L	5	ND1	ND1	2.7 J	ND1	ND1	ND1
Semi - Volatiles								
Caprolactam	µg/L	NS	-	-	320	-		
Di-n-butylphthalate	µg/L	NS	ND10	12	ND 10	ND10	ND10	NR
p-Cymene	µg/L	NS	ND1	1	-	ND1	ND1	ND1
Metals								
Aluminum	µg/L	NS	-	-	3840 J	-	-	-
Aluminum (Dissolved)	µg/L	-	-	-	ND 49.6	-	-	-
Antimony	µg/L	3	-	-	7.8	-	-	-
Antimony (Dissolved)	µg/L	-	-	-	8.0	-	-	-
Arsenic	µg/L	25	ND5	3930	627	ND5	450	200
Arsenic (Dissolved)	µg/L	-	-	-	541	-	-	-
Barium	µg/L	1000	120	150	79.7	100	70	30
Barium (Dissolved)	µg/L	-	-	-	49.9	-	-	-
Cadmium	µg/L	5	ND5	32	ND 5	ND5	ND5	ND5
Cadmium (Dissolved)	µg/L	-	-	-	ND 5	-	-	-
Calcium	µg/L	50	-	-	124000	-	-	-
Calcium (Dissolved)	µg/L	-	-	-	122000	-	-	-
Chromium	µg/L	50	38	1940	143	8	750	150
Chromium (Dissolved)	µg/L	-	-	-	89.2	-	-	-
Cobalt	µg/L	NS	-	-	2.6	-	-	-
Cobalt (Dissolved)	µg/L	-	-	-	ND 50	-	-	-
Copper	µg/L	200	ND50	280	89.6	ND50	ND50	150
Copper (Dissolved)	µg/L	-	-	-	5.3	-	-	-
Iron	µg/L	300	-	-	4370	-	-	-
Iron (Dissolved)	µg/L	-	-	-	ND 100	-	-	-
Lead	µg/L	25	8	ND5	3.5	ND5	ND5	9
Lead (Dissolved)	µg/L	-	-	-	1.9	-	-	-
Magnesium	µg/L	NS	-	-	18800	-	-	-
Magnesium (Dissolved)	µg/L	-	-	-	18100	-	-	-
Manganese	µg/L	300	-	-	449	-	-	-
Manganese (Dissolved)	µg/L	-	-	-	310	-	-	-
Nickel	µg/L	100	-	-	5.3	-	-	-
Nickel (Dissolved)	µg/L	-	-	-	ND 40	-	-	-

TABLE 6.6

COMPOUNDS DETECTED IN GROUNDWATER
ALBANY MIRON LUMBER SITE

		Sample Location:	*ML-1*	*ML-2*	*ML-2R*	*ML-3*	*ML-4*	*ML-5*
		Sample Date:	*08/09/96*	*08/09/96*	*10/18/2001*	*08/09/96*	*08/09/96*	*08/09/96*
Parameter	*Unit*	*Criteria* (1)						
Metals (Cont'd.)								
Potassium	µg/L	NS	-	-	3440 J	-	-	-
Potassium (Dissolved)	µg/L	-	-	-	2450 J	-	-	-
Sodium	µg/L	20000	-	-	165000	-	-	-
Sodium (Dissolved)	µg/L	-	-	-	165000	-	-	-
Vanadium	µg/L	NS	-	-	8.1	-	-	-
Vanadium (Dissolved)	µg/L	-	-	-	2	-	-	-
Zinc	µg/L	NS	-	-	15.1	-	-	-
Zinc (Dissolved)	µg/L	-	-	-	ND 20	-	-	-

Notes:

(1)	New York State Department of Environmental Conservation, Ambient Water Quality Standards (TOGS 1.1.1)
-	Not analyzed.
J	Associated value is estimated.
ND	Non-detect at associated value.
☐	Value outside of associated control limits.

TABLE 8.1

COST ANALYSIS SUMMARY - PAVING IMPACTED AREA
ALBANY MIRON LUMBER SITE

	Item		*Estimated Cost*
1.	Define Area of Impact	$	4,000
2.	Demolish and Remove Garage	$	15,000
3.	Remove and Dispose Surface Cover and Containment Area	$	26,000
4.	Prepare and Pave Area	$	30,000
	Sub-Total:	$	75,000
5.	Engineering (10%)	$	7,500
	Sub-Total:	**$**	**82,500**
6.	Contingency (20%)	$	15,000
	TOTAL ESTIMATED COST:	**$**	**97,500**

TABLE 8.2

COST ANALYSIS SUMMARY - REMOVE ALL IMPACTED SOIL AND PAVE AREA
ALBANY MIRON LUMBER SITE

	Item		*Estimated Cost*
1.	Define Area of Impact & Properties of Soil	$	23,000
2.	Demolish Garage	$	15,000
3.	Remove and Dispose Surface Cover and Containment Area	$	26,000
4.	Remove and Dispose Impacted Soil	$	855,000
5.	Confirmatory Sampling	$	1,500
6.	Prepare and Pave Area	$	30,000
	Sub-Total:	$	950,500
7.	Engineering (10%)	$	95,050
	Sub-Total:	**$**	**1,045,550**
8.	Contingency (20%)	$	190,100
	TOTAL ESTIMATED COST:	**$**	**1,235,650**

TABLE 8.3

COST ANALYSIS SUMMARY - REMOVE HOTSPOT SOIL AND PAVE AREA
ALBANY MIRON LUMBER SITE

	Item		*Estimated Cost*
1.	Define Area of Impact & Properties of Soil	$	23,000
2.	Demolish Garage	$	15,000
3.	Remove and Dispose Surface Cover and Containment Area	$	26,000
4.	Remove and Dispose Hotspot Soil	$	143,000
5.	Confirmatory Sampling	$	1,000
6.	Prepare and Pave Area	$	30,000
	Sub-Total:	$	238,000
7.	Engineering (10%)	$	23,800
	Sub-Total:	$	261,800
8.	Contingency (20%)	$	47,600
	TOTAL ESTIMATED COST:	**$**	**309,400**

TABLE 8.4

RANKING OF SOIL REMEDIAL ALTERNATIVES
ALBANY MIRON LUMBER SITE

	Alternative		
	Paving	*Excavate all Impacted Soil*	*Excavate Hotspot Soil*
Overall Protection of Human Health	3	1	2
Compliance with SCGs	3	1	2
Reduction of Toxicity, Mobility, and Volume	3	1	2
Short-Term Effectiveness	1	3	2
Long-Term Effectiveness and Permanence	3	1	2
Implementability	1	3	2
COST:	**$ 97,000**	**$ 1,236,000**	**$ 309,000**

Notes:

Alternatives of same ranking are equally effective.

SCGs New York State Standards, Criteria and Guidance.

TABLE 9.1

IDENTIFICATION OF SOIL ANALYTICAL DATA GAPS
ALBANY MIRON LUMBER SITE

Location	*Identification Complete?*	*Maximum Depth of Exceedance (ft BG)*	*Comments*
SB-1	No	>4	
SB-2	No	>4	
SB-3	No	>4	
SB-4	No	>4	
SB-5	No	>4	
SB-6	No	>4	
SB-7	No	>4	
SB-8	No	>4	
SB-9	No	>4	
SB-10	No	>4	
SB-17	Yes	2	
SB-18	Yes	10	Existing data anomolous
SB-19	Yes	6	
SB-20	Yes	2	
SB-21	Yes	4	
SB-22	Yes	0	
SB-23	Yes	6	
SB-24	No	>12	
SB-25	No	>8	
SB-26	No	>12	
SB-27	No	>2	Inside Containment Area
SB-28	No	>2	Inside Containment Area
SB-29	No	>2	Inside Containment Area
SB-30	No	>12	
SB-31	Yes	0	

Note:

BG	Below Grade.

TABLE 9.2

SUMMARY OF PROPOSED SAMPLING AND TESTING
ALBANY MIRON LUMBER SITE

Boring Location	*Total Depth (Ft. BG)*	*Interval for Analytical Sampling (Ft. BG)*	*Interval(s) for Geotechnical Testing (Ft. BG)*	*Comments*
SB-32	20*	0 to 20	None	
SB-33	50	8 to 20	0 to 20*	Geotechnical sampling to 2-foot intervals
			CS to 5' BCS	Geotechnical sampling continuous
			5' BCS to 50'	Geotechnical sampling in 5-foot intervals
SB-34	25**	12 to 20	0 to 20*	Geotechnical sampling in 2-foot intervals
			CS to 5' BCS	Geotechnical sampling continuous
SB-35	50	8 to 20	0 to 20*	Geotechnical sampling in 2-foot intervals
			CS to 5' BCS	Geotechnical sampling continuous
			5 BCS to 50'	Geotechnical sampling in 5-foot intervals
SB-36	20*	0 to 20	None	
SB-37	20*	4 to 20	None	
SB-38	20*	12 to 20	None	
SB-39	20*	2 to 20	None	
SB-40	4	0 to 4	None	
SB-41	20*	4 to 20	None	
SB-42	20*	4 to 20	None	
SB-43	20*	4 o 20	None	
SB-44	20*	4 to 20	None	
SB-45	20*	4 to 20	None	
SB-46	20*	4 to 20	0 to 20*	Geotechnical sampling in 2-foot intervals
SB-47	20*	6 to 20	None	
SB-48	20*	0 to 4	0 to 20*	Geotechnical sampling in 2-foot intervals
SB-49	4	0 to 4	None	
SB-50	20*	0 to 4	0 to 20*	Geotechnical sampling in 2-foot intervals
SB-51	4	0 to 4	None	
SB-52	4	0 to 4	None	

Notes:

**	Estimated depth, boring to extend 5 feet into the clay unit.
20*	Estimated depth, boring, or sampling to extend to the top of the water table.
BCS	Below Clay Surface.
BG	Below Grade.
CS	Clay Surface.
Ft.	Feet.

APPENDIX A

BASELINE INVESTIGATION FIELD PROCEDURES

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LIST OF FIGURES
(Following Appendix A)

LIST OF TABLES

LIST OF ATTACHMENTS

1.0 SAMPLE DESIGNATION

A unique sample numbering system will be used to identify each collected sample. This system will provide a tracking number to allow retrieval and cross-referencing of sample information. The sample numbering system to be used is described as follows:

Example: S-121695 - AA-XXX
Where: S - Designates sample Type
(S = Soil)
121695: Date of collection (mm/dd/yy)
AA: Sampler initials
XXX: Unique sample number

QC samples will also be numbered with a unique sample number.

2.0 DATA VALIDATION

Analytical data collected during the Site Investigation will be validated to demonstrate the usability of the data to support the conclusions of the Site Investigation. Data will be validated in accordance with the New York State Department of Environmental Conservation (NYSDEC) Division of Remediation "Guidance for the Development of Data Usability Summary Reports" (DUSRs).

All analytical work will be subcontracted to an Environmental Laboratory Approval Program (ELAP) and Contract Laboratory Program (CLP) certified laboratory(s). All analytical data generated by the subcontract laboratory(s) will be assessed and validated by an independent Data Validator.

3.0 FIELD PROCEDURES

All monitoring and sampling activities described in this document shall be conducted in accordance with the protocols detailed in this section as well as the standards and criteria set forth in the Work Plan, Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HASP).

Site dedicated equipment will be used whenever possible.

3.1 BOREHOLE DRILLING/SOIL SAMPLING

3.1.1 MONITORING WELL LOCATIONS

Borehole drilling for the geologic logging and sampling of subsurface soils at monitoring well locations will be performed using the hollow stem auger technique. The borehole will be advanced using approximately 4-inch inside diameter (ID) (8-inch outside diameter [OD]) hollow-stem augers from ground surface to the desired depth of installation. Soil samples will be collected from the specified depth intervals by the standard penetration test method (American Society for Testing and Materials [ASTM] - 1586-84) using split spoon samplers of appropriate length and diameter. Sampling equipment will be cleaned between samples in accordance with the protocols described in Section 3.7. All soil samples collected will be described and classified according to the Unified Soil Classification System (USCS).

In locations which are covered by asphalt or concrete, the asphalt or concrete, and granular sub-base will be penetrated to the original ground surface prior to commencement of continuous sampling or augering for sample collection. After the borehole has been completed and the sample has been obtained, a monitoring well shall be installed as described in Section 3.2. If no monitoring well is to be installed, the borehole shall be backfilled as follows:

i) boreholes in areas covered with asphalt or concrete shall be backfilled to within approximately 6 inches of the ground surface using a cement/bentonite grout. The remainder of the borehole shall be filled with asphalt or concrete; or

ii) boreholes in areas not covered with asphalt (i.e., gravel or soil surfaces) shall be backfilled to within 1 foot of the ground surface using cement/bentonite grout. The remainder of the borehole will be filled with material similar to the surrounding ground surface.

A typical borehole installation is shown on Figure A3.1.

3.1.2 ANALYTICAL SAMPLE COLLECTION

Each soil sample will be collected using a precleaned continuous soil sampling system or a split spoon sampler in conjunction with the hollow-stem augering technique described previously.

Soil samples for chemical analysis will be collected in the following manner:

i) upon retrieval of the sampler, it will be laid on a surface which has been covered with plastic or aluminum foil and shall be carefully opened to avoid sample disturbance;

ii) using a precleaned stainless steel knife, a thin section will be removed from the top and bottom of the sample and discarded as shown on Figure A3.2;

iii) the remainder of the core will then be cut longitudinally with a clean cutting tool. A continuous soil sample will be taken from the center of the core using a clean stainless steel spatula;

iv) analytical samples shall be placed into precleaned sample jars provided by the analytical laboratory. Sample homogenization or splitting will be performed in the analytical laboratory; and

v) the remainder of the core not used for chemical analysis will be disposed with other drilling spoils.

A clean pair of disposable latex gloves and a new piece of plastic or foil will be used to handle each sample.

Samples will be placed on ice or cooler packs in laboratory supplied coolers immediately after collection and labeling. Samples will be delivered to the laboratory by courier under approved chain of custody procedures in accordance with the requirements of the QAPP. The sample container and preservation requirements are presented in Table A3.1.

TABLE A3.1

SAMPLE CONTAINERS AND PRESERVATION
FIELD SAMPLING PLAN
ALBANY MIRON LUMBER OSMOSE AREA
GUILDERLAND, NEW YORK

Analyses	*Sample Containers*	*Preservation*	*Maximum Holding Time*	*Notes*
Soil				
TCL VOCs	1 - 4 oz. glass jar with Teflon-lined septum	Cool 4°C	14 days from collection to analyses	Fill completely, little or no head space
TCL SVOCs/Pest/PCBs	1 - 8 oz. wide mouth glass jar per analysis	Cool 4°C	14 days from collection to extraction 40 days from extraction to analysis	Fill completely
SSPL/TAL Metals	1 - 8 oz. wide mouth glass jar	Cool 4°C	180 days (mercury 28 days) from collection to analysis	Fill completely
TCLP Metals	1 - 8 oz. wide mouth glass jar	Cool 4°C	180 days (mercury 28 days) from collection to extraction	Fill completely
Cyanide	1 - 8 oz. wide mouth glass jar	Cool 4°C	14 days from collection to analysis	Fill completely
Water				
TCL VOCs	2 - 40 ml glass vial with Teflon-lined septum	HCl to pH <2, cool to 4°C	14 days from collection to analysis	Fill completely, no head space
TCL SVOCs	1 liter amber glass jar	Cool 4°C	7 days from collection to extraction 40 days from extraction to analysis	Fill completely
SSPL/TAL Metals	1 - 500 ml plastic	HNO_3 to pH <2, cool 4°C	180 days (mercury 28 days) from collection to analysis	Fill completely
Cyanide	1 liter plastic	NaOH pH>12 0.6g Ascorbic Acid	14 days from collection to analysis	Fill completely

Notes:

SSPL	Site-Specific Parameter List.
SVOCs	Semi-Volatile Organic Compounds.
TAL	Target Analyte List.
TCL	Target Compound List.
TCLP	Toxicity Characteristic Leaching Procedure.
VOCs	Volatile Organic Compounds.

3.2 MONITORING WELL INSTALLATION

3.2.1 "PERMANENT" INSTALLATIONS

Monitoring wells shall be installed in the completed boreholes as follows:

i) install a 2-inch diameter well consisting of 5-foot long PVC well screen (#10 slot) and 2-inch diameter PVC pipe of threaded construction with lockable cap and lock. The well screen and riser pipe shall be steam cleaned and inspected for any foreign matter including greases or coatings adhering to surfaces prior to well construction;

ii) backfill each well installation with a measured sandpack around the well screen (Montery, filter No. 20 [12x20] sand) placed to a minimum of 2.0 feet above top of screen and a 2.0-foot measured bentonite pellet seal over the sandpack;

iii) wait ½ hour after the placement of the bentonite seal and then grout the remaining annular space between the well pipe and borehole by positive displacement using a tremie tube. The grout shall consist of Portland cement, bentonite, and clean water. The grout shall be mixed in the proportion of not less than 5 nor more than 6 gallons of water to one bag (94) of cement. Bentonite powder shall be added at a ratio of 3 percent by volume. Hydrated lime, up to 10 percent by volume, may be added to facilitate pumping; and

iv) flush-mount wells shall be set 3 inches BGS and an approved protective curb box (12-inch minimum length) casing will be grouted in place around the well for protection. The flush-mount casings will be raised slightly above ground surface to allow the sealing grout to be sloped away from the well to prevent surface water run-in.

A typical monitoring well installation is shown on Figure A3.3.

3.2.2 TEMPORARY INSTALLATION

Temporary monitoring wells shall be installed in completed boreholes as follows:

i) install a 1-inch diameter well consisting of PVC well screen (#10 slot) of specified length and 1-inch diameter PVC pipe of threaded construction with lockable cap and lock. The well screen and riser pipe shall be steam cleaned and inspected for any foreign matter including greases or coatings adhering to surfaces prior to well construction;

ii) backfill each well installation with a measured sandpack around the well screen (Montery, Filter No. 20 [12x20] sand) placed to a minimum of 2.0 feet above top of screen and a 2.0-foot measured bentonite pellet seal over the sandpack;

iii) depending upon area use, the remaining open annular space may be filled with sand or gravel or left open and covered with a protective cover to prevent stepping into the hole; and

iv) wait at least 1/2 hour after the placement of the bentonite seal to fill the annular space.

3.3 WELL DEVELOPMENT

All new monitoring wells will be developed no sooner than 48 hours following installation.

Well development will be accomplished by either pumping or bailing accompanied by surging. Well development will continue until the purged water exhibits a turbidity of 50 NTUs or lower or for a maximum of 1 hour. Groundwater removed from the wells will be collected or advance approval will be obtained for direct discharge to the municipal wastewater treatment system. Equipment placed in a monitoring well will be cleaned following decontamination procedures as described in Section 3.7.

3.4 IN SITU HYDRAULIC CONDUCTIVITY TESTING

3.4.1 SLUG TESTING

In situ hydraulic conductivity tests in new wells will be performed by slug testing. Using a precleaned slug of known volume attached to well-dedicated polypropylene rope, the water level within the well will be instantaneously raised. The return of the water level to static will be monitored by manual collection of water levels at frequent intervals or by use of a pressure transducer system for continuous measurement. Following return of the water level to static, the slug will be quickly removed from the well lowering the water level. The return of the water level to static will again be monitored. All equipment will be precleaned following the decontamination procedures described in Section 3.7 prior to use in each well.

Data from tests conducted on unconfined aquifers will be evaluated using the Bouwer and Rice Method, "A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells".

3.5 WATER LEVEL MEASUREMENT

Each well shall have a permanent easily identified reference point on the well casing from which its water level elevation is taken. The reference point will be marked on the well and described in the field notebook. The reference points shall be established by a licensed surveyor in relation to an established United States Geological Survey (USGS) datum.

An electric tape water level measuring device sufficiently sensitive to reliably provide a measurement accurate to 0.01 feet shall be used to determine the depth to groundwater. The water level probe and wire will be cleaned in accordance with the protocols described in Section 3.7 before use each day and between wells.

Data shall be recorded in a bound notebook and shall include the following:

i) well number;
ii) date;
iii) time;
iv) top of casing (measuring point) elevation;
v) measured depth to water; and
vi) initials of person taking the measurement.

3.6 GROUNDWATER SAMPLING

The sampling procedures for the groundwater monitoring wells are described below. These procedures are used to maintain consistent and reproducible methods in obtaining groundwater samples. Low flow purging and sampling procedures will be applied to obtain samples with low turbidity.

The initial step at each well will be to measure the static water level. This will be accomplished following the procedures described in Section 3.5.

All purging and sampling equipment will either be well-dedicated or will be cleaned in accordance with the procedures contained in Section 3.7 prior to use in each well.

3.6.1 PURGING

Well purging will be performed using precleaned stainless steel bladder pumps or peristaltic pumps with well-dedicated teflon or teflon-lined discharge tubing. Wells will be purged under low flow conditions. Sample collection shall be initiated immediately following purging.

The following procedures will be used to purge and sample monitoring wells:

i) when installing a pump, lower the pump, tubing, and security cable slowly into the well to a depth such that the pump intake is located at the mid-point of the well screen. Secure the pump security cable;

ii) when installing intake tubing for a peristaltic pump, lower the tubing into the well such that the open end (intake) is located at the mid-point of the well screen;

iii) with the pump controller set to its lowest setting connect the controller to the pump and air supply;

iv) slowly increase the pumping rate until discharge occurs;

v) once discharge occurs, check the water level in the well and adjust the pumping rate so the water level drawdown is less than 0.3 foot, the pumping rate shall not exceed 0.25 gallons per minute (GPM);

vi) measure and record the water level and pumping rate every 5 minutes during purging and adjust the pumping rate, if necessary, to maintain drawdown <0.3 foot. Record any pumping rate changes; and

vii) measure and record field indicator parameters (turbidity, pH, specific conductance, temperature) every 5 minutes. Purging will be considered complete when all of the indicator parameters have stabilized. Stabilization will be considered to be achieved after three consecutive readings are within the following limits:

a)	pH	(±0.1 unit),
b)	temperature	(3 percent), and
c)	specific conductance	(3 percent).

If possible, purging will continue until turbidity is <50 NTU.

3.6.2 SAMPLE COLLECTION

Wells will be sampled immediately after purging.

A well-dedicated or pre-cleaned teflon or stainless steel bailer or bladder pump will be used for VOC sample collection in order to minimize the stripping of volatile compounds from the groundwater samples and adsorption of trace constituents and eliminate the potential for cross-contamination of wells. If a non-dedicated bailer is used for sample collection, the first bailer volume of sample will be discarded to acclimate the bailer.

Groundwater turbidity will be measured and recorded when groundwater samples are collected. If the turbidity is >50 NTUs, both filtered and unfiltered samples will be submitted for metals analyses.

For all unfiltered samples, groundwater will be poured directly into laboratory supplied sample containers from the bailer.

Samples will be placed on ice or cooler packs in laboratory supplied coolers immediately after collection and labeling. Samples will be delivered to the laboratory by courier under approved Chain of Custody procedures in accordance with the QAPP and this FSP. Sample container and preservation requirements are presented in Table A3.1.

3.6.3 RECORDKEEPING

A bound logbook will be used to record all pertinent sampling data including:

i) date(s) and time(s) of well purging and sampling;
ii) sounded depth of well;
iii) names of sampling personnel;
iv) calculation of well volume;
v) volume of water purged;
vi) methods of purging and sampling;
vii) initial and final water quality descriptions;
viii) water quality measurements;

When practicable, sampling equipment will be wrapped in a material that will prevent it from becoming contaminated. When cleaning pressure transducer and water level measurement equipment the isopropanol rinse shall not be used. Field decontamination wastes will be handled in accordance with all applicable regulations.

3.8 WASTE HANDLING

Borehole cuttings, wastewater and cleaning solvents shall be placed in separate containers and covered. At the end of every day, all containers will be securely covered and full containers will be transferred to an on-Site staging area. All containers will be properly labeled as to contents in conformance with all Federal and State regulations.

Following characterization, waste material will be disposed in accordance with the appropriate regulations.

3.9 SAMPLE PREPARATION AND PRESERVATION

Immediately after collection, samples will be transferred to properly labeled sample containers and properly preserved. Table A3.1 lists the proper container materials, volume requirements, and preservation needed for the Site analyses. Samples requiring refrigeration for preservation will be immediately transferred to coolers packed with ice and/or ice packs. Samples will be shipped within 24 hours of being collected and will arrive at the laboratory no later than 48 hours after sample collection. Proper Chain of Custody documentation will be maintained as discussed in the QAPP.

3.10 WELL ABANDONMENT

Should an installed monitoring well require abandonment, the procedures will be in accordance with the NYSDEC "Decommissioning Procedures" dated April 1993. A copy of the Decommissioning Procedures document is contained in Attachment A1 of this FSP.

APPENDIX A

FIGURES

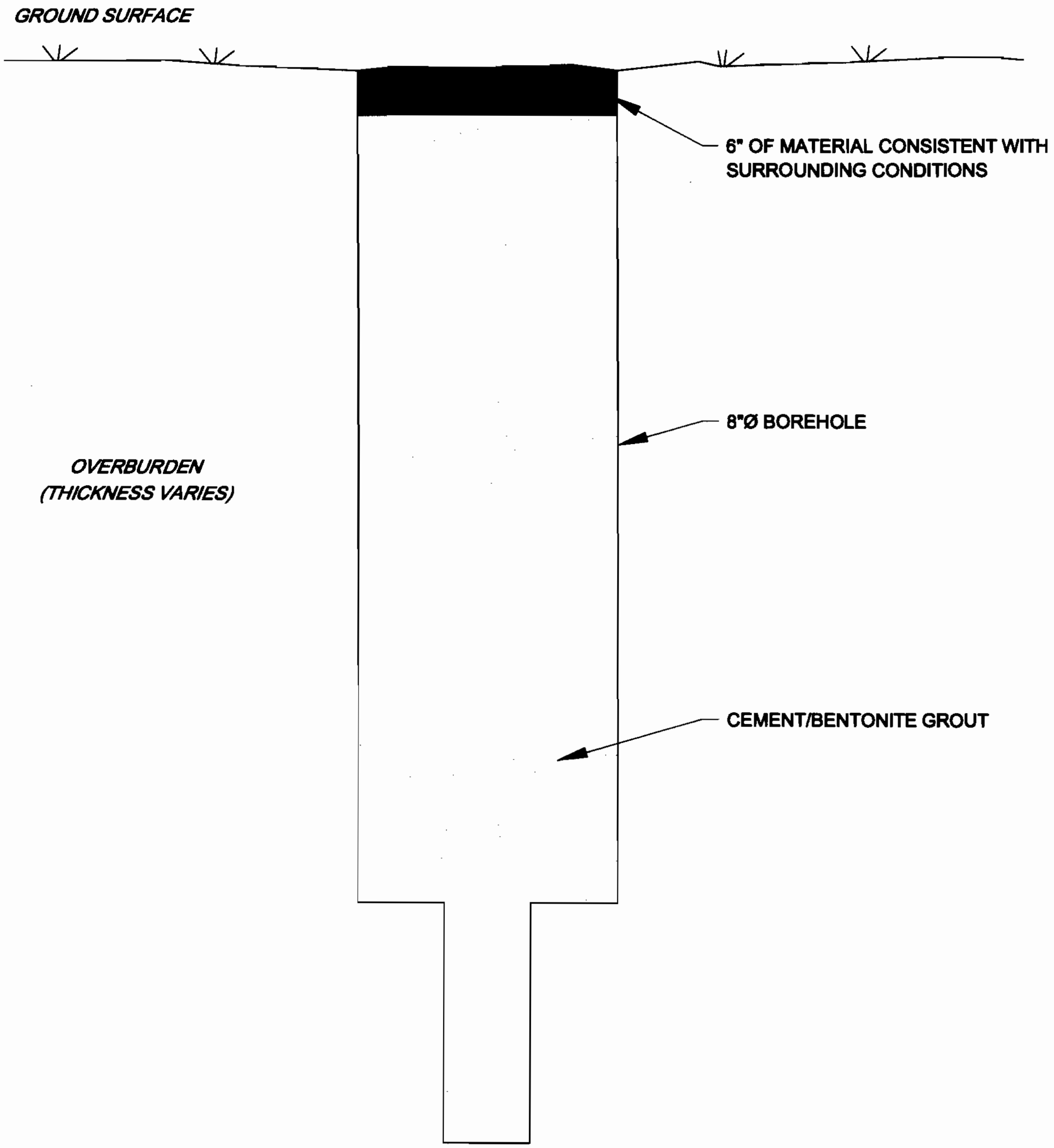

figure A3.1

TYPICAL BOREHOLE
ALBANY MIRON LUMBER
Albany, New York

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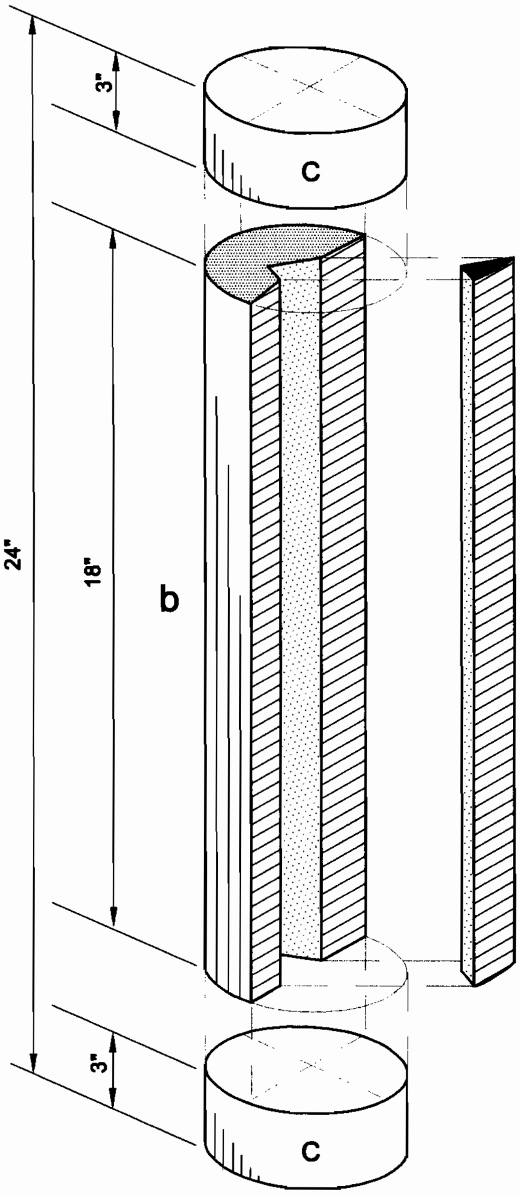


TYPICAL SOIL CORE

a

PORTION OF SAMPLE FOR CHEMICAL ANALYSIS

- -CONTACT WITH UNSTERILIZED MATERIALS IS NOT ACCEPTABLE
- -CONTAINER - PRECLEANED GLASS
- -GASKET - TEFLON
- -STORAGE - REFRIGERATED (4°C)
- -SHIPPING - ON ICE BY COURIER TO DESIGNATED LAB

b

PORTION OF SAMPLE TO BE RETAINED FOR GEOLOGIC RECORDS

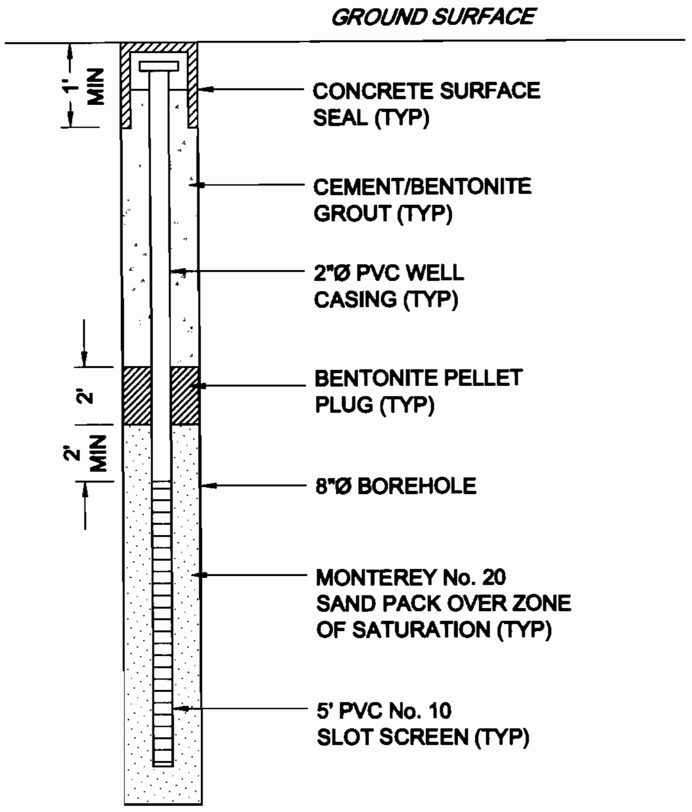
- -CONTACT WITH UNSTERILIZED MATERIALS IS NOT A PROBLEM
- -CONTAINER: - CLEAN GLASS JAR
  - CLEAR GLASS IS SUITABLE
- -GASKET - ANY SUITABLE GASKET
- -STORAGE - IN STANDARD SHIPPING CARTON
  - NO REFRIGERATION REQUIRED

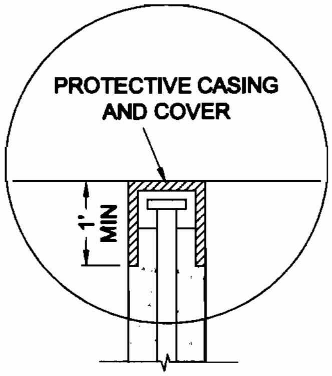
c

PORTION OF SAMPLE TO BE DISCARDED

figure A3.2

BOREHOLE SOIL SAMPLE COLLECTION DETAIL
ALBANY MIRON LUMBER
Albany, New York





FLUSH WITH GROUND WELL INSTALLATION

figure A3.3

TYPICAL MONITORING WELL INSTALLATION
ALBANY MIRON LUMBER
Albany, New York

CRA

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ATTACHMENT A1

MONITORING WELL DECOMMISSIONING PROCEDURES

DECOMMISSIONING PROCEDURES

New York State Superfund Standby Contract
Work Assignment D002852-3
NYSDEC Monitoring Well Decommissioning

Prepared for:

New York State
Department of Environmental Conservation
Division of Hazardous Waste Remediation

RECEIVED
JUN 11 1993
N.Y.S. DEPT. OF
ENVIRONMENTAL CONSERVATION
REGION 9

April, 1993

Malcolm Pirnie, Inc.
Albany, New York

1.0 RATIONALE

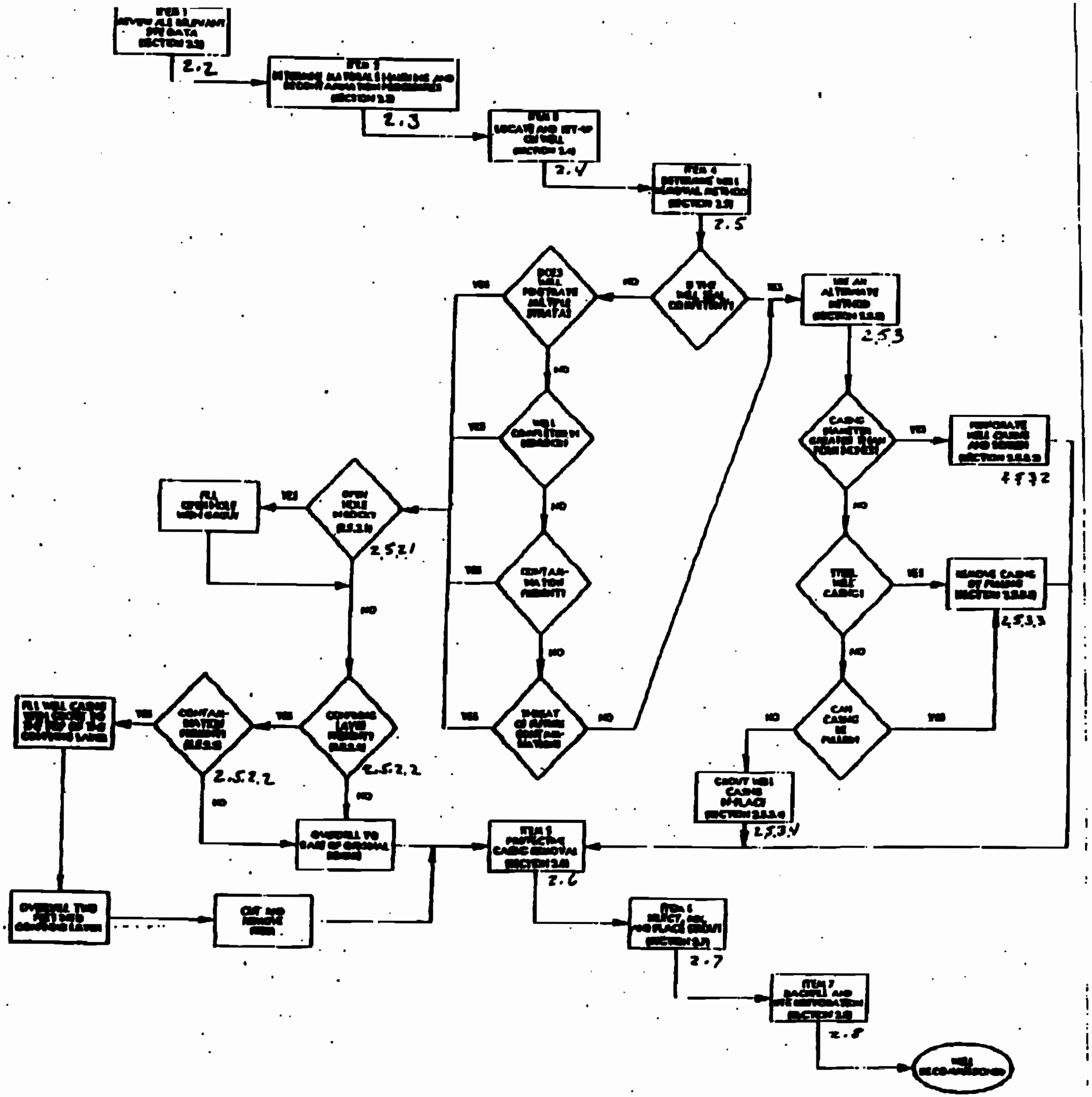
These monitoring well decommissioning procedures have been developed by Malcolm Pirnie, Inc. for the New York State Department of Environmental Conservation (NYSDEC) under the New York State Superfund Standby Contract. The procedures were designed to successfully decommission wells that are no longer used for monitoring. A well is successfully decommissioned when:

- The well does not allow migration of existing or future contaminants into an aquifer or between aquifers
- The well does not allow migration of existing or future contaminants in the vadose zone
- The potential for vertical or horizontal migration of fluids in the well or adjacent to the well is minimized
- aquifer yield and hydrostatic head are conserved, and
- The possibility that the well is used for purposes other than intended is eliminated

Malcolm Pirnie developed these procedures by performing an extensive literature search, consulting industry officials, and consulting the NYSDEC. The literature search included a review of sources from the National Ground Water Association, American Society for Testing and Materials (A.S.T.M.), State and EPA guidance documents, Malcolm Pirnie decommissioning procedures, and various other technical sources. A complete listing of references is included at the end of these procedures. The industry officials that were consulted included drilling contractors, equipment suppliers and manufacturers, and A.S.T.M. members on Soil and Rock (D-18) and Water (D-19) committees.

These procedures are performance oriented. They describe the conditions that must be met to satisfactorily decommission a well without specifying the method. Performance-oriented procedures are best suited for well decommissioning for two reasons. Firstly, there are often several acceptable methods that can be used to accomplish the same end result. Secondly, procedures of this type encourage the development of innovative and cost-saving techniques by the drilling contractor.

To allow these procedures to afford the greatest degree of protection to humans and the environment, Malcolm Pirnie and the NYSDEC decided during development of the procedures that they would be based on two assumptions: 1) well seals are not competent unless documentation is provided that proves otherwise, and 2) any material returned to the surface during the decommissioning process will be treated as a non-hazardous waste. Disposal methods for these materials are contained in the specifications and are dependent on information gleaned from site investigation reports. Unless these assumptions are shown to be invalid, a procedure is followed that is appropriate for the physical and hydrologic setting of the well, and is the most protective of the environment.



MALCOLM

WELL DECOMMISSIONING PROCEDURE DECISION FLOWCHART

MALCOLM PIRNIE, INC.

2.0 WELL DECOMMISSIONING PROCEDURES

2.1 Description

This section describes the process that is used to determine which *decommissioning method* and which *group of procedures* to use to properly decommission a well, and then presents the procedures.

There are four *decommissioning methods*:

1) Overdrilling,
2) Casing Perforation,
3) Casing Pulling, and
4) Grouting the Well Casing In-Place.

For each decommissioning method there is a *group of procedures* that must be followed. The specific procedures contained in the group are determined by the physical and chemical nature of the materials surrounding the well and by the design of the well. For example, overdrilling a well that penetrates a confining layer can require a different group of procedures than overdrilling an unconfined water table well. Each group of procedures consists of seven items:

1) **Reviewing Site Data**
2) **Determining Materials Handling and Decontamination Procedures**
3) **Locating and Setting-Up on the Well**
4) **Selecting the Well Decommissioning Method**
5) **Removing the Protective Casing**
6) **Selecting, Mixing, and Placing Grout**
7) **Backfilling and Site Restoration**

The proper method and group of procedures to use to successfully decommission a well are selected by using a flow chart (Figure 1). The flow chart also references the relevant sections in the text. The structure of the flow chart is based on the assumptions discussed in Section 1 of this document.

2.2 Item 1 - Reviewing Site Data

The first item of the flow chart consists of reviewing all pertinent site information, including boring and well logs, field inspection sheets, and laboratory analytical results performed on site soil and ground water samples. These data will be used to make decisions throughout the flow chart. If site data is incomplete, or of insufficient reliability to enable its use, it is recommended that field verification of the characteristics and conditions of the wells be conducted. A sample Monitoring Well Field Inspection Log, indicating information which could be obtained during field verification activities, is included herein.

All of the sites where well decommissioning is scheduled have been delisted. It is therefore assumed that none of the sites contain hazardous materials.

2.3 Item 2 - Determining Materials Handling and Decontamination Procedures

2.3.1 Description

After all available site data have been reviewed, the procedures for handling all materials generated during decommissioning, and decontaminating the drilling rig and tools, must be selected. The specific procedures followed for both materials handling and decontamination are dependent on three factors: 1) whether the site is located within or near a closed Part 360 landfill, 2) the presence and type of contamination (if present) at the well to be decommissioned, and 3) the use of the land surrounding the well.

2.3.2 Materials Handling Procedures

To determine the proper materials handling procedure to use for a particular well:

1) Determine whether the site is located within or near a Part 360 landfill. If the well is located *near* a closed Part 360 landfill, the materials can be disposed of on the ground surrounding the well. If the well is located *within* a closed Part 360 landfill, the materials must be disposed of at an active Part 360 landfill. If the well is not located on or near a Part 360 landfill, see (2) below.

2) Determine the presence and type of contamination (if present) at the well by reviewing available well data (Section 2.2). From the data. place the well into one of the following categories: a) wells containing contamination in concentrations exceeding the ground water standard, or b) wells containing no contamination. If a determination cannot be made from the existing data, a meeting with the NYSDEC will occur to determine how to obtain the necessary data.

For wells in the contamination category, all materials returned to the surface must either be disposed of in a Part 360 landfill, or can be left at the surface near the former well. See (3) below to determine which of these options is applicable. For all uncontaminated wells, the materials can be left at the surface, near the former well, unless disposing the materials in this manner would be inconsistent with the surrounding land use, see (3) below.

3) Determine the surrounding land use. If the well is located in an urbanized area, where it is feasible that people could be exposed to the materials left on the surface, or if the leaving the materials at the surface would not be consistent with the intended use of the land, then the materials must be disposed of in a Part 360 landfill.

2.3.3 Decontamination Procedures

The drill rig and all tools must be decontaminated with a pressurized steam cleaner after decommissioning a contaminated well (as determined in 2.3.2 above). Decontamination will take place at each former well location whenever possible. If site conditions preclude performing decontamination activities at the well location, a more suitable location must be selected.

The procedures for handling and disposal of decontamination fluids are the same as for materials returned to the surface, see Section 2.3.2.

2.4 Item 3 - Locating and Setting-Up on the Well

Perform the following tasks to locate the well to be decommissioned:

- Notify property owner prior to site mobilization whenever possible.
- Review information about the well contained in the site file. This information may include one or more of the following: the site map, well boring log, well construction diagram, field inspection log, well photograph, and proposed well decommissioning procedure.
- Verify the well location and identification by locating the identifying marker.
- Verify the depth of the well by sounding with a weighted tape and compare the measurement with the well construction log.

When the well has been located, set the drilling rig up over the well. Consider the selected decommissioning procedures when setting-up over the well.

2.5 Item 4 - Selecting the Well Decommissioning Method

2.5.1 General

The well removal method used to decommission a well depends primarily on the integrity of the well seal. If it can be documented that the seal is competent, one of the three decommissioning methods other than overdrilling can be used. (These three methods are referred to hereafter as *alternate* decommissioning methods.) If no such documentation exists, the well seal is assumed *not* to be competent. In cases where the well seal is not competent, the well must be overdrilled whenever any *one* of the following conditions is true:

- The well penetrates multiple hydraulic strata,
- The well is a bedrock well, and
- The well is located in an area where a significant threat of chemical/biological contamination exists.

If none of these conditions are true, the well can be decommissioned by a method other than overdrilling, even though it cannot be documented that the well seal is competent.

Procedures for all four decommissioning methods are presented below.

2.5.2 Overdrilling

2.5.2.1 Determine if the Well is Constructed as an Open-Hole in Rock

Open-hole wells have no well casing, sand pack, or bentonite seal installed inside the bedrock borehole. Overlying unconsolidated deposits, where present, are usually cased off by grouting a casing into the bedrock before further drilling of the bedrock is performed. Decommissioning wells of this type requires that the hole in rock be filled with sealing grout before overdrilling of the cased portion of the borehole is begun. (If bedrock occurs at the land surface, no overdrilling is required.) This prevents the rock hole from filling with cuttings which would have to be flushed out. The grout must be mixed and placed according to the grouting procedures contained in Section 2.7. After the rock hole is grouted, the cased portion of the well is overdrilled according to the procedures contained in Section 2.5.2.3.

2.5.2.2 Determine Whether a Confining Layer and Contamination Exist

Review site data to determine whether a confining layer is present and, if so, whether contamination was detected during installation or sampling of the well. If a confining layer and contamination are found to exist, then extra care must be used to prevent cross contamination between the water-bearing zones above and below the confining layer.

One acceptable procedure for decommissioning wells where both a confining layer and contamination exist is to: 1) fill the well casing with grout to the top of the confining layer; and 2) overdrill the well according to the overdrilling procedure contained in Section 2.5.2.3 until two feet of the confining layer have been penetrated. If the confining layer is less than two-feet thick, this procedure may not be possible. When overdrilling is completed, the borehole must be grouted according to the procedure contained in Section 2.7. Other acceptable procedures may exist, however they must receive Department approval prior to implementation.

2.5.2.3 Overdrill the Well

This section describes the requirements common to all overdrilling procedures, regardless of whether a well penetrates a confining layer or bedrock.

Select a drilling method that:

1. follows the original well bore,

2. creates a borehole of the same or greater diameter than the original boring, and,

3. removes all of the well construction materials.

Acceptable methods for overdrilling include: 1) using an overreaming tool with a pilot bit which is nearly the same size as the inside diameter of the casing and a reaming bit which has a slightly larger diameter than the original borehole diameter. This method can be used for wells with steel casings. 2) using a hollow stem auger equipped with outward facing carbide cutting teeth with a diameter two to four inches larger than the casing. It is important to use outward facing cutting teeth in order that the cutting tool does not sever the casing and drift off center. An alternative is to install a steel guide pipe inside the casing so that the augers remain centered. The casing guides the cutter head and remains inside the auger. This temporary working pipe should be firmly attached to the inside of the casing by use of a packer, or other type of expansion or friction device. When the full diameter and length of the well has been penetrated, the casing and screen can be retrieved from the center of the auger (American Society for Testing and Materials, Standard D 5299-92, 1992).

After overdrilling is completed, the borehole must be grouted according to the procedures contained in Section 2.7

2.5.3 Alternate Decommissioning Methods

2.5.3.1 General

There are three alternate decommissioning methods: casing perforation, casing pulling, and grouting the casing in-place. A series of decisions are required to determine which of these methods will be used for a particular well (See Figure 1.) The first criterion to determine is whether the inside diameter of the well casing is four inches or greater. If it is determined that the diameter is four inches or greater, casing perforation is selected as the alternate decommissioning method. This is because casing perforation is the most desirable of the alternate decommissioning methods, but it is not practical to perforate casings with a diameter of less than four inches.

If it is determined that the inside diameter of well casing is less than four inches, it must be decided whether the well casing is able to be removed by pulling. This determination is made based on review of the site specific data. If it is determined that the casing can be pulled, casing pulling is selected as the alternate decommissioning method. Casing pulling is the next most desirable alternate decommissioning method.

If it is determined that the casing cannot be pulled, then grouting the casing in-place is the alternate decommissioning method to be used. This is the least desirable alternate decommissioning method.

The procedures for each alternate method are presented below.

2.5.3.2 Casing Perforation

This method consists of perforating the well casing and screen using a suitable tool and grouting the well. A wide variety of commercial equipment is available for perforating casings and screens in wells with four-inch or larger inside diameters. This method should not be used for wells with inside diameters less than four inches. Due to the diversity of application, experienced contractors must recommend a specific technique based on site specific conditions. A minimum of four rows of perforations several inches long and a minimum of five perforations per linear foot of casing or screen is recommended (American Society for Testing and Materials, Standard D 5299-92, 1992).

After perforating is completed, the borehole must be grouted according to the procedures contained in Section 2.7.

2.5.3.3 Casing Pulling

This method consists of removing the well casing by lifting. The method used to remove the casing must allow grout to be added during pulling to fill the space occupied by the material being withdrawn. Grout mixing and placement must be performed according to the procedures contained in Section 2.7.

An acceptable method to remove steel casing consists of puncturing the bottom of the casing, filling the casing with grout tremied from the bottom of the well, using jacks to free casing from the hole, and lifting the casing out by using a drill rig, backhoe, crane, or other suitable equipment of sufficient capacity. Additional grout must be added to the casing as it is withdrawn.

PVC and other low tensile strength materials may not be able to be removed by pulling in certain conditions. Excessive deformation or breakage of the well casing may preclude removal by pulling deep wells in extremely cohesive soils. If pulling a PVC casing is recommended by an engineer or drilling contractor, the pulling method must be approved in advance by the Department.

2.5.3.4 Grouting the Casing In-Place

Grouting the casing in place is the simplest, but least protective of all the decommissioning procedures. The procedure consists of filling the casing with grout to a level of five feet below the land surface, cutting the well casing at a depth of five feet below the land surface, and removing the casing and associated well materials from the ground. The casing must be grouted according to the procedures contained in Section 2.7.

2.6 Item 5 - Removing the Protective Casing

2.6.1 General

The protective casing of a well must be removed in a manner that will not interfere with or compromise the integrity of decommissioning activities performed at the well.

The procedure for removing the protective casing of a well depends upon the decommissioning method used. When a well is being decommissioned by the overdrilling or casing pulling method, the protective casing will, in most cases, be removed before continuing with the decommissioning activity. When the decommissioning procedure calls for the well casing to be perforated or left in place, the protective casing should be removed after grout is added to the well. The protective casing must be disposed of in a manner consistent with solid waste regulations.

2.6.2 Removing the Protective Casing Prior to Sealing the Well Bore

When overdrilling is required, the protective casing must be removed first, unless the drilling tools used to overdrill the well have an inside diameter that is larger than the protective casing. The many different types of protective casings available preclude developing a specific removal procedure. In all cases, however, the specific procedure used must minimize the risk of:

1. Breaking the well casing off below ground, and
2. Allowing foreign material to enter the well casing.

When casing pulling is required, the determination of when to remove the protective casing is not critical. For this reason, the determination can be made by the drilling contractor.

An acceptable method of removing a protective casing consists of breaking up the concrete seal surrounding the casing and jacking or hoisting the casing out of the ground.

A check should be made during pulling to insure that the inner well casing is not being pulled up with the protective casing. If this occurs, the well casing should be cut off above ground after the base of the protective casing is lifted above the land surface.

2.6.3 Removing the Protective Casing After Sealing the Well

If a decommissioning method is used that allows well casing to remain in the ground, the protective casing should be removed after the well has been filled to the proper level with grout. This will insure that the well is properly sealed even if problems arise when removing the protective casing. Since the well casing must be removed to a depth of five feet below the land surface, this procedure will enable the upper five feet of casing and the protective casing to be removed in one operation if a casing cutter is used. If the height of the protective casing makes working conditions at the well awkward, the casing can be cut off at a lower level as long as the inner well casing remains above ground and is not damaged in a way that prevents the well from being filled with grout.

2.7 Item 6 - Selecting, Mixing, and Placing Grout

2.7.1 Selecting Grout Mixture

There are two types of grout mixes that may be used to seal wells: a standard mix and a special mix. Both mixes use Type 1 Portland Cement and six percent bentonite by weight. The difference between the two mixes is the volume of water used. The special mix uses less water and is used in situations where excessive loss of the standard grout mix is possible, for example in highly-fractured bedrock or coarse gravels.

2.7.1.1 Standard Grout Mixture

For most boreholes, the following standard mixture will be used:

- **One 94-pound bag type I Portland cement**
- **5.6 pounds powdered bentonite**
- **9.1 gallons potable water**

This mixture results in a grout with a bentonite content of six percent by weight, and will be used in all cases except in boreholes where excessive use of grout is anticipated. In these cases a special mixture will be used (see Section 2.7.1.2).

See Section 2.7.2 for grout mixing procedures.

2.7.1.2 Special Mixture

In cases where excessive use of grout is anticipated, such as high permeability formations and highly fractured or cavernous bedrock formations, the following special mixture will be used:

- One 94-pound bag type I Portland cement
- 5.6 pounds powdered bentonite
- 6-9 gallons potable water (depending on desired thickness)

The special mixture also results in a grout with a bentonite content of six percent by [illegible] but the amount of added water is decreased to produce a thicker mixture. The least amount of water that can be added for the mixture to be readily pumpable is six gallons per 94-pound bag of cement.

See Section 2.7.2 for grout mixing procedures.

2.7.2 Grout Mixing Procedure

Calculate the volume of grout required to fill the borehole before beginning to mix the grout. If possible, the grout basin should be large enough to hold all of the grout necessary for the borehole. Tall cylindrical and long shallow basins should not be used as it is difficult to obtain a homogeneous mixture in these types of basins.

Mix grout until a smooth, homogeneous mixture is achieved. No lumps or dry clots should be present. Grout can be mixed manually or with a mechanized mixer. One acceptable type of mixer is a vertical paddle grout mixer. Colloidal mixers should not be used as they tend to excessively decrease the thickness of the grout for the above recipes.

See Section 2.7.3 for grout placement procedures.

2.7.3 Grout Placement

Grout will be placed in the borehole from the bottom to the top. This will be accomplished by using a tremie pipe of not less than 1-inch diameter. Grout will then be pumped into the borehole at a rate of 5-10 gpm until the grout appears at the land surface. The only exception to this is when open hole in bedrock is being grouted. With this situation the grout level must reach above the bedrock surface. At this time the rate of settling should be observed. When the grout level stabilizes, casing or augers will be removed from the hole. As each section is removed, grout will be added to keep the level just below land surface. If the grout level cannot be maintained near the land surface, this will imply excessive loss of grout and an alternate grouting method must be used. One possibility is to grout in stages, whereby the first batch of grout is allowed to partially cure before a second batch of grout is added. Upon completion of grouting, it is important to make sure the final grout level is approximately five feet below land surface. A ferrous metal marker will be embedded in the top of the grout to indicate the location of the former monitoring well.

2.8 Item 7 - Backfilling and Site Restoration

The uppermost five feet of the borehole at the land surface will be filled with a material appropriate to the intended use of the land. The materials used are to be physically similar to the natural soils. No materials will be used that will limit the use of the property in any way. The surface of the borehole will also be restored to the condition of the area surrounding the borehole. For example, concrete or asphalt will be patched with concrete or asphalt of the same type and thickness, grassed areas will be seeded, and topsoil will be used in other areas. All solid waste materials generated during the decommissioning process will be disposed of properly. In summary, the site will be left in a condition equivalent to the pre-well condition.

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SITE NAME: ______________________

WELL I.D.: ______________

DATE/TIME: ______________

MONITORING WELL FIELD INSPECTION LOG

NYSDEC WELL DECOMMISSIONING PROGRAM

INSPECTOR'S NAME: ______________

ITEM	YES	NO
WELL VISIBLE? (If not, provide directions below)		
WELL I.D. VISIBLE?		
WELL LOCATION MATCH SITE MAP? (If not, sketch actual location on back)		

WELL I.D. AS IT APPEARS ON PROTECTIVE CASING OR WELL: ______________

	YES	NO
SURFACE SEAL PRESENT?		
SURFACE SEAL COMPETENT? (If cracked, heaved etc., describe below)		
PROTECTIVE CASING IN GOOD CONDITION? (If damaged, describe below)		

HEADSPACE READING (ppm) AND INSTRUMENT USED ______________

TYPE OF PROTECTIVE CASING AND HEIGHT OF STICKUP IN FEET (If applicable) ______________

PROTECTIVE CASING MATERIAL TYPE: ______________

MEASURE PROTECTIVE CASING INSIDE DIAMETER (Inches): ______________

	YES	NO
LOCK PRESENT?		
LOCK FUNCTIONAL?		
DID YOU REPLACE THE LOCK?		
IS THERE EVIDENCE THAT THE WELL IS DOUBLE CASED? (If yes, describe below)		
MEASURING POINT VISIBLE?		

MEASURE WELL DEPTH FROM MEASURING POINT (Feet): ______________

MEASURE DEPTH TO WATER FROM MEASURING POINT (Feet): ______________

MEASURE WELL DIAMETER (Inches): ______________

WELL CASING MATERIAL: ______________

PHYSICAL CONDITION OF VISIBLE WELL CASING: ______________

ATTACH ID MARKER (if well ID is confirmed) and IDENTIFY MARKER TYPE ______________

DESCRIBE ACCESS TO WELL: (Include accessibility to truck mounted rig, natural obstructions, overhead power lines, proximity to permanent structures, etc.); ADD SKETCH OF LOCATION ON BACK, IF NECESSARY. :

____

____

____

____

DESCRIBE WELL SETTING (For example, located in a field, in a playground, on pavement, in a garden, etc.) AND ASSESS THE TYPE OF RESTORATION REQUIRED. :

____

____

____

____

IDENTIFY ANY NEARBY POTENTIAL SOURCES OF CONTAMINATION, IF PRESENT (e.g. Gas station, salt pile, etc.):

____

____

____

REMARKS:

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LIST OF TABLES
(Following Appendix B)

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) is Site-specific and has been prepared for the Site Investigation (SI) of the Albany Miron Lumber Corporation property (Site) on Railroad Avenue in the Town of Guilderland, Albany County, New York.

The objectives of the SI are to collect the data required to:

i) define the extent of chromium, copper, and arsenic (CCA) in the on-Site and groundwater in the vicinity of the former wood preserving operation; and

ii) develop a remediation plan which meets the objectives of the New York State Department of Environmental Conservation (NYSDEC) Voluntary Remedial Program.

This QAPP provides comprehensive information regarding the project personnel responsibilities, and sets forth specific procedures to be used during sampling and analyses of relevant environmental matrices.

2.0 PROJECT BACKGROUND

2.1 GENERAL

This QAPP provides Quality Assurance/Quality Control (QA/QC) criteria for work efforts associated with soil and groundwater sample analyses. Methods for sample analyses have been selected to provide results which characterize the samples, such that the sampling objectives can be met.

3.0 PROJECT ORGANIZATION AND RESPONSIBILITY

A brief description of the duties of the key project personnel is presented below.

Project Director

i) provides overall project management;
ii) ensures professional services by the Contractor are cost effective and of highest quality;
iii) ensures all resources of the Contractor are available on an as-required basis;
iv) participates in key technical negotiations; and
v) provides managerial and technical guidance to the Contractor's Coordinator.

Project Manager

i) provides day-to-day project management;
ii) provides managerial guidance to the QA/QC Officer - Sampling and Analytical Activities;
iii) prepares and reviews reports;
iv) conducts preliminary chemical data interpretation and assessment; and
v) responsible for overall project completion in accordance with the approved design.

QA/QC Officer - Sampling and Analytical Activities

i) oversees and reviews laboratory activities;
ii) determines laboratory data corrective action;
iii) performs analytical data validation and assessment;
iv) reviews laboratory QA/QC;
v) assists in preparation and review of final report;
vi) provides technical representation for analytical activities;
vii) oversees and reviews field activities;
viii) provides managerial and technical guidance to the Field Sampling Supervisor;
ix) performs field sampling performance audit(s);
x) ensures that field and Chain of Custody records are properly maintained; and
xi) determines field procedure corrective actions.

Field Sampling Supervisor

i) provides immediate supervision of all on-Site activities;

ii) provides field management of sample collection and field QA/QC;

iii) provides technical representation for field activities; and

iv) is responsible for maintenance of the field equipment.

Laboratory - Project Manager, Analytical Contractor

i) ensures resources of laboratory are available on an as-required basis;

ii) coordinates laboratory analyses;

iii) supervises laboratory's in-house Chain of Custody;

iv) schedules analyses of samples;

v) oversees review of data;

vi) oversees preparation of analytical reports; and

vii) approves final analytical reports.

Laboratory - Quality Assurance/Quality Control Officer, Analytical Contractor

i) overviews laboratory QA/QC;

ii) overviews QA/QC documentation;

iii) conducts detailed data review;

iv) decides laboratory corrective actions, if required; and

v) provides technical representation for laboratory QA/QC procedures.

Laboratory - Sample Custodian - Analytical Contractor

i) receives and inspects the sample containers;

ii) records the condition of the sample containers;

iii) signs appropriate documents;

iv) verifies Chain of Custody and their correctness;

v) notifies laboratory Project Manager and laboratory QA/QC Officer of sample receipt and inspection;

vi) assigns a unique laboratory identification number correlated to the field sample identification number, and enters each into the sample receiving log;

vii) initiates transfer of samples to the appropriate lab sections with assistance from the laboratory project manager; and

viii) controls and monitors access to and storage of samples and extracts.

The analytical laboratories selected to perform the analyses will be full-service chemical analytical laboratories certified by the New York State Department of Health (NYSDOH) through the Environmental Laboratory Approval Program (ELAP) and the Contract Laboratory Program (CLP) for the appropriate categories of analysis.

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APPENDIX B

BASELINE INVESTIGATION QUALITY ASSURANCE PROJECT PLAN

4.0 PROJECT OBJECTIVES

4.1 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

The overall QA objective is to develop and implement procedures for sample collection and analyses which will provide data with an acceptable level of accuracy and precision.

Quality assurance measures for this project will begin with sample containers. Sample containers will be purchased from a certified manufacturer and will be precleaned (I-Chem Series 200 or equivalent).

4.2 LABORATORY QUALITY ASSURANCE

The following subsections define the QA goals required to meet the Data Quality Objectives (DQOs) of the project.

4.2.1 ACCURACY, PRECISION, AND SENSITIVITY OF ANALYSES

The fundamental QA objective with respect to the accuracy, precision, and sensitivity of analytical data is to meet the QC acceptance criteria of each analytical protocol. Analytical methods and targeted detection limits listed have been specified to meet DQOs.

A summary of the targeted detection limits is provided in Table B4.1. It should be noted that these limits are targeted detection limits only; limits are highly matrix dependent and may not always be achieved.

The method accuracy (percent recovery) will be determined by spiking selected samples (matrix spikes) with the method recommended spiking compounds. Accuracy will be reported as the percent recovery of the spiking compound(s) and will compare with the criteria given in the appropriate methods, as identified in Section 7.0.

The method(s) precision (reproducibility between duplicate analyses) will be determined based on the duplicate analysis of matrix spike samples for organic parameters and duplicate sample analyses for inorganic parameters. Precision will be reported as Relative Percent Differences (RPDs) between duplicate analyses; acceptance criteria will be as specified in the appropriate methods identified in Section 7.0.

4.2.2 COMPLETENESS, REPRESENTATIVENESS AND COMPARABILITY

A completeness requirement of 90 percent will be targeted for the program (see Section 13.1.3 for definition of completeness).

The quantity of samples to be collected has been estimated in an effort to effectively represent the population being studied. A summary of the sampling and analysis program is presented in Table B4.2.

4.3 FIELD MEASUREMENT QUALITY ASSURANCE

Measurement data will be generated during field activities. These activities include, but are not limited to, the following:

i) documenting time and weather conditions; and

iii) observation of sample appearance and other conditions.

The general QA objective for measurement data is to obtain reproducible and comparable measurements to a degree of accuracy consistent with the use of standardized procedures.

5.0 SAMPLING PROCEDURES

The sample collection procedures are described in the Field Sampling Plan contained in Appendix A of the Site Investigation/Feasibility Study Work Plan.

The sample container, preservation, shipping, and packaging requirements are identified in Table B5.1 and in Section 6.3.

6.0 SAMPLE CUSTODY AND DOCUMENT CONTROL

The following documentation procedures will be used during sampling and analysis to provide Chain of Custody control during transfer of samples from collection through storage. Record keeping documentation will include use of the following:

i) field log books (bound with numbered pages) to document sampling activities in the field;
ii) labels to identify individual samples;
iii) Chain of Custody record sheet to document analyses to be performed; and
iv) laboratory sample custody log book.

6.1 FIELD LOG BOOK

In the field, the sampler will record the following information in the field log book (bound) for each sample collected:

i) project number;
ii) sample matrix;
iii) name of sampler;
iv) sample source;
v) time and date;
vi) pertinent data (e.g., depth);
vii) analysis to be conducted;
viii) sampling method;
ix) appearance of each sample (i.e., color, evidence of soil staining);
x) preservation added, if any;
xi) number of sample bottles collected; and
xii) pertinent weather data.

Each field log book page will be signed by the sampler.

6.2 SAMPLE NUMBERING

A unique sample numbering system will be used to identify each collected sample. This system will provide a tracking number to allow retrieval and cross-referencing of sample information. The sample numbering system to be used is described as follows:

Example:	S-121695 - AA-XXX
Where:	S - Designates sample Type (S = Soil)
121695:	Date of collection (mm/dd/yy)
AA:	Sampler initials
XXX:	Unique sample number

QC samples will also be numbered with a unique sample number.

6.3 CHAIN OF CUSTODY RECORDS

Chain of Custody forms will be completed for all samples collected during the program.

The Chain of Custody form will document the transfer of sample containers. Custody seals will be placed on each cooler. The cooler will then be sealed with packing tape. Sample container labels will include sample number, place of collection and date and time of collection. All samples will be refrigerated using wet ice at 4°C (±2°C) and delivered to the analytical laboratory within 24 to 48 hours of collection. All samples will be delivered to the laboratory by commercial courier or Contractor personnel. All samples will be stored at 4°C (±2°C) at the laboratory.

The Chain of Custody record, completed at the time of sampling, will contain, but not be limited to, the sample number, date and time of sampling, and the name of the sampler. The Chain of Custody document will be signed, timed, and dated by the sampler when transferring the samples.

Each sample cooler being shipped to the laboratory will contain a Chain of Custody form. The Chain of Custody form will consist of four copies which will be distributed as follows: The shipper will maintain a copy while the other three copies will be enclosed in a waterproof envelop within the cooler with the samples. The cooler will then be sealed properly for shipment. The laboratory, upon receiving the samples, will complete the three remaining copies. The laboratory will maintain one copy for their records. One copy will be returned to the QA/QC Officer-Sampling and Analytical

Activities upon receipt of the samples by the laboratory. One copy will be returned with the data deliverables package.

Upon receipt of the cooler at the laboratory, the shipping cooler and the custody seal will be inspected by the Sample Custodian. The condition of the cooler and the custody seal will be noted on the Chain of Custody record sheet by the Sample Custodian. The Sample Custodian will record the temperature of one sample (or temperature blank) from each cooler and the temperature will be noted on the Chain of Custody. If the shipping cooler seal is intact, the sample containers will be accepted for analyses. The Sample Custodian will document the date and time of receipt of the container, and sign the form.

If damage or discrepancies are noticed (including sample temperature exceedances), they will be recorded in the remarks column of the record sheet, dated and signed. Any damage or discrepancies will be reported to the Laboratory Project Manager and Laboratory QA/QC Officer before samples are processed.

6.4 SAMPLE DOCUMENTATION IN THE LABORATORY

Each sample or group of samples shipped to the laboratory for analysis will be given a unique identification number. The Sample Custodian will record the client name, number of samples and date of receipt of samples in the Sample Control Log Book. Samples removed from storage for analyses will be documented in the Sample Control Log Book.

The laboratory will be responsible for maintaining analytical log books and laboratory data as well as a sample (on hand) inventory for submittal to the QA/QC Officer - Sampling and Analytical Activities on an "as required" basis. Raw laboratory data produced from the analysis of samples submitted for this program will be inventoried and maintained by the laboratory for a period of 5 years at which time the QA/QC Officer - Sampling and Analytical Activities will advise the laboratory regarding the need for additional storage.

6.5 STORAGE OF SAMPLES

After the Sample Custodian has completed the Chain of Custody forms and the incoming sample log, the Chain of Custody will be checked to ensure that all samples are stored in the appropriate locations. All samples will be stored within an access controlled custody room and will be maintained at 4°C (±2°C) until all analytical work is complete.

6.6 SAMPLE DOCUMENTATION

Evidentiary files for the entire project shall be inventoried and maintained by the QA/QC Officer - Sampling and Analytical Activities and shall consist of the following:

i) project related plans;
ii) project log books;
iii) field data records;
iv) sample identification documents;
v) Chain of Custody records;
vi) report notes, calculations, etc.;
vii) lab data, etc.;
viii) references, copies of pertinent literature;
ix) miscellaneous - photos, maps, drawings, etc.; and
x) copies of all final reports pertaining to the project.

The evidentiary file materials shall be the responsibility of the Project Manager with respect to maintenance and document removal.

7.0 ANALYTICAL PROCEDURES FOR CHEMICAL ANALYSES

Samples collected for laboratory chemical analyses will be analyzed for the parameters listed in Table B4.1, using the methods cited in Table B4.2. These methods have been selected to meet the DQOs for each sampling activity. All reporting and deliverables will be consistent with the Contract Laboratory Program-like (CLP-like) format and should include, but not be limited to, all items listed in Table B9.1.

All sample results will be calculated using external standards with the exception of the samples analyzed by gas chromatograph/mass spectrometer (GC/MS); these methods employ the use of internal standards or isotopic dilution for analyte quantitation. The specific procedures for target analyte quantitation are detailed in the appropriate analytical methods.

8.0 CALIBRATION PROCEDURES AND FREQUENCY

Calibration of instrumentation is required to ensure that the analytical system is operating correctly and functioning at the proper sensitivity to meet established reporting limits. Each instrument is calibrated with standard solutions appropriate to the type of instrument and the linear range established for the analytical method. The frequency of calibration and the concentration of calibration standards is determined by the manufacturers guidelines, the analytical method, or the requirements of special contracts.

A bound notebook will be kept with each instrument requiring calibration in which will be recorded activities associated with QA monitoring and repairs program. These records will be checked during periodic equipment review and internal and external QA/QC audits.

8.1 GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)

It is necessary to establish that a given GC/MS meets the standard mass spectral abundance criteria prior to initiating any ongoing data collection. This is accomplished through the analyses of tuning compounds as specified in the analytical methods.

Calibration of the GC/MS system will be performed daily at the beginning of the day or with each 12 hours of instrument operating time. All method-specified calibration criteria must be met prior to sample analyses. All calibrations must be performed using either average response factors or first-order linear regression (with a correlation coefficient requirement of ≥0.995). Higher order fits will not be allowed.

8.2 HIGH RESOLUTION GAS CHROMATOGRAPHY/ HIGH RESOLUTION MASS SPECTROMETRY (HRGC/HRMS)

All calibration and quantitation will be in accordance with the cited method.

8.3 GAS CHROMATOGRAPHY (GC)

Quantification of samples that are analyzed by GC with element selective detectors shall be performed by external standard calibration. Standards containing the compounds of interest will be analyzed at a minimum of five concentrations to establish the linear range of the detector. Single point calibration will be performed at the beginning of each day and at every tenth injection. The response factors from the single point calibration will be checked against the average response factors from multi-level calibration. If deviations in response factors are greater than those allowed by the analytical method protocols, then system recalibration will be performed. Alternatively, fresh calibration standards will be prepared and analyzed to verify instrument calibration.

All method-specified calibration criteria must be met prior to sample analyses. All calibrations must be performed using either average response factors or first-order linear regression (with a correlation coefficient requirement of ≥0.995). Higher order fits will not be allowed.

8.4 INSTRUMENTATION FOR INORGANIC ANALYSES

Inductively coupled argon plasma (ICAP) instrumentation will be calibrated using a minimum of a blank and one standard. Mercury and cyanide instrumentation will be calibrated using a blank and a minimum of three calibration standards (four for mercury), with a correlation coefficient requirement of ≥0.995. All remaining method-specified calibration procedures will be performed and acceptance criteria will be met prior to sample analyses.

9.0 DATA REDUCTION, VALIDATION ASSESSMENT AND REPORTING

9.1 GENERAL

The contract laboratory will perform analytical data reduction and validation in-house under the direction of the Laboratory QA/QC Officer. The Laboratory QA/QC Officer will be responsible for assessing data quality and advising of any data which were rated "preliminary" or "unacceptable" or other qualifications based on the QC criteria outlined in the relevant methods, which would caution the data user of possible unreliability. Data reduction, validation and reporting by the laboratory will be conducted as detailed in the following:

i) raw data produced and checked by the responsible analysts is turned over for independent review by another analyst;

ii) the area supervisor reviews the data for attainment of quality control criteria presented in the referenced analytical methods;

iii) upon completion of all reviews and acceptance of the raw data by the laboratory operations manager, a computerized report will be generated and sent to the Laboratory QA/QC Officer;

iv) the Laboratory QA/QC Officer will complete a thorough inspection of all reports;

v) the Laboratory QA/QC Officer and area supervisor will decide whether any sample reanalysis is required; and

vi) upon acceptance of the preliminary reports by the Laboratory QA/QC Officer, final reports will be generated and signed by the Laboratory Project Manager.

Validation of the analytical data will be performed by the QA/QC Officer - Sampling and Analytical Activities. The data validation will be performed in accordance with the NYSDEC Division of Environmental Remediation's "Guidance for the Development of Data Usability Summary Reports (DUSRs).

Assessment of analytical data will include checks on data consistency by looking for comparability of duplicate analyses, comparability to previous data from the same sampling location (if available), adherence to accuracy and precision control criteria detailed in this QAPP and anomalously high or low parameter values. The results of these data validations will be reported to the Project Manager and the contract laboratory, noting any discrepancies and their effect upon acceptability of the data.

Raw data from field measurements and sample collection activities that are used in project reports will be appropriately identified and appended to the report. Where data have been reduced or summarized, the method of reduction will be documented in the report. Field data will be audited for anomalously high or low values that may appear to be inconsistent with other data.

9.2 LABORATORY REPORTING, DATA, PRESENTATION AND FINAL REPORT

Reporting and deliverables should be consistent with the CLP-like format and shall include, but not be limited to, all items listed in Table B9.1.

All sample data and corresponding QA/QC data as specified in the analytical methods, shall be maintained accessible either in hard copy or on magnetic tape or disk (computer data files).

The laboratory will submit a copy of the final analytical report within 21 calendar days of receipt of the final sample included in the sample delivery group (SDG).

9.3 DOCUMENT CONTROL SYSTEM

A document control system ensures that all documents are accounted for when the project is complete.

A project number will be assigned to the project. This number will appear on sample identification tags, log books, data sheets, control charts, project memos, and analytical reports, document control logs, corrective action forms and logs, QA plans, and other project analytical records.

9.4 QC CHECK POINTS AND DATA FLOW

The following specific QC check points will be common to all metals, GC, and GC/MS analyses. They are presented with the decision points:

Chemist - bench level checks

i) systems check: sensitivity, linearity, and reproducibility within specified limits;

ii) duplicate analyses within control limits;

iii) matrix spike results within control limits;

iv) surrogate spike results within control limits (organics only); and

v) calculation/data reduction checks: calculations cross-checked, any discrepancies between forms and results evident, results tabulated sequentially on the correct forms.

Laboratory Project Manager

i) systems operating within limits;

ii) data transcription correct;

iii) data complete; and

iv) data acceptable.

Sample Control

i) samples returned to sample control following analysis.

Laboratory QA/QC Officer

i) QA objectives met;

ii) QC checks are completed; and

iii) final data and report package is complete.

10.0 INTERNAL QUALITY CONTROL CHECKS AND FREQUENCY

10.1 QC FOR LABORATORY ANALYSES

Specific procedures related to internal laboratory QC samples are described in the following subsections.

10.1.1 REAGENT BLANKS

A reagent blank will be analyzed by the laboratory at a frequency of one blank per analytical batch. The reagent blank, an aliquot of analyte-free water or solvent, will be carried through the entire analytical procedure.

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

An MS/MSD sample will be analyzed for organic parameters (except HRGC/HRMS) and a duplicate and matrix spike will be analyzed for inorganic parameters at a minimum frequency of one per analytical batch. Acceptable criteria and analytes that will be used for matrix spikes are identified in the applicable methods. Where method specified limits were not available, general control limits were used. Percent spike recoveries will be used to evaluate analytical accuracy while percent relative standard deviation or the RPD between duplicate analyses will be used to assess analytical precision.

10.1.3 SURROGATE ANALYSES

Surrogates are organic compounds which are similar to the analytes of interest, but which are not normally found in environmental samples. Surrogates are added to samples to monitor the effect of the matrix on the accuracy of the analysis. Every blank, standard and environmental sample analyzed by GC or GC/MS, including MS/MSD samples, will be spiked with surrogate compounds prior to sample preparation.

The compounds that will be used as surrogates and the levels of recommended spiking are specified in the methods. Surrogate spike recoveries must fall within the control limits specified in the methods. If surrogate recoveries are excessively low (<10 percent), the laboratory will contact the QA/QC Officer - Sampling and Analytical

Activities for further instructions. Dilution of samples to bring the analyte concentration into the linear range of calibration may dilute the surrogates out of the quantification limit. Reanalysis of these samples is not required. Assessment of analytical quality in these cases will be based on the MS/MSD sample analysis results.

10.2 QC FOR FIELD SAMPLING

To assess the quality of data resulting from the field sampling program, field duplicate and field blank samples will be collected (where appropriate) and submitted to the analytical laboratory as samples.

10.2.1 FIELD (RINSE) BLANKS

Field blanks will be used during the sampling programs to detect contamination introduced through sample collection procedures and equipment, external field conditions, sample transport, sample container preparation, sample storage, and/or the analytical process.

10.2.2 FIELD DUPLICATE SAMPLES

Field duplicate samples will be collected and used to assess the aggregate precision of sampling techniques and laboratory analysis. For every 20 investigative samples, a field duplicate sample will be collected using standard sampling procedures. This duplicate will be packed and shipped to the laboratory for analysis.

11.0 PERFORMANCE AND SYSTEM AUDITS

For the purpose of external evaluation, performance evaluation check samples are analyzed periodically by the laboratory. Internally, the evaluation of data from these samples is done on a continuing basis over the duration of a given project.

The QA/QC Officer - Sampling and Analytical Activities may carry out performance and/or systems audits to insure that data of known and defensible quality are consistently produced during this program.

Systems audits are qualitative evaluations of all components of field and laboratory quality control measurement systems. They determine if the measurement systems are being used appropriately. The audits may be carried out before all systems are operational, during the program, or after completion of the program. Such audits typically involve a comparison of the activities given in the QA/QC plan described herein, with activities actually scheduled or performed. A special type of systems audit is the data management audit. This audit addresses only data collection and management activities.

The performance audit is a quantitative evaluation of the measurement systems used for a monitoring program. It requires testing the measurement systems with samples of known composition or behavior to quantitatively evaluate precision and accuracy. A performance audit may be carried out by or under the auspices of the QA/QC Officer - Sampling and Analytical Activities without the knowledge of the analyst during each sampling event for this program.

It should be noted, however, that any additional external QA audits will only be performed if deemed necessary.

12.0 PREVENTATIVE MAINTENANCE

This section applies to both field and laboratory equipment. Specific preventive maintenance procedures for field equipment will be consistent with the manufacturer's guidelines. Specific preventive maintenance protocols for laboratory equipment will be consistent with the contract laboratory's standard operating procedures.

All analytical instruments to be used in this project will be serviced by laboratory personnel at regularly scheduled intervals in accordance with the manufacturers' recommendations. Instruments may also be serviced at other times due to failure. Requisite servicing beyond the abilities of laboratory personnel will be performed by the equipment manufacturer or their designated representative.

Routine maintenance of the instruments will be performed as per manufacturers' recommendations. The Laboratory Project Manager is responsible for the preventive maintenance of the instruments.

13.0 SPECIFIC ROUTINE PROCEDURES USES TO ASSESS DATA PRECISION, ACCURACY AND COMPLETENESS

13.1 QA MEASUREMENT QUALITY INDICATORS

13.1.1 PRECISION

Precision will be assessed by comparing the analytical results between duplicate spike analyses. Precision as percent relative difference will be calculated as follows for values significantly greater than the associated detection limit:

$$\text{Precision} = \left| \frac{(D_2 - D_1)}{(D_1 + D_2)/2} \right| \times 100$$

D_1 = matrix spike recovery

D_2 = matrix spike duplicate spike recovery

For results near the associated detection limits, precision will be assessed based on the following criteria:

$$\text{Precision} = \left| \text{Original result - duplicate result} \right| < \text{CRDL}$$

13.1.2 ACCURACY

Accuracy will be assessed by comparing a set of analytical results to the accepted or "true" values that would be expected. In general, MS/MSD and check sample recoveries will be used to assess accuracy. Accuracy as percent recovery will be calculated as follows:

$$\text{Accuracy} = \frac{A - B}{C} \times 100$$

A = The analyte determined experimentally from the spike sample

B = The background level determined by a separate analysis of the unspiked sample

C = The amount of spike added

In some cases, MS and/or MSD recoveries may not be available due to elevated levels of the spiked analyte in the investigative sample. In such cases, accuracy will be assessed based on surrogate spike recoveries and/or laboratory control samples.

13.1.3 COMPLETENESS

Completeness is a measure of the amount of valid data obtained from a measurement system compared with the amount that was expected to be obtained under normal conditions.

To be considered complete, the data set must contain all QC check analyses verifying precision and accuracy for the analytical protocol. In addition, all data are reviewed in terms of stated goals in order to determine if the database is sufficient.

When possible, the percent completeness for each set of samples will be calculated as follows:

$$\text{Completeness} = \frac{\text{usable data obtained}}{\text{total data planned}} \times 100 \text{ percent}$$

13.1.4 OUTLIERS

Procedures discussed previously will be followed for documenting deviations. In the event that a result deviates significantly from method established control limits, this deviation will be noted and its effect on the quality of the remaining data assessed and documented.

14.0 CORRECTIVE ACTION

The need for corrective action may be identified by system or performance audits or by standard QC procedures. The essential steps in the corrective actions system will be:

i) checking the predetermined limits for data acceptability beyond which corrective action is required;
ii) identifying and defining problems;
iii) assigning responsibility for investigating the problem;
iv) investigating and determining the cause of the problem;
v) determination of a corrective action to eliminate the problem (this may include reanalysis or resampling and analyses);
vi) assigning and accepting responsibility for implementing the corrective action;
vii) implementing the corrective action and evaluating the effectiveness;
viii) verifying that the corrective action has eliminated the problem; and
ix) documenting the corrective action taken.

For each measurement system, the laboratory QA/QC Officer will be responsible for initiating the corrective action and the Laboratory Project Manager will be responsible for implementing the corrective action.

15.0 QUALITY ASSURANCE REPORTS

Final reports will contain a discussion on QA/QC summarizing the quality of the data collected and/or used as appropriate for each phase of the project. The Project Manager who has responsibility for these summaries, will rely on written reports/memoranda documenting the data assessment activities, performance and systems audits and footnotes identifying qualifications to the data, if any.

Each summary of sampling activities will include a tabulation of the data including:

i) field blank and field duplicate sample results;
ii) maps showing well locations; and
iii) an explanation of any sampling conditions or quality assurance problems and their effect on data quality.

QA reports will be prepared by the QA/QC Officer - Sampling and Analytical Activities following receipt of all analytical data. These reports will include discussions of the following and their effects on the quality of the data reported:

i) sample holding times,
ii) laboratory/reagent blank data
iii) surrogate spike, matrix spike and matrix spike duplicate data;
iv) field QA/QC data;
v) pertinent instrument performance per method protocols; and
vi) audit results (if performed).

In addition, the QA reports will summarize all QA problems, and give a general assessment of QA results versus control criteria for such parameters as accuracy, precision, etc.

The QA reports will be forwarded to the Project Manager.

APPENDIX B

TABLES

TABLE B4.1

TARGET QUANTITATION LIMITS
SITE INVESTIGATION/FEASIBILITY STUDY WORK PLAN
ALBANY MIRON LUMBER OSMOSE AREA
GUILDERLAND, NEW YORK

	CAS Number	*Groundwater Quantitation Limits (ug/L)*	*Soil Quantitation Limits (ug/kg)*
Volatiles			
Chloromethane	74-87-3	5	10
Bromomethane	74-83-9	5	10
Vinyl chloride	75-01-4	5	10
Chloroethane	75-00-3	5	10
Methylene chloride	75-09-2	5	10
Acetone	67-64-1	5	10
Carbon disulfide	75-15-0	5	10
1,1-Dichloroethene	75-35-4	5	10
1,1-Dichloroethane	75-34-3	5	10
trans-1,2-Dichloroethene	540-59-0 T	5	10
cis-1,2-Dichloroethene	540-59-0 C	5	10
Chloroform	67-66-3	5	10
1,2-Dichloroethane	107-06-2	5	10
2-Butanone	78-93-3	5	10
1,1,1-Trichloroethane	71-55-6	5	10
Carbon tetrachloride	56-23-5	5	10
Bromodichloromethane	75-27-4	5	10
1,2-Dichloropropane	78-87-5	5	10
cis-1,3-Dichloropropene	542-75-6 C	5	10
Trichloroethene	79-01-6	5	10
Dibromochloromethane	124-48-1	5	10
1,1,2-Trichloroethane	79-00-5	5	10
Benzene	71-43-2	5	10
trans-1,3-Dichloropropene	542-75-6 T	5	10
Bromoform	75-25-2	5	10
4-Methyl-2-pentanone	108-10-1	5	10
2-Hexanone	591-78-6	5	10
Tetrachloroethene	127-18-4	5	10
Toluene	108-88-3	5	10
1,1,2,2-Tetrachloroethane	79-34-5	5	10
Chlorobenzene	108-90-7	5	10
Ethylbenzene	100-41-4	5	10
Styrene	100-42-5	5	10
total Xylenes	1330-20-7	5	10
Semi-Volatiles			
Phenol	108-95-2	10	330
bis(2-Chloroethyl)ether	111444	10	330
2-Chlorophenol	95-57-8	10	330
1,3-Dichlorobenzene	541-73-1	10	330
1,4-Dichlorobenzene	106-46-7	10	330
1,2-Dichlorobenzene	95-50-1	10	330
2-Methylphenol	95-48-7	10	330
2,2'-oxybis(1-chloropropane)	108-60-1	10	330
4-Methylphenol	106-44-5	10	330
N-Nitrosodi-n-propylamine	621-64-7	10	330
Hexachloroethane	67-72-1	10	330
Nitrobenzene	98-95-3	10	330
Isophorone	78-59-1	10	330
2-Nitrophenol	88-75-5	10	330

TABLE B4.1

TARGET QUANTITATION LIMITS
SITE INVESTIGATION/FEASIBILITY STUDY WORK PLAN
ALBANY MIRON LUMBER OSMOSE AREA
GUILDERLAND, NEW YORK

	CAS Number	*Groundwater Quantitation Limits (ug/L)*	*Soil Quantitation Limits (ug/kg)*
Semi-Volatiles (Cont'd.)			
2,4-Dimethylphenol	105-67-9	10	330
bis(2-Chloroethoxy)methane	111-91-1	10	330
2,4-Dichlorophenol	120-83-2	10	330
1,2,4-Trichlorobenzene	120-82-1	10	330
Naphthalene	91-20-3	10	330
4-Chloroaniline	106-47-8	10	330
Hexachloro-1,3-butadiene	87-68-3	10	330
4-Chloro-3-methylphenol	59-50-7	10	330
2-Methylnaphthalene	91-57-6	10	330
Hexachlorocyclopentadiene	77-47-4	10	330
2,4,6-Trichlorophenol	88-06-2	10	330
2,4,5-Trichlorophenol	95-95-4	25	800
2-Chloronaphthalene	91-58-7	10	330
2-Nitroaniline	88-74-4	25	800
Dimethyl phthalate	131-11-3	10	330
Acenaphthylene	208-96-8	10	330
2,6-Dinitrotoluene	606-20-2	10	330
3-Nitroaniline	99-09-2	25	800
Acenaphthene	83-32-9	10	330
2,4-Dinitrophenol	51-28-5	25	800
4-Nitrophenol	100-02-7	25	800
Dibenzofuran	132-64-9	10	330
2,4-Dinitrotoluene	121-14-2	10	330
Diethyl phthalate	84-66-2	10	330
4-Chlorophenyl phenyl ether	7005-72-3	10	330
Fluorene	86-73-7	10	330
4-Nitroaniline	100-01-6	25	800
4,6-Dinitro-2-methylphenol	534-52-1	25	800
N-Nitrosodiphenylamine	86-30-6	10	330
4-Bromophenyl phenyl ether	101-55-3	10	330
Hexachlorobenzene	118-74-1	10	330
Pentachlorophenol	87-86-5	25	800
Phenanthrene	85-01-8	10	330
Anthracene	120-12-7	10	330
Carbazole	86-74-8	10	330
Di-n-butylphthalate	84-74-2	10	330
Fluoranthene	206-44-0	10	330
Pyrene	129-00-0	10	330
Butyl benzylphthalate	85-68-7	10	330
3,3'-Dichlorobenzidine	91-94-1	10	330
Benzo(a)anthracene	56-55-3	10	330
Chrysene	218-01-9	10	330
bis(2-Ethylhexyl)phthalate	119-81-7	10	330
Di-n-octyl phthalate	117-84-0	10	330
Benzo(b)fluoranthene	205-99-2	10	330
Benzo(k)fluoranthene	207-08-9	10	330
Benzo(a)pyrene	50-32-8	10	330
Indeno(1,2,3-cd)pyrene	193-39-5	10	330

TABLE B4.1

TARGET QUANTITATION LIMITS
SITE INVESTIGATION/FEASIBILITY STUDY WORK PLAN
ALBANY MIRON LUMBER OSMOSE AREA
GUILDERLAND, NEW YORK

	CAS Number	*Groundwater Quantitation Limits (ug/L)*	*Soil Quantitation Limits (ug/kg)*
Semi-Volatiles (Cont'd.)			
Dibenzo[a,h]pyrene	189-64-0	10	330
Benzo(g,h,i)perylene	191-24-2	10	330
Pesticides/PCBs			
alpha-BHC	319-84-6	0.05	8.0
beta-BHC	319-85-7	0.05	8.0
delta-BHC	319-85-8	0.05	8.0
gamma-BHC (Lindane)	58-89-9	0.05	8.0
Heptachlor	76-44-8	0.05	8.0
Aldrin	309-00-2	0.05	8.0
Heptachlor epoxide	1024-57-3	0.05	8.0
Endosulfan I	959-98-8	0.10	16
Dieldrin	60-57-1	0.10	16
4,4'-DDE	72-55-9	0.10	16
Endrin	72-20-8	0.10	16
Endosulfan II	33213-65-9	0.10	16
4,4'-DDD	72-54-8	0.10	16
Endosulfan sulfate	1031-07-8	0.10	16
4,4'-DDT	50-29-3	0.10	16
Methoxychlor	72-43-5	0.05	8.0
Endrin ketone	53494-70-5	0.10	16
Endrin aldehyde	7421-93-4	0.20	32
alpha-Chlordane	5103-71-9	0.5	80
gamma-Chlordane	5103-74-2	0.5	80
Toxaphene	8001-35-2	1.0	160
Aroclor-1016	12674-11-2	0.5	80
Aroclor-1221	11104-28-2	0.5	80
Aroclor-1232	11141-16-5	0.5	80
Aroclor-1242	53469-21-9	0.5	80
Aroclor-1248	12672-29-6	0.5	80
Aroclor-1254	11097-69-1	1.0	160
Aroclor-1260	11096-82-5	1.0	160
Cyanide (total)	57-12-5 T	10	4000

TABLE B4.1

TARGET QUANTITATION LIMITS
SITE INVESTIGATION/FEASIBILITY STUDY WORK PLAN
ALBANY MIRON LUMBER OSMOSE AREA
GUILDERLAND, NEW YORK

	Groundwater Quantitation Limits (ug/L)	*Soil Quantitation Limits (ug/kg)*	*TCLP Quantitation Limits (mg/L)*
Metals			
Aluminum	200	20.0	-
Antimony	60	6	-
Arsenic	10	1	5
Barium	200	20.0	100
Beryllium	5	0.5	-
Cadmium	5	0.5	1
Calcium	5000	500	-
Chromium	10	1	5
Cobalt	50	5	-
Copper	25	2.5	-
Iron	100	10.0	-
Lead	3	0.3	5
Magnesium	5000	500	-
Manganese	15	1.5	-
Mercury	0.2	0.1	0.2
Nickel	40	4	-
Potassium	5000	500	-
Selenium	5	0.5	1
Silver	10	1	5
Sodium	5000	500	-
Thallium	10	1	-
Vanadium	50	5	-
Zinc	20	2	-

Notes:

-	Not applicable.
CAS	Chemical Abstract System.
mg/L	Milligrams Per Liter.
TCLP	Toxicity Characteristic Leaching Procedure.
ug/L	Micrograms Per Liter.

TABLE B4.2

SAMPLING AND ANALYSIS SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY WORK PLAN
ALBANY MIRON LUMBER OSMOSE AREA
GUILDERLAND, NEW YORK

Sample Matrix	*Analytical Parameters*	*Analytical Method*	*Estimated Number of Samples*	*Field Duplicates*	*Rinse Blanks*	*Trip Blanks*	*MS/MSD/Dup*
Soil	TCL VOCs	SW-846 8260	3	1	1	-	1/1/0
	TCL SVOCs	SW-846 8270	3	1	1	-	1/1/0
	TCL Pesticides/PCBs	SW-846 8081/8082	3	1	1	-	1/1/0
	TAL Metals	SW-846 6010/7471	3	1	1	-	1/0/1
	TCLP Metals	SW-846 1311/6010/7470	3	1	1	-	1/0/1
	SSPL Metals	SW-846 6010	102	5	5	-	5/0/5
	Cyanide	SW-846 9010/9012	3	1	1	-	1/1/0
Groundwater	TCL VOCs	SW-846 8260	5	1	1	1/day	1/1/0
	TCL SVOCs	SW-846 8270	5	1	1	-	1/1/0
	TAL Metals	SW-846 6010/7470	5	1	1	-	1/0/1
	SSPL Metals (1)	SW-846 6010	12	1	1	-	1/0/1
	Cyanide	SW-846 9010/9012	5	1	1	-	1/1/0

Notes:

(1)	Analyte list will be adjusted if necessary based upon TCL/TAL results.
Dup	Laboratory Duplicate.
MS	Matrix Spike.
MSD	Matrix Spike Duplicate.
SSPL	Site-Specific Parameter List

SSPL Metals - Chromium, Copper, Arsenic

SVOCs	Semi-Volatile Organic Compounds.
TAL	Target Analyte List
TCL	Target Compound List.
TCLP	Toxicity Characteristic Leaching Procedures.
VOCs	Volatile Organic Compounds.

TABLE B5.1

SAMPLE CONTAINER, PRESERVATION, AND HOLDING TIME PERIODS
SITE INVESTIGATION/FEASIBILITY STUDY WORK PLAN
ALBANY MIRON LUMBER OSMOSE AREA
GUILDERLAND, NEW YORK

Analyses	*Sample Containers*	*Preservation*	*Maximum Holding Time*	*Notes*
Soil				
TCL VOCs	1 - 4 oz. glass jar with Teflon-lined septum	Cool 4°C	14 days from collection to analyses	Fill completely, little or no head space
TCL SVOCs/Pest/PCBs	1 - 8 oz. wide mouth glass jar per analysis	Cool 4°C	14 days from collection to extraction 40 days from extraction to analysis	Fill completely
SSPL/TAL Metals	1 - 8 oz. wide mouth glass jar	Cool 4°C	180 days (mercury 28 days) from collection to analysis	Fill completely
TCLP Metals	1 - 8 oz. wide mouth glass jar	Cool 4°C	180 days (mercury 28 days) from collection to extraction	Fill completely
Cyanide	1 - 8 oz. wide mouth glass jar	Cool 4°C	14 days from collection to analysis	Fill completely
Water				
TCL VOCs	2 - 40 ml glass vial with Teflon-lined septum	HCl to pH <2, cool to 4°C	14 days from collection to analysis	Fill completely, no head space
TCL SVOCs	1 liter amber glass jar	Cool 4°C	7 days from collection to extraction 40 days from extraction to analysis	Fill completely
SSPL/TAL Metals	1 - 500 ml plastic	HNO_3 to pH <2, cool 4°C	180 days (mercury 28 days) from collection to analysis	Fill completely
Cyanide	1 liter plastic	NaOH pH>12 0.6g Ascorbic Acid	14 days from collection to analysis	Fill completely

Notes:

SSPL	Site-Specific Parameter List.
SVOCs	Semi-Volatile Organic Compounds.
TAL	Target Analyte List.
TCL	Target Compound List.
TCLP	Toxicity Characteristic Leaching Procedure.
VOCs	Volatile Organic Compounds.

TABLE B9.1

LABORATORY REPORTING DELIVERABLES - FULL DATA PACKAGE
SITE INVESTIGATION/FEASIBILITY STUDY WORK PLAN
ALBANY MIRON LUMBER OSMOSE AREA
GUILDERLAND, NEW YORK

A detailed report narrative should accompany each submission, summarizing the contents and results.

A. Chain of Custody Documentation and Detailed Narrative (1)

B. Sample Information
  1. date collected
  2. date extracted or digested
  3. date analyzed
  4. analytical method and reference

C. Data (including all raw data and CLP-like summary forms)
  1. samples
  2. laboratory duplicates (2)
  3. method blanks
  4. spikes, spike duplicates (2) (3)
  5. surrogate recoveries (2)
  6. internal standard recoveries
  7. calibration
  8. any other applicable quality control (QC) data (e.g., serial dilution)
  9. tentatively identified compounds (TICs) (if applicable)

D. Miscellaneous
  1. method detection limits and/or instrument detection limits
  2. percent solids (where applicable)
  3. metals run logs
  4. standard preparation logs
  5. sample preparation logs

All sample data and its corresponding quality assurance/quality control (QA/QC) data shall be maintained accessible to CRA either in hard copy or on magnetic tape or disc (computer data files). All solid sample results must be reported on a dry-weight basis.

Notes:

(1) Any QC outliers must be addressed and corrective action taken must be specified.

(2) Laboratory must specify applicable control limits for all QC sample results.

(3) A blank spike must be prepared and analyzed with each sample batch.

(4) TICs.

APPENDIX C

AVAILABLE HISTORIC FIELD SAMPLING RECORDS

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Miron

PROJECT LOCATION: Albany - Railroad Ave

PROJECT MANAGER: K - Barnes JOB #:

SAMPLE/WELL ID: MLSP-2 FIELD DATE(S): 8/8/96 FIELD TIME: 10:30

GW-DMS ID: (Well #,YY,MM,DD) MATRIX: - GW - SW [✓ SOIL] OTHER: (Circle one)

SAMPLE INFORMATION:

If no Sample information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable.

SAMPLE DEPTH: 0'-7' MEASURING POINT: Ground Surface

CIRCLE ONE: Upper Middle Lower Composite

METHOD: - N - P - S - BL - B - Other: EQUIPMENT ID: Shovel

N=Nitrogen Pump P=Peristaltic Pump S=Submersible Pump BL= Bladder Pump B=Bailer

FIELD RESULTS:

If no Field information is available, or does not apply to this sample please mark this area "NA" for Not Applicable.

PARAMETER:

Sample Depth	pH	Conductivity	Temperature
0'-7'	Sample taken from	soil pile	from Auger Flights
	0-7		

PERSONNEL: LZ WEATHER: 87° Sunny Humid/Hot

Please note; approximate temperature, any precipitation (rain, snow, hail, etc...), wind, etc......

NOTES:

LAB REQUESTS:

If no Lab information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

LAB TITLE: (Please specify which lab the sample went to)	ANALYSES/METHOD: (Please put one test on each line)	TAT: (Turn Around Time)	# TESTS:
Adirondack	RCRA Metals	Normal	1

TRANSPORTED VIA: CES/Adirondack

DATE: 8/9/96

QA/QC:

Replicate:

Field Blank:

WELL CONDITION & GENERAL NOTES:

fdd.sam

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Muon

PROJECT LOCATION: Albany Rutland Ave

PROJECT MANAGER: K Baxter JOB #:

SAMPLE/WELL ID: MLAF-2 FIELD DATE(S): 8/8/96 FIELD TIME: 1040

GW-DMS ID: MATRIX: - GW - SW - [✓ SOIL] - OTHER:

(Well #,YY,MM,DD) (Circle one)

SAMPLE INFORMATION:

If no Sample Information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable.

SAMPLE DEPTH: ~5-7' MEASURING POINT: Ground Surface

CIRCLE ONE: Upper Middle Lower Composite

METHOD: - N - P - S - BL - B - Other: EQUIPMENT ID: Shovel

N=Nitrogen Pump P=Peristaltic Pump S=Submersible Pump BL= Bladder Pump B=Bailer

FIELD RESULTS:

If no Field Information is available, or does not apply to this sample please mark this area "NA" for Not Applicable.

PARAMETER:

Sample Depth	pH	Conductivity	Temperature
5'-7'	Sample taken for	around auger	Flights ~ 5'-7'

PERSONNEL: LZ WEATHER: 87° Sunny Humid Hot

Please note; approximate temperature, any precipitation (rain, snow, hail,-etc...), wind, etc......

NOTES:

LAB REQUESTS:

If no Lab information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

LAB TITLE: (Please specify which lab the sample went to)	ANALYSES/METHOD: (Please put one test on each line)	TAT: (Turn Around Time)	# TESTS:
Adirondack	RCRA Metals	Normal	1

TRANSPORTED VIA: CES/Adirondack

DATE: 8/4/96

QA/QC:

Replicate:

Field Blank:

WELL CONDITION & GENERAL NOTES:

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Mion

PROJECT LOCATION: Railroad Ave - Albany

PROJECT MANAGER: KBain JOB #:

SAMPLE/WELL ID: ML-1 FIELD DATE(S): 8/8 - 8/9 FIELD TIME: 1119

GW-DMS ID: ML-1 MATRIX: [✓ GW] - SW - SOIL - OTHER:

(Well #,YY,MM,DD) (Circle one)

PURGE DATA:

If no purge information is available, or Purging does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

START DATE: 8/8/96 STOP DATE: 8/8/96

START TIME: 11:30 STOP TIME: 12:14

DEPTH TO BOTTOM: 16.10 MEASURING POINT: Top of PVC

WATER LEVEL: 12.02

ACTUAL VOLUME:

PURGE RATE (gpm):

ELAPSED TIME (min.): ~~1230~~ 44 min

PURGE VOLUME (gal): 7+ gallons

WELL VOLUMES PURGED (#): 10

CALCULATED VOLUME:

A = Water Column (Bottom Depth - Water Column)

B = Gallons / Foot

$$\begin{array}{r} 16.10 \\ -12.02 \\ \hline 4.08 \\ .163 \end{array}$$

A x B x 3 = Gallons to Purge 0.66504

x 6

3.99 Gallons

Pipe Width	Gallons\Foot
1.5"	0.092
[✓ 2.0"]	[✓ 0.163]
4.0"	0.653
6.0"	1.469
8.0"	2.611

EQUIP. ID: Peristaltic Pump PERSONNEL: LZ

CONDITION: Clear ___ Slightly Turbid ___ Turbid ✓ Odor ___ No Odor ___

WEATHER: 87° Hot Humid, Sunny

Please note; approximate temperature, any precipitation (rain, snow, hail, etc...), wind, etc......

LOCK TYPE: master KEY NUMBER: 3303

(Brand Name, Lock Type: Combination, Key, etc..) (#3303, #5406, or combination)

NOTES: Need 5 side tool to open well Albany office has tool.

WATER ELEVATIONS:

If no elevation information is available, or elevation a do not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

DEPTH TO BOTTOM: 16.10 MEASURING POINT: Top of PVC

DATE:	TIME:	DEPTH/ELEVATION	ELEVATION TYPE:	NOTES:
8/8/96	1130	12.02	PURGE START (S)	
	1214	12.10	PURGE STOP (D)	
8/9/96	1119	12.10	SAMPLE START (D)	
	1130	12.12	SAMPLE STOP (D)	

EQUIPMENT ID: Bailer

PERSONNEL: LZ

NOTES:

[TERMS: (S) - Static Water Level (D) - Dynamic Water Level]

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Miron - Railroad Ave

PROJECT LOCATION: Albany

PROJECT MANAGER: K Bains JOB #:

SAMPLE/WELL ID: ML-1 FIELD DATE(S): 8/5 - 8/9/96 FIELD TIME: 1119

GW-DMS ID: ML-1 (Well #,YY,MM,DD) MATRIX: - [✓ GW] SW - SOIL - OTHER: (Circle one)

SAMPLE INFORMATION:

If no Sample Information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable.

SAMPLE DEPTH: ≈ 12 - 15 MEASURING POINT: Top of PVC

CIRCLE ONE: [✓ Upper Middle] Lower Composite

METHOD: - N - P - S - BL - [✓ B] Other: EQUIPMENT ID: Bailer

N=Nitrogen Pump P=Peristaltic Pump S=Submersible Pump BL= Bladder Pump B=Bailer

FIELD RESULTS:

If no Field Information is available, or does not apply to this sample please mark this area "NA" for Not Applicable.

PARAMETER:

	Sample Depth	pH	mV	Conductivity	Temperature °F
Start	12.02	6.45	014	2310	66.5
2 Vol	12.32	6.38	010	2090 clear	65.0
4 Vol		6.43	016	2040 ↓	64.2
7 Vol		6.35	020	2110 ↓	64.06
Sample	12.10	6.98	018	1920	64.2

PERSONNEL: LZ WEATHER: 87 Sunny Hot

Please note; approximate temperature, any precipitation (rain, snow, hail, etc...), wind, etc......

NOTES:

LAB REQUESTS:

If no Lab information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

LAB TITLE: (Please specify which lab the sample went to)	ANALYSES/METHOD: (Please put one test on each line)	TAT: (Turn Around Time)	# TESTS:
Adirondack	RCRA Metals	Normal	3
	626		
	8021		

TRANSPORTED VIA: CES/Adirondack

DATE: 8/9/96

QA/QC:
Replicate: Trip Blank
Field Blank:

WELL CONDITION & GENERAL NOTES:

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Miran

PROJECT LOCATION: Albany - Portland Ave

PROJECT MANAGER: K Mirza JOB #:

SAMPLE/WELL ID: ML-2 FIELD DATE(S): 8/8 - 8/9 FIELD TIME:

GW-DMS ID: ML-2 (Well #,YY,MM,DD) MATRIX: - [✓ GW] - SW - SOIL - OTHER: (Circle one)

PURGE DATA:

If no purge information is available, or Purging does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

START DATE: 8/8/96 STOP DATE: 8/8/96

START TIME: 1:20 STOP TIME: 1:58

DEPTH TO BOTTOM: 16.45 MEASURING POINT: Top of PVC

WATER LEVEL: 12.40

ACTUAL VOLUME:

PURGE RATE (gpm):

ELAPSED TIME (min.): ≈ 38 min

PURGE VOLUME (gal): 6 gals

WELL VOLUMES PURGED (#): 9+

CALCULATED VOLUME:

A = Water Column (Bottom Depth - Water Column)

B = Gallons / Foot

A x B x 3 = Gallons to Purge

16.45
12.40
4.05
.163
0.66015
x 6
3.9609

3.96 Gallons

Pipe Width	Gallons\ Foot
1.5"	0.092
[✓ 2.0"]	[✓ 0.163]
4.0"	0.653
6.0"	1.469
8.0"	2.611

EQUIP. ID: Peristaltic Pump PERSONNEL: LZ

CONDITION: Clear ____ Slightly Turbid ____ Turbid ✓ Odor ____ No Odor ____

WEATHER: 87° Sunny Humid Hot

Please note; approximate temperature, any precipitation (rain, snow, hail, etc...), wind, etc......

LOCK TYPE: Masters KEY NUMBER: 0668

(Brand Name, Lock Type: Combination, Key, etc..) (#3303, #5408, or combination)

NOTES:

Need Socket tool to open well Albany Office has tool

WATER ELEVATIONS:

If no elevation information is available, or elevation s do not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

DEPTH TO BOTTOM: 16.45 MEASURING POINT: Top of PVC

DATE:	TIME:	DEPTH/ELEVATION	ELEVATION TYPE:	NOTES:
8/8	1:20	12.40	PURGE START (S)	
	1:58	—	PURGE STOP (D)	
8/9	10:40	12.44	SAMPLE START (D)	
	10:57	12.44	SAMPLE STOP (D)	

EQUIPMENT ID: Bailer

PERSONNEL: LZ

NOTES:

[TERMS: (S) - Static Water Level (D) - Dynamic Water Level]

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Miron

PROJECT LOCATION: Albany - Railroad Ave

PROJECT MANAGER: K. Burns JOB #:

SAMPLE/WELL ID: ML-2 FIELD DATE(S): 8/2 - 8/9 FIELD TIME: 1040

GW-DMS ID: ML-2 (Well #,YY,MM,DD) MATRIX: [✓ GW] SW - SOIL - OTHER: (Circle one)

SAMPLE INFORMATION:

If no Sample Information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable.

SAMPLE DEPTH: ≈ 12.50 - 15.00 MEASURING POINT: Top of PVC

CIRCLE ONE: [✓ Upper] [✓ Middle] Lower Composite

METHOD: - N - P - S - BL - [✓ B] Other: EQUIPMENT ID: Bailer

N=Nitrogen Pump P=Peristaltic Pump S=Submersible Pump BL= Bladder Pump B=Bailer

FIELD RESULTS:

If no Field Information is available, or does not apply to this sample please mark this area "NA" for Not Applicable.

PARAMETER:

	Sample Depth	pH	mV	Conductivity	Temperature °F
Start	12.40	6.01	036	1160	66.5
2 Vol		6.03	036	1160	63.4
		6.02	037	1150	62.6
Sample		—	—	—	—

PERSONNEL: LZ WEATHER:

Please note; approximate temperature, any precipitation (rain, snow, hail, etc...), wind, etc......

NOTES:

LAB REQUESTS:

If no Lab information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

LAB TITLE: (Please specify which lab the sample went to)	ANALYSES/METHOD: (Please put one test on each line)	TAT: (Turn Around Time)	# TESTS:
Adirondack	RCRA Metals	Normal	3
	626		
	8021		

TRANSPORTED VIA: CES / Adirondack

DATE: 8/9/96

QA/QC:

Replicate: Trip Blank

Field Blank:

WELL CONDITION & GENERAL NOTES:

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Mesa

PROJECT LOCATION: Albany - Partrid ave

PROJECT MANAGER: K Bertin JOB #:

SAMPLE/WELL ID: MI-3 FIELD DATE(S): 8/8 - 8/9 FIELD TIME: 10:56

GW-DMS ID: (Well #,YY,MM,DD) MATRIX: [✓ GW] - SW - SOIL - OTHER: (Circle one)

PURGE DATA:

If no purge information is available, or Purging does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

START DATE:	8/8/96	STOP DATE:	8/8/96
START TIME:	3:35	STOP TIME:	4:10
DEPTH TO BOTTOM:	16.25	MEASURING POINT:	Top of PVC
WATER LEVEL:	12.05		

ACTUAL VOLUME:		CALCULATED VOLUME:	
PURGE RATE (gpm):		A = Water Column (Bottom Depth - Water Column)	16.25 12.05 4.20
ELAPSED TIME (min.):	~45 min	B = Gallons / Foot	.163
PURGE VOLUME (gal):	8 gal	A x B x 3 = Gallons to Purge	0.6846 x6
WELL VOLUMES PURGED (#):	11.68	4.10	4.1076 Gallons

Pipe Width	Gallons\ Foot
1.5"	0.092
[✓ 2.0"]	[✓ 0.163]
4.0"	0.653
6.0"	1.469
8.0"	2.611

EQUIP. ID: Peristaltic Pump PERSONNEL: LZ

CONDITION: Clear ____ Slightly Turbid ✓ Turbid ____ Odor ____ No Odor ____

WEATHER: 87° Sunny Humid. Hot

Please note; approximate temperature, any precipitation (rain, snow, hail, etc...), wind, etc......

LOCK TYPE: Masters KEY NUMBER: 0668

(Brand Name, Lock Type: Combination, Key, etc..) (#3303, #5406, or combination)

NOTES:

Need S ate tool to open well Albany Office has tool

WATER ELEVATIONS:

If no elevation information is available, or elevation s do not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

DEPTH TO BOTTOM: 16.25 MEASURING POINT: Top of PVC

DATE:	TIME:	DEPTH/ELEVATION	ELEVATION TYPE:	NOTES:
8/8/96	3:35	12.05	PURGE START (S)	
	410	—	PURGE STOP (D)	
8/9/96	1056	12.25	SAMPLE START (D)	
	1110	12.34	SAMPLE STOP (D)	

EQUIPMENT ID: Bailer

PERSONNEL: LZ

NOTES:

[TERMS: (S) - Static Water Level (D) - Dynamic Water Level]

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Muco

PROJECT LOCATION: Albany - Railroad Ave

PROJECT MANAGER: K Burns   JOB #:

SAMPLE/WELL ID: M1-3   FIELD DATE(S): 8/8 - 8/9   FIELD TIME: 10:56

GW-DMS ID: M1-3 (Well #,YY,MM,DD)   MATRIX: - [✓ GW] - SW - SOIL - OTHER: (Circle one)

SAMPLE INFORMATION:

If no Sample Information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable.

SAMPLE DEPTH: ≃12'-15   MEASURING POINT: Top of PVC

CIRCLE ONE: [✓ Upper] [✓ Middle] Lower Composite

METHOD: - N - P - S - BL - [✓ B] Other: EQUIPMENT ID: Bailer

N=Nitrogen Pump P=Peristaltic Pump S=Submersible Pump BL= Bladder Pump B=Bailer

FIELD RESULTS:

If no Field Information is available, or does not apply to this sample please mark this area "NA" for Not Applicable.

PARAMETER:

	Sample Depth	pH	mV	Conductivity	Temperature °F
1 Vol	12.05	6.52	011	1050	64.6
2 Vol		6.42	016	1060	63.2
3 Vol		6.32	—	1060	63.2
11 Vol		6.51	011	1000	63.1
ple	12.25	6.31	014	770	60.4

PERSONNEL: 17   WEATHER: 87° Sunny Humid Hot.

Please note; approximate temperature, any precipitation (rain, snow, hail, etc...), wind, etc......

NOTES:

LAB REQUESTS:

If no Lab information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

LAB TITLE: (Please specify which lab the sample went to)	ANALYSES/METHOD: (Please put one test on each line)	TAT: (Turn Around Time)	# TESTS:
Adirondack..	RCRA Metals	Normal	3
	626		
	8021		

TRANSPORTED VIA: CES/Adirondack

DATE: 8/9/89

QA/QC:

Replicate: Trip Blank

Field Blank:

WELL CONDITION & GENERAL NOTES:

field.sam

CHAZEN [illegible]

[illegible] INFORMATION:

PROJECT NAME: Muss

PROJECT LOCATION: Albany - Railroad Ave

PROJECT MANAGER: K - Bassie JOB #: -

SAMPLE/WELL ID: ML-4 FIELD DATE(S): 8/9/96 FIELD TIME: 1050

[illegible] ID: - - (Well #,YY,MM,DD) MATRIX: - [✓ GW] - SL - FOIL - OTHER: (Circle one)

PURGE DATA:

If no purge information is available, or Purging does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

START DATE: 8/9/96 STOP DATE: 8/9/96

START TIME: 8:20 STOP TIME: 9:15

DEPTH TO BOTTOM: 15.92 MEASURING POINT: Top of PVC

WATER LEVEL: 11.92

ACTUAL VOLUME:

PURGE RATE (gpm):

ELAPSED TIME (min.): ≈ 55 min

PURGE VOLUME (gal): 6 gall

WELL VOLUMES PURGED (#): 9+

CALCULATED VOLUME:

A = Water Column (Bottom Depth - Water Column)

B = Gallons / Foot

A x B x 3 = Gallons to Purge

15 92
11.92
4.00
.163
0.652
x6
3.412

3.91 Gallons

[illegible]	Gallons\ Foot
1.5"	0.092
[✓ 2.0"]	[✓ 0.163]
4.0"	0.653
6.0"	1.469
8.0"	2.611

EQUIP. ID: Peristaltic Pump PERSONNEL: LZ

CONDITION: Clear ____ Slightly Turbid ✓ Turbid ____ Odor ____ No Odor ____

WEATHER: Rain

Please note; approximate temperature, any precipitation (rain, snow, hail, etc...), wind, etc......

LOCK TYPE: Master KEY NUMBER: 0668

(Brand Name, Lock Type: Combination, Key, etc..) (#3303, #5406, or combination)

NOTES: Need 5 side tool to open well Albany office has tool

WATER ELEVATIONS:

If no elevation information is available, or elevation s do not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

DEPTH TO BOTTOM: 15.92 MEASURING POINT: Top of PVC

DATE:	TIME:	DEPTH/ELEVATION	ELEVATION TYPE:	NOTES:
8/9/96	8:20	11.92	PURGE START (S)	
↓	9:15	—	PURGE STOP (D)	
	11:50	11.92	SAMPLE START (D)	
	1215	12.02	SAMPLE STOP (D)	

EQUIPMENT ID: Bailer

PERSONNEL: LZ

NOTES:

[TERMS: (S) - Static Water Level (D) - Dynamic Water Level]

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Miron

PROJECT LOCATION: Albany - Railroad Ave

PROJECT MANAGER: K. Bliss JOB #:

SAMPLE/WELL ID: ML-5 FIELD DATE(S): 8/9/96 FIELD TIME: 1155

GW-DMS ID: ML-5 MATRIX: [✓ GW] - SW - SOIL - OTHER:

(Well #,YY,MM,DD) (Circle one)

PURGE DATA:

If no purge information is available, or Purging does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

START DATE: 8/9/96 STOP DATE: 8/9/96

START TIME: 8:40 STOP TIME: 9:18

DEPTH TO BOTTOM: 15.97 MEASURING POINT: Top of PVC

WATER LEVEL: 11.52

ACTUAL VOLUME:

PURGE RATE (gpm):

ELAPSED TIME (min.): x 38 min

PURGE VOLUME (gal): 7 gal

WELL VOLUMES PURGED (#): 9+

CALCULATED VOLUME:

A = Water Column (Bottom Depth - Water Column)

15.97
11.52
4.45

B = Gallons / Foot

.163
0.72535

A x B x 3 = Gallons to Purge

x6
4.35210

4.35 Gallons

Pipe Width	Gallons\ Foot
1.5"	0.092
[✓ 2.0"]	[✓ 0.163]
4.0"	0.653
6.0"	1.469
8.0"	2.611

EQUIP. ID: Peristaltic Pump PERSONNEL: LZ

CONDITION: Clear ______ Slightly Turbid ______ Turbid ______ Odor ______ No Odor ______

WEATHER: Rain

Please note; approximate temperature, any precipitation (rain, snow, hail, etc...), wind, etc......

LOCK TYPE: Master KEY NUMBER: 0668

(Brand Name, Lock Type: Combination, Key, etc..) (#3303, #5408, or combination)

NOTES:

Need Special tool to open well Albany office has tool

WATER ELEVATIONS:

If no elevation information is available, or elevation s do not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

DEPTH TO BOTTOM: 15.97 MEASURING POINT: Top of PVC

DATE:	TIME:	DEPTH/ELEVATION	ELEVATION TYPE:	NOTES:
8/9/96	8:40	11.52	PURGE START (S)	
	9:18	—	PURGE STOP (D)	
	11:55	1152	SAMPLE START (D)	
↓	12:10	1154	SAMPLE STOP (D)	

EQUIPMENT ID: Bailer

PERSONNEL: LZ

NOTES:

[TERMS: (S) - Static Water Level (D) - Dynamic Water Level]

CHAZEN ENVIRONMENTAL SERVICES
FIELD DATA SHEET

SAMPLE INFORMATION:

PROJECT NAME: Munn

PROJECT LOCATION: Albany - Railroad Ave

PROJECT MANAGER: K. Bruns

JOB #:

SAMPLE/WELL ID: ML-5

FIELD DATE(S): 8/4/96

FIELD TIME: 1155

GW-DMS ID: ML-5
(Well #,YY,MM,DD)

MATRIX: - [✓ GW] - SW - SOIL - OTHER:
(Circle one)

SAMPLE INFORMATION:

If no Sample Information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable.

SAMPLE DEPTH: ~ 12-15'

MEASURING POINT: Top of PVC

CIRCLE ONE: [✓ Upper Middle] Lower Composite

METHOD: - N - P - S - BL - [✓ B] - Other:

EQUIPMENT ID: Bailer

N=Nitrogen Pump P=Peristaltic Pump S=Submersible Pump BL= Bladder Pump B=Bailer

FIELD RESULTS:

If no Field Information is available, or does not apply to this sample please mark this area "NA" for Not Applicable.

PARAMETER:

	Sample Depth	pH	mV	Conductivity	Temperature
Start	11.52	5.65	050	1060	63.2
9 Vol	11.78	6.02	031	1540 clear	60.8
Sample	11.52	6.67	051	920	61.3

PERSONNEL: LZ

WEATHER: Rain
Please note; approximate temperature, any precipitation (rain, snow, hail; etc...), wind, etc......

NOTES:

LAB REQUESTS:

If no Lab information is available, or it does not apply to this sample please mark this area "NA" for Not Applicable Please use military time.

LAB TITLE: (Please specify which lab the sample went to)	ANALYSES/METHOD: (Please put one test on each line)	TAT: (Turn Around Time)	# TESTS:
Adirondack	RCRA Metals	Normal	3
	626		
	8021		

TRANSPORTED VIA: CES/Adirondack

DATE: 8/9/96

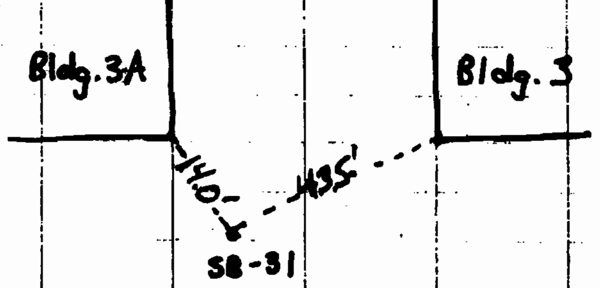
QA/QC:

Replicate: Trip Blank

Field Blank:

WELL CONDITION & GENERAL NOTES:

10/18/01
<u>SB-31</u>



0935 - calibrate Horiba (Hazco 7018)
↳ calibrated OK (pH 4, 4.49mS/cm, 0

0945 - set up to sample ML-2R
- initial w/l 16.60' BTOR → well volume = 0.63 gal.

Well Vol.	w/L ('BTOR)	pH (-)	Cond. (mS/cm)	Turb. ~~Temp.~~ (NTU)	Temp. (°C)
1	16.55	7.15	1.52	409	12.6
2	16.65	7.45	1.41	223	12.2
3	16.7	7.45	1.45	100	12.3

1030 - collect sample → VOCs, SVOCs, plus total & dissolved CCA, Cn, Mtls

1030 - diss. samples collected by transferring sample from clean plastic bottles w/o preservative to pres. bottles

10/18/0
- VOCs & SVOCs, & Total Cn, CCA, Mtls collected w/ disposable Teflon bailer

1100 - drillers off-Site

1110 - noted that flushmounts on ML-2R & ML-3 need additi repair

1115 - pack samples, complete COCs,

1245 - drop samples @ mailboxes etc.,
shipped 2 coolers w/ 2 bags of ice each to STL Pittsburgh via priority overnight FedEx
↳ shipped 4 coolers w/ unused containers via FedEx 3-day

1330 - Miron rep. on-Site → was unaware that Chazon/CRA on-Site

1350 - staged 3 bags of used PPE, sample containers, ziplocs, tubing etc. under shed on west corner of garage
- SJB staged one 55-gal drum w/ decon pad

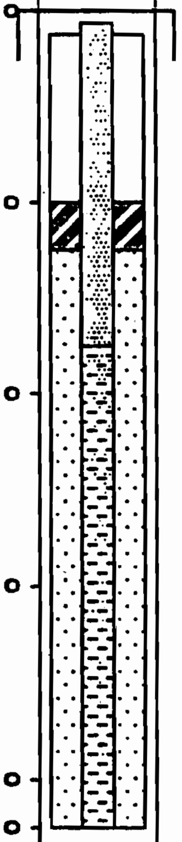
1410 - CRA off-Site → all locks secure

APPENDIX D

STRATIGRAPHIC AND INSTRUMENTATION LOGS

Boring Log
(ML-1)

e name: Miron Paulsen Lumber	Project number:
lient name:	Depth to water at drilling time: 12.75
ocation: N.E. of Impacted	Screen size/unit: ,inches
Date drilled: 8/7/96	Screen Type: PVC Slotted
Date finished: 8/7/96	Drill method: Hollow Stem Auger
urface elevation:	Notes: Elevation T.O.C. =
ogged by: Lorraine Zeller	
Drilling Co.: T&K Drilling	
riller: Kevin Kennedy	
otal depth of hole: 17 ft	



Depth (ft)	Well	(PID) PPM	Samples Number	Samples Condition	Samples Recovery	Samples Blows	Graphic Log	USCS Symbol	Description
0.0			SS-1	▨		6 8 8 11	░	SP	Gray - Brown fine SAND
			SS-2	▨		2 2 4 3	░	SP	Yellow - Brown fine SAND
4.0			SS-3	▨		2 5 5 6	░	SP	Yellow - Brown fine SAND
			SS-4	▨		10 9 9 8	▥	SM	Brown fine - very fine SAND
8.0			SS-5	▨		5 7 7 6	▥	SM	Brown fine - very fine SAND
			SS-6	▨		4 5 4 5	▥	SM	Brown fine - very fine SAND
12.0		▽	SS-7	▨		3 3 5 6	▥	SM	Brown fine - very fine SAND
			SS-8	▨		0 2 3 4	▥	SM	Brown fine - very fine SAND
16.0 17.0							▥	SM	Brown fine - very fine SAND

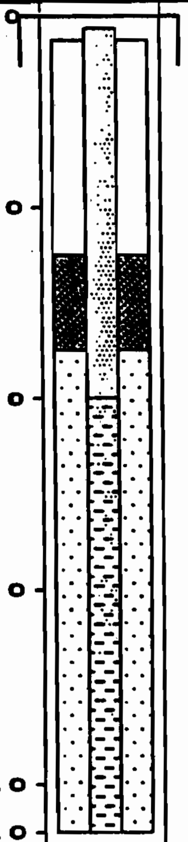
The Chazen Companies
1407 Route 9, Building 1, Clifton Park, Saratoga, NY

Company Lc

Dec. 15, 1998 | Drawn By: | Page:1 of 1

Boring Log
(ML-2)

e name: Miron Paulsen Lumber	Project number:
ent name:	Depth to water at drilling time: 13.09
ocation: Impacted Soil Area	Screen size/unit: ,inches
ate drilled: 8/7/96	Screen Type: PVC Slotted
Date finished: 8/7/96	Drill method: Hollow Stem Auger
urface elevation:	Notes: Elevation T.O.C. =
ogged by: Lorraine Zeller	
Drilling Co.: T&K Drilling	
Driller: Kevin Kennedy	
otal depth of hole: 17 ft	



Depth (ft)	Well	(PID) PPM	Samples Number	Condition	Recovery	Blows	Graphic Log	USCS Symbol	Description
0.0			SS-1	▨		6 8 8 11		SP	Gray/Brown fine SAND
4.0									
			SS-2	▨		5 5 7 9		SP	Yellow/Brown fine SAND, trace gravel
8.0			SS-3	▨		5 7 9 10		SP	Yellow/Brown fine SAND
			SS-4	▨		10 10 8 10		SP	Yellow/Brown fine SAND
12.0		▽	SS-5	▨		12 10 8 9		SP	Yellow/Brown fine SAND
			SS-6	▨		4 4 6 6		SM	Brown fine - very fine SAND
16.0			SS-7	▨		3 4 6 4		SM	Brown fine - very fine SAND
17.0									

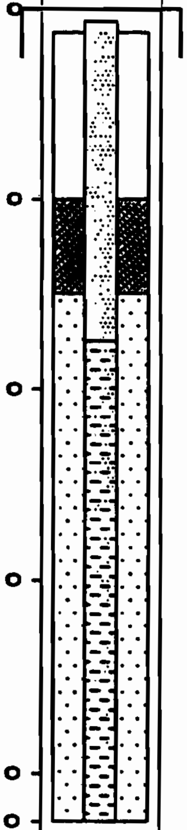
The Chazen Companies
1407 Route 9, Building 1, Clifton Park, Saratoga, NY

Company L

Dec. 15, 1998 | Drawn By: | Page:1 of 1

Boring Log
(ML-3)

e name: Miron Paulsen Lumber	Project number:
lient name:	Depth to water at drilling time: 13.09
ocation: West of Impacted	Screen size/unit: ,inches
Date drilled:	Screen Type: PVC Slotted
Date finished:	Drill method:
urface elevation:	Notes: Elevation T.O.C. =
ogged by:	
Drilling Co.: Soil	
riller:	
otal depth of hole: 17 ft	

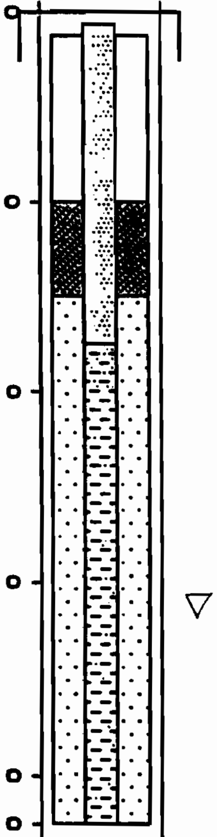


Depth (ft)	Well	(PID) PPM	Samples Number	Condition	Recovery	Blows	Graphic Log	USCS Symbol	Description
0.0			SS-1	▨		5 4 5 4		SP	Brown fine SAND
			SS-2	▨		2 2 5 4		SP	Brown fine SAND
4.0			SS-3	▨		3 3 5 6		SP	Yellow/Brown fine SAND
			SS-4	▨		7 8 10 4		SP	Yellow/Brown fine SAND
8.0									
			SS-5	▨		3 3 4 4		SP	Brown fine SAND
12.0		▽							
			SS-6	▨		1 1 3 4		SM	Brown fine - very fine SAND
16.0									
17.0									

The Chazen Companies 1407 Route 9, Building 1, Clifton Park, Saratoga, NY		Company Lo
Dec. 15, 1998	Drawn By:	Page:1 of 1

Boring Log
(ML-4)

Site name: Miron Paulsen Lumber	Project number:
Client name:	Depth to water at drilling time: 12.57
Location: East of Impacted	Screen size/unit: ,inches
Date drilled: 8/7/96	Screen Type: PVC Slotted
Date finished: 8/7/96	Drill method: Hollow Stem Auger
Surface elevation:	Notes: Elevation T.O.C. =
Logged by: Loraine Zeller	
Drilling Co.: T&K Drilling	
Driller: Kevin Kennedy	
Total depth of hole: 17 ft	



Depth (ft)	Well	(PID) PPM	Samples Number	Condition	Recovery	Blows	Graphic Log	USCS Symbol	Description
0.0			SS-1	▨		10 8 6 6	░	SP	Brown fine SAND
4.0			SS-2	▨		2 2 5 6	░	SP	Yellow/Brown fine SAND
8.0			SS-3	▨		2 3 6 4	░	SP	Brown fine SAND
12.0		▽							
16.0			SS-4	▨		1 1 2 3	▥	SM	Brown fine - very fine SAND
17.0									

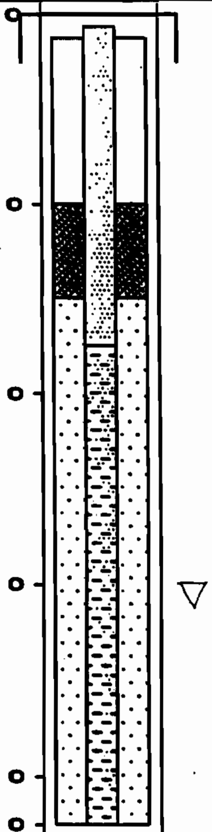
The Chazen Companies
1407 Route 9, Building 1, Clifton Park, Saratoga, NY

Company Lo

Dec. 15, 1998 | Drawn By: | Page:1 of 1

Boring Log
(ML-5)

e name: Miron Paulsen Lumber	Project number:
ient name:	Depth to water at drilling time: 12.17
ocation: East of ML-4	Screen size/unit: ,inches
Date drilled: 8/8/96	Screen Type: PVC Slotted
Date finished: 8/8/96	Drill method: Hollow Stem Auger
urface elevation:	Notes: Elevation T.O.C. =
ogged by: Lorraine Zeller	
Drilling Co.: T&K Drilling	
Driller: Kevin Kennedy	
otal depth of hole: 17 ft	



Depth (ft)	Well	(PID) PPM	Samples				Graphic Log	USCS Symbol	Description
			Number	Condition	Recovery	Blows			
0.0			SS-1	▨		3 3 4 5		SP	Brown fine SAND
4.0									
			SS-2	▨		2 4 5 5		SP	Yellow/Brown fine SAND
8.0									
			SS-3	▨		3 2 2 3		SP	Brown fine SAND
12.0		▽							
			SS-4	▨		1 1 1 2		SM	Brown fine - very fine SAND
16.0									
17.0									

The Chazen Companies
1407 Route 9, Building 1, Clifton Park, Saratoga, NY

Company Log

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STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

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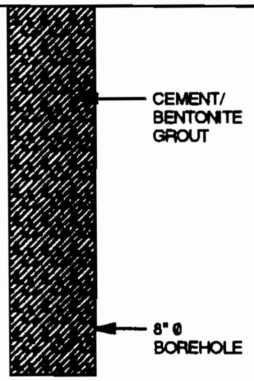
PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-5
DATE COMPLETED: October 17, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG



DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID
	GROUND SURFACE	0.00						
	SP-SAND (FILL), trace silt, angular to subangular gravel, fine grained, poorly graded, brown, no odor		CEMENT/ BENTONITE GROUT	1		0.8	15	0
2	- native		8" Ø BOREHOLE	2		1.8	20	0
4	END OF BOREHOLE @ 4.0ft BGS	-4.00						
6								
8								
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

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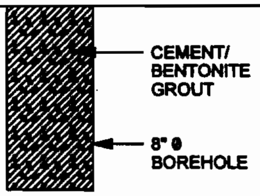
PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-11
DATE COMPLETED: October 17, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE			
				NUMBER	INTERVAL	REC (ft)	'N' VALUE
	GROUND SURFACE	0					
	SP-SAND (FILL), trace silt, trace angular to subangular fine gravel, compact, fine grained, poorly graded, brown, slightly moist to moist, no odor			1	☒	1.3	13
2	- concrete pad END OF BOREHOLE @ 2.0ft BGS	-2					
4							
6							
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

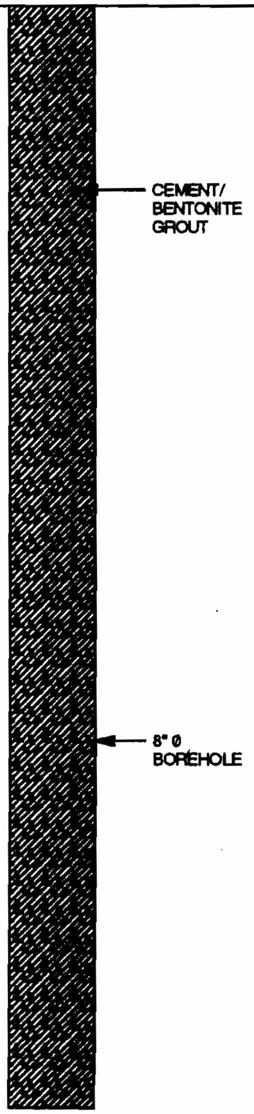
Page 1 of 1

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-17
DATE COMPLETED: October 16, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID
0	GROUND SURFACE	0.00					
	ASPHALT	-0.20					
	SP-SAND (FILL), trace silt, compact, fine grained, poorly graded, homogenous, brown, slightly moist, no odor - small coal chunks		1	0-2	1.0	15	0
2	- loose - native		2	2-4	1.0	8	0
4			3	4-6	1.2	10	0
6			4	6-8	1.8	11	0
8			5	8-10	1.4	13	0
10			6	10-12	1.8	17	0
12	END OF BOREHOLE @ 12.0ft BGS	-12.00					
14							

BOREHOLE



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

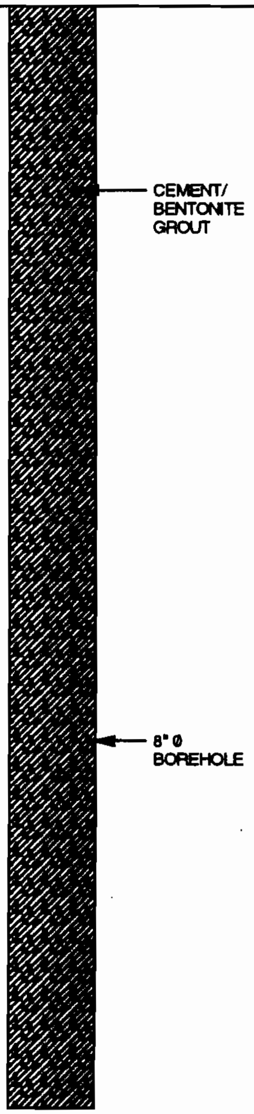
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-18
DATE COMPLETED: October 16, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	0.00
0	CONCRETE PAD	
	SP-SAND (FILL), trace silt, loose, fine grained, poorly graded, homogenous, brown, slightly moist,, no odor - native, compact - with silt, dark brown	-1.20
12	END OF BOREHOLE @ 12.0ft BGS	-12.00



SAMPLE NUMBER	INTERVAL (ft BGS)	REC (ft)	'N' VALUE	PID
1	0-2	0.8	8	0
2	2-4	1.2	10	0
3	4-6	1.7	13	0
4	6-8	1.7	18	0
5	8-10	1.8	17	0
6	10-12	1.8	17	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

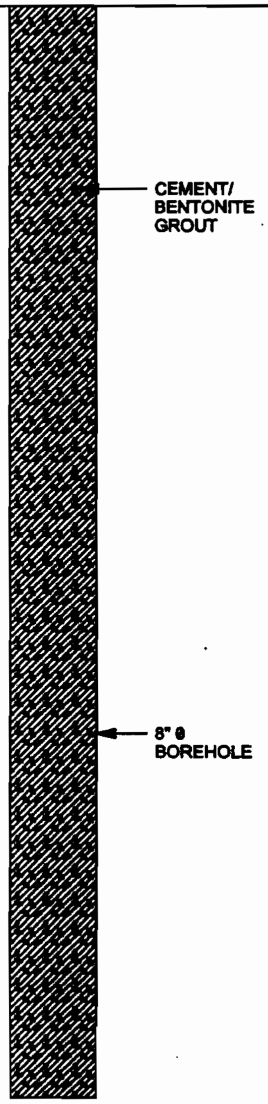
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER	HOLE DESIGNATION: SB-19
PROJECT NUMBER: 17087	DATE COMPLETED: October 15, 2001
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR	DRILLING METHOD: 4 1/4" ID HSA
LOCATION: ALBANY, NY	FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
	GROUND SURFACE	0					
	ASPHALT						
	SP-SAND (FILL), trace silt, dense, fine grained, poorly graded, homogenous, brown, slightly moist, no odor	-0.4	1	0-2	1.0	35	0
	- crumbling concrete						
2	- native, loose		2	2-4	1.0	7	0
4	- compact		3	4-6	1.1	22	0
6			4	6-8	1.3	21	0
8			5	8-10	1.3	26	0
10			6	10-12	2.0	15	0
12	END OF BOREHOLE @ 12.0ft BGS	-12					
14							

BOREHOLE



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-20
DATE COMPLETED: October 16, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
	GROUND SURFACE	0.00						
	ASPHALT							
	SP-SAND (FILL), loose, fine grained, poorly graded, homogenous, brown, slightly moist, no odor	-0.30						
				①	☒	0.6	13	0
2	- native		CEMENT/ BENTONITE GROUT					
				②	☒	1.6	9	0
4								
				③	☒	1.2	12	0.3
6	- no recovery							
				4	○	0.0	13	-
8	SP-SAND, loose, fine grained, poorly graded, homogenous, brown, slightly moist, no odor	-8.00	8" Ø BOREHOLE					
				⑤	☒	1.3	12	0.3
10								
				⑥	☒	1.5	16	0.5
12	END OF BOREHOLE @ 12.0ft BGS	-12.00						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

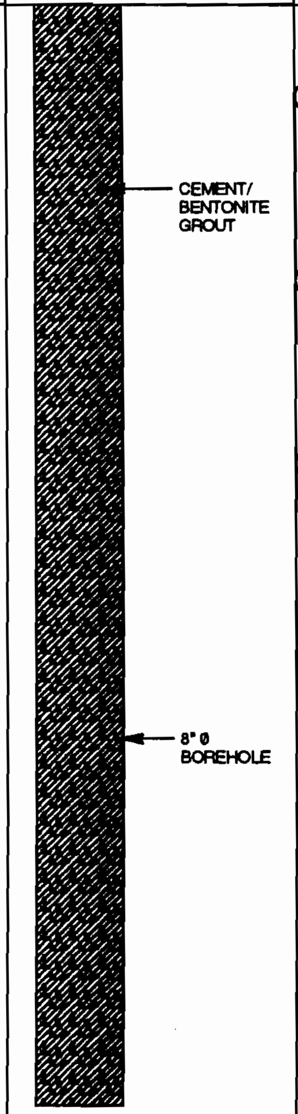
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-21
DATE COMPLETED: October 16, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	0.00
	ASPHALT	
	SP/GP-SAND and GRAVEL (FILL), compact, fine grained sand, poorly graded, brown, no odor	-0.30
2	SP-SAND, very compact, fine grained, poorly graded, homogenous, brown, slightly moist, no odor	-2.00
12	END OF BOREHOLE @ 12.0ft BGS	-12.00



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
①	☒	0.5	22	0
②	☒	0.8	29	3.5
③	☒	1.3	25	6.0
④	☒	0.8	22	0
⑤	☒	1.8	12	10.0
⑥	☒	1.0	12	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

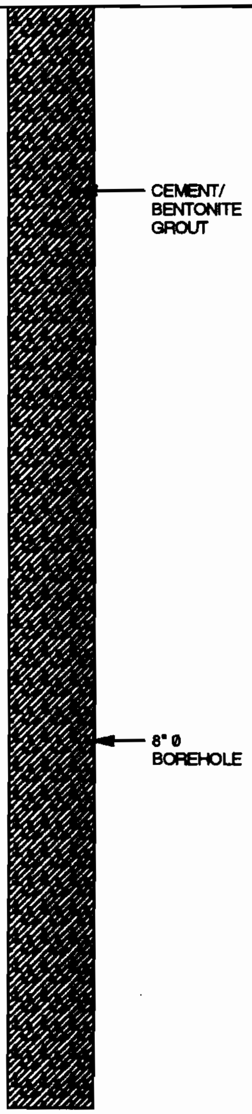
OVERBURDEN LOG 017087.GPJ CRA_CORP.GDT 11/6/01

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER	HOLE DESIGNATION: SB-22
PROJECT NUMBER: 17087	DATE COMPLETED: October 16, 2001
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR	DRILLING METHOD: 4 1/4" ID HSA
LOCATION: ALBANY, NY	FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	0.00
	ASPHALT	-0.20
	CL-SANDY CLAY (FILL), with gravel, stiff, low plasticity, homogenous, brown, slightly moist, no odor	-1.40
	SP-GRAVELLY SAND (FILL), fine grained, poorly graded, dark brown, slightly moist, no odor	-1.60
2	SP-SAND, loose, fine grained, homogenous, brown, slightly moist, no odor	
4		
6		
8		
10		
12	END OF BOREHOLE @ 12.0ft BGS	-12.00
14		



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
①	☒	1.0	10	0.1
②	☒	0.8	8	0.1
③	☒	1.6	10	0
④	☒	1.3	10	0
⑤	☒	1.2	12	0.3
⑥	☒	1.8	15	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

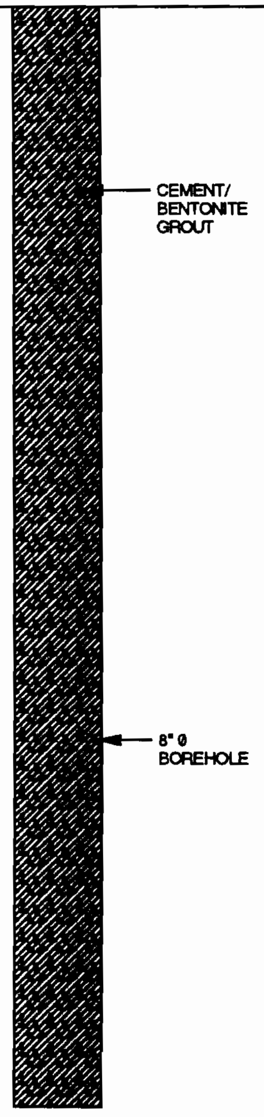
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER	HOLE DESIGNATION: SB-23
PROJECT NUMBER: 17087	DATE COMPLETED: October 16, 2001
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR	DRILLING METHOD: 4 1/4" ID HSA
LOCATION: ALBANY, NY	FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	0.00
	ASPHALT	-0.20
	SP-SAND (FILL), loose, fine grained, poorly graded, homogenous, brown, no odor	
2	- native	
12	END OF BOREHOLE @ 12.0ft BGS	-12.00

BOREHOLE



SAMPLE				
NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
①		1.0	8	0
②		1.2	14	0
③		1.0	9	0
④		1.2	12	0.1
⑤		1.0	19	0
⑥		1.5	19	0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

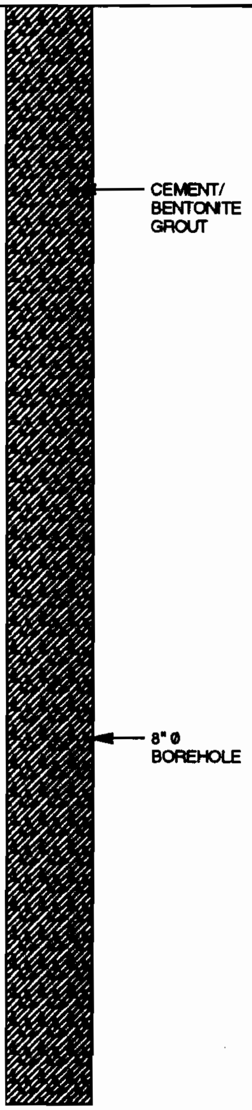
Page 1 of 1

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-24
DATE COMPLETED: October 17, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	0.00
	TOPSOIL	-0.30
	SP-SAND (FILL), trace to no silt, loose, fine grained, poorly graded, homogenous, brown, slightly moist, no odor	
2	- angular fine gravel, black staining, petroleum odors, slight sheen	
	- compact	
	- native, no gravel, no staining, no odor	
4		
6		
8		
	- no staining, nonchemical odor	
10		
12	END OF BOREHOLE @ 12.0ft BGS	-12.00
14		

BOREHOLE



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
1	0–2	1.6	8	635
②	2–4	0.8	18	29.8
③	4–6	1.4	12	0
④	6–8	1.3	12	0
⑤	8–10	1.3	12	47.8
⑥	10–12	2.0	13	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

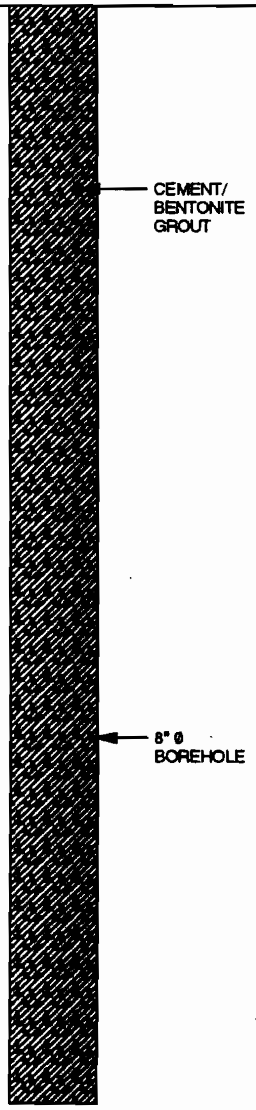
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY
HOLE DESIGNATION: SB-25
DATE COMPLETED: October 17, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
	GROUND SURFACE	0.00					
	TOPSOIL	-0.20					
	SP-SAND (FILL), trace silt, fine grained, poorly graded, homogenous, brown, no odor						
			1	☒	1.3	14	0
2	- native						
			2	☒	1.3	7	0
4							
			3	☒	1.3	16	0
6							
			4	☒	1.3	12	0
8							
			5	☒	1.3	14	8.4
10							
			6	☒	1.2	11	0
12	END OF BOREHOLE @ 12.0ft BGS	-12.00					
14							

BOREHOLE



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

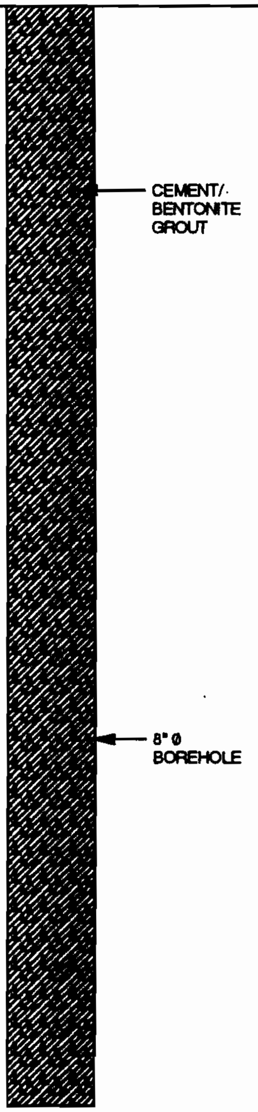
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-26
DATE COMPLETED: October 17, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	0.00
0	SP-SAND (FILL), trace silt, angular to subangular gravel, fine grained, poorly graded, brown	
2	- native	
	- dark brown to black fine sand	
4	- homogenous	
12	END OF BOREHOLE @ 12.0ft BGS	-12.00



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
1		0.8	11	30.2
2		0.8	11	23.2
3		1.7	7	227
4		1.2	12	64
5		1.3	15	39.5
6		1.8	12	115

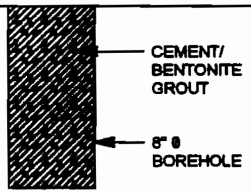
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER	**HOLE DESIGNATION:** SB-27
PROJECT NUMBER: 17087	**DATE COMPLETED:** October 17, 2001
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR	**DRILLING METHOD:** 4 1/4" ID HSA
LOCATION: ALBANY, NY	**FIELD PERSONNEL:** R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID
	GROUND SURFACE	0						
	SP-SAND (FILL), trace silt, trace angular to subangular fine gravel, compact, fine grained, poorly graded, brown, slightly moist to moist, no odor			①	☒	0.8	9	0
2	- concrete pad END OF BOREHOLE @ 2.0ft BGS	-2						
4								
6								
8								
10								
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

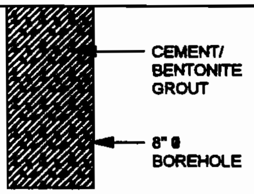
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-28
DATE COMPLETED: October 17, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	0					
	SP-SAND (FILL), trace silt, trace angular to subangular fine gravel, compact, fine grained, poorly graded, brown, slightly moist to moist, no odor		CEMENT/ BENTONITE GROUT 8" ø BOREHOLE	1	☒	1.3	14
2	- concrete pad END OF BOREHOLE @ 2.0ft BGS	-2					
4							
6							
8							
10							
12							
14							



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

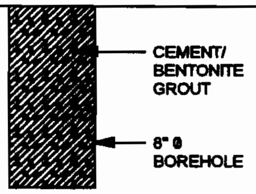
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-29
DATE COMPLETED: October 17, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
	GROUND SURFACE	0						
	SP-SAND (FILL), trace silt, trace angular to subangular gravel, compact, fine grained, poorly graded, brown, slightly moist to moist, no odor			1		1.3	17	0
2	- concrete pad	-2						
	END OF BOREHOLE @ 2.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

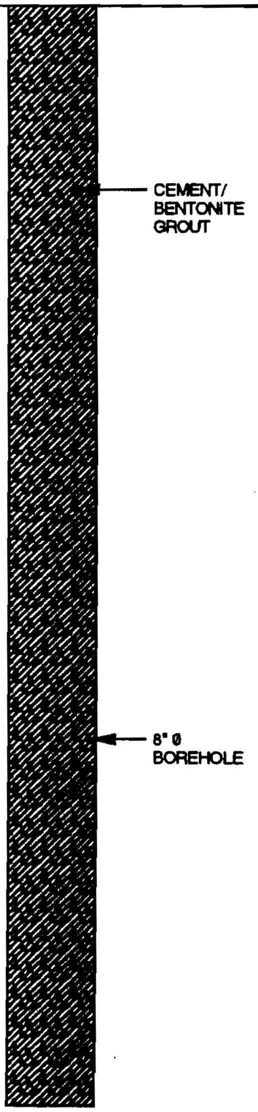
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY
HOLE DESIGNATION: SB-30
DATE COMPLETED: October 17, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	0.00
	ASPHALT	-0.30
	SP-SAND (FILL), trace silt, compact, fine grained, poorly graded, homogenous, brown, slightly moist, no odor	
2	- native, loose	
4	- compact	
6		
8		
10		
12	END OF BOREHOLE @ 12.0ft BGS	-12.00
14		



SAMPLE NUMBER	REC (ft)	'N' VALUE	PID
1	1.3	10	0
2	1.5	6	0
3	1.5	14	0
4	1.5	13	0
5	1.4	19	0
6	1.3	12	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

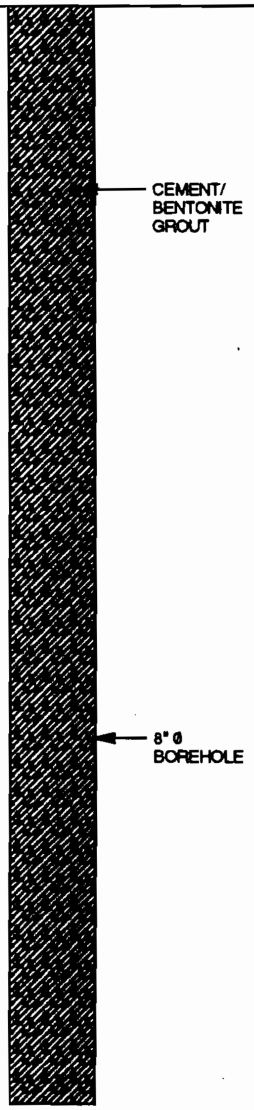
Page 1 of 1

PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: SB-31
DATE COMPLETED: October 17, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
	GROUND SURFACE	0.00					
	ASPHALT	-0.20					
	SP-SAND (FILL), trace silt, compact, fine grained, poorly graded, homogenous, brown, no odor		1		0.8	17	0
2	- native						
			2		1.1	16	8.1
4							
			3		0.9	16	7.5
6							
			4		1.0	-	43.7
8							
			5		1.1	15	54.9
10	- very moist						
			6		1.5	11	48.1
12	END OF BOREHOLE @ 12.0ft BGS	-12.00					
14							

BOREHOLE



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

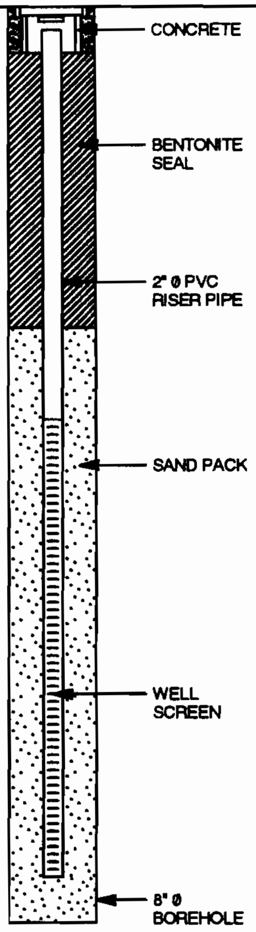
PROJECT NAME: MIRON LUMBER
PROJECT NUMBER: 17087
CLIENT: HODGSON, RUSS, ANDREW, WOODS & GOODYEAR
LOCATION: ALBANY, NY

HOLE DESIGNATION: ML-2R
DATE COMPLETED: October 15, 2001
DRILLING METHOD: 4 1/4" ID HSA
FIELD PERSONNEL: R. HOAG

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	TOP OF CASING	0.00
	GROUND SURFACE	0.00
	TOPSOIL	-0.30
	ASPHALT	-0.70
2	SP-SAND (FILL), fine grained, poorly graded, homogenous, brown, slightly moist, no odor - wood (compacted) - refusal (moved hole 6" to the West)	-2.80
4	SP-SAND, loose, fine grained, brown, slightly moist, no odor	
14	- becoming a bit more moist	
	- wet	
	- some black discoloration, very wet sand	
20	END OF BOREHOLE @ 20.0ft BGS	-20.00

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID
1		0.8	38	0
2		1.3	9	0
3		1.3	13	0
4		1.6	25	0
5		1.4	17	0
6		1.6	20	0
7		2.0	18	0
8		1.1	10	0
9		1.3	8	0

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
-9.00 to -19.00ft
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
-1.00 to -7.00ft
Material: Bentonite
Sand Pack:
-7.00 to -20.00ft
Material: No. 5 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

APPENDIX E

BASELINE INVESTIGATION ANALYTICAL DATA AND VALIDATION REPORT

ANALYTICAL DATA ASSESSMENT AND VALIDATION
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK
OCTOBER 2001

TABLE OF CONTENTS

LIST OF TABLES
(Following Text)

1.0 INTRODUCTION

The following document details an assessment and validation of analytical results reported by Severn Trent Laboratories (STL) for groundwater and soil samples collected at the Miron Lumber Site located in Albany, New York (Site). The samples were collected to conduct an environmental evaluation of the Site. For sample identification, a sampling and analysis summary is presented in Table 1.

A summary of the analytical data is presented in Tables 2A to 2D. The Quality Assurance/Quality Control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods and the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", October 1999, EPA 540/R-99/008; and

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", February 1994, EPA-540/R-94-013.

These documents will be referred to as the "Guidelines".

The data quality assessment and validation presented in the following subsections were performed based on all raw data including calibrations, surrogate recoveries, spike recoveries, duplicate, and blank results for all parameters with the exception of the Toxicity Characteristic Leaching Procedure (TCLP) parameters. The TCLP data was reported as received from the laboratory.

2.0 SAMPLE HOLDING TIMES

The method-specified holding time criteria for this program were as follows:

Parameter	*Holding Time (Groundwater)*	*Holding Time (Soils)*
Target Compound List (TCL) Volatile Organic Compounds (VOCs)	14 Days from collection to analysis	14 Days from collection to analysis
TCL Semi-Volatile Organic Compounds (SVOCs)	7 Days from collection to extraction 40 Days from extraction to analysis	14 Days from collection to extraction 40 Days from extraction to analysis
TCL Pesticides/ polychlorinated biphenyls (PCBs)	-	14 Days from collection to extraction 40 Days from extraction to analysis
Metals (total and dissolved)	180 Days from collection to analysis	180 Days from collection to analysis
Mercury	28 Days from collection to analysis	28 Days from collection to analysis
Cyanide	14 Days from collection to analysis	14 Days from collection to analysis

All sample analyses were performed within the required holding times.

All samples were properly preserved and cooled at 4°C (±2°C) after collection. All samples were received by the laboratory in good condition.

3.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) TUNING AND MASS CALIBRATION – VOCs AND SVOCs

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the VOC and SVOC method require the analysis of the specific tuning compounds bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP). The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compounds must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

All instrument tuning data were reviewed. The tuning compound was analyzed at the required frequency throughout the analytical periods. All tuning criteria were met for the analysis, indicating proper optimization of the instrumentation.

4.0 INSTRUMENT CALIBRATION

4.1 GC/MS CALIBRATION – VOCs AND SVOCs

4.1.1 INITIAL CALIBRATION

To quantify compounds of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a five-point calibration curve containing all compounds of interest is analyzed.

Linearity of the curve and instrument sensitivity were evaluated against the following criteria:

i) all relative response factors (RRFs) must be greater than or equal to 0.05; and

ii) percent relative standard deviation (%RSD) values must not exceed 30 percent.

The initial calibration data for VOCs and SVOCs were reviewed. All RRFs met the above criteria indicating acceptable analyte sensitivity with the exception of a low RRF for bromomethane. All associated bromomethane results were non-detect and rejected due to poor analyte sensitivity (see Table 3). Some initial calibration curves exceeded the %RSD criteria. All associated data were non-detect and would not have been impacted by the variability.

4.1.2 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) all RRF values must be greater than or equal to 0.05; and

ii) percent difference (%D) values must not exceed 25 percent.

All response factors met the method criteria, indicating adequate analyte sensitivity with the exception of bromomethane. All associated results were previously rejected. Variability was observed between the initial and continuing responses of various VOCs and SVOCs. All associated data were qualified as estimated to reflect the implied variability (see Table 4).

4.2 GC CALIBRATION – PESTICIDES/PCBs

4.2.1 INITIAL CALIBRATION

To quantify compounds of interest, calibration of the GC/Electron Capture Detector (ECD) over a specific concentration range must be performed. Retention time windows are also calculated from the initial calibration analyses. These windows are used to identify all compounds of interest in subsequent analyses.

Initial calibration standards were analyzed at the required frequencies and the method-specified linearity criteria were met for the pesticide/PCB analyses.

4.2.2 CONTINUING CALIBRATION

To ensure that the calibration of the instrument is valid throughout the sample analysis period, continuing calibration standards are analyzed and evaluated on a regular basis. To ensure that compound retention times do not vary over the analysis period, all retention times for continuing calibration compounds must fall within the established retention time windows.

Continuing calibration were performed at the proper frequency and met the method-specified criteria with the exception of some outlying pesticide standards. All outliers were increases in responses and would imply a high bias. All associated data were non-detect and would not have been affected.

4.3 INORGANIC CALIBRATION

4.3.1 INITIAL CALIBRATION

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For inductively coupled plasma (ICP) analysis, a calibration blank, and at least one standard must be analyzed at each wavelength to establish the analytical curve. For cyanide analysis, a calibration blank and a minimum of three standards must be analyzed to establish the analytical curve, and mercury calibration requires four standards and a blank. The mercury and cyanide curves must meet the correlation coefficient requirement of 0.995 or greater.

After the analyses of the calibration curve, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curve. All analyte recoveries from the analyses of the ICVs must be within the following control limits:

Analytical Method	*Inorganic Species*	*Control Limits (Percent)*
ICP	Metals	90-110
Cold Vapor Atomic Absorption (AA)	Mercury	80-120
Colorimetric	Cyanide	85-115

Upon review of the data, it was determined that all inorganic calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that instrumentation used for these analyses were properly calibrated prior to sample analyses.

4.3.2 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards were analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

5.0 ICP INTERFERENCE CHECK SAMPLE (ICS) ANALYSES

To verify that the proper interelement and background correction factors have been established by the laboratory, ICS must be analyzed before and after each analytical sequence. Analyte recoveries are evaluated against control limits of 80 to 120 percent. In addition, any results greater than the IDL for elements which are not present in the standard could be caused by spectral interferents. The possibility of false positive results in samples with equal or higher concentrations of these interferents must be assessed.

A review of the data revealed that ICSs were analyzed at the prescribed frequency and that percent recovery values were within the established control limits of 80 to 120 percent.

6.0 SURROGATE SPIKE RECOVERIES – VOCs, SVOCs, AND PESTICIDES/PCBs

In accordance with the method, all samples, blanks, and standards analyzed for VOCs, SVOCs, and pesticide/PCBs were spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of individual sample matrices on analytical efficiency.

All samples, blanks, and standards were spiked with the proper surrogates and all recoveries were within the method control limits, indicating good analytical efficiency with the exception of one high PCB surrogate. The sample results were non-detect and would not have been impacted by the implied high bias.

7.0 INTERNAL STANDARD RECOVERIES – VOCs AND SVOCs

To ensure that changes in GC/MS response and sensitivity do not affect sample analysis results, internal standard (IS) compounds are added to all samples, blanks, and spike samples prior to analyses. All results are calculated as a ratio of the internal standard response. The criteria by which the internal standard results are assessed are as follows:

i) internal standard area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard; and

ii) the retention time of the internal standard must not vary more than ±30 seconds from the associated calibration standard.

All internal standard recoveries were acceptable, indicating adequate analytical efficiency and all analyte quantitations were performed using the proper internal standard.

8.0 LABORATORY BLANK ANALYSES

The purpose of assessing the results of laboratory blank analyses is to determine the existence and magnitude of sample contamination introduced during analysis. Laboratory blanks are prepared from deionized water and analyzed as samples.

All blank results were non-detect for the analyte of interest with the exception of low level concentrations of metals, cyanide, endrin aldehyde, and bis(2-ethylhexyl) phthalate. All associated sample results similar to the blank concentrations were qualified as non-detect (see Table 5).

For this study, laboratory blanks were analyzed at a minimum frequency of one per analytical batch.

9.0 BLANK SPIKE ANALYSES – VOCs, SVOCs, AND PESTICIDES/PCBs

Blank spikes are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects.

Blank samples were spiked with the method recommended compounds. All blank spike sample analyses yielded recoveries within the method control limits, indicating acceptable analytical accuracy.

10.0 LABORATORY CONTROL SAMPLE ANALYSES - INORGANICS

The Laboratory Control Sample (LCS) serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. LCSs were analyzed using the same sample preparation, analytical methods, and QA/QC procedures employed for the investigative samples.

LCSs were reported for all inorganic analyses. All LCS samples yielded recoveries within the established control limits, indicating acceptable overall analytical accuracy.

11.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES – ORGANICS AND INORGANICS

The recoveries of MS/MSD analyses are used to assess the analytical accuracy achieved on individual sample matrices. The RPD between the MS and MSD is used to assess analytical precision.

An MS/MSD was analyzed at the required frequency for all parameters. The cyanide, VOC, and SVOC samples were not investigative samples but samples of similar matrices in the analytical batch.

All recoveries were acceptable with the exception of some outlying metals recoveries. All associated results were qualified as estimated (see Table 6).

12.0 ICP SERIAL DILUTION ANALYSES

To determine the effects of sample matrices on ICP analytical efficiency, ICP serial dilution samples are analyzed. If the original analyte concentration in the sample is at least 50 times the IDL, a five-fold dilution of the sample is performed. Analytical results for the original and diluted samples are then compared and must agree within 10 percent difference to be acceptable.

A serial dilution analysis was performed on the sample selected for MS analysis. All results met the above criteria with the exception of a low potassium result. All associated data were qualified as estimated (see Table 7).

13.0 FIELD QA/QC

13.1 FIELD DUPLICATES

To assess the analytical and sampling protocol precision, a field duplicate (as identified in Table 1), was collected and submitted "blind" to the laboratory. All data outside of estimated regions of detection demonstrated acceptable agreement indicating adequate sampling and analytical procedures with the following exceptions:

i) variability was observed between the chlordane results. The sample results were qualified as estimated to reflect the implied variability (see Table 8);

ii) variability was observed between some metal results. All associated results were qualified as estimated (see Table 8); and

iii) variability was observed between the SVOC results. All SVOC compounds were qualified as estimated to reflect the implied variability.

13.2 TRIP BLANKS

A trip blank was submitted for VOC analyses to evaluate the possibility of cross-contamination during sample collection, shipment, and/or storage. All results were non-detect with the exception of acetone present at low concentrations. All acetone results similar to the trip blank results were qualified as non-detect (see Table 9).

14.0 GENERAL COMMENTS

Pesticide analyses were performed using dual column analyses. In general, the pesticide results showed good correlation between the two columns. Variability was observed between some of the results. The associated data were qualified as estimated to reflect the implied variability. Where sample results were less than the reporting limit and the %D was greater than 100, the results were qualified as non-detect.

15.0 CONCLUSION

Based on the assessment detailed in the foregoing, the data produced by STL are acceptable with the noted qualifications and exceptions.

TABLES

TABLE 1

SAMPLE KEY
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Sample ID	*Location*	*Interval (Ft. BGS)*	*Sample Date*	*Sample Time*	*Analytical Parameters*	*Comment*
S-17087-101501-RSH-001	SB-19	0-2	10/15/01	10:25	Chromium, Copper, Arsenic	
S-17087-101501-RSH-002	SB-19	2-4	10/15/01	10:35	Chromium, Copper, Arsenic	
S-17087-101501-RSH-003	SB-19	4-6	10/15/01	10:50	Chromium, Copper, Arsenic	
S-17087-101501-RSH-004	SB-19	6-8	10/15/01	11:05	Chromium, Copper, Arsenic	
S-17087-101501-RSH-005	SB-19	8-10	10/15/01	11:15	Chromium, Copper, Arsenic	
S-17087-101501-RSH-006	SB-19	10-12	10/15/01	11:20	Chromium, Copper, Arsenic	
S-17087-101601-RSH-007	SB-18	0-2	10/16/01	7:45	Chromium, Copper, Arsenic	
S-17087-101601-RSH-008	SB-18	2-4	10/16/01	8:00	Chromium, Copper, Arsenic	
S-17087-101601-RSH-009	SB-18	4-6	10/16/01	8:15	Chromium, Copper, Arsenic	MS/MSD
S-17087-101601-RSH-010	SB-18	6-8	10/16/01	8:20	Chromium, Copper, Arsenic	
S-17087-101601-RSH-011	SB-18	8-10	10/16/01	8:40	Chromium, Copper, Arsenic	
S-17087-101601-RSH-012	SB-18	10-12	10/16/01	8:45	Chromium, Copper, Arsenic	
S-17087-101601-RSH-013	SB-17	0-2	10/16/01	9:05	Chromium, Copper, Arsenic	
S-17087-101601-RSH-014	SB-17	2-4	10/16/01	9:10	Chromium, Copper, Arsenic	
S-17087-101601-RSH-015	SB-17	4-6	10/16/01	9:20	Chromium, Copper, Arsenic	
S-17087-101601-RSH-016	SB-17	6-8	10/16/01	9:28	Chromium, Copper, Arsenic	
S-17087-101601-RSH-017	SB-17	8-10	10/16/01	9:45	Chromium, Copper, Arsenic	
S-17087-101601-RSH-018	SB-17	10-12	10/16/01	9:50	Chromium, Copper, Arsenic	
S-17087-101601-RSH-019	SB-21	0-2	10/16/01	10:15	Chromium, Copper, Arsenic	
S-17087-101601-RSH-020	SB-21	2-4	10/16/01	10:20	Chromium, Copper, Arsenic	
S-17087-101601-RSH-021	SB-21	4-6	10/16/01	10:40	Chromium, Copper, Arsenic	
S-17087-101601-RSH-022	SB-21	6-8	10/16/01	10:45	Chromium, Copper, Arsenic	
S-17087-101601-RSH-023	SB-21	8-10	10/16/01	11:05	Chromium, Copper, Arsenic	
S-17087-101601-RSH-024	SB-21	10-12	10/16/01	11:10	Chromium, Copper, Arsenic	
S-17087-101601-RSH-025	SB-20	0-2	10/16/01	11:35	Chromium, Copper, Arsenic	

TABLE 1

SAMPLE KEY
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Sample ID	*Location*	*Interval (Ft. BGS)*	*Sample Date*	*Sample Time*	*Analytical Parameters*	*Comment*
S-17087-101601-RSH-026	SB-20	2-4	10/16/01	11:37	Chromium, Copper, Arsenic	
S-17087-101601-RSH-027	SB-20	4-6	10/16/01	11:50	Chromium, Copper, Arsenic	
S-17087-101601-RSH-028	SB-20	8-10	10/16/01	13:30	Chromium, Copper, Arsenic	
S-17087-101601-RSH-029	SB-20	10-12	10/16/01	13:40	Chromium, Copper, Arsenic	
S-17087-101601-RSH-030	SB-22	0-2	10/16/01	14:10	Chromium, Copper, Arsenic	
S-17087-101601-RSH-031	SB-22	2-4	10/16/01	14:20	Chromium, Copper, Arsenic	
S-17087-101601-RSH-032	SB-22	4-6	10/16/01	14:25	Chromium, Copper, Arsenic	
S-17087-101601-RSH-033	SB-22	6-8	10/16/01	14:30	Chromium, Copper, Arsenic	
S-17087-101601-RSH-034	SB-22	8-10	10/16/01	14:45	Chromium, Copper, Arsenic	
S-17087-101601-RSH-035	SB-22	10-12	10/16/01	14:47	Chromium, Copper, Arsenic	
S-17087-101601-RSH-036	SB-23	0-2	10/16/01	15:10	Chromium, Copper, Arsenic	
S-17087-101601-RSH-037	SB-23	2-4	10/16/01	15:15	Chromium, Copper, Arsenic	
S-17087-101601-RSH-038	SB-23	4-6	10/16/01	15:25	Chromium, Copper, Arsenic	
S-17087-101601-RSH-039	SB-23	6-8	10/16/01	15:30	Chromium, Copper, Arsenic	
S-17087-101601-RSH-040	SB-23	8-10	10/16/01	15:50	Chromium, Copper, Arsenic	
S-17087-101601-RSH-041	SB-23	10-12	10/16/01	15:58	Chromium, Copper, Arsenic	
S-17087-101701-RSH-042	SB-29	0-2	10/17/01	7:30	TCL VOCs, TCL SVOCs, TCL Pest/PCBs, TAL Metals, Cyanide	
S-17087-101701-RSH-043	SB-28	0-2	10/17/01	7:50	TCL VOCs, TCL SVOCs, TCL Pest/PCBs, TAL Metals, Cyanide	
S-17087-101701-RSH-044	SB-28	0-2	10/17/01	8:05	TCL VOCs, TCL SVOCs, TCL Pest/PCBs, TAL Metals, Cyanide	Field Duplicate of -043
S-17087-101701-RSH-045	SB-11	0-2	10/17/01	8:20	RCRA TCLP	
S-17087-101701-RSH-046	SB-24	0-2	10/17/01	9:00	TCL VOCs, Chromium, Copper, Arsenic	
S-17087-101701-RSH-047	SB-24	2-4	10/17/01	9:05	TCL VOCs, Chromium, Copper, Arsenic	
S-17087-101701-RSH-048	SB-24	4-6	10/17/01	9:20	Chromium, Copper, Arsenic	
S-17087-101701-RSH-049	SB-24	6-8	10/17/01	9:22	Chromium, Copper, Arsenic	

TABLE 1

SAMPLE KEY
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Sample ID	*Location*	*Interval (Ft. BGS)*	*Sample Date*	*Sample Time*	*Analytical Parameters*	*Comment*
S-17087-101701-RSH-050	SB-24	8-10	10/17/01	9:40	TCL VOCs, Chromium, Copper, Arsenic	
S-17087-101701-RSH-051	SB-24	10-12	10/17/01	9:42	Chromium, Copper, Arsenic	
S-17087-101701-RSH-052	SB-27	0-2	10/17/01	10:10	TCL VOCs, TCL SVOCs, TCL Pest/PCBs, TAL Metals, Cyanide	
S-17087-101701-RSH-053	SB-5	0-4	10/17/01	10:50	RCRA TCLP	
S-17087-101701-RSH-054	SB-26	0-2	10/17/01	11:05	Chromium, Copper, Arsenic	
S-17087-101701-RSH-055	SB-26	2-4	10/17/01	11:10	Chromium, Copper, Arsenic	
S-17087-101701-RSH-056	SB-26	4-6	10/17/01	11:20	TCL VOCs, Chromium, Copper, Arsenic	
S-17087-101701-RSH-057	SB-26	6-8	10/17/01	11:25	TCL VOCs, Chromium, Copper, Arsenic	
S-17087-101701-RSH-058	SB-26	8-10	10/17/01	11:37	TCL VOCs, Chromium, Copper, Arsenic	
S-17087-101701-RSH-059	SB-26	10-12	10/17/01	11:42	TCL VOCs, Chromium, Copper, Arsenic	
S-17087-101701-RSH-060	SB-30	0-2	10/17/01	13:15	RCRA TCLP, Chromium, Copper, Arsenic	
S-17087-101701-RSH-061	SB-30	2-4	10/17/01	13:20	Chromium, Copper, Arsenic	
S-17087-101701-RSH-062	SB-30	4-6	10/17/01	13:35	Chromium, Copper, Arsenic	
S-17087-101701-RSH-063	SB-30	6-8	10/17/01	13:37	Chromium, Copper, Arsenic	
S-17087-101701-RSH-064	SB-30	8-10	10/17/01	13:43	Chromium, Copper, Arsenic	
S-17087-101701-RSH-065	SB-30	10-12	10/17/01	13:50	Chromium, Copper, Arsenic	
S-17087-101701-RSH-066	SB-25	0-2	10/17/01	14:05	Chromium, Copper, Arsenic	
S-17087-101701-RSH-067	SB-25	2-4	10/17/01	14:10	Chromium, Copper, Arsenic	
S-17087-101701-RSH-068	SB-25	4-6	10/17/01	14:20	Chromium, Copper, Arsenic	
S-17087-101701-RSH-069	SB-25	6-8	10/17/01	14:25	Chromium, Copper, Arsenic	
S-17087-101701-RSH-070	SB-25	8-10	10/17/01	14:40	Chromium, Copper, Arsenic	
S-17087-101701-RSH-071	SB-25	10-12	10/17/01	14:45	Chromium, Copper, Arsenic	
S-17087-101701-RSH-072	SB-31	0-2	10/17/01	15:05	Chromium, Copper, Arsenic	
S-17087-101701-RSH-073	SB-31	2-4	10/17/01	15:08	Chromium, Copper, Arsenic	
S-17087-101701-RSH-074	SB-31	4-6	10/17/01	15:15	Chromium, Copper, Arsenic	

TABLE 1

SAMPLE KEY
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Sample ID	*Location*	*Interval (Ft. BGS)*	*Sample Date*	*Sample Time*	*Analytical Parameters*	*Comment*
S-17087-101701-RSH-075	SB-31	6-8	10/17/01	15:17	Chromium, Copper, Arsenic	
S-17087-101701-RSH-076	SB-31	8-10	10/17/01	15:30	Chromium, Copper, Arsenic	
S-17087-101701-RSH-077	SB-31	10-12	10/17/01	15:35	Chromium, Copper, Arsenic	
C-17087-101701-RSH-078	Concrete	NA	10/17/01	16:15	RCRA TCLP	
W-17087-101801-RSH-079	ML-2R	NA	10/18/01	10:00	TCL VOCs, TCL SVOCs, TAL Metals (Total and Dissolved), Cyanide (Total and Dissolved)	
Trip Blank	NA	NA	10/18/01	10:00	TCL VOCs	

Notes:

Ft. BGS	Feet Below Ground Surface.
MS	Matrix Spike.
MSD	Matrix Spike Duplicate.
NA	Not Applicable.
PCBs	Polychlorinated Biphenyls.
Pest	Pesticides.
RCRA	Resource Conservation and Recovery Act.
SVOCs	Semi-Volatile Organic Compounds.
TCL	Target Compound List.
TCLP	Toxicity Characteristic Leaching Procedure.
VOCs	Volatile Organic Compounds.

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*SB-27*	*SB-28*	*SB-28*	*SB-29*	*SB-24*	*SB-24*
	Sample ID:	*S-17087-101701-RSH-052*	*S-17087-101701-RSH-043*	*S-17087-101701-RSH-044*	*S-17087-101701-RSH-042*	*S-17087-101701-RSH-046*	*S-17087-101701-RSH-047*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(2-4)*
Parameters	*Units*			*Duplicate*			
Metals							
Aluminum	mg/Kg	4550	3380	3210	3300	-	-
Antimony	mg/Kg	7.6 UJ	7 U	6.4 U	6.5 U	-	-
Arsenic	mg/Kg	114 J	37.6 J	96.1 J	69.2 J	-	-
Barium	mg/Kg	18.7	19.4	21.9	18.5	-	-
Beryllium	mg/Kg	0.63 U	0.44	0.45 U	0.40 U	-	-
Cadmium	mg/Kg	0.13	0.11	0.26	0.11	-	-
Calcium	mg/Kg	3750	5100 J	31600 J	9230 J	-	-
Chromium	mg/Kg	62.4 J	24.3 J	57.8 J	28.1 J	-	-
Cobalt	mg/Kg	3.7	2.7	2.7	2.6	-	-
Copper	mg/Kg	43.8	40.4 J	133 J	37.9 J	-	-
Iron	mg/Kg	10700	6800	7310	7250	-	-
Lead	mg/Kg	8.6	25.0 J	25.1 J	63.8 J	-	-
Magnesium	mg/Kg	1810	1750 J	4970 J	2170 J	-	-
Manganese	mg/Kg	227 J	140	205	168	-	-
Mercury	mg/Kg	0.049	0.041	0.036 U	0.014	-	-
Nickel	mg/Kg	7.6	5.8	5.8	6.0	-	-
Potassium	mg/Kg	343 J	265 J	228 J	261 J	-	-
Selenium	mg/Kg	0.63 U	0.58 U	0.54 U	0.54 U	-	-
Silver	mg/Kg	1.3 U	1.2 U	1.1 U	1.1 U	-	-
Sodium	mg/Kg	80.5 U	98.2 U	84.0 U	78.5 U	-	-
Thallium	mg/Kg	0.79 U	0.79 U	1.1 U	0.85 U	-	-
Vanadium	mg/Kg	12.9	7.6	7.9	7.7	-	-
Zinc	mg/Kg	118	121	142	45.0	-	-
PCBs							
Aroclor-1016 (PCB-1016)	ug/Kg	42 U	39 U	35 U	36 U	-	-
Aroclor-1221 (PCB-1221)	ug/Kg	42 U	39 U	35 U	36 U	-	-
Aroclor-1232 (PCB-1232)	ug/Kg	42 U	39 U	35 U	36 U	-	-
Aroclor-1242 (PCB-1242)	ug/Kg	42 U	39 U	35 U	36 U	-	-
Aroclor-1248 (PCB-1248)	ug/Kg	42 U	39 U	35 U	36 U	-	-
Aroclor-1254 (PCB-1254)	ug/Kg	42 U	39 U	35 U	36 U	-	-
Aroclor-1260 (PCB-1260)	ug/Kg	42 U	39 U	35 U	36 U	-	-

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	***SB-27***	***SB-28***	***SB-28***	***SB-29***	***SB-24***	***SB-24***
	Sample ID:	***S-17087-101701-RSH-052***	***S-17087-101701-RSH-043***	***S-17087-101701-RSH-044***	***S-17087-101701-RSH-042***	***S-17087-101701-RSH-046***	***S-17087-101701-RSH-047***
	Sample Date:	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
	Sample Depth:	***(0-2)***	***(0-2)***	***(0-2)***	***(0-2)***	***(0-2)***	***(2-4)***
Parameters	***Units***			***Duplicate***			
Pesticides							
4,4'-DDD	ug/Kg	2.1 U	0.40 U	0.45 U	0.63 J	-	-
4,4'-DDE	ug/Kg	2.1 U	0.63 U	0.37 U	1.3 J	-	-
4,4'-DDT	ug/Kg	0.76 U	0.41 U	0.51 U	0.50 U	-	-
Aldrin	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
alpha-BHC	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
alpha-Chlordane	ug/Kg	0.15 U	3.3 J	1.4 J	6.1	-	-
beta-BHC	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
delta-BHC	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
Dieldrin	ug/Kg	0.36 J	2.0 U	1.8 U	0.82 J	-	-
Endosulfan I	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
Endosulfan II	ug/Kg	0.70 J	0.61 J	0.67 J	0.39 J	-	-
Endosulfan sulfate	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
Endrin	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
Endrin aldehyde	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
Endrin ketone	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
gamma-BHC (Lindane)	ug/Kg	2.1 U	2.0 U	1.8 U	1.8 U	-	-
gamma-Chlordane	ug/Kg	2.1 U	3.4 J	1.3 J	5.2	-	-
Heptachlor	ug/Kg	0.16 U	2.0 U	1.8 U	1.8 U	-	-
Heptachlor epoxide	ug/Kg	2.1 U	0.17 U	0.22 J	0.31 U	-	-
Methoxychlor	ug/Kg	21 U	20 U	18 U	18 U	-	-
Toxaphene	ug/Kg	85 U	78 U	72 U	72 U	-	-
Semi-Volatiles							
2,2'-oxybis(1-Chloropropane)	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
2,4,5-Trichlorophenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
2,4,6-Trichlorophenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
2,4-Dichlorophenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
2,4-Dimethylphenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
2,4-Dinitrophenol	ug/Kg	2000 U	1900 UJ	8600 UJ	1700 U	-	-
2,4-Dinitrotoluene	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
2,6-Dinitrotoluene	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
2-Chloronaphthalene	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
2-Chlorophenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*SB-27*	*SB-28*	*SB-28*	*SB-29*	*SB-24*	*SB-24*
	Sample ID:	*S-17087-101701-RSH-052*	*S-17087-101701-RSH-043*	*S-17087-101701-RSH-044*	*S-17087-101701-RSH-042*	*S-17087-101701-RSH-046*	*S-17087-101701-RSH-047*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(2-4)*
Parameters	*Units*			*Duplicate*			
Semi-Volatiles (Cont'd.)							
2-Methyl naphthalene	ug/Kg	420 U	390 UJ	6800 J	360 U	-	-
2-Methylphenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
2-Nitroaniline	ug/Kg	2000 U	1900 UJ	8600 UJ	1700 U	-	-
2-Nitrophenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
3,3'-Dichlorobenzidine	ug/Kg	2000 U	1900 UJ	8600 UJ	1700 U	-	-
3-Nitroaniline	ug/Kg	2000 U	1900 UJ	8600 UJ	1700 U	-	-
4,6-Dinitro-2-methylphenol	ug/Kg	2000 U	1900 UJ	8600 UJ	1700 U	-	-
4-Bromophenyl phenyl ether	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
4-Chloro-3-methylphenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
4-Chloroaniline	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
4-Chlorophenyl phenyl ether	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
4-Methylphenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
4-Nitroaniline	ug/Kg	2000 U	1900 UJ	8600 UJ	1700 U	-	-
4-Nitrophenol	ug/Kg	2000 UJ	1900 UJ	8600 UJ	1700 U	-	-
Acenaphthene	ug/Kg	420 U	390 UJ	3100 J	360 U	-	-
Acenaphthylene	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Acetophenone	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Anthracene	ug/Kg	420 U	390 UJ	6900 J	360 U	-	-
Atrazine	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Benzaldehyde	ug/Kg	420 UJ	390 UJ	1800 UJ	360 U	-	-
Benzo(a)anthracene	ug/Kg	420 U	390 UJ	10000 J	99 J	-	-
Benzo(a)pyrene	ug/Kg	420 U	390 UJ	7700 J	78 J	-	-
Benzo(b)fluoranthene	ug/Kg	420 U	390 UJ	7600 J	56 J	-	-
Benzo(g,h,i)perylene	ug/Kg	420 U	390 UJ	3400 J	61 J	-	-
Benzo(k)fluoranthene	ug/Kg	420 U	390 UJ	5400 J	94 J	-	-
Biphenyl	ug/Kg	420 U	390 UJ	560 J	360 U	-	-
bis(2-Chloroethoxy)methane	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
bis(2-Chloroethyl)ether	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
bis(2-Ethylhexyl)phthalate	ug/Kg	44 J	390 UJ	1800 UJ	360 U	-	-
Butyl benzylphthalate	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Caprolactam	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Carbazole	ug/Kg	420 U	390 UJ	3000 J	360 U	-	-
Chrysene	ug/Kg	420 U	390 UJ	11000 J	110 J	-	-

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*SB-27*	*SB-28*	*SB-28*	*SB-29*	*SB-24*	*SB-24*
	Sample ID:	*S-17087-101701-RSH-052*	*S-17087-101701-RSH-043*	*S-17087-101701-RSH-044*	*S-17087-101701-RSH-042*	*S-17087-101701-RSH-046*	*S-17087-101701-RSH-047*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(2-4)*
Parameters	*Units*			*Duplicate*			
Semi-Volatile (Cont'd.)							
Dibenz(a,h)anthracene	ug/Kg	420 U	390 UJ	1900 J	360 U	-	-
Dibenzofuran	ug/Kg	420 U	390 UJ	1800 J	360 U	-	-
Diethyl phthalate	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Dimethyl phthalate	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Di-n-butylphthalate	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Di-n-octyl phthalate	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Fluoranthene	ug/Kg	420 U	390 UJ	22000 J	170 J	-	-
Fluorene	ug/Kg	420 U	390 UJ	3400 J	360 U	-	-
Hexachlorobenzene	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Hexachlorobutadiene	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Hexachlorocyclopentadiene	ug/Kg	2000 U	1900 UJ	8600 UJ	1700 U	-	-
Hexachloroethane	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Indeno(1,2,3-cd)pyrene	ug/Kg	420 U	390 UJ	3500 J	56 J	-	-
Isophorone	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Naphthalene	ug/Kg	420 U	390 UJ	7800 J	360 U	-	-
Nitrobenzene	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
N-Nitrosodi-n-propylamine	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
N-Nitrosodiphenylamine	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Pentachlorophenol	ug/Kg	2000 U	1900 UJ	8600 UJ	1700 U	-	-
Phenanthrene	ug/Kg	420 U	390 UJ	28000 J	140 J	-	-
Phenol	ug/Kg	420 U	390 UJ	1800 UJ	360 U	-	-
Pyrene	ug/Kg	420 U	390 UJ	21000 J	170 J	-	-
Volatiles							
1,1,1-Trichloroethane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,1,2,2-Tetrachloroethane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,1,2-Trichloroethane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,1-Dichloroethane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,1-Dichloroethene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,2,4-Trichlorobenzene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/Kg	13 U	12 U	11 U	11 U	11 U	10 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,2-Dichlorobenzene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	***SB-27***	***SB-28***	***SB-28***	***SB-29***	***SB-24***	***SB-24***
	Sample ID:	***S-17087-101701-RSH-052***	***S-17087-101701-RSH-043***	***S-17087-101701-RSH-044***	***S-17087-101701-RSH-042***	***S-17087-101701-RSH-046***	***S-17087-101701-RSH-047***
	Sample Date:	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
	Sample Depth:	***(0-2)***	***(0-2)***	***(0-2)***	***(0-2)***	***(0-2)***	***(2-4)***
Parameters	***Units***			***Duplicate***			
Volatiles (Cont'd.)							
1,2-Dichloroethane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,2-Dichloropropane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,3-Dichlorobenzene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
1,4-Dichlorobenzene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
2-Butanone	ug/Kg	25 U	23 U	21 U	22 U	22 U	21 U
2-Hexanone	ug/Kg	25 U	23 U	21 U	22 U	22 U	21 U
4-Methyl-2-pentanone	ug/Kg	25 UJ	23 UJ	21 UJ	22 UJ	22 UJ	21 UJ
Acetone	ug/Kg	25 UJ	23 UJ	21 UJ	22 UJ	22 UJ	21 UJ
Benzene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Benzene, isopropyl	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Bromodichloromethane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Bromoform	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Bromomethane	ug/Kg	R	R	R	R	R	R
Carbon disulfide	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Carbon tetrachloride	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Chlorobenzene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Chloroethane	ug/Kg	13 U	12 U	11 U	11 U	11 U	10 U
Chloroform (Trichloromethane)	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Chloromethane	ug/Kg	13 U	12 U	11 U	11 U	11 U	10 U
cis-1,2-Dichloroethene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
cis-1,3-Dichloropropene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Cyclohexane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Dibromochloromethane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Dichlorodifluoromethane (CFC-12)	ug/Kg	13 U	12 U	11 U	11 U	11 U	10 U
Ethylbenzene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Methyl acetate	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Methyl cyclohexane	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Methyl Tert Butyl Ether	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Methylene chloride	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Styrene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Tetrachloroethene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	2.3 J	5.2 U
Toluene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U

TABLE

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	***SB-27***	***SB-28***	***SB-28***	***SB-29***	***SB-24***	***SB-24***
	Sample ID:	***S-17087-101701-RSH-052***	***S-17087-101701-RSH-043***	***S-17087-101701-RSH-044***	***S-17087-101701-RSH-042***	***S-17087-101701-RSH-046***	***S-17087-101701-RSH-047***
	Sample Date:	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
	Sample Depth:	***(0-2)***	***(0-2)***	***(0-2)***	***(0-2)***	***(0-2)***	***(2-4)***
Parameters	***Units***			***Duplicate***			
Volatiles (Cont'd.)							
trans-1,2-Dichloroethene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
trans-1,3-Dichloropropene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Trichloroethene	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Trichlorofluoromethane (CFC-11)	ug/Kg	13 UJ	12 UJ	11 UJ	11 UJ	11 UJ	10 UJ
Trifluorotrichloroethane (Freon 113)	ug/Kg	6.3 U	5.8 U	5.4 U	5.4 U	5.5 U	5.2 U
Vinyl chloride	ug/Kg	13 U	12 U	11 U	11 U	11 U	10 U
Xylene (total)	ug/Kg	19 U	18 U	16 U	16 U	17 U	16 U
General Chemistry							
Total Solids	%	79.2	85.6	93.4	92.9		
Cyanide (total)	mg/Kg	0.19 U	0.31 U	0.31 U	0.20 U		

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	SB-24	SB-26	SB-26	SB-26	SB-26
	Sample ID:	S-17087-101701-RSH-050	S-17087-101701-RSH-056	S-17087-101701-RSH-057	S-17087-101701-RSH-058	S-17087-101701-RSH-059
	Sample Date:	10/17/2001	10/17/2001	10/17/2001	10/17/2001	10/17/2001
	Sample Depth:	(8-10)	(4-6)	(6-8)	(8-10)	(10-12)
Parameters	*Units*					
Metals						
Aluminum	mg/Kg	-	-	-	-	-
Antimony	mg/Kg	-	-	-	-	-
Arsenic	mg/Kg	-	-	-	-	-
Barium	mg/Kg	-	-	-	-	-
Beryllium	mg/Kg	-	-	-	-	-
Cadmium	mg/Kg	-	-	-	-	-
Calcium	mg/Kg	-	-	-	-	-
Chromium	mg/Kg	-	-	-	-	-
Cobalt	mg/Kg	-	-	-	-	-
Copper	mg/Kg	-	-	-	-	-
Iron	mg/Kg	-	-	-	-	-
Lead	mg/Kg	-	-	-	-	-
Magnesium	mg/Kg	-	-	-	-	-
Manganese	mg/Kg	-	-	-	-	-
Mercury	mg/Kg	-	-	-	-	-
Nickel	mg/Kg	-	-	-	-	-
Potassium	mg/Kg	-	-	-	-	-
Selenium	mg/Kg	-	-	-	-	-
Silver	mg/Kg	-	-	-	-	-
Sodium	mg/Kg	-	-	-	-	-
Thallium	mg/Kg	-	-	-	-	-
Vanadium	mg/Kg	-	-	-	-	-
Zinc	mg/Kg	-	-	-	-	-
PCBs						
Aroclor-1016 (PCB-1016)	ug/Kg	-	-	-	-	-
Aroclor-1221 (PCB-1221)	ug/Kg	-	-	-	-	-
Aroclor-1232 (PCB-1232)	ug/Kg	-	-	-	-	-
Aroclor-1242 (PCB-1242)	ug/Kg	-	-	-	-	-
Aroclor-1248 (PCB-1248)	ug/Kg	-	-	-	-	-
Aroclor-1254 (PCB-1254)	ug/Kg	-	-	-	-	-
Aroclor-1260 (PCB-1260)	ug/Kg	-	-	-	-	-

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*SB-24*	*SB-26*	*SB-26*	*SB-26*	*SB-26*
	Sample ID:	*S-17087-101701-RSH-050*	*S-17087-101701-RSH-056*	*S-17087-101701-RSH-057*	*S-17087-101701-RSH-058*	*S-17087-101701-RSH-059*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(8-10)*	*(4-6)*	*(6-8)*	*(8-10)*	*(10-12)*
Parameters	***Units***					
Pesticides						
4,4'-DDD	ug/Kg	-	-	-	-	-
4,4'-DDE	ug/Kg	-	-	-	-	-
4,4'-DDT	ug/Kg	-	-	-	-	-
Aldrin	ug/Kg	-	-	-	-	-
alpha-BHC	ug/Kg	-	-	-	-	-
alpha-Chlordane	ug/Kg	-	-	-	-	-
beta-BHC	ug/Kg	-	-	-	-	-
delta-BHC	ug/Kg	-	-	-	-	-
Dieldrin	ug/Kg	-	-	-	-	-
Endosulfan I	ug/Kg	-	-	-	-	-
Endosulfan II	ug/Kg	-	-	-	-	-
Endosulfan sulfate	ug/Kg	-	-	-	-	-
Endrin	ug/Kg	-	-	-	-	-
Endrin aldehyde	ug/Kg	-	-	-	-	-
Endrin ketone	ug/Kg	-	-	-	-	-
gamma-BHC (Lindane)	ug/Kg	-	-	-	-	-
gamma-Chlordane	ug/Kg	-	-	-	-	-
Heptachlor	ug/Kg	-	-	-	-	-
Heptachlor epoxide	ug/Kg	-	-	-	-	-
Methoxychlor	ug/Kg	-	-	-	-	-
Toxaphene	ug/Kg	-	-	-	-	-
Semi-Volatiles						
2,2'-oxybis(1-Chloropropane)	ug/Kg	-	-	-	-	-
2,4,5-Trichlorophenol	ug/Kg	-	-	-	-	-
2,4,6-Trichlorophenol	ug/Kg	-	-	-	-	-
2,4-Dichlorophenol	ug/Kg	-	-	-	-	-
2,4-Dimethylphenol	ug/Kg	-	-	-	-	-
2,4-Dinitrophenol	ug/Kg	-	-	-	-	-
2,4-Dinitrotoluene	ug/Kg	-	-	-	-	-
2,6-Dinitrotoluene	ug/Kg	-	-	-	-	-
2-Chloronaphthalene	ug/Kg	-	-	-	-	-
2-Chlorophenol	ug/Kg	-	-	-	-	-

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	**SB-24**	**SB-26**	**SB-26**	**SB-26**	**SB-26**
	Sample ID:	**S-17087-101701-RSH-050**	**S-17087-101701-RSH-056**	**S-17087-101701-RSH-057**	**S-17087-101701-RSH-058**	**S-17087-101701-RSH-059**
	Sample Date:	**10/17/2001**	**10/17/2001**	**10/17/2001**	**10/17/2001**	**10/17/2001**
	Sample Depth:	**(8-10)**	**(4-6)**	**(6-8)**	**(8-10)**	**(10-12)**
Parameters	***Units***					
Semi-Volatiles (Cont'd.)						
2-Methyl naphthalene	ug/Kg	-	-	-	-	-
2-Methylphenol	ug/Kg	-	-	-	-	-
2-Nitroaniline	ug/Kg	-	-	-	-	-
2-Nitrophenol	ug/Kg	-	-	-	-	-
3,3'-Dichlorobenzidine	ug/Kg	-	-	-	-	-
3-Nitroaniline	ug/Kg	-	-	-	-	-
4,6-Dinitro-2-methylphenol	ug/Kg	-	-	-	-	-
4-Bromophenyl phenyl ether	ug/Kg	-	-	-	-	-
4-Chloro-3-methylphenol	ug/Kg	-	-	-	-	-
4-Chloroaniline	ug/Kg	-	-	-	-	-
4-Chlorophenyl phenyl ether	ug/Kg	-	-	-	-	-
4-Methylphenol	ug/Kg	-	-	-	-	-
4-Nitroaniline	ug/Kg	-	-	-	-	-
4-Nitrophenol	ug/Kg	-	-	-	-	-
Acenaphthene	ug/Kg	-	-	-	-	-
Acenaphthylene	ug/Kg	-	-	-	-	-
Acetophenone	ug/Kg	-	-	-	-	-
Anthracene	ug/Kg	-	-	-	-	-
Atrazine	ug/Kg	-	-	-	-	-
Benzaldehyde	ug/Kg	-	-	-	-	-
Benzo(a)anthracene	ug/Kg	-	-	-	-	-
Benzo(a)pyrene	ug/Kg	-	-	-	-	-
Benzo(b)fluoranthene	ug/Kg	-	-	-	-	-
Benzo(g,h,i)perylene	ug/Kg	-	-	-	-	-
Benzo(k)fluoranthene	ug/Kg	-	-	-	-	-
Biphenyl	ug/Kg	-	-	-	-	-
bis(2-Chloroethoxy)methane	ug/Kg	-	-	-	-	-
bis(2-Chloroethyl)ether	ug/Kg	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	ug/Kg	-	-	-	-	-
Butyl benzylphthalate	ug/Kg	-	-	-	-	-
Caprolactam	ug/Kg	-	-	-	-	-
Carbazole	ug/Kg	-	-	-	-	-
Chrysene	ug/Kg	-	-	-	-	-

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	***SB-24***	***SB-26***	***SB-26***	***SB-26***	***SB-26***
	Sample ID:	***S-17087-101701-RSH-050***	***S-17087-101701-RSH-056***	***S-17087-101701-RSH-057***	***S-17087-101701-RSH-058***	***S-17087-101701-RSH-059***
	Sample Date:	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
	Sample Depth:	***(8-10)***	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***
Parameters	***Units***					
Semi-Volatile (Cont'd.)						
Dibenz(a,h)anthracene	ug/Kg	-	-	-	-	-
Dibenzofuran	ug/Kg	-	-	-	-	-
Diethyl phthalate	ug/Kg	-	-	-	-	-
Dimethyl phthalate	ug/Kg	-	-	-	-	-
Di-n-butylphthalate	ug/Kg	-	-	-	-	-
Di-n-octyl phthalate	ug/Kg	-	-	-	-	-
Fluoranthene	ug/Kg	-	-	-	-	-
Fluorene	ug/Kg	-	-	-	-	-
Hexachlorobenzene	ug/Kg	-	-	-	-	-
Hexachlorobutadiene	ug/Kg	-	-	-	-	-
Hexachlorocyclopentadiene	ug/Kg	-	-	-	-	-
Hexachloroethane	ug/Kg	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	ug/Kg	-	-	-	-	-
Isophorone	ug/Kg	-	-	-	-	-
Naphthalene	ug/Kg	-	-	-	-	-
Nitrobenzene	ug/Kg	-	-	-	-	-
N-Nitrosodi-n-propylamine	ug/Kg	-	-	-	-	-
N-Nitrosodiphenylamine	ug/Kg	-	-	-	-	-
Pentachlorophenol	ug/Kg	-	-	-	-	-
Phenanthrene	ug/Kg	-	-	-	-	-
Phenol	ug/Kg	-	-	-	-	-
Pyrene	ug/Kg	-	-	-	-	-
Volatiles						
1,1,1-Trichloroethane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,1,2,2-Tetrachloroethane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,1,2-Trichloroethane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,1-Dichloroethane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,1-Dichloroethene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,2,4-Trichlorobenzene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/Kg	11 U	11 U	11 U	11 U	11 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,2-Dichlorobenzene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	***SB-24***	***SB-26***	***SB-26***	***SB-26***	***SB-26***
	Sample ID:	***S-17087-101701-RSH-050***	***S-17087-101701-RSH-056***	***S-17087-101701-RSH-057***	***S-17087-101701-RSH-058***	***S-17087-101701-RSH-059***
	Sample Date:	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
	Sample Depth:	***(8-10)***	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***
Parameters	***Units***					
Volatiles (Cont'd.)						
1,2-Dichloroethane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,2-Dichloropropane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,3-Dichlorobenzene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
1,4-Dichlorobenzene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
2-Butanone	ug/Kg	21 U	21 U	21 U	21 U	22 U
2-Hexanone	ug/Kg	21 U	21 U	21 U	21 U	22 U
4-Methyl-2-pentanone	ug/Kg	21 UJ	21 UJ	21 UJ	21 UJ	22 UJ
Acetone	ug/Kg	21 UJ	21 UJ	21 UJ	21 UJ	22 UJ
Benzene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Benzene, isopropyl	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Bromodichloromethane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Bromoform	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Bromomethane	ug/Kg	R	R	R	R	R
Carbon disulfide	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Carbon tetrachloride	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Chlorobenzene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Chloroethane	ug/Kg	11 U	11 U	11 U	11 U	11 U
Chloroform (Trichloromethane)	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Chloromethane	ug/Kg	11 U	11 U	11 U	11 U	11 U
cis-1,2-Dichloroethene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
cis-1,3-Dichloropropene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Cyclohexane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Dibromochloromethane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Dichlorodifluoromethane (CFC-12)	ug/Kg	11 U	11 U	11 U	11 U	11 U
Ethylbenzene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Methyl acetate	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Methyl cyclohexane	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Methyl Tert Butyl Ether	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Methylene chloride	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Styrene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Tetrachloroethene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Toluene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOIL SAMPLES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	***SB-24***	***SB-26***	***SB-26***	***SB-26***	***SB-26***
	Sample ID:	***S-17087-101701-RSH-050***	***S-17087-101701-RSH-056***	***S-17087-101701-RSH-057***	***S-17087-101701-RSH-058***	***S-17087-101701-RSH-059***
	Sample Date:	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
	Sample Depth:	***(8-10)***	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***
Parameters	***Units***					
Volatiles (Cont'd.)						
trans-1,2-Dichloroethene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
trans-1,3-Dichloropropene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Trichloroethene	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Trichlorofluoromethane (CFC-11)	ug/Kg	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ
Trifluorotrichloroethane (Freon 113)	ug/Kg	5.3 U	5.4 U	5.4 U	5.4 U	5.4 U
Vinyl chloride	ug/Kg	11 U	11 U	11 U	11 U	11 U
Xylene (total)	ug/Kg	16 U	16 U	16 U	16 U	16 U
General Chemistry						
Total Solids	%					
Cyanide (total)	mg/Kg					

Notes:

J	Estimated.
PCBs	Polychlorinated Biphenyls.
U	Non-detect at associated value.

TABLE 2B

ANALYTICAL RESULTS SUMMARY - TCLP RESULTS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*Concrete*	*SB-30*	*SB-5*	*SB-11*
	Sample ID:	*C-17087-101701-RSH-078*	*S-17087-101701-RSH-060*	*S-17087-101701-RSH-053*	*S-17087-101701-RSH-045*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:		*(0-2)*	*(0-4)*	*(0-2)*
Parameters	***Units***				
Herbicides TCLP					
2,4,5-TP (Silvex)	mg/L	0.010 U	0.010 U	0.010 U	0.010 U
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	0.040 U	0.040 U	0.040 U	0.040 U
Metals - TCLP					
Arsenic	mg/L	0.50 U	1.5	1.3	0.50 U
Barium	mg/L	10.0 U	10.0 U	10.0 U	10.0 U
Cadmium	mg/L	0.10 U	0.10 U	0.10 U	0.10 U
Chromium	mg/L	1.4	0.50 U	0.50 U	0.50 U
Lead	mg/L	0.50 U	0.50 U	0.50 U	0.50 U
Selenium	mg/L	0.25 U	0.25 U	0.25 U	0.25 U
Silver	mg/L	0.50 U	0.50 U	0.50 U	0.50 U
Mercury	mg/L	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Pesticides - TCLP					
Chlordane	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Endrin	mg/L	0.00050 U	0.00050 U	0.00050 U	0.00050 U
gamma-BHC (Lindane)	mg/L	0.00050 U	0.00050 U	0.00050 U	0.00050 U
Heptachlor	mg/L	0.00050 U	0.00050 U	0.00050 U	0.00050 U
Heptachlor epoxide	mg/L	0.00050 U	0.00050 U	0.00050 U	0.00050 U
Methoxychlor	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U
Toxaphene	mg/L	0.020 U	0.020 U	0.020 U	0.020 U
RCRA Characteristics					
Ignitability	deg f	neg	neg	neg	neg
Reactive Cyanide	mg/Kg	200 U	200 U	200 U	200 U
Reactive Sulfide	mg/Kg	200 U	200 U	200 U	200 U

TABLE 2B

ANALYTICAL RESULTS SUMMARY - TCLP RESULTS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*Concrete*	*SB-30*	*SB-5*	*SB-11*
	Sample ID:	*C-17087-101701-RSH-078*	*S-17087-101701-RSH-060*	*S-17087-101701-RSH-053*	*S-17087-101701-RSH-045*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:		*(0-2)*	*(0-4)*	*(0-2)*
Parameters	*Units*				
Semi-Volatiles - TCLP					
1,4-Dichlorobenzene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
2,4,5-Trichlorophenol	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
2,4,6-Trichlorophenol	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
2,4-Dinitrotoluene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Hexachlorobenzene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Hexachlorobutadiene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Hexachloroethane	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Methylphenol (Cresol)	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Nitrobenzene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Pentachlorophenol	mg/L	0.25 U	0.25 U	0.25 U	0.25 U
Pyridine	mg/L	0.10 U	0.10 U	0.10 U	0.10 U
Volatiles - TCLP					
1,1-Dichloroethene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
1,2-Dichloroethane	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
2-Butanone	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Benzene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Carbon tetrachloride	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Chlorobenzene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Chloroform (Trichloromethane)	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Tetrachloroethene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Trichloroethene	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
Vinyl chloride	mg/L	0.050 U	0.050 U	0.050 U	0.050 U
General Chemistry					
pH Field	s.u.	12.5		7.0	7.5

Notes:

neg	Negative.
RCRA	Resource Conservation and Recovery Act.
TCLP	Toxicity Characteristic Leaching Procedure.
U	Non-detect at associated value.

TABLE 2C

ANALYTICAL RESULTS SUMMARY - METALS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	***SB-17***	***SB-17***	***SB-17***	***SB-17***	***SB-17***
	Sample ID:	***S-17087-101601-RSH-013***	***S-17087-101601-RSH-014***	***S-17087-101601-RSH-015***	***S-17087-101601-RSH-016***	***S-17087-101601-RSH-017***
	Sample Date:	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***
	Sample Depth:	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***	***(8-10)***
Parameters	***Units***					
Metals						
Arsenic	mg/Kg	43.7	1.8	1.6	1.7	2.7
Chromium	mg/Kg	167	24.4	19.3	14.6	25.0
Copper	mg/Kg	17.8	4.9	6.1	6.7	11.7

	Sample Location:	***SB-17***	***SB-18***	***SB-18***	***SB-18***	***SB-18***
	Sample ID:	***S-17087-101601-RSH-018***	***S-17087-101601-RSH-007***	***S-17087-101601-RSH-008***	***S-17087-101601-RSH-009***	***S-17087-101601-RSH-010***
	Sample Date:	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***
	Sample Depth:	***(10-12)***	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***
Metals						
Arsenic	mg/Kg	2.6	419	158	6.1	2.5
Chromium	mg/Kg	17.4	122	456	105	46.0
Copper	mg/Kg	8.6	10.7	5.4	6.2	9.5

	Sample Location:	***SB-18***	***SB-18***	***SB-19***	***SB-19***	***SB-19***
	Sample ID:	***S-17087-101601-RSH-011***	***S-17087-101601-RSH-012***	***S-17087-101501-RSH-001***	***S-17087-101501-RSH-002***	***S-17087-101501-RSH-003***
	Sample Date:	***10/16/2001***	***10/16/2001***	***10/15/2001***	***10/15/2001***	***10/15/2001***
	Sample Depth:	***(8-10)***	***(10-12)***	***(0-2)***	***(2-4)***	***(4-6)***
Metals						
Arsenic	mg/Kg	186	2.5	94.4	1.6	2.0
Chromium	mg/Kg	188	43.3	44.1	111	90.6
Copper	mg/Kg	10.4	10.8	15.2	3.0	6.4

TABLE 2C

ANALYTICAL RESULTS SUMMARY - METALS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	***SB-19***	***SB-19***	***SB-19***	***SB-20***	***SB-20***
	Sample ID:	***S-17087-101501-RSH-004***	***S-17087-101501-RSH-005***	***S-17087-101501-RSH-006***	***S-17087-101601-RSH-025***	***S-17087-101601-RSH-026***
	Sample Date:	***10/15/2001***	***10/15/2001***	***10/15/2001***	***10/16/2001***	***10/16/2001***
	Sample Depth:	***(6-8)***	***(8-10)***	***(10-12)***	***(0-2)***	***(2-4)***
Parameters	***Units***					
Metals						
Arsenic	mg/Kg	1.6	1.4	2.5	113	5.2
Chromium	mg/Kg	30.3	31.4	26.1	84.7	33.9
Copper	mg/Kg	6.0	6.1	8.5	12.6	5.3

	Sample Location:	***SB-20***	***SB-20***	***SB-20***	***SB-21***	***SB-21***
	Sample ID:	***S-17087-101601-RSH-027***	***S-17087-101601-RSH-028***	***S-17087-101601-RSH-029***	***S-17087-101601-RSH-019***	***S-17087-101601-RSH-020***
	Sample Date:	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***
	Sample Depth:	***(4-6)***	***(8-10)***	***(10-12)***	***(0-2)***	***(2-4)***
Metals						
Arsenic	mg/Kg	1.5	1.7	1.5	535	160
Chromium	mg/Kg	9.3	9.3	10.1	705	82.7
Copper	mg/Kg	5.8	6.0	5.1	22.0	9.1

	Sample Location:	***SB-21***	***SB-21***	***SB-21***	***SB-21***	***SB-22***
	Sample ID:	***S-17087-101601-RSH-021***	***S-17087-101601-RSH-022***	***S-17087-101601-RSH-023***	***S-17087-101601-RSH-024***	***S-17087-101601-RSH-030***
	Sample Date:	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***
	Sample Depth:	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***	***(0-2)***
Metals						
Arsenic	mg/Kg	1.5	1.6	2.5	2.5	2.3
Chromium	mg/Kg	32.5	29.4	37.6	16.8	12.0
Copper	mg/Kg	5.9	6.2	10.1	10.3	8.5

TABLE 2C

ANALYTICAL RESULTS SUMMARY - METALS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	***SB-22***	***SB-22***	***SB-22***	***SB-22***	***SB-22***
	Sample ID:	***S-17087-101601-RSH-031***	***S-17087-101601-RSH-032***	***S-17087-101601-RSH-033***	***S-17087-101601-RSH-034***	***S-17087-101601-RSH-035***
	Sample Date:	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***
	Sample Depth:	***(2-4)***	***(4-6)***	***(6-8)***	***(8-10)***	***(10-12)***
Parameters	***Units***					
Metals						
Arsenic	mg/Kg	1.6	1.4	1.7	1.7	1.8
Chromium	mg/Kg	10.5	5.2	5.2	4.9	5.0
Copper	mg/Kg	4.8	5.6	6.3	7.9	8.1

	Sample Location:	***SB-23***	***SB-23***	***SB-23***	***SB-23***	***SB-23***
	Sample ID:	***S-17087-101601-RSH-036***	***S-17087-101601-RSH-037***	***S-17087-101601-RSH-038***	***S-17087-101601-RSH-039***	***S-17087-101601-RSH-040***
	Sample Date:	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***	***10/16/2001***
	Sample Depth:	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***	***(8-10)***
Metals						
Arsenic	mg/Kg	106	46.6	100	3.4	2.1
Chromium	mg/Kg	23.3	7.6	7.1	6.6	5.1
Copper	mg/Kg	6.0	5.2	6.2	8.7	8.0

	Sample Location:	***SB-23***	***SB-24***	***SB-24***	***SB-24***	***SB-24***
	Sample ID:	***S-17087-101601-RSH-041***	***S-17087-101701-RSH-046***	***S-17087-101701-RSH-047***	***S-17087-101701-RSH-048***	***S-17087-101701-RSH-049***
	Sample Date:	***10/16/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***	***10/17/2001***
	Sample Depth:	***(10-12)***	***(0-2)***	***(2-4)***	***(4-6)***	***(6-8)***
Metals						
Arsenic	mg/Kg	1.8 J	414 J	439 J	142 J	160 J
Chromium	mg/Kg	5.6	234 J	226 J	22.9 J	10.3 J
Copper	mg/Kg	7.2	329	449	6.9	6.5

TABLE 2C

ANALYTICAL RESULTS SUMMARY - METALS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*SB-24*	*SB-24*	*SB-25*	*SB-25*	*SB-25*
	Sample ID:	*S-17087-101701-RSH-050*	*S-17087-101701-RSH-051*	*S-17087-101701-RSH-066*	*S-17087-101701-RSH-067*	*S-17087-101701-RSH-068*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(8-10)*	*(10-12)*	*(0-2)*	*(2-4)*	*(4-6)*
Parameters	***Units***					
Metals						
Arsenic	mg/Kg	85.6 J	116 J	30.7 J	4.3 J	1.7 J
Chromium	mg/Kg	13.2 J	20.4 J	6.4	6.9	4.5
Copper	mg/Kg	8.5	10.9	6.5	6.3	5.2

	Sample Location:	*SB-25*	*SB-25*	*SB-25*	*SB-26*	*SB-26*
	Sample ID:	*S-17087-101701-RSH-069*	*S-17087-101701-RSH-070*	*S-17087-101701-RSH-071*	*S-17087-101701-RSH-054*	*S-17087-101701-RSH-055*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(6-8)*	*(8-10)*	*(10-12)*	*(0-2)*	*(2-4)*
Metals						
Arsenic	mg/Kg	1.5 J	153 J	2.0 J	118 J	42.7 J
Chromium	mg/Kg	4.1	80.1	4.5	120	19.8
Copper	mg/Kg	5.0	10.0	7.2	8.9	10.4

	Sample Location:	*SB-26*	*SB-26*	*SB-26*	*SB-26*	*SB-30*
	Sample ID:	*S-17087-101701-RSH-056*	*S-17087-101701-RSH-057*	*S-17087-101701-RSH-058*	*S-17087-101701-RSH-059*	*S-17087-101701-RSH-060*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(4-6)*	*(6-8)*	*(8-10)*	*(10-12)*	*(0-2)*
Metals						
Arsenic	mg/Kg	52.9 J	128 J	87.1 J	83.1 J	162
Chromium	mg/Kg	38.2 J	15.8 J	11.3 J	21.4 J	90.6
Copper	mg/Kg	6.9	8.3	8.2	9.2	7.9

TABLE 2C

ANALYTICAL RESULTS SUMMARY - METALS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*SB-30*	*SB-30*	*SB-30*	*SB-30*	*SB-30*
	Sample ID:	*S-17087-101701-RSH-061*	*S-17087-101701-RSH-062*	*S-17087-101701-RSH-063*	*S-17087-101701-RSH-064*	*S-17087-101701-RSH-065*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(2-4)*	*(4-6)*	*(6-8)*	*(8-10)*	*(10-12)*
Parameters	***Units***					
Metals						
Arsenic	mg/Kg	178 J	139 J	390 J	723 J	1000 J
Chromium	mg/Kg	120	43.4	116	174	224
Copper	mg/Kg	17.7	82.6	642	1250	1710

	Sample Location:	*SB-31*	*SB-31*	*SB-31*	*SB-31*
	Sample ID:	*S-17087-101701-RSH-072*	*S-17087-101701-RSH-073*	*S-17087-101701-RSH-074*	*S-17087-101701-RSH-075*
	Sample Date:	*10/17/2001*	*10/17/2001*	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(0-2)*	*(2-4)*	*(4-6)*	*(6-8)*
Metals					
Arsenic	mg/Kg	1.6 J	1.1 J	1.5 J	1.7 J
Chromium	mg/Kg	4.1	4.6	3.6	3.8
Copper	mg/Kg	11.8	3.2	5.5	5.0

	Sample Location:	*SB-31*	*SB-31*
	Sample ID:	*S-17087-101701-RSH-076*	*S-17087-101701-RSH-077*
	Sample Date:	*10/17/2001*	*10/17/2001*
	Sample Depth:	*(8-10)*	*(10-12)*
Metals			
Arsenic	mg/Kg	3.5 J	2.0 J
Chromium	mg/Kg	8.2	4.4
Copper	mg/Kg	15.0	8.1

Notes:

J	Estimated.

TABLE 2D

ANALYTICAL RESULTS SUMMARY - WATER
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*ML-2R*
	Sample ID:	*W-17087-101801-RSH-079*
	Sample Date:	*10/18/2001*
Parameters	*Units*	
Metals		
Aluminum	ug/L	3840
Aluminum (Dissolved)	ug/L	49.6 U
Antimony	ug/L	7.8
Antimony (Dissolved)	ug/L	8.0
Arsenic	ug/L	627
Arsenic (Dissolved)	ug/L	541
Barium	ug/L	79.7
Barium (Dissolved)	ug/L	49.9
Beryllium	ug/L	1.4 U
Beryllium (Dissolved)	ug/L	1.3 U
Cadmium	ug/L	5 U
Cadmium (Dissolved)	ug/L	5 U
Calcium	ug/L	124000
Calcium (Dissolved)	ug/L	122000
Chromium	ug/L	143
Chromium (Dissolved)	ug/L	89.2
Cobalt	ug/L	2.6
Cobalt (Dissolved)	ug/L	50 U
Copper	ug/L	89.6
Copper (Dissolved)	ug/L	5.3
Iron	ug/L	4370
Iron (Dissolved)	ug/L	100 U
Lead	ug/L	3.5
Lead (Dissolved)	ug/L	1.9
Magnesium	ug/L	18800
Magnesium (Dissolved)	ug/L	18100
Manganese	ug/L	449
Manganese (Dissolved)	ug/L	310
Nickel	ug/L	5.3
Nickel (Dissolved)	ug/L	40 U
Potassium	ug/L	3440 J
Potassium (Dissolved)	ug/L	2450 J
Selenium	ug/L	5 U
Selenium (Dissolved)	ug/L	5 U
Silver	ug/L	10 U
Silver (Dissolved)	ug/L	10 U
Sodium	ug/L	165000
Sodium (Dissolved)	ug/L	165000
Thallium	ug/L	10 U
Thallium (Dissolved)	ug/L	10 U
Vanadium	ug/L	8.1
Vanadium (Dissolved)	ug/L	2.0

TABLE 2D

ANALYTICAL RESULTS SUMMARY - WATER
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*ML-2R*
	Sample ID:	*W-17087-101801-RSH-079*
	Sample Date:	*10/18/2001*
Parameters	***Units***	
Metals (Cont'd.)		
Zinc	ug/L	15.1
Zinc (Dissolved)	ug/L	20 U
Mercury	ug/L	0.2 U
Mercury (Dissolved)	ug/L	0.2 U
Semi-Volatiles		
2,2'-oxybis(1-Chloropropane)	ug/L	10 U
2,4,5-Trichlorophenol	ug/L	10 U
2,4,6-Trichlorophenol	ug/L	10 U
2,4-Dichlorophenol	ug/L	10 U
2,4-Dimethylphenol	ug/L	10 U
2,4-Dinitrophenol	ug/L	50 U
2,4-Dinitrotoluene	ug/L	10 U
2,6-Dinitrotoluene	ug/L	10 U
2-Chloronaphthalene	ug/L	10 U
2-Chlorophenol	ug/L	10 U
2-Methyl naphthalene	ug/L	10 U
2-Methylphenol	ug/L	10 U
2-Nitroaniline	ug/L	50 U
2-Nitrophenol	ug/L	10 U
3,3'-Dichlorobenzidine	ug/L	50 U
3-Nitroaniline	ug/L	50 U
4,6-Dinitro-2-methylphenol	ug/L	50 U
4-Bromophenyl phenyl ether	ug/L	10 U
4-Chloro-3-methylphenol	ug/L	10 U
4-Chloroaniline	ug/L	10 U
4-Chlorophenyl phenyl ether	ug/L	10 U
4-Methylphenol	ug/L	10 U
4-Nitroaniline	ug/L	50 U
4-Nitrophenol	ug/L	50 U
Acenaphthene	ug/L	10 U
Acenaphthylene	ug/L	10 U
Acetophenone	ug/L	10 U
Anthracene	ug/L	10 U
Atrazine	ug/L	10 U
Benzaldehyde	ug/L	10 UJ
Benzo(a)anthracene	ug/L	10 U
Benzo(a)pyrene	ug/L	10 U
Benzo(b)fluoranthene	ug/L	10 U
Benzo(g,h,i)perylene	ug/L	10 UJ
Benzo(k)fluoranthene	ug/L	10 U
Biphenyl	ug/L	10 U

TABLE 2D

ANALYTICAL RESULTS SUMMARY - WATER
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*ML-2R*
	Sample ID:	*W-17087-101801-RSH-079*
	Sample Date:	*10/18/2001*
Parameters	*Units*	
Semi-Volatiles (Cont'd.)		
bis(2-Chloroethoxy)methane	ug/L	10 U
bis(2-Chloroethyl)ether	ug/L	10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U
Butyl benzylphthalate	ug/L	10 U
Caprolactam	ug/L	320
Carbazole	ug/L	10 U
Chrysene	ug/L	10 U
Dibenz(a,h)anthracene	ug/L	10 UJ
Dibenzofuran	ug/L	10 U
Diethyl phthalate	ug/L	10 U
Dimethyl phthalate	ug/L	10 U
Di-n-butylphthalate	ug/L	10 U
Di-n-octyl phthalate	ug/L	10 U
Fluoranthene	ug/L	10 U
Fluorene	ug/L	10 U
Hexachlorobenzene	ug/L	10 U
Hexachlorobutadiene	ug/L	10 U
Hexachlorocyclopentadiene	ug/L	50 U
Hexachloroethane	ug/L	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 UJ
Isophorone	ug/L	10 U
Naphthalene	ug/L	10 U
Nitrobenzene	ug/L	10 U
N-Nitrosodi-n-propylamine	ug/L	10 U
N-Nitrosodiphenylamine	ug/L	10 U
Pentachlorophenol	ug/L	50 U
Phenanthrene	ug/L	10 U
Phenol	ug/L	10 U
Pyrene	ug/L	10 U
Volatiles		
1,1,1-Trichloroethane	ug/L	5.0 U
1,1,2,2-Tetrachloroethane	ug/L	5.0 U
1,1,2-Trichloroethane	ug/L	5.0 U
1,1-Dichloroethane	ug/L	5.0 U
1,1-Dichloroethene	ug/L	5.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	10 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/L	5.0 U
1,2-Dichlorobenzene	ug/L	5.0 U
1,2-Dichloroethane	ug/L	5.0 U
1,2-Dichloropropane	ug/L	5.0 U
1,3-Dichlorobenzene	ug/L	5.0 U
1,4-Dichlorobenzene	ug/L	5.0 U

TABLE 2D

ANALYTICAL RESULTS SUMMARY - WATER
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

	Sample Location:	*ML-2R*
	Sample ID:	*W-17087-101801-RSH-079*
	Sample Date:	*10/18/2001*
Parameters	*Units*	
Volatiles (Cont'd.)		
2-Butanone	ug/L	20 UJ
2-Hexanone	ug/L	20 U
4-Methyl-2-pentanone	ug/L	20 U
Acetone	ug/L	UJ
Benzene	ug/L	5.0 U
Benzene, isopropyl	ug/L	5.0 U
Bromodichloromethane	ug/L	5.0 U
Bromoform	ug/L	5.0 U
Bromomethane	ug/L	10 UJ
Carbon disulfide	ug/L	5.0 U
Carbon tetrachloride	ug/L	5.0 U
Chlorobenzene	ug/L	5.0 U
Chloroethane	ug/L	10 U
Chloroform (Trichloromethane)	ug/L	5.0 U
Chloromethane	ug/L	10 U
cis-1,2-Dichloroethene	ug/L	3.6 J
cis-1,3-Dichloropropene	ug/L	5.0 U
Cyclohexane	ug/L	5.0 U
Dibromochloromethane	ug/L	5.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	10 U
Ethylbenzene	ug/L	5.0 U
Methyl acetate	ug/L	5.0 U
Methyl cyclohexane	ug/L	5.0 U
Methyl Tert Butyl Ether	ug/L	5.0 U
Methylene chloride	ug/L	5.0 U
Styrene	ug/L	5.0 U
Tetrachloroethene	ug/L	5.0 U
Toluene	ug/L	5.0 U
trans-1,2-Dichloroethene	ug/L	5.0 U
trans-1,3-Dichloropropene	ug/L	5.0 U
Trichloroethene	ug/L	2.7 J
Trichlorofluoromethane (CFC-11)	ug/L	10 U
Trifluorotrichloroethane (Freon 113)	ug/L	5.0 U
Vinyl chloride	ug/L	10 U
Xylene (total)	ug/L	15 U
General Chemistry		
Cyanide (dissolved)	ug/L	4.0 U
Cyanide (total)	ug/L	4.0 U

Notes:

J	Estimated.
U	Non-detect at associated value.

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING INITIAL CALIBRATION RESULTS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Parameter	*Compound*	*Calibration Date*	RRF	*%D*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
VOCs	Bromomethane	10/06/01	0.044	<30	S-17087-101701-RSH-042	11 U	ug/Kg	R
					S-17087-101701-RSH-043	12 U	ug/Kg	R
					S-17087-101701-RSH-044	11 U	ug/Kg	R
					S-17087-101701-RSH-046	11 U	ug/Kg	R
					S-17087-101701-RSH-047	10 U	ug/Kg	R
					S-17087-101701-RSH-050	11 U	ug/Kg	R
					S-17087-101701-RSH-052	13 U	ug/Kg	R
					S-17087-101701-RSH-056	11 U	ug/Kg	R
					S-17087-101701-RSH-057	11 U	ug/Kg	R
					S-17087-101701-RSH-058	11 U	ug/Kg	R
					S-17087-101701-RSH-059	11 U	ug/Kg	R

Notes:

%D	Percent Difference.
R	Rejected.
U	Non-detect at associated value.
VOCs	Volatile Organic Compounds.

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING CONTINUING CALIBRATION RESULTS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Parameter	*Compound*	*Calibration Date*	*Associated Sample ID*	*%D*	*Sample Results*	*Units*	*Qualifier*
SVOCs	4-Nitrophenol	10/29/01	S-17087-101701-RSH-052	29	2000 U	µg/Kg	J
	Benzaldehyde	10/29/01	S-17087-101701-RSH-052	80	420 U	µg/Kg	J
	Benzaldehyde	10/29/01	W-17087-101801-RSH-079	30	10 U	µg/L	J
	Benzo(g,h,i)perylene	10/29/01	W-17087-101801-RSH-079	42	10 U	µg/L	J
	Indeno(1,2,3-cd)pyrene	10/29/01	W-17087-101801-RSH-079	34	10 U	µg/L	J
	Dibenz(a,h)anthracene	10/29/01	W-17087-101801-RSH-079	31	10 U	µg/L	J
	Benzaldehyde	10/26/01	S-17087-101701-RSH-044	52	1800 U	µg/Kg	J
	2,4-Dinitrophenol	10/29/01	S-17087-101701-RSH-042	36	1700 U	µg/Kg	J
	4,6-Dinitro-2-methylphenol	10/29/01	S-17087-101701-RSH-042	27	1700 U	µg/Kg	J
	2,4-Dinitrophenol	10/29/01	S-17087-101701-RSH-043	36	1900 U	µg/Kg	J
	4,6-Dinitro-2-methylphenol	10/29/01	S-17087-101701-RSH-043	27	1900 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-042	32	22 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-042	37	11 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-043	32	23 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-043	37	12 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-044	32	21 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-044	37	11 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-046	32	22 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-046	37	11 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-047	32	21 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-047	37	10 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-050	32	21 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-050	37	11 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-052	32	25 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-052	37	13 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-056	32	21 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-056	37	11 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-057	32	21 U	µg/Kg	J

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING CONTINUING CALIBRATION RESULTS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Parameter	*Compound*	*Calibration Date*	*Associated Sample ID*	*%D*	*Sample Results*	*Units*	*Qualifier*
SVOCs	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-057	37	11 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-058	32	21 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-058	37	11 U	µg/Kg	J
	Acetone	10/23/01	S-17087-101701-RSH-059	32	22 U	µg/Kg	J
	Trichlorofluoromethane (CFC-11)	10/23/01	S-17087-101701-RSH-059	37	11 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-042	41	22 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-043	41	23 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-044	41	21 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-046	41	22 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-047	41	21 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-050	41	21 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-052	41	25 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-056	41	21 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-057	41	21 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-058	41	21 U	µg/Kg	J
	4-Methyl-2-pentanone	10/23/01	S-17087-101701-RSH-059	41	22 U	µg/Kg	J
	Acetone	10/23/01	W-17087-101801-RSH-079	42	20 U	µg/L	J
	Bromomethane	10/23/01	W-17087-101801-RSH-079	26	10 U	µg/L	J
	2-Butanone	10/23/01	W-17087-101801-RSH-079	28	20 U	µg/L	J

Notes:

%D	Percent Difference.
J	Estimated.
U	Non-detect at associated value.

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Parameter	*Blank ID/Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Sample Result*	*Units*
SVOCs	10/24/01	bis(2-Ethylhexyl)phthalate	300J	S-17087-101701-RSH-042	180 J	360 U	µg/Kg
				S-17087-101701-RSH-043	200 J	390 U	µg/Kg
Metals	10/27/01MB	Aluminum	47.8	W-17087-101801-RSH-079	49.6	49.6 U	µg/L
	10/27/01MB	Beryllium	1.2	W-17087-101801-RSH-079	1.4	1.4 U	µg/L
	10/27/01MB	Beryllium (Dissolved)	1.2	W-17087-101801-RSH-079	1.3	1.3 U	µg/L
	10/27/01MBsoil	Beryllium	0.10	S-17087-101701-RSH-042	0.40	0.40 U	mg/Kg
	10/27/01MBsoil	Beryllium	0.10	S-17087-101701-RSH-043Dup	0.45	0.45 U	mg/Kg
	10/27/01MBsoil	Sodium	31.8	S-17087-101701-RSH-042	78.5	78.5 U	mg/Kg
		Sodium	34.6	S-17087-101701-RSH-043	98.2	98.2 U	mg/Kg
		Sodium	31.7	S-17087-101701-RSH-043Dup	84.0	84.0 U	mg/Kg
	10/29/01CCB1	Thallium	0.67	S-17087-101701-RSH-042	0.85	0.85 U	mg/Kg
			0.72	S-17087-101701-RSH-043	0.79	0.79 U	mg/Kg
	10/29/01MB	Sodium	34.1	S-17087-101701-RSH-052	80.5	80.5 U	mg/Kg
		Thallium	0.6	S-17087-101701-RSH-052	0.79	0.79 U	mg/Kg
		Beryllium	0.17	S-17087-101701-RSH-052	0.63	0.63 U	mg/Kg
General Chemistry	10/23/01MB	Cyanide	5.0	W-17087-101801-RSH-079	4.0	4.0 U	µg/L
		Cyanide(Diss)	3.0	W-17087-101801-RSH-079	4.0	4.0 U	µg/L
		Cyanide(soil)	0.13	S-17087-101701-RSH-042	0.20	0.20 U	mg/Kg
				S-17087-101701-RSH-043	0.31	0.31 U	mg/Kg
				S-17087-101701-RSH-043Dup	0.31	0.31 U	mg/Kg
	10/30/01MB	Cyanide	0.12	S-17087-101701-RSH-052	0.19	0.19 U	mg/Kg

Notes:

J	Estimated.
SVOCs	Semi-Volatile Organic Compounds.
U	Non-detect at associated value.

TABLE 6

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Parameter	*Sample ID*	*Analyte*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD (percent)*	*Control Limits*		*Sample Result*	*Units*	*Qualifier*
						Recovery (percent)	*RPD (percent)*			
Metals	S-17087-101701-RSH-054	Arsenic	67.5	68.5	1.4	75-125	35	118	mg/Kg	J
	S-17087-101601-RSH-041	Arsenic	67.5	68.5	1.4	75-125	35	1.8	mg/Kg	J
	S-17087-101701-RSH-055	Arsenic	67.5	68.5	1.4	75-125	35	42.7	mg/Kg	J
	S-17087-101701-RSH-061	Arsenic	67.5	68.5	1.4	75-125	35	178	mg/Kg	J
	S-17087-101701-RSH-062	Arsenic	67.5	68.5	1.4	75-125	35	139	mg/Kg	J
	S-17087-101701-RSH-063	Arsenic	67.5	68.5	1.4	75-125	35	390	mg/Kg	J
	S-17087-101701-RSH-064	Arsenic	67.5	68.5	1.4	75-125	35	723	mg/Kg	J
	S-17087-101701-RSH-065	Arsenic	67.5	68.5	1.4	75-125	35	1000	mg/Kg	J
	S-17087-101701-RSH-066	Arsenic	67.5	68.5	1.4	75-125	35	30.7	mg/Kg	J
	S-17087-101701-RSH-067	Arsenic	67.5	68.5	1.4	75-125	35	4.3	mg/Kg	J
	S-17087-101701-RSH-068	Arsenic	67.5	68.5	1.4	75-125	35	1.7	mg/Kg	J
	S-17087-101701-RSH-069	Arsenic	67.5	68.5	1.4	75-125	35	1.5	mg/Kg	J
	S-17087-101701-RSH-070	Arsenic	67.5	68.5	1.4	75-125	35	153	mg/Kg	J
	S-17087-101701-RSH-071	Arsenic	67.5	68.5	1.4	75-125	35	2.0	mg/Kg	J
	S-17087-101701-RSH-072	Arsenic	67.5	68.5	1.4	75-125	35	1.6	mg/Kg	J
	S-17087-101701-RSH-073	Arsenic	67.5	68.5	1.4	75-125	35	1.1	mg/Kg	J
	S-17087-101701-RSH-074	Arsenic	67.5	68.5	1.4	75-125	35	1.5	mg/Kg	J
	S-17087-101701-RSH-075	Arsenic	67.5	68.5	1.4	75-125	35	1.7	mg/Kg	J
	S-17087-101701-RSH-076	Arsenic	67.5	68.5	1.4	75-125	35	3.5	mg/Kg	J
	S-17087-101701-RSH-077	Arsenic	67.5	68.5	1.4	75-125	35	2.0	mg/Kg	J
	S-17087-101701-RSH-042	Lead	135.4	60.7	76	75-125	35	63.8	mg/Kg	J
	S-17087-101701-RSH-042	Calcium	42.1	33.2	24	75-125	35	9230	mg/Kg	J
	S-17087-101701-RSH-043	Lead	135.4	60.7	76	75-125	35	25.0	mg/Kg	J
	S-17087-101701-RSH-043	Calcium	42.1	33.2	24	75-125	35	5100	mg/Kg	J
	S-17087-101701-RSH-043Dup	Lead	135.4	60.7	76	75-125	35	25.1	mg/Kg	J
	S-17087-101701-RSH-043Dup	Calcium	42.1	33.2	24	75-125	35	31600	mg/Kg	J
	W-17087-101801-RSH-079	Aluminum	181	191	5.4	75-125	20	3840	µg/L	J

TABLE 6

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Parameter	*Sample ID*	*Analyte*	*MS Recovery (percent)*	*MSD Recovery (percent)*	*RPD (percent)*	*Control Limits*		*Sample Result*	*Units*	*Qualifier*
						Recovery (percent)	*RPD (percent)*			
Metals	S-17087-101701-RSH-052	Antimony	62.5	68.1	8.6	75-125	35	0.41	mg/Kg	J
	S-17087-101701-RSH-046	Arsenic	70.1	66.3	5.6	75-125	35	414	mg/Kg	J
	S-17087-101701-RSH-047							439	mg/Kg	J
	S-17087-101701-RSH-048							142	mg/Kg	J
	S-17087-101701-RSH-049							160	mg/Kg	J
	S-17087-101701-RSH-050							85.6	mg/Kg	J
	S-17087-101701-RSH-051							116	mg/Kg	J
	S-17087-101701-RSH-052							114	mg/Kg	J
	S-17087-101701-RSH-056							52.9	mg/Kg	J
	S-17087-101701-RSH-057							128	mg/Kg	J
	S-17087-101701-RSH-058							87.1	mg/Kg	J
	S-17087-101701-RSH-059							83.1	mg/Kg	J
	S-17087-101701-RSH-046	Chromium	25.3	7.9	104.7	75-125	35	234	mg/Kg	J
	S-17087-101701-RSH-047							226	mg/Kg	J
	S-17087-101701-RSH-048							22.9	mg/Kg	J
	S-17087-101701-RSH-049							10.3	mg/Kg	J
	S-17087-101701-RSH-050							13.2	mg/Kg	J
	S-17087-101701-RSH-051							20.4	mg/Kg	J
	S-17087-101701-RSH-052							62.4	mg/Kg	J
	S-17087-101701-RSH-056							38.2	mg/Kg	J
	S-17087-101701-RSH-057							15.8	mg/Kg	J
	S-17087-101701-RSH-058							11.3	mg/Kg	J
	S-17087-101701-RSH-059							21.4	mg/Kg	J
	S-17087-101701-RSH-052	Manganese	23.7	18.8	23	75-125	35	227	mg/Kg	J

Notes:

J	Estimated.
MS	Matrix Spike.
MSD	Matrix Spike Duplicate.
RPD	Relative Percent Difference.

TABLE 7

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING SERIAL DILUTIONS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Analyte	*Sample ID*	*%D*	*Control Limits (percent)*	*Associated Samples*	*Sample Results*	*Qualifier*	*Units*
Potassium	S-17087-101701-RSH-042	57	10	S-17087-101701-RSH-042	261	J	mg/Kg
Potassium	S-17087-101701-RSH-043	57	10	S-17087-101701-RSH-043	265	J	mg/Kg
Potassium	S-17087-101701-RSH-044	57	10	S-17087-101701-RSH-044	228	J	mg/Kg
Potassium	W-17087-101801-RSH-079	28.5	10	W-17087-101801-RSH-079	3440	J	µg/L
Potassium (Dissolved)	W-17087-101801-RSH-079	52	10	W-17087-101801-RSH-079	2450	J	µg/L
Potassium	S-17087-101701-RSH-052	52.2	10	S-17087-101701-RSH-052	343	J	mg/Kg

Notes:

%D	Percent Difference.
J	Estimated.

TABLE 8

QUALIFIED SAMPLE DATA DUE TO VARIABILITY IN FIELD DUPLICATE RESULTS
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

		Original		*Duplicate*				
Parameter	***Analyte***	***Sample ID***	***Result***	***Sample ID***	***Result***	***RPD***	***Units***	***Qualifier*** (1)
Pesticides	alpha-Chlordane	S-17087-101701-RSH-043	3.3	S-17087-101701-RSH-044	1.4	81	µg/Kg	J
	gamma-Chlordane	S-17087-101701-RSH-043	3.4	S-17087-101701-RSH-044	1.3	89	µg/Kg	J
Metals	Arsenic	S-17087-101701-RSH-042	69.2	S-17087-101701-RSH-042	-	-	mg/Kg	J
		S-17087-101701-RSH-043	37.6	S-17087-101701-RSH-044(DUP)	96.1	88	mg/Kg	J
	Calcium	S-17087-101701-RSH-042	9230	S-17087-101701-RSH-042	-	-	mg/Kg	J
		S-17087-101701-RSH-043	5100	S-17087-101701-RSH-044(DUP)	31600	144	mg/Kg	J
	Chromium	S-17087-101701-RSH-042	28.1	S-17087-101701-RSH-042	-	-	mg/Kg	J
		S-17087-101701-RSH-043	24.3	S-17087-101701-RSH-044(DUP)	57.8	82	mg/Kg	J
	Copper	S-17087-101701-RSH-042	37.9	S-17087-101701-RSH-042	-	-	mg/Kg	J
		S-17087-101701-RSH-043	40.4	S-17087-101701-RSH-044(DUP)	133	107	mg/Kg	J
	Magnesium	S-17087-101701-RSH-042	2170	S-17087-101701-RSH-042	-	-	mg/Kg	J
		S-17087-101701-RSH-043	1750	S-17087-101701-RSH-044(DUP)	4970	96	mg/Kg	J

Notes:

(1)	Qualifier is associated with original and duplicate results.
J	Estimated.
RPD	Relative Percent Difference.

TABLE 9

QUALIFIED SAMPLE DATA DUE TO ANALYTE CONCENTRATIONS IN THE TRIP BLANK
OSMOSE AREA BASELINE INVESTIGATION
MIRON LUMBER SITE
ALBANY, NEW YORK

Parameter	*Blank ID*	*Analyte*	*Blank Result (µg/L)*	*Associated Sample ID*	*Sample Result (µg/L)*	*Qualified Sample Result*
VOCs	Trip Blank	Acetone	4.2J	W-17087-101801-RSH-079	10J	20 U

Notes:

J	Estimated.
U	Non-detect at associated value.
VOCs	Volatile Organic Compounds.

APPENDIX F

COST ESTIMATE BACKUP

TABLE F.1

PRELIMINARY COST ESTIMATE - PAVING IMPACTED AREAS
ALBANY MIRON LUMBER SITE

Item		*Description*	*Units*	*Unit Cost*	*Est. Quantity*	*Item Cost*	*Sub-Total*
1		Definition of extent of impacted soil					
	a)	Sample collection	Day	$1,500	2	$3,000	
	b)	Sample analyses	Each	$50	12	$600	$3,600
2	a)	Demolish & remove garage	L.S.	$10,000	1	$10,000	
	b)	Asbestos removal	L.S.	$5,000	1	$5,000	$15,000
3		Remove and dispose surface cover and containment area					
	a)	Remove	Days	$1,500	3	$4,500	
	b)	Disposal	Tons	$51	400	$20,400	
	c)	Testing	L.S.	$1,000	1	$1,000	$25,900
4		Prepare and pave area	Ft2	$2	13,200	$29,700	$29,700
					Sub-Total		$74,200
					10% Engineering		$7,420
					Sub-Total		$81,620
					20% Contingency		$14,840
					Total Estimated Cost		***$96,460***

Notes:
1 cu. yd. = 2.3 tons

TABLE F.2

PRELIMINARY COST ESTIMATE - REMOVE ALL IMPACTED SOIL/PAVE AREA
ALBANY MIRON LUMBER SITE

Item		*Description*	*Units*	*Unit Cost*	*Est. Quantity*	*Sub-Total*	
1		Definition of extent of impacted soil					
	a)	Sample collection	Foot	$25	450	$11,250	
	b)	Sample analyses	Each	$50	214	$10,700	
	c)	Geotechnical testing	L.S.	$1,500	1	$1,500	$23,450
2	a)	Demolish & remove garage	L.S.	$10,000	1	$10,000	
	b)	Asbestos removal	L.S.	$5,000	1	$5,000	$15,000
3		Remove and dispose surface cover and containment area					
	a)	Remove	Days	$1,500	3	$4,500	
	b)	Disposal	Tons	$51	400	$20,400	
	c)	Testing	L.S.	$1,000	1	$1,000	$25,900
4		Remove impacted soil					
	i)	Excavate, load & backfill	C.Y.	$25	6,000	$150,000	
	ii)	Dispose excavated soil	Tons	$51	13,800	$703,800	
	iii)	Testing	L.S.	$1,000	1	$1,000	$854,800
5		Confirmatory sampling (collection & analyses)	Sample	$75	20	$1,500	$1,500
6		Prepare and pave area	Ft2	$2	13,200	$29,700	$29,700
							$950,350
					10% Engineering		$95,035
					Sub-Total		$1,045,385
					20% Contingency		$190,070
					Total Estimated Cost		**$1,235,455**

Notes:
1 cu. yd. = 2.3 tons

TABLE F.3

Page 1 of 1

PRELIMINARY COST ESTIMATE - EXCAVATE AND DISPOSE HOTSPOT SOIL PAVE AREA
ALBANY MIRON LUMBER SITE

Item		*Description*	*Units*	*Unit Cost*	*Est. Quantity*	*Item Cost*	
1		Definition of extent of impacted soil					
	a)	Sample collection	Foot	$25	450	$11,250	
	b)	Sample analyses	Each	$50	214	$10,700	
	c)	Geotechnical testing	L.S.	$1,500	1	$1,500	$23,450
2	a)	Demolish & remove garage	L.S.	$10,000	1	$10,000	
	b)	Asbestos removal	L.S.	$5,000	1	$5,000	$15,000
3		Remove and dispose surface cover and containment area					
	a)	Remove	Days	$1,500	3	$4,500	
	b)	Disposal	Tons	$51	400	$20,400	
	c)	Testing	L.S.	$1,000	1	$1,000	$25,900
4		Remove impacted soil					
	i)	Excavate, load & backfill	C.Y.	$25	1,000	$25,000	
	ii)	Dispose excavated soil	Tons	$51	2,300	$117,300	
	iii)	Testing	L.S.	$1,000	1	$1,000	$143,300
5		Confirmatory sampling (collection & analyses)	Sample	$75	10	$750	$750
6		Prepare and pave area	Ft2	$2	13,200	$29,700	$29,700
							$238,100
					10% Engineering		$23,810
					Sub-Total		$261,910
					20% Contingency		$47,620
					Total Estimated Cost		**$309,530**

Notes:
1 cu. yd. = 2.3 tons

APPENDIX G

DERIVATION OF RISK-BASED SOIL CLEANUP CRITERIA

1.0 DERIVATION OF RISK-BASED SOIL CLEANUP CRITERIA

Risk-based soil cleanup goals have been derived for use in evaluating the protectiveness of remedial alternatives considered for COC impacted on-Site soils.

1.1 CHEMICAL PRESENCE IN SOILS

The highest concentrations of COCs in soil occur in two areas, one located in the south corner of the Osmose Area and one north of the Osmose Pad around soil boring SB-21.

1.2 REASONABLE FUTURE USE AND EXPOSURE SCENARIO

The plan for future use of the property comprising the Osmose Area is that it be covered with asphalt paving and protected from unauthorized use through the implementation of deed restrictions.

With this type of Site use, the reasonable exposure scenario to soils involves ground intrusive activity where maintenance and installation of sewers or utilities may be conducted. In other words, the reasonable exposure scenario for consideration in the development of risk-based site-specific soil criteria is a short-term construction/utility worker exposure scenario.

1.3 DEVELOPMENT OF SITE-SPECIFIC SOIL CRITERIA

Risk calculations were performed to determine acceptable concentrations of COCs in soil under the future land use and exposure scenarios described in Section 1.2. The clean-up goals were derived consistent with the United States Environmental Protection Agency (USEPA) guidance presented in the documents "Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites " (USEPA 2001) and "Region 9 Preliminary Remediation Goals (PRGs)" (USEPA 2002).

1.3.1 SOIL CLEANUP GOALS - DERMAL AND INGESTION EXPOSURE

Soil cleanup goals were derived for the construction worker scenario by combining the oral and dermal exposure routes into one algorithm. The generic algorithms used to derive the soil cleanup goals for carcinogenic and/or non-carcinogenic COC are presented as follows:

Carcinogenic COC

$$C_{Soil} = \frac{TR \times BW \times AT}{EF \times ED \times 10^{-6}\ kg/mg\ [(IRS \times RAFo \times CSFo) + (SA \times AF \times RAFd \times CSFd)]}$$

Non- Carcinogenic COC

$$C_{Soil} = \frac{THQ \times BW \times AT}{EF \times ED \times 10^{-6}\ kg/mg\ [(\frac{1}{RfDo} \times IRS \times RAFo) + (\frac{1}{RfDd} \times SA \times AF \times RAFd)]}$$

where:

CSoil = Risk-Based Soil Clean-Up Goal (calculated, mg/kg);
CSFo = Cancer Slope Factor - Oral (chemical-specific) (mg/kg - day)-1;
CSFd = Cancer Slope Factor - Dermal (chemical-specific) (mg/kg - day)-1;
RfDo = Reference Dose - Oral (chemical-specific) (mg/kg - day);
RfDd = Reference Dose - Dermal (chemical-specific) (mg/kg - day);
TR = Target Cancer Risk (1.0E-06, unitless);
THQ = Target Hazard Quotient (1.0, unitless);
BW = Body Weight, Adult Worker (70 kg);
EF = Exposure Frequency, Construction (5 days/year);
ED = Exposure Duration, Construction (1 year);
IRS = Soil Ingestion Rate, Construction (330 mg/day);
SA = Exposed Surface Area, Construction (3300 cm2/day);
AF = Soil Adherence Factor (0.3 mg/cm2);
RAFo = Relative Absorption Factor - oral (default = 1)(unitless);
RAFd = Relative Absorption Factor - dermal (arsenic = 0.03, chromium = 0.01, copper 0.01)(unitless);
ATc = Averaging Time - Carcinogens (25550 days); and
ATnc = Averaging Time - Non-Carcinogens (ED x 365 days/year).

Toxicity Factors are required to establish the clean-up goals. The clean-up goals were derived using chemical-specific and route-specific Reference Dose values (RfD) and Cancer Slope Factors (CSF). USEPAs integrated risk information system (IRIS) and health effects assessment table (HEAST) databases were used as the source of the RfDs and CSFs applied in the clean-up goal derivation.

If both a carcinogenic and non-carcinogenic risk-based value was derived for a particular COC, then the lower of the two values was chosen as the applicable cleanup goal.

Table G.1 presents the derivation of soil cleanup goals for COC identified for the construction worker exposure scenario via ingestion and dermal exposure routes. References for the exposure parameters are provided in Table G.1.

1.3.2 SOIL CLEAN-UP GOALS - INHALATION OF PARTICULATE EXPOSURE

Exposure to the COC in soil can also occur through the inhalation exposure route, as particulate bound metals can become airborne during an excavation event. In order to derive soil cleanup goals based on the ambient air pathway, allowable air concentrations for the COC were calculated, and then used to derive a health-protective concentration using an appropriate air model.

1.3.2.1 DERIVATION OF ALLOWABLE AIR CONCENTRATIONS

The allowable air concentrations were derived as follows:

Carcinogenic COC

$$C_{air} = \frac{TR \times BW \times AT}{EF \times ED \times InR \times CSFi}$$

Non- Carcinogenic COC

$$C_{air} = \frac{THQ \times BW \times AT}{EF \times ED \times InR \times \frac{1}{RfDi}}$$

where:

C_{air} = Allowable Risk-Based Air Concentration (calculated, mg/m^3);
CSF_i = Cancer Slope Factor - Inhalation (chemical-specific) (mg/kg - day)$^{-1}$;
RfD_i = Reference Dose - Inhalation (chemical-specific) (mg/kg - day);
TR = Target Cancer Risk (1.0E-06, unitless);
THQ = Target Hazard Quotient (1.0, unitless);
BW = Body Weight, Adult Worker (70 kg);
EF = Exposure Frequency, Construction (5 days/year);
ED = Exposure Duration, Construction (1 year);
InR = Inhalation Rate, Construction (20 m^3/day);
AT_c = Averaging Time - Carcinogens (25550 days); and
AT_{nc} = Averaging Time - Non-Carcinogens (ED x 365 days/year).

Table G.2 presents the derivation of the allowable risk-based air concentrations for COC identified for the construction worker scenario. References for the exposure parameters are provided in Table G.2. It is noted that allowable air concentrations were derived for arsenic only, since toxicity data for the inhalation route are not available for chromium and copper.

The allowable air concentrations were used to back-calculate soil cleanup goals using an appropriate air model, as explained in the following section.

1.3.2.2 AIR DISPERSION MODELING

A conservative air dispersion model, SCREEN3, recommended by USEPA for screening purposes was used. SCREEN3 uses Gaussian dispersion equations and worst-case meteorological conditions to estimate maximum downwind concentrations due to emissions from a source.

To calculate the emission rate in grams per second (g/s), the allowable air concentration was divided by a time averaging conversion factor of 0.7 to obtain a 1-hour concentration. The SCREEN3 model calculates a 1-hour concentration. Therefore a 1-hour criteria concentration was required.

An excavation activity will result in the maximum ambient air exposure point concentrations to which construction workers may be exposed. In addition the emissions from exposed contaminated soils at the Site were also accounted for. The emissions modeled in this scenario are potential respirable particulate matter emissions of inorganics released from excavated soil.

The SCREEN3 model utilizes rectangular source areas and only one source may be modeled at a time. A 290 square meter (m^2) area, 17 m x 17 m was used for the excavated soil for the exposed soil surface area. This area value is consistent with USEPA guidance for excavation area exposure on a daily basis.

The SCREEN3 model was used to determine the worst-case atmospheric conditions that would produce the maximum ground level concentrations. The modeling showed that maximum concentrations occurred for stability Class 6 (stable) and a wind speed of 1 meter per second (m/s). The maximum concentration occurs at the edge of the area source. The source and receptor height was set at 0 m, and the urban dispersion coefficient was used. The SCREEN3 model output for a normalized 1-gram per second emission rate over the surface area is presented in Appendix F.

1.3.2.3 AIR EMISSIONS MODELING

Air emission modeling was conducted to calculate an acceptable subsurface soil concentration based on the allowable emission rates determined above.

Particulate matter emissions from the excavation of contaminated soils from the area sources were calculated using the 1993 USEPA document "*Estimation of Air Impacts from Area Sources of Particulate Matter Emissions at Superfund Sites*". The particulate matter excavation emission model and the particulate matter emission rates from the source area during excavation are detailed in Table G.3.

The bases for this model are the following Equations:

$$E = \frac{k\,(0.0016)(M)\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{X_{H2O}}{2}\right)^{1.4}} \qquad \text{(Eq.1)}$$

$$X = C\,Z\,10^{\wedge}6 \qquad \text{(Eq.2)}$$

where:

E = PM10 emissions (g);

k = particle size multiplier for PM10 (0.35 unitless);

0.0016 = empirical constant (g/kg);

M = mass handled (63 kg);

U = mean wind speed (4.4 m/sec);

2.2 = empirical constant (2.2 m/sec);

X_{H2O} = percent moisture content (10 percent);

C = concentration of metal in bulk soil (µg/g);

Z = enrichment factor (1.28 unitless); and

10^6 = conversion factor (g/µg).

A single area source (17 m by 17 m) was chosen to approximate the potential area of erodable soil. The emission rates resulting from the excavation activities were calculated using allowable air concentrations of inorganics. The bulk soil concentration of inorganics was then calculated by dividing the emission rate by the enrichment and emission factors. Table G.3 summarizes the area sources inorganic bulk soil concentrations at the Site based on the allowable air concentrations.

1.4 SUMMARY

The allowable soil concentrations that were determined from this assessment are shown in Tables G.1 and G.3.

The allowable concentrations of arsenic in soil for the oral/dermal contact and inhalation pathways were determined to be 663 and 1,353 mg/Kg, respectively.

The allowable soil concentration of chromium for the oral/dermal contact pathway was determined to be 7.02E+06 ppm (i.e., greater than 100 percent).

The allowable soil concentration of copper for the oral/dermal contact pathway was determined to be 6.01E+05 ppm (i.e., greater than 60 percent).

Based on the above, it is concluded that the proposed site-specific risk-based cleanup criteria for arsenic of 200 ppm is conservative and will be protective under the envisioned future use scenario. It is noted that the removal of soil containing arsenic at concentrations greater than 200 ppm will also be protective with respect to the presence of chromium and copper.

TABLE G.1

DERIVATION OF SITE-SPECIFIC REMEDIATION CRITERIA
CONSTRUCTION WORKER ORAL & DERMAL EXPOSURE TO SOIL
MIRON LUMBER SITE
ALBANY, NEW YORK

Constituent of Human Concern	*Oral to Dermal Adjustment Factor (%/100)*	*oral CSF 1/(mg/kg-d)*	*dermal CSF (1) 1/(mg/kg-d)*	*oral RfD (mg/kg-d)*	*dermal RfD (1) (mg/kg-d)*	*Relative Absorption Factor*		*Carcinogen RISK =1.0E-06 Adult (mg/kg)*	*Non-Carcinogen HI = 1.0 Adult (mg/kg)*	*Site-Specific Remediation Criteria (2) (mg/kg)*
						oral (%/100)	*dermal (%/100)*			
Inorganic Metals										
Arsenic	100%	1.50E+00	1.50E+00	3.00E-04	3.00E-04	1.00E+00	3.00E-02	6.63E+02	4.26E+03	6.63E+02
Chromium	1.3%	NA	NA	1.50E+00	1.95E-02	1.00E+00	1.00E-02	NV	7.02E+06	7.02E+06
Copper	100%	NA	NA	4.00E-02	4.00E-02	1.00E+00	1.00E-02	NV	6.01E+05	6.01E+05

Notes:

NA = Not Available

NV = No Value

(1) Adjusted Dermal Toxicity Data = Oral Toxicity Data x Oral to Dermal Adjustment Factor taken from USEPA, 2001.

(2) The selected Site-specific criterion is the lower of the carcinogenic-based level and the non-carcinogenic-based level.

Construction Worker Exposure Assumptions		Reference
Concentration in Soil (mg/kg)	calculated	–
Target Risk Level (unitless)	1.0E-06	USEPA, 2001
Target Hazard Level (unitless)	1.0	USEPA, 2001
Cancer Slope Factor (per mg/kg-day)	chemical-specific	IRIS, 2002; HEAST 1997
Reference Dose Factor (mg/kg-day)	chemical-specific	IRIS, 2002; HEAST 1997
Ingestion Rate (mg/day)	330	USEPA, 2001
Relative Absorption Factor - Oral (%/100)	chemical-specific	USEPA, 2001
Surface Area Exposed (cm2/day)	3300	USEPA, 2001
Adherence Factor (mg/cm2)	0.3	USEPA, 2001
Relative Absorption Factor - Dermal (%/100)	chemical-specific	USEPA, 2001
Exposure Frequency (days/year)	5	Professional Judgement
Exposure Duration (years)	1	Professional Judgement
Body Weight (kg)	70	USEPA, 2001
Convesrion Factor (kg/mg)	1.0E-06	USEPA, 2001
Averaging Time - carc. (days)	25550	USEPA, 2001
Averaging Time - noncarc. (days)	365	USEPA, 2001

Exposure Equations

Carcinogenic Endpoints:

$$CS = \frac{TR \times BW \times ATc}{EF \times ED \times CF \times [(CSFo \times IR \times RAFo) + (CSFd \times SA \times AF \times RAFd)]}$$

Non-Carcinogenic Endpoints:

$$CS = \frac{THQ \times BW \times ATnc}{EF \times ED \times CF \times [((1/RfDo) \times IR \times RAFo) + ((1/RfDd) \times SA \times AF \times RAFd)]}$$

USEPA, 2001: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, Office of Emergency and Remedial Response, OSWER 6355.4-24, March 2001.

IRIS, 2002: USEPA Integrated Risk Information System Database, October 2002.

HEAST, 1997: USEPA Health Effects Assessment Table, 9200.6-303 (97-1), EPA/540-R-99-036, July 1997.

Professional Judgement: Site specific below-ground utility work occurs for 5 days within a year.

TABLE G.2

DERIVATION OF SITE-SPECIFIC REMEDIATION CRITERIA
CONSTRUCTION WORKER INHALATION EXPOSURE TO AMBIENT AIR
MIRON LUMBER SITE
ALBANY, NEW YORK

CHEMICAL	*inhalationCSF* *1/(mg/kg-d)*	*inhalation RfD* *(mg/kg/day)*	*Carcinogen* *RISK =1.0E-06* *Adult* *(mg/m^3)*	*Non-Carcinogen* *HI = 1.0* *Adult* *(mg/m^3)*	*Ambient Air* *Site-Specific* *Remediation Criteria (1)* *(mg/m^3)*
Arsenic	1.51E+01	NA	1.18E-03	NV	0.00E+00
Chromium	NA	NA	NV	NV	NV
Copper	NA	NA	NV	NV	NV

Notes :

NA = Not Available

NV = No Value

(1) The selected Site-specific criterion is the lower of the carcinogenic-based level and the non-carcinogenic-based level.

Construction Worker Exposure Assumptions		Reference
Concentration in Air (mg/m3)	calculated	--
Target Risk Level (unitless)	1.0E-06	USEPA, 2001
Target Hazard Level (unitless)	1.0	USEPA, 2001
Cancer Slope Factor (per mg/kg-day)	chemical-specific	IRIS, 2002; HEAST 1997
Reference Dose Factor (mg/kg-day)	chemical-specific	IRIS, 2002; HEAST 1997
IR - adult (m3/day)	20	USEPA, 2001
EF (days/year)	5	Professional Judgement
ED (yrs)	1	Professional Judgement
BW (adult) (kg)	70	USEPA, 2001
AT (carc.) (yrs x days/yr)	25550	USEPA, 2001
AT (non-carc.) (yrs x days/yr)	365	USEPA, 2001

Exposure Equations

Carcinogenic Endpoints:

$$CS = \frac{TR \times BW \times ATc}{IR \times EF \times ED \times CSFi}$$

Non-Carcinogenic Endpoints:

$$CS = \frac{THQ \times BW \times ATnc}{IR \times EF \times ED \times (1/RfDi)}$$

USEPA, 2001: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites,
Office of Emergency and Remedial Response, OSWER 6355.4-24, March 2001.

IRIS, 2002: USEPA Integrated Risk Information System Database, October 2002.

HEAST, 1997: USEPA Health Effects Assessment Table, 9200.6-303 (97-1), EPA/540-R-99-036, July 1997.

Professional Judgement: Site specific; construction campaign occurs for 5 days within a year.

TABLE G.3
PARTICULATE INORGANIC EMISSIONS DURING EXCAVATION AND ESTIMATED MAXIMUM GROUND LEVEL CONCENTRATIONS
MIRON LUMBER SITE
ALBANY, NEW YORK

Inorganic	*Ambient Air Site-Specific Criteria (1) ug/m3*	*Emission Rate (g/s)*	*Enrichment Value*	*Bulk Conc. mg/kg*
Arsenic	1.69E+00	1.58E-05	1.28	1353

Notes:

(1) To calculate the emission rate in g/s, the Ambient Air Site-Specific Criteria was divided by a time averaging conversion factor of 0.7 to obtain a 1-hour concentration. SCREEN3 model calculates a 1-hour concentration, therefore a 1-hour criteria concentration was required.

EF = (k (0.0016) M (U/2.2)^(1.3))/((XH2O/2)^(1.4))

Where: EF = PM emissions (g/s)
k = particle size multiplier for PM10 = 0.35
0.0016 = empirical constant (g/Kg) 0.0016
M = mass of waste handled (Kg/s) = 63
U = mean wind speed (m/s) = 4.4
2.2 = empirical constant (m/s) = 2.2
XH2O = percent moisture content (%) = 10

EF = 9.13E-03 g/s

The metal emission rates were calculated as follows:

C = ER * 10^6/Z/EF

Where: ER = emission rate of contaminant (g/s)
C = concentration of metal/PCB in the bulk soil (ug/g)
Z = enrichment factor

ATTACHMENT G.1

SCREEN3 MODEL

```
                                                                       10/10/02
                                                                       11:57:23
 *** SCREEN3 MODEL RUN ***
 *** VERSION DATED 96043 ***

Miron Lumber Site

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE                     =         AREA
   EMISSION RATE (G/(S-M**2))      =     .344800E-02
   SOURCE HEIGHT (M)               =         .0000
   LENGTH OF LARGER SIDE (M)       =       17.0290
   LENGTH OF SMALLER SIDE (M)      =       17.0290
   RECEPTOR HEIGHT (M)             =         .0000
   URBAN/RURAL OPTION              =         URBAN
THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

   MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION


BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .000 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN AUTOMATED DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES
***

  DIST     CONC              U10M   USTK  MIX HT   PLUME  MAX DIR
  (M)   (UG/M**3)   STAB   (M/S)  (M/S)   (M)    HT (M)   (DEG)
 -------  ----------  ----  -----  -----  ------  ------  -------
     1.   .8545E+05    6      1.0    1.0 10000.0     .00     45.
   100.   3612.        6      1.0    1.0 10000.0     .00     41.
   200.   1045.        6      1.0    1.0 10000.0     .00      1.
   300.   505.9        6      1.0    1.0 10000.0     .00     32.
   400.   305.9        6      1.0    1.0 10000.0     .00      2.
   500.   208.6        6      1.0    1.0 10000.0     .00     18.
   600.   153.6        6      1.0    1.0 10000.0     .00     33.
   700.   119.1        6      1.0    1.0 10000.0     .00     18.
   800.   96.01        6      1.0    1.0 10000.0     .00      7.
   900.   79.64        6      1.0    1.0 10000.0     .00      1.
  1000.   67.51        6      1.0    1.0 10000.0     .00      3.

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND      1. M:
    12.   .1070E+06    6      1.0    1.0 10000.0     .00     45.

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************

 CALCULATION      MAX CONC     DIST TO   TERRAIN
  PROCEDURE      (UG/M**3)     MAX (M)    HT (M)
 --------------  -----------   -------   -------

SIMPLE TERRAIN    .1070E+06       12.        0.

***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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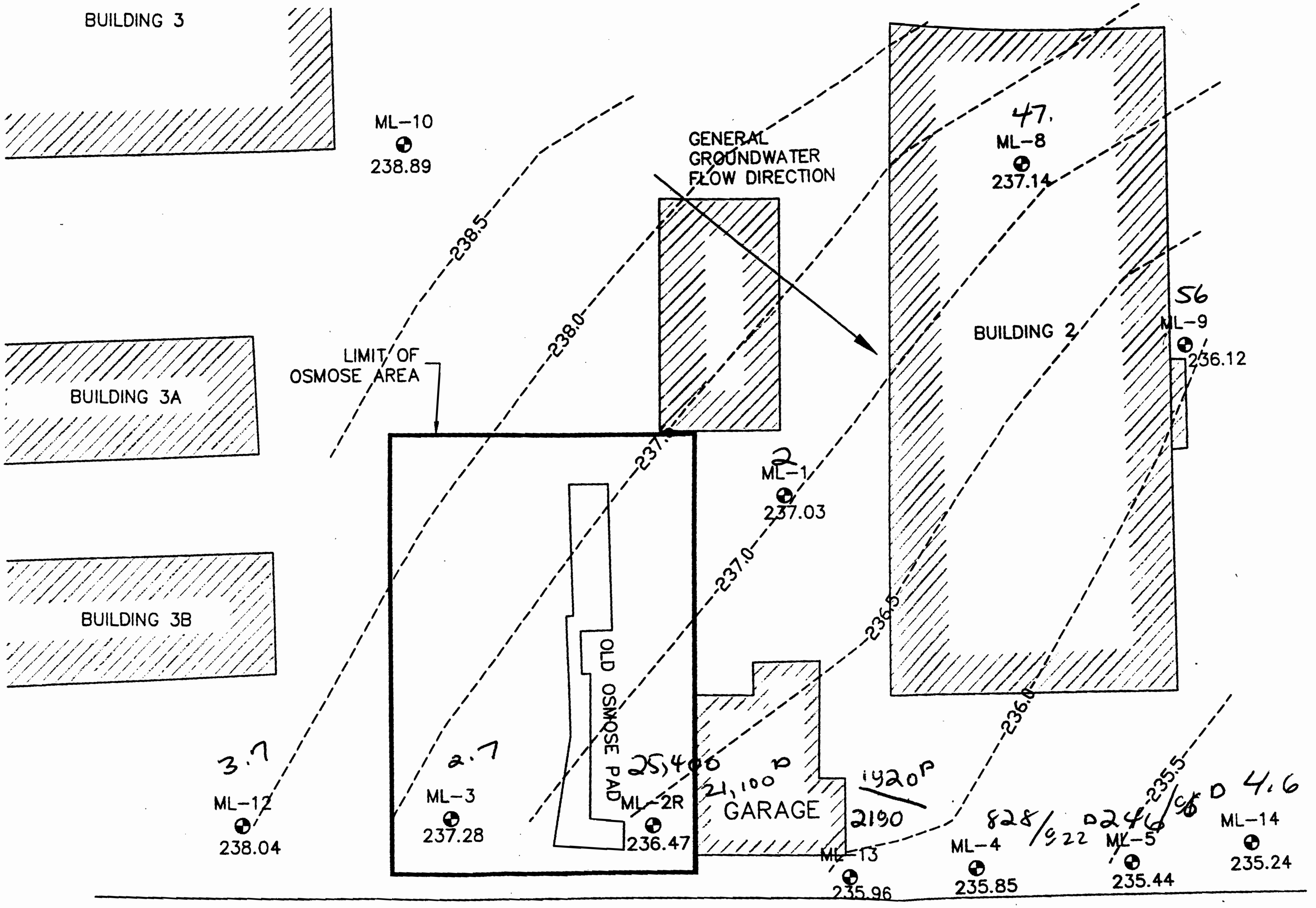

S(2)	GROUND ELEV.(2) (FT ASML)	GROUNDWATER ELEVATION (10/01/04) (FT ASML)
	250.0	237.03
	250.0	236.47
	250.5	237.28
	248.6	235.85
	248.0	235.44
	250.0	237.14
	248.8	236.12
	252.2	238.89
	249.1	237.47
	251.1	238.04
	250.0	235.96
	247.5	235.24

TORING WELL

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