Department of Environmental Conservation

Division of Environmental Remediation

Site Investigation Report

Old Upper Mountain Road Site, Town of Lockport, Niagara County, New York

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New York State Department of Environmental Conservation
Region 9
270 Michigan Avenue
Buffalo, New York 14203

Site Investigation Report

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Town of Lockport,
Niagara County, New York

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1.0 EXECUTIVE SUMMARY

The Old Upper Mountain Road Site consists of seven parcels near the intersection of NY State Routes 31 and 93 in the Town of Lockport, Niagara County, New York (Figure 1-1). The total area of the site is approximately 7 acres in a mixed residential/commercial/industrial neighborhood. The site is bounded on the west by Old Upper Mountain Road, on the south and east by the Somerset Railroad, and on the north by private property and a ravine approximately eighty feet deep known as the Gulf (Figure 1-1). A narrow stream flows along the bottom of the ravine and forms one of the headwaters of the East Branch of Gulf Creek. Gulf Creek flows in a northerly direction from the site and eventually discharges into Eighteenmile Creek approximately one mile to the north. The majority of the site is located on a relatively flat-lying plateau (Figure 1-1).

The Old Upper Mountain Road Site was reportedly operated as a municipal dump by the City of Lockport from 1921 through the 1950's. Access to the landfill at that time was from a viaduct under the railroad track just north of Old Upper Mountain Road (now Otto Place Road; Figure 1-1). In later years, a gate was placed at the viaduct to control unauthorized dumping. Garbage and other wastes were apparently dumped at the landfill, burned, and then pushed into the ravine. Clientele reportedly included Harrison Radiator, VanDeMark Chemical, Milward Alloys, Vanchlor, Upson, and Cotton Batting. Different areas of the dump were reportedly assigned to different companies. Neighboring residents often referred to the Harrison Dump, Upson Dump, etc.

On November 5, 1997 New York State Department of Environmental Conservation (NYSDEC) staff conducted a sampling event at the site. One surface water, one sediment and thirteen waste samples were collected from throughout the site. All thirteen waste samples contained volatile and semivolatile organic compounds, with the concentrations of trichloroethene (1 sample), tetrachloroethene (1 sample), benzo(a)anthracene (1 sample), benzo(a)pyrene (1 sample), benzo(b)fluoranthene (1 sample), benzo(k)fluoranthene (1 sample), chrysene (1 sample), dibenzo(a,h)anthracene (1 sample) and indeno(1,2,3-cd)pyrene (1 sample) exceeding the NYSDEC soil cleanup objectives. Pesticides and PCBs were also detected in several samples, but none of the concentrations exceeded the NYSDEC soil cleanup objectives.

Twenty metals were detected in the waste samples collected by the NYSDEC, with eleven of them being USEPA priority pollutant metals. The priority pollutant metals exceeding the soil cleanup objectives included antimony (10 samples), arsenic (7 samples), cadmium (10 samples), chromium (8 samples), copper (10 samples), lead (12 samples), mercury (5 samples), nickel (4 samples), silver (3 samples), thallium (3 samples) and zinc (6 samples).

The surface water sample contained three volatile organic compounds (1,2-dichloroethene, trichloroethene and tetrachloroethene) at concentrations that exceeded the NYSDEC surface water standards or guidance values. The sediment sample collected from the same location contained one volatile (1,2-dichloroethene), six semivolatile (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene and indeno(1,2,3-cd)pyrene) and eleven metals (antimony, arsenic, barium, cadmium, chromium, copper, iron, lead, nickel, silver and zinc) at concentrations that exceeded the NYSDEC sediment criteria.

On October 20, 1998 the NYSDOH collected one surface water and five surface soil samples from the site. The surface water sample contained seven volatile organic compounds, with the concentrations of 1,2-dichloroethene, trichloroethene, tetrachloroethene and vinyl chloride exceeding the NYSDEC surface water standards or guidance values. The surface soil samples were only analyzed for metals. Seventeen metals were detected in the these samples, with the concentrations of thirteen metals exceeding the NYSDEC soil cleanup objectives. Eight of these metals were USEPA priority pollutant metals. The priority pollutant metals exceeding the soil cleanup objectives included arsenic (1 sample), cadmium (5 samples), chromium (4 samples), copper (5 samples), lead (5 samples); mercury (1 sample), nickel (3 samples) and zinc (4 samples).

Between June and October 2007 the NYSDEC conducted a Site Investigation at the site to obtain information sufficient to determine if the Old Upper Mountain Road Site should be included in the Registry of Inactive Hazardous Waste Sites, and if so, what the appropriate site classification should be. The specific objectives of this investigation were to (1) evaluate the site to determine if hazardous wastes or substances were present, and if present, to determine if there was a consequential amount; and (2) determine the degree to which historical waste disposal has contaminated environmental media at and near the site. These objectives were determined through the analysis of surface soil, waste, surface water and sediment samples collected during the Site Investigation.

The stratigraphy of the site was evaluated by examining the stratigraphic logs completed during the Site Investigation. With increasing depth, the geologic units encountered include clean fill, waste and glaciolacustrine silty clays and clayey silts. Clean fill consists predominantly of imported native soil, while the waste material consists predominantly of multi-colored, layered ash. The bedrock underlying the site is the Guelph Dolostone of the Lockport Group.

Saturated soil/waste was not encountered at thicknesses sufficient to justify the installation of micro-wells. As a result, micro-wells were not installed during the Site Investigation, so site hydrogeology could not be evaluated. Based upon a regional groundwater flow map for the area, it is suspected that groundwater under the Old Upper Mountain Road Site flows to the north towards the Gulf.

The results of the Site Investigation indicate that surface soil at the Old Upper Mountain Road Site contains semivolatile organic compounds, pesticides, polychlorinated biphenyls and metals. The concentrations of benzo(a)anthracene (2 samples), benzo(a)pyrene (3 samples), benzo(b)fluoranthene (2 samples), chrysene (2 samples), 4-chloro-3-methylphenol (2 samples), dibenzo(a,h)anthracene (2 samples), indeno(1,2,3-cd)pyrene (2 samples), dieldrin (1 sample), and the USEPA priority pollutant metals antimony (2 samples), arsenic (4 samples), cadmium (3 samples), chromium (5 samples), copper (3 samples), lead (3 samples), mercury (1 sample), nickel (1 sample), silver (1 sample) and zinc (1 sample) exceeded the NYSDEC Part 375 or TAGM 4046 soil cleanup objectives. Of these contaminants, the concentrations of 4-chloro-3-methylphenol (2 samples), antimony (2 samples), cadmium (1 sample), chromium (1 sample), copper (2 samples), lead (3 samples), nickel (1 sample) and zinc (1 sample) significantly exceeded (by a factor of four or more) the soil cleanup objectives. These results are consistent with the historic surface soil samples collected from the site. In addition, some surface soil at the Old Upper Mountain Road Site is a characteristic hazardous waste for lead (D008).

Waste underlying the Old Upper Mountain Road Site contains volatile organic compounds, semivolatile organic compounds, pesticides, polychlorinated biphenyls and metals. The concentrations of tetrachloroethene (2 samples), trichloroethene (2 samples), benzo(a)anthracene (4 samples), benzo(a)pyrene (3 samples), benzo(b)fluoranthene (3 samples), benzo(k)fluoranthene (1 sample), chrysene (3 samples), dibenzo(a,h)anthracene (3 samples), indeno(1,2,3-cd)pyrene (3 samples), pentachlorophenol (1 sample), and the USEPA priority pollutant metals antimony (6 samples), arsenic (11 samples), cadmium (17 samples), chromium (12 samples), copper (15 samples), lead (18 samples), mercury (7 samples), nickel (3 samples) and zinc (9 samples) exceeded the NYSDEC Part 375 or TAGM 4046 soil cleanup objectives. Of these contaminants, the concentrations of tetrachloroethene (2 samples), trichloroethene (2 samples), benzo(a)anthracene (1 sample), benzo(b)fluoranthene (1 sample), chrysene (1 sample), indeno(1,2,3-cd)pyrene (1 sample), antimony (6 samples), cadmium (1 sample), chromium (2 samples), copper (7 samples), lead (14 samples), mercury (2 samples) and zinc (1 sample) significantly exceeded (by a factor of four or more) the soil cleanup objectives. These results are consistent with the historic waste samples collected from the site. In addition, some waste at the Old Upper Mountain Road Site is a characteristic hazardous waste for lead (D008).

The results of the Site Investigation further indicate that surface water at the Old Upper Mountain Road Site contains volatile organic compounds, semivolatile organic compounds, pesticides, polychlorinated biphenyls and metals. The concentrations of chloroform (1 sample), dichloroethene (1 sample), tetrachloroethene (1 sample), trichloroethene (2 samples), benzo(a)anthracene (1 sample), bis(2-ethylhexyl)phthalate (1 sample), heptachlor epoxide (1 sample), and the USEPA priority pollutant metal lead (1 sample) exceeded the NYSDEC surface water standards or guidance values. Of these contaminants, the concentrations of tetrachloroethene (1 sample), benzo(a)anthracene (1 sample) and heptachlor epoxide (1 sample) significantly exceeded (by a factor of four or more) the surface water standards or guidance values. These results are consistent with the historic surface water samples collected from the site.

Sediment at the Old Upper Mountain Road Site contains volatile organic compounds, semivolatile organic compounds, pesticides, polychlorinated biphenyls and metals. The concentrations of dichloroethene (2 samples), benzo(a)anthracene (2 samples), benzo(a)pyrene (2 samples), benzo(b)fluoranthene (2 samples), benzo(k)fluoranthene (2 samples), chrysene (2 samples), indeno(1,2,3-cd)pyrene (2 samples), DDE (1 sample), DDT (1 sample), aldrin (1 sample), BHC (1 sample), dieldrin (1 sample), and the USEPA priority pollutant metals arsenic (1 sample), cadmium (2 samples), chromium (2 samples), copper (2 samples), lead (2 samples), mercury (1 sample), nickel (2 samples) and zinc (2 samples) exceeded the NYSDEC sediment criteria. Of these contaminants, the concentrations of dichloroethene (2 samples), benzo(a)anthracene (2 samples), benzo(a)pyrene (2 samples), benzo(b)fluoranthene (2 samples), benzo(k)fluoranthene (2 samples), chrysene (2 samples), indeno(1,2,3-cd)pyrene (2 samples), DDE (1 sample), arsenic (1 sample), cadmium (1 sample), chromium (1 sample), copper (1 sample), lead (1 sample), nickel (1 sample) and zinc (1 sample) significantly exceeded (by a factor of four or more) the sediment criteria. These results are consistent with the historic sediment samples collected from the site.

In summary, contaminated surface soil and waste at the Old Upper Mountain Road Site have adversely impacted surface water and sediment in Gulf Creek adjacent to the site. Surface soil and waste at the site contain individual volatile organic compounds, semivolatile organic compounds and metals at concentrations that exceed the NYSDEC Part 375 soil cleanup objectives. The concentrations of some of these contaminants exceed the soil cleanup objectives by a factor of four or more. These same contaminants have been detected in surface water and/or sediment at concentrations that exceed the respective standards, criteria and guidance values (SCGs). Eighteenmile Creek, which receives water from Gulf Creek, has been identified by the International Joint Commission as one of the 43 Areas of Concern in the Great Lakes Basin. The NYSDEC has issued a Remedial Action Plan for this creek. The data collected during the Site Investigation suggests that the Old Upper Mountain Road Site is a contaminant contributor to Eighteenmile

Creek.

It should also be stressed that the presence of volatile organic compounds and pesticides in the upstream surface water sample suggests that an upstream source of these contaminants exists in this area of Lockport. This source was not identified during the Site Investigation, although an attempt was made to identify the origin of the storm sewer that discharges into Gulf Creek.

The Site Investigation conducted at the Old Upper Mountain Road Site revealed that consequential amounts of hazardous wastes (D008 - lead) are present at this site. These hazardous wastes have adversely impacted surface water and sediment in Gulf Creek adjacent to the site. In addition, the presence of exposed ash throughout the site may also pose a public health risk due to the high concentrations of contaminants in this waste. As a result, it is recommended that the site be listed in the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites in New York State as a Class 2 site.

2.0 INTRODUCTION

Between June and October 2007 the New York State Department of Environmental Conservation (NYSDEC) conducted a Site Investigation at the Old Upper Mountain Road Site in the Town of Lockport, Niagara County, New York (Figure 1-1). The Old Upper Mountain Road Site, located near the intersection of NY State Routes 31 and 93, occupies a total area of approximately 7 acres in a mixed residential/commercial/industrial neighborhood (Figure 1-1). Although the site is not listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State (Registry), it is included in the NYSDEC's Hazardous Substance Site study. As a result, the Division of Environmental Remediation (DER) conducted a Site Investigation at the site to determine if hazardous wastes or substances were present, and if present, to determine if there was a consequential amount. The Site Investigation was also conducted to determine the degree to which historic waste disposal has contaminated environmental media at and near the site. The study results will be utilized to determine whether the Old Upper Mountain Road Site should be included in the Registry, and if so, what classification the site should be assigned.

This report summarizes the findings of the Site Investigation. The remaining sections of this report are organized as follows:

- **Section 3.0, Site History and Background:** Section 3.0 describes the site, and discusses the disposal history and previous investigations completed at the site;

- **Section 4.0, Study Objectives and Scope of Work:** Section 4.0 describes the objectives of the Site Investigation and the activities that were completed during the Site Investigation;

- **Section 5.0, Geology and Hydrogeology:** Section 5.0 describes the regional and site geology and hydrogeology. The characteristics, areal extent and hydrogeologic properties of the strata are discussed;

- **Section 6.0, Investigation Results:** Section 6.0 describes the findings of the Site Investigation, including general observations and a summary of the analytical results obtained from various environmental media (i.e., surface soil, subsurface soil, surface water and sediment);

- **Section 7.0, Discussion and Recommendation:** Section 7.0 summarizes the findings of the Site Investigation as they relate to the objectives presented in Section 4.0.

Recommendations for future activities regarding the site are also discussed; and

- **Section 8.0, References:** Section 8.0 contains a list of references utilized or cited in the report.

Figures, tables and appendices, in that order, follow Section 8.0.

3.0 SITE HISTORY AND BACKGROUND

3.1 Site Description

The Old Upper Mountain Road Site consists of seven parcels near the intersection of NY State Routes 31 and 93 in the Town of Lockport, Niagara County, New York (Figure 1-1). The site occupies an area of approximately 7 acres in a mixed residential/commercial/industrial neighborhood, and is heavily vegetated with weeds, small bushes and trees. The site is bounded on the west by Old Upper Mountain Road, on the south and east by the Somerset Railroad, and on the north by private property and a ravine approximately eighty feet deep known as the Gulf (Figure 1-1). A narrow stream flows along the bottom of the ravine and forms one of the headwaters of the East Branch of Gulf Creek. Gulf Creek flows in a northerly direction from the site and eventually discharges into Eighteenmile Creek approximately one mile to the north. The majority of the site is located on a relatively flat-lying plateau (Figure 1-1). Evidence of disposal at the site, such as ash, glass, tires, junk autos and boats, and construction and demolition debris was observed during a site reconnaissance in June 2007.

The surface topography of the Old Upper Mountain Road Site is relatively flat-lying, with elevations ranging from approximately 590 to 598 feet above mean sea level (amsl) based upon USGS topographic mapping of the area. North of the plateau the property slopes steeply downward into the Gulf (Figure 1-1). The surface elevation at the bottom of the ravine is approximately 520 ft amsl. From the Gulf the property slopes steeply upward before forming another plateau northwest of the site. Surface elevations in the this area range from approximately 590 to 593 feet amsl.

3.2 Site History

3.2.1 *Site Discovery*

The site was initially discovered in 1993 during a routine inspection of the Lockport City Landfill (NYSDEC Site No. 932010) located north of the Old Upper Mountain Road Site (Figure 1-1). Evidence of ash and glass debris was noted throughout the top portion of the landfill, while recent dumping of trash/rubbish/tires was noted at the southern portion of the site. It also appeared that a significant quantity of waste was pushed over the embankment into the ravine.

3.2.2 *Operation History*

The Old Upper Mountain Road Site was reportedly rented from Mr. Clapsattle and operated as a municipal dump by the City of Lockport from 1921 through the 1950's. Access to the landfill at that time was from a viaduct under the railroad track just north of Old Upper Mountain Road (now Otto Place Road; Figure 1-1). In later years, a gate was placed at the viaduct to control unauthorized dumping. The gate,

however, was apparently left unlocked and anyone could push it open. Garbage and other wastes were apparently dumped at the landfill, burned, and then pushed into the ravine. The City of Lockport moved its dumping operations in the 1950's to the area known today as the Lockport City Landfill, on property which it reportedly repossessed on taxes.

The Old Upper Mountain Road Site was reportedly used by the same clientele as the City of Lockport Landfill as there was only a shift in location between the two landfills. Clientele reportedly included Harrison Radiator, VanDeMark Chemical, Milward Alloys, Vanchlor, Upson, and Cotton Batting. Different areas of the dump were reportedly assigned to different companies. Neighboring residents often referred to the Harrison Dump, Upson Dump, etc. Several tin shack squatters were observed living at the site salvaging glass, rags and scrap metal.

3.2.3 *Previous Investigations*

On November 5, 1997 NYSDEC Central Office Division of Hazardous Site Control staff conducted a sampling event at the Old Upper Mountain Road Site. This investigation was intended to serve as the initial step of a Preliminary Site Assessment (PSA) as described in an August 26, 1996 letter to the City of Lockport Mayor. Specifically, the purpose of this field sampling was to determine the level of overall chemical contamination at the site.

One surface water, one sediment and thirteen waste samples were collected from three general areas of the site: the plateau at the top of the bluff surrounding the headwaters area, the eastern precipice of the plateau, and Gulf Creek and its stream banks (Figure 3-1). Five samples were collected from the plateau area, four from the eastern precipice, and five from the Gulf Creek area. The surface water and sediment samples were collected from Gulf Creek. Detailed information concerning sample collection and analysis is given in Table 3-1.

All thirteen waste samples contained volatile organic compounds, with the concentrations of trichloroethene and tetrachloroethene in one sample exceeding the NYSDEC soil cleanup objectives (Table 3-2). All thirteen waste samples also contained semivolatile organic compounds, with the concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene in one sample exceeding the NYSDEC soil cleanup objectives (Table 3-2). Pesticides and PCBs were also detected in several samples, but none of the concentrations exceeded the NYSDEC soil cleanup objectives (Table 3-2).

Twenty metals were detected in the waste samples collected from the site (Table 3-2). Of these compounds, sixteen were detected at concentrations that exceeded the NYSDEC soil cleanup objectives (Table 3-2), with eleven of these metals being USEPA priority pollutant metals. USEPA priority pollutant metals are toxic metals for which technology-based effluent limitations and guidelines are required by Federal law. The priority pollutant metals exceeding the soil cleanup objectives (with the number of exceedances and maximum concentrations) included antimony (10 samples; 415 mg/kg); arsenic (7 samples; 35.6 mg/kg), cadmium (10 samples; 29.2 mg/kg), chromium (8 samples; 148 mg/kg), copper (10 samples; 26,800 mg/kg), lead (12 samples; 56,900 mg/kg); mercury (5 samples; 19.3 mg/kg), nickel (4 samples; 348 mg/kg), silver (3 samples; 147 mg/kg), thallium (3 samples; 5.2 mg/kg) and zinc (6 samples; 6,510 mg/kg).

The surface water sample contained three volatile organic compounds (1,2-dichloroethene, trichloroethene and tetrachloroethene) at concentrations that exceeded the NYSDEC surface water standards or guidance values (Table 3-3). The sediment sample collected from the same location contained one volatile (1,2-dichloroethene), six semivolatile (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene and indeno(1,2,3-cd)pyrene) and eleven metals (antimony, arsenic, barium, cadmium, chromium, copper, iron, lead, nickel, silver and zinc) at concentrations that exceeded the NYSDEC sediment criteria (Table 3-4).

On October 20, 1998 the NYSDOH collected one surface water and five surface soil samples from the site. Detailed information concerning sample collection and analysis is given in Table 3-1. The surface water sample was collected upstream of the surface water sample collected by the NYSDEC the previous year, and analyzed only for volatile organic compounds. This sample contained seven volatile organic compounds, with the concentrations of four compounds (1,2-dichloroethene, trichloroethene, tetrachloroethene and vinyl chloride) exceeding the NYSDEC surface water standards or guidance values (Table 3-3).

The surface soil samples were only analyzed for metals. Seventeen metals were detected in these samples, with the concentrations of thirteen metals exceeding the NYSDEC soil cleanup objectives (Table 3-2). Eight of these metals were USEPA priority pollutant metals. The priority pollutant metals exceeding the soil cleanup objectives (with the number of exceedances and maximum concentrations) included arsenic (1 sample; 18.0 mg/kg), cadmium (5 samples; 62.0 mg/kg), chromium (4 samples; 974 mg/kg), copper (5 samples; 88,700 mg/kg), lead (5 samples; 36,600 mg/kg); mercury (1 sample; 2.0 mg/kg), nickel (3 samples; 995 mg/kg) and zinc (4 samples; 29,600 mg/kg).

4.0 STUDY OBJECTIVES AND SCOPE OF WORK

4.1 Objectives

The overall objective of the Site Investigation was to obtain information sufficient to determine if the Old Upper Mountain Road Site should be included in the Registry of Inactive Hazardous Waste Sites, and if so, what the appropriate Site classification should be. The specific objectives of this investigation were to:

- evaluate the site to determine if hazardous wastes or substances were present, and if present, to determine if there was a consequential amount; and

- determine the degree to which historic waste disposal has contaminated environmental media at and near the site.

These objectives were determined through the analysis of surface soil, waste, surface water and sediment samples collected during the Site Investigation.

4.2 Scope of Work

To meet the study objectives, the following activities were completed during the Site Investigation: (1) a soil boring program, (2) a waste pit sampling program, (3) collection of environmental samples for chemical analysis, and (4) preparation of a site map. These activities are briefly described in the following sections. All field work was conducted in level D personal protective equipment, while air monitoring for organic vapors was completed during intrusive activities by NYSDEC personnel. The direct push vehicle and sampling equipment were deconed prior to the implementation of field activities, with the sampling equipment decontaminated between samples.

4.2.1 *Soil Boring Program*

During the Site Investigation, sixteen soil borings (SB-1 thru SB-16) were completed throughout the site to evaluate the historic disposal area and to facilitate the collection of subsurface waste samples. The locations of these borings are shown on Figure 4-1. Continuous macro core samples were collected at each location with discrete samples collected for chemical analysis (see Section 4.2.4 below).

4.2.2 *Waste Pit Sampling Program*

Prior to the start of the soil boring program, five waste samples were collected from pits located throughout the site. The locations of these samples are shown on Figure 4-2. These pits have been dug into the waste by individuals scavenging for antique bottles and other items.

4.2.3 *Micro-Wells*

It was originally planned to convert four soil borings (SB-2, SB-8, SB-13 and SB-16) into micro-wells to evaluate groundwater flow patterns across the site and to determine whether contamination is migrating from the former disposal area. During implementation of the soil boring program, however, saturated soil/waste was not encountered at thicknesses sufficient to justify the installation of micro-wells. As a result, micro-wells were not installed during the Site Investigation.

4.2.4 *Sample Collection and Analysis*

With the exception of the macro core samples collected during the soil boring program, all samples were collected by NYSDEC personnel. During the Site Investigation six surface soil samples (Figure 4-2), thirty-three waste samples from five pits and fourteen soil borings (Figure 4-2), two surface water samples (Figure 4-2) and two sediment samples (Figure 4-2) were collected and submitted to Severn Trent Laboratories, Inc. (STL) in Amherst, New York for chemical analysis. Information concerning sample collection and analysis is given in Table 4-1. Groundwater samples were not collected during the Site Investigation because micro-wells were not installed.

4.2.5 *Surveying and Mapping*

A map of the Old Upper Mountain Road Site was prepared by the NYSDEC as part of the Site Investigation. This map was prepared by digitizing and overlaying Niagara County tax maps, USGS topographic maps and aerial photographs. The final map includes the site boundaries; property boundaries; the ravine; tributaries and streams on and near the site; nearby roadways; all soil boring locations; the locations of historic samples collected at the site; and the locations of all samples collected as part of the Site Investigation. In addition, the latitude, longitude and ground surface elevation at each boring location was surveyed using a handheld Magellan Meridian GPS unit. The coordinates for each boring are given in Appendix B, while the ground surface elevations are given in Table 5-2 and Appendix A.

4.2.6 *Report Preparation*

This report was prepared to describe the activities completed during the Site Investigation of the Old Upper Mountain Road Site; present the analytical results of the samples collected during the investigation; discuss the results as they relate to the objectives of the investigation; and present recommendations for future activities at the site.

5.0 GEOLOGY AND HYDROGEOLOGY

Site Investigation activities were undertaken, in part, to determine the characteristics, areal extent and hydrogeologic properties of the geologic strata underlying the Old Upper Mountain Road Site. This is important as these attributes of the geologic strata govern the occurrence and flow of groundwater across the site. These attributes also govern the potential for contaminant migration from the site, and determine the rate and extent of this migration. As a result, a detailed evaluation of the geology at the Old Upper Mountain Road Site is essential. Before completing such a detailed evaluation, however, it is important to first describe the regional geologic history of the western New York area as a general knowledge of this history is critical to a complete understanding of the complex interrelationships between the various geologic strata and their hydrogeologic properties.

5.1 Regional Geology

5.1.1 *Surficial Geology*

Geologic evidence suggests that at least four major glacial episodes covered parts of North America during the Pleistocene Epoch (Buehler and Tesmer, 1963). In western New York, however, there is evidence of only two such episodes. The last glacial event in the area, the Wisconsin, eroded and modified the earlier glacial deposits to such an extent that little evidence of their existence remains. These glacial events widened the preexisting valleys and basins, and led to the development of the present day drainage system in western New York (La Sala, 1968).

A complex sequence of proglacial lakes that formed during the final retreat of the Wisconsin ice sheet inundated an extensive area of western New York. This succession originated in the Erie-Huron Basin prior to 14,000 years ago as the ice sheet retreated from the basin. Further retreat produced Lake Arkona about 13,600 years ago (Hough, 1958); a readvance of the ice sheet followed about 13,000 years ago and resulted in a water level increase to the Lake Whittlesey stage. A series of advances and retreats over the next 300 years produced, from latest to earliest, lakes Warren, Wayne, Lowest Warren, Grassmere, Lundy and Tonawanda, the last forming about 9,800 years ago (Calkins and Brett, 1978). To the north, Lake Iroquois occupied the Ontario Basin at this time. This lake sequence was responsible for the deposition of stratified lacustrine clays, silts, sands and gravels that now cover much of western New York.

The Pleistocene Epoch presented a variety of environments that resulted in the deposition of unconsolidated deposits. In the Lockport area these deposits include the following (GZA, 1987; Smith, 1990; Ecology and Environment, 1991):

- Glacial till, consisting of a non-sorted, non-stratified mixture of sand, silt, clay, gravel and rock fragments deposited directly from glacial ice;

- Glaciolacustrine deposits, consisting primarily of silt, sand and clay deposited in lakes that formed during melting of the ice sheets; and

- Glaciofluvial deposits, consisting of sand and gravel deposited either by glacial meltwater streams or by the reworking of till and other glacial deposits along the shore of former glacial lakes.

The thickness of these deposits in the Lockport Area varies considerably, ranging from less than 2 feet near the Niagara Escarpment to approximately 45 feet at the Frontier Pendleton Quarry Site approximately 5 miles southwest of the Old Upper Mountain Road Site (Golder, 1989).

5.1.2 *Bedrock Geology*

The bedrock underlying western New York is characterized as a thick sequence of shales, sandstones, limestones and dolostones deposited in ancient seas during the Silurian and Devonian Periods (Buehler and Tesmer, 1963). This stratigraphic sequence is summarized in Table 5-1. Bedrock bedding generally strikes in an east-west direction, approximately paralleling the Niagara and Onondaga Escarpments, and dips to the south at approximately 30 to 40 feet per mile (Johnson, 1964; La Sala, 1968; Yager and Kappel, 1987). Erosion and weathering, however, have produced local differences in the bedrock surface configuration (Snyder Engineering, 1987).

The uppermost bedrock formation underlying the Old Upper Mountain Road Site is the Guelph Dolostone of the Lockport Group (Table 5-1), which was deposited in a shallow sea environment during the Middle Silurian Period (439-408 million years ago) (Brett et al., 1995). The Lockport Group varies in thickness from 20 to 175 feet (Johnson, 1964; Brett et al., 1995); in the vicinity of the Old Upper Mountain Road Site the thickness of the Lockport Group ranges from 35 to 62 feet. Brett et al (1995, page 45) describe the Lockport Group as a "massive- to medium-bedded, argillaceous dolomite with minor amounts of dolomite and shale." The upper 10 to 25 feet of the Lockport Group contains abundant bedding planes and vertical fractures enlarged by dissolution and glacial scour (Miller and Kappel, 1987).

5.2 Site Geology

Sixteen soil borings (Figure 4-1) were completed during the Site Investigation to evaluate the stratigraphy of the Old Upper Mountain Road Site. Fourteen of these borings were completed to refusal, while the remaining two borings were completed to a depth of 36 feet (the maximum depth possible with the drilling equipment available). The stratigraphic logs for these borings are given in Appendix A, while a stratigraphic summary of these logs is given in Table 5-2.

5.2.1 *Non-Native Deposits*

Subsurface soil and waste samples were collected continuously from the ground surface to refusal (or 36 feet bgs) at all soil boring locations completed during the Site Investigation. These samples indicate that two non-native deposits underlie the Old Upper Mountain Road Site. These units consist of clean fill (topsoil or imported native soils) and waste material. Clean fill was encountered in thirteen borings completed at the site, and ranged in thickness from 0.1 to 5.1 feet (Table 5-2).

Waste material was encountered in all sixteen borings, and consisted predominantly of multi-colored, layered ash containing glass, rock, ceramic, coal, brick and/or coke, with layers of foundry sand encountered in several borings. Where completely penetrated, the waste material ranged in thickness from 6.0 to 21.2 feet (Table 5-2). The two deep borings penetrated over 33 feet of waste (Table 5-2).

5.2.2 *Glaciolacustrine Deposit*

A relatively thin, glaciolacustrine deposit was encountered in nine of the sixteen borings completed during the Site Investigation, and directly underlies the waste (Table 5-2). This deposit consisted primarily of gray to brown silty clays and clayey silts containing numerous rock fragments, and ranged in thickness from 0.2 to 2.6 feet (Table 5-2). The glaciolacustrine deposit directly overlies a thin veneer of sapprolitic (weathered) bedrock.

5.2.3 *Guelph Dolostone*

The uppermost bedrock formation underlying the Old Upper Mountain Road Site is the Guelph Dolostone of the Lockport Group. Bedrock was encountered with certainty in eight borings completed during the Site Investigation. None of these borings, however, penetrated the formation to any significant depth. As a result, the best description of the Lockport Dolostone for this area of Niagara County comes from stratigraphic logs for monitoring wells completed at the nearby Delphi Thermal Site. At this site, the Lockport Dolostone was described as a grey dolomitic limestone that is typically hard and fine grained, and contains vertical and horizontal bedding plane fractures. The thickness of this formation beneath the Delphi

Thermal Site is approximately 40 to 45 feet, but does not have a sharp contact with the underlying Rochester Shale. Depth to bedrock at the Old Upper Mountain Road Site ranged from 12.7 to 22.0 feet (Table 5-2).

5.3 Regional Hydrogeology

Water bearing zones in the Lockport area include unconsolidated glacial deposits and bedrock of the Lockport Group and Rochester Shale (Johnson, 1964; GZA, 1981; EHC, 1989). Most of the unconsolidated deposits in the area consist of fine grained glacial deposits with hydraulic conductivities roughly 10^{-7} cm/s or less (Earth Dimensions, 1980). These deposits, however, often contain horizontal laminations and sand lenses that can produce perched water table conditions, or if areally extensive, can be utilized as sources of water (La Sala, 1968). Because the unconsolidated deposits in the southwestern Lockport area are relatively thin, and horizontal laminations and sand lenses are not common, groundwater yields from these deposits would be too low for domestic or industrial purposes. Overburden groundwater flow in the area, therefore, is expected to be highly localized and discontinuous, with an overall flow toward the Gulf and Eighteenmile Creek.

The Lockport Group consists predominantly of dolostone; however, thin beds of limestone and shaly dolostone, and small irregularly shaped masses of gypsum are common. These thin beds and masses are subject to dissolution by groundwater, resulting in the enlargement of fractures and the formation of migration pathways that can transmit large quantities of groundwater. Groundwater wells completed in the Lockport Group have yields commonly ranging from 10 to 100 gpm (Miller and Kappel, 1987), with yields up to 950 gpm reported (Yager and Kappel, 1987). Groundwater in the Lockport Group is typically either a calcium-sulfate or calcium-bicarbonate water, is very hard, and is highly mineralized; calcium, bicarbonate, magnesium, sulfate and chloride are present in significant concentrations (Johnson, 1964; La Sala, 1968; NYSDEC, 1997). Due to this poor water quality and the nearby presence of the Niagara River, an important source of municipal drinking water throughout Western New York, bedrock groundwater is not extensively utilized as a domestic water source in the Lockport area. Because of the significant well yields, however, groundwater is commonly utilized for industrial purposes (i.e., non-contact cooling; quarry washing operations).

Most recharge to the Lockport Group results from infiltration of rainfall, snowmelt, and surface water through the overburden deposits; subsurface flow of groundwater from areas of higher elevation (e.g., the Niagara Escarpment) also recharges the bedrock aquifer (Johnson, 1964; La Sala, 1968; Miller and Kappel, 1987; Yager and Kappel, 1987). The blocky structure of the native glacial deposits in the southwestern Lockport area likely permits rapid recharge of the upper bedrock aquifer by infiltration. Recharge of deeper

bedrock aquifers by infiltration through the floor of the nearby quarry and Erie Barge Canal is also expected to be rapid.

Groundwater occurs primarily within the Lockport Group in the following types of openings: (1) weathered surface fractures, (2) bedding joints, (3) vertical joints, and (4) small cavities and vugs. The principal control on bedrock groundwater flow, however, is the vertical and horizontal bedding plane fractures. The latter are expected to be the primary groundwater flow pathways in the Lockport Group, especially in the upper unit, which is extensively fractured. Johnson (1964) identified seven such zones in the Niagara Falls area. Similar zones are likely to be found in the Lockport area but have not been extensively studied, nor correlated with those in Niagara Falls. Some horizontal groundwater flow, however, could also occur through small cavities and vugs (Woodward-Clyde and Conestoga-Rovers & Associates, 1992). Vertical movement of groundwater also occurs, especially in the upper 10 to 25 feet of rock where vertical fractures, created by stress relief from tectonic events, glacial rebound (Gross and Engelder, 1991), and quarrying operations (GZA, 1981) have been enlarged by dissolution and/or glacial scour. The extent of vertical groundwater movement within the Lockport Group in the Lockport area, however, is unknown. Where horizontal and vertical fractures intersect, the water bearing capacity of the bedrock is substantially increased. Although such areas have been identified in the Niagara Falls area, little investigation has been conducted to identify such areas in the Lockport area.

5.3.1 *Regional Groundwater Flow*

There are several natural features and man-made structures that greatly influence bedrock groundwater flow in the southwestern Lockport area, including the Niagara Escarpment and Gulf, the former Frontier Stone Products quarry, and the Erie Barge Canal (Figure 5-1). Prior to the initiation of quarrying operations, little information regarding regional groundwater flow in the upper Lockport Group bedrock is available. It is suspected, however, that historic regional groundwater flow in the southwestern portion of Lockport was largely toward the Gulf, with more localized flow toward the Erie Barge Canal. The initiation of quarrying operations, however, has altered this flow. Water levels measured in area wells indicate that upper bedrock groundwater flows from a roughly north-south trending groundwater divide centered over the Guterl Specialty Steel Corporation Landfill (Figure 5-2). From this divide, groundwater flows west toward the former Frontier Stone Products quarry, while groundwater under the Diamond Shamrock Site and Guterl Excised Area flows east toward the Erie Barge Canal (Figure 5-2). To the north, groundwater under the Delphi Thermal facility flows east toward the Gulf, while groundwater under the Lockport City Landfill flow west toward the Gulf (Figure 5-2).

5.4 Site Hydrogeology

As stated in Section 4.2.3, saturated soil/waste was not encountered at thicknesses sufficient to justify the installation of micro-wells. As a result, the hydrogeology of the Old Upper Mountain Road Site cannot be evaluated. Based upon the regional groundwater flow in the area (Figure 5-2), however, it is suspected that site groundwater flows to the north towards the Gulf.

6.0 INVESTIGATION RESULTS

A brief description of the activities completed during the Site Investigation of the Old Upper Mountain Road Site was presented in Section 4.0. In this section, a detailed evaluation of the observations made during the investigation and the analytical results obtained from the samples are presented. Analytical results are summarized by environmental media (e.g., surface soil, waste, surface water, sediment and groundwater).

For this report, analytical results for surface soil and waste were evaluated against the residential soil cleanup objectives of Table 375-6.8(b) contained in the December 2006 NYSDEC publication entitled "*6NYCRR Part 375: Environmental Remediation Programs*". For contaminants not included in Part 375, the soil cleanup objectives identified in the October 1995 NYSDEC publication entitled "*Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels*" were utilized. When utilized, the soil cleanup objectives for individual semivolatile organic compounds were taken directly from Table 2 of the TAGM, while the soil cleanup objective for pesticides were taken directly from Table 3. For metals, TAGM 4046 allows the use of background concentrations so long as the background samples are collected from areas not impacted by the site and any other source of contaminants. Background samples, however, were not collected during the Site Investigation of the Old Upper Mountain Road Site. As a result, the background metals concentrations determined during the Site Investigation of the Former Flintkote Plant Site in the City of Lockport, Niagara County, New York (TVGA, 2005) were utilized in this report. This site is located approximately 2.0 miles northeast of the Old Upper Mountain Road Site. The regulatory limits for the hazardous waste characteristics were obtained from the January 1995 NYSDEC publication entitled "*6 NYCRR Part 371: Identification and Listing of Hazardous Wastes*".

Analytical results for water samples were evaluated against the water quality standards and guidance values contained in the June 1998 NYSDEC publication entitled "*Technical and Operational Guidance Series (TOGS) 1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*". The surface water standards and guidance values for individual contaminants were taken directly from Table 1.

Sediment criteria were developed from the January 1999 NYSDEC publication entitled "*Technical Guidance for Screening Contaminated Sediments"*. This document contains guidance values for several levels of protection including: (1) human health bioaccumulation, (2) wildlife bioaccumulation, (3) acute toxicity to benthic aquatic life, and (4) chronic toxicity to benthic aquatic life. These guidance values are

derived using equilibrium partitioning methodology and are calculated as a function of the organic carbon content of the sediment being evaluated. The sediment analytical results evaluated during the Site Investigation, however, did not include total organic carbon. As a result, the mean total organic carbon content of 3.14% that was determined during the Remedial Investigation of the Eighteenmile Creek Corridor Site in the City of Lockport, Niagara County, New York (NYSDEC, 2006) was utilized in this report. This site is located approximately 2.0 miles northeast of the Old Upper Mountain Road Site.

For screening purposes, the sediment criteria to protect benthic aquatic life from chronic toxicity were utilized. When these criteria were not available for a particular contaminant, the sediment criteria for human health bioaccumulation were utilized, and if these criteria were not available, the NYSDEC Part 375 soil cleanup objectives for the protection of ecological resources were used. For metals, the lowest effect levels from Table 2 of the *Technical Guidance for Screening Contaminated Sediments"* were utilized. When these criteria were not available for a particular metal, the NYSDEC Part 375 soil cleanup objectives for the protection of ecological resources were utilized, and if these criteria were not available, the NYSDEC TAGM 4046 soil cleanup objectives were utilized, which include the site background values obtained during the Flintkote Site Investigation.

6.1 General Observations

The ravine portion of the Old Upper Mountain Road Site is heavily vegetated and contains steep slopes (Figures 6-1 and 6-2) that make travel around this portion of the site extremely difficult and exacerbates the ability to easily inspect the area. Portions of the plateau area of the Old Upper Mountain Road Site are also heavily vegetated with weeds, small bushes and trees (Figures 6-3 thru 6-6). The plateau area of the site, however, contains roadways from a former junk auto operation (Figures 6-4 thru 6-7), so travel around this area was relatively easy, and provided access for the Geoprobe rig to the boring locations.

No buildings where observed on the site. While individuals were not observed on site during any of the Site Investigation activities, evidence of trespassing was observed (e.g., dumping, ATV tracks; Figures 6-8 thru 6-10). Tires from the former junk auto operation also remain on-site (Figure 6-11).

During the site reconnaissance, waste material (primarily ash) was observed at the surface throughout the site (both the plateau and ravine areas). On the plateau portion of the site, pits have been dug into the ash by individuals scavenging for antique bottles and other items (Figures 6-12 thru 6-13). Samples of this ash were collected during the Site Investigation and submitted to Severn Trent Laboratories for chemical analysis. The results of these analyses are described in Sections 6.2 (surface soil) and 6.3 (waste) below.

6.2 Surface Soil

Six surface soil samples from the Old Upper Mountain Road Site were collected during the Site Investigation. The locations of these samples are shown on Figure 4-2. All samples consisted of native soil or fill, and were collected to evaluate the nature of surface soil contamination at the site. All samples were submitted to Severn Trent Laboratories for chemical analysis of Target Analyte List (TAL) metals, with five of these samples also analyzed for Target Compound List (TCL) semivolatile organic compounds (SVOCs), TCL pesticides and TCL polychlorinated biphenyls (PCBs). Three surface soil samples were also analyzed for hazardous waste characteristics using the Toxicity Characteristic Leaching Procedure (TCLP). The analytical results for these samples are summarized in Tables 6-1 and 6-2, while information concerning sample collection and analysis is given in Table 4-1.

Twenty-two semivolatile organic compounds were detected in the surface soil samples with seventeen of these constituents being polycyclic aromatic hydrocarbons (PAHs). PAHs are a group of over 100 different chemicals that are ubiquitous in the environment. Sources of PAHs include incomplete combustion of coal, oil, gasoline, garbage, wood from stoves, automobiles and incinerators. PAHs are also found in coal tar, crude oil, creosote, roofing tar, medicines, dyes, plastics and pesticides. The presence of PAHs in surface soil at the Old Upper Mountain Road Site was not unexpected due to the large quantities of ash found throughout the site. Of these compounds, only benzo(a)anthracene (2 samples), benzo(a)pyrene (3 samples), benzo(b)fluoranthene (2 samples), chrysene (2 samples), dibenzo(a,h)anthracene (2 samples) and indeno(1,2,3-cd)pyrene (2 samples) were detected at concentrations that exceeded the NYSDEC Part 375 soil cleanup objectives (Table 6-1). All of these concentrations, however, were estimated due to their relatively low values.

Phthalates [bis(2-ethylhexyl)phthalate and di-n-octylphthalate] were detected in two of the surface soil samples collected from the site (Table 6-1). None of the concentrations, however, exceeded the NYSDEC TAGM 4046 soil cleanup objectives. There are no NYSDEC Part 375 soil cleanup objectives for these contaminants. Carbazole (2 samples), 4-chloro-3-methylphenol (2 samples) and dibenzofuran (2 samples) were also detected in the surface soil samples with the concentration of 4-chloro-3-methylphenol in two samples exceeding the NYSDEC TAGM 4046 soil cleanup objective for this contaminant (Table 6-1). There is no NYSDEC Part 375 soil cleanup objective for this contaminant, nor are there any soil cleanup objectives for carbazole.

The surface soil samples collected from the Old Upper Mountain Road Site were also analyzed for PCBs and pesticides (Table 6-1). PCBs were only detected in one sample, but at a concentration below the

NYSDEC Part 375 soil cleanup objective. Thirteen pesticides were detected in the surface soil samples collected from the site with only the concentration of dieldrin (1 sample) exceeding the NYSDEC Part 375 soil cleanup objectives (Table 6-1).

Seventeen metals were detected in the surface soil samples collected from the Old Upper Mountain Road Site (Table 6-1). Of these compounds, thirteen were detected at concentrations that exceeded the NYSDEC Part 375 or TAGM 4046 soil cleanup objectives, with ten of these metals being USEPA priority pollutant metals. USEPA priority pollutant metals are toxic metals for which technology-based effluent limitations and guidelines are required by Federal law. The priority pollutant metals exceeding the soil cleanup objectives (with the number of exceedances and maximum concentrations) include: antimony (2 samples; 269 mg/kg), arsenic (4 samples; 37.3 mg/kg), cadmium (3 samples; 55.4 mg/kg), chromium (5 samples; 297 mg/kg), copper (3 samples; 22,300 mg/kg), lead (3 samples; 24,300 mg/kg), mercury (1 sample; 1.9 mg/kg), nickel (1 sample; 1,070 mg/kg), silver (1 sample; 114 mg/kg) and zinc (1 sample; 13,400 mg/kg).

Following a review of the TAL metal results, three surface soil samples were further analyzed for hazardous waste characteristics using the Toxicity Characteristic Leaching Procedure (TCLP). The TCLP results for these samples are summarized in Table 6-2. This table shows that one of the surface soil samples collected from the Old Upper Mountain Road Site failed the TCLP Regulatory Limit for lead, confirming that some surface soil at the site is a characteristic hazardous waste (D008). Table 6-2 also shows that cadmium and chromium can leach from surface soil but at non-hazardous concentrations.

6.3 Waste

Thirty-four waste samples from the Old Upper Mountain Road Site were collected during the Site Investigation. Twenty-nine samples were collected from the borings, four samples were collected from the pits located throughout the site, and one sample was collected near the base of the ravine. The locations of these samples are shown on Figure 4-2. All samples were submitted to Severn Trent Laboratories for chemical analysis; thirty of these samples were analyzed for TAL or RCRA metals, with ten of these samples also analyzed for TCL semivolatile organic compounds, TCL pesticides and TCL PCBs. One of these samples was additionally analyzed for TCL volatile organic compounds. Two samples not analyzed for metals were analyzed for TCL semivolatile organic compounds, TCL pesticides and TCL PCBs. Two additional samples were analyzed for TCL volatile organic compounds only. Following a review of the TAL and RCRA metal results, twenty-three waste samples were further analyzed for hazardous waste characteristics using the Toxicity Characteristic Leaching Procedure (TCLP). These samples were also re-analyzed for total lead for comparison to the initial lead results. The analytical results for these samples are

summarized in Tables 6-2 and 6-3, while information concerning sample collection and analysis is given in Table 4-1.

The results of the organic analyses reveal that both volatile and semivolatile organic compounds were detected in the waste samples collected from the Old Upper Mountain Road Site (Table 6-3). Volatile organic compounds detected in the waste included acetone (1 sample), dichloroethane (2 samples), dichloroethene (2 samples), methylene chloride (3 samples), tetrachloroethene (3 samples), toluene (3 samples), trichloroethane (3 samples) and trichloroethene (3 samples). Of these compounds, only tetrachloroethene (2 samples) and trichloroethene (2 samples) were detected at concentrations that exceeded the NYSDEC Part 375 soil cleanup objectives (Table 6-3).

Twenty-seven semivolatile organic compounds were detected in the waste samples collected from the Old Upper Mountain Road Site (Table 6-3) with seventeen of these constituents being polycyclic aromatic hydrocarbons. Of these compounds, only benzo(a)anthracene (4 samples), benzo(a)pyrene (3 samples), benzo(b)fluoranthene (3 samples), benzo(k)fluoranthene (1 sample), chrysene (3 samples), dibenzo(a,h)anthracene (3 samples) and indeno(1,2,3-cd)pyrene (3 samples) were detected at concentrations that exceeded the NYSDEC Part 375 soil cleanup objectives (Table 6-3).

Phthalates [bis(2-ethylhexyl)phthalate and di-n-octylphthalate] were also detected in the waste samples collected from the site (Table 6-3). None of the concentrations, however, exceeded the NYSDEC TAGM 4046 soil cleanup objectives. There are no NYSDEC Part 375 soil cleanup objectives for these contaminants. Benzaldehyde (1 sample), biphenyl (1 sample), carbazole (6 samples), dibenzofuran (2 samples), hexachlorobenzene (1 sample), 4-methylphenol (1 sample), pentachlorophenol (1 sample) and phenol (1 sample) were also detected in the waste samples with the concentration of pentachlorophenol in one sample exceeding the NYSDEC Part 375 soil cleanup objective for this contaminant (Table 6-3).

The waste samples collected from the Old Upper Mountain Road Site were also analyzed for PCBs and pesticides (Table 6-3). PCBs were detected in only three samples, and at concentrations below the NYSDEC Part 375 soil cleanup objective. Thirteen pesticides were detected in the waste samples collected from the site (Table 6-3). None of the concentrations, however, exceeded the NYSDEC soil cleanup objectives (Table 6-3).

Eighteen metals were detected in the waste samples collected from the Old Upper Mountain Road Site (Table 6-3). Of these compounds, twelve were detected at concentrations that exceeded the NYSDEC

Part 375 or TAGM 4046 soil cleanup objectives, with nine of these metals being USEPA priority pollutant metals. The priority pollutant metals exceeding the soil cleanup objectives (with the number of exceedances and maximum concentrations) include: antimony (6 samples; 276 mg/kg), arsenic (11 samples; 50.8 mg/kg), cadmium (17 samples; 20.9 mg/kg), chromium (12 samples; 238 mg/kg), copper (15 samples; 13,400 mg/kg), lead (18 samples; 77,300 mg/kg), mercury (7 samples; 5.8 mg/kg), nickel (3 samples; 336 mg/kg) and zinc (9 samples; 14,900 mg/kg). The results of the duplicate analyses indicate that precision, expressed in terms of relative percent difference, ranged from 3% to 139%. The RPD for thirteen of the twenty samples, however, was less than 50%. The higher RPDs are likely related to the variable nature of the waste, rather than to field and/or laboratory handling procedures.

Waste at the Old Upper Mountain Road Site is layered, supporting the idea that garbage and other wastes were dumped at the landfill, burned, and then pushed into the ravine. In an effort to better understand the distribution of metals in the waste with depth, and hence time, nine discrete samples from soil boring SB-2 were submitted to Severn Trent Laboratories for chemical analysis of RCRA metals. Figures 6-14A thru F graphically show the results from these analyses for the six metals (arsenic, barium, cadmium, chromium, lead and mercury) detected in every sample. These figures reveal that concentrations vary with depth for each of the metals. These figures further reveal that none of the concentrations within the upper 12 feet of waste, with the exception of lead, exceeded the NYSDEC Part 375 soil cleanup objectives. From 12.0 to 16.0 feet depth, only the concentrations of arsenic, barium, and lead exceeded the NYSDEC Part 375 soil cleanup objectives. From 16.0 to 20.0 feet depth, however, all of the concentrations, with the exception of chromium, exceeded the NYSDEC Part 375 soil cleanup objectives. From 20.0 to 36.0 feet depth, concentrations of arsenic (2 samples), cadmium (2 samples), chromium (1 sample) and lead (4 samples) exceeded the NYSDEC Part 375 soil cleanup objectives. Lead exceeded the NYSDEC Part 375 soil cleanup objective for every sample except the one collected from 4.0 to 8.0 feet depth (Figure 6-14E), while the sample collected from 32.0 to 36.0 feet depth was the only sample to exceed the NYSDEC Part 375 soil cleanup objective for chromium (Figure 6-14D).

Following a review of the TAL and RCRA metal results, twenty-three waste samples were further analyzed for hazardous waste characteristics using the Toxicity Characteristic Leaching Procedure (TCLP). The TCLP results for these samples are summarized in Table 6-2. This table shows that thirteen waste samples collected from the Old Upper Mountain Road Site failed the TCLP Regulatory Limit for lead, confirming that some waste at the site is a characteristic hazardous waste (D008).

6.4 Surface Water

Two surface water samples from the Old Upper Mountain Road Site were collected during the Site Investigation. One sample was collected from a discharge pipe near Old Upper Mountain Road (upstream sample), while the second sample was collected from the base of the ravine near the location of the surface water sample collected by the NYSDOH in 1998 (downstream sample). The locations of these samples are shown on Figure 4-2. These samples were collected to evaluate the nature of surface water contamination entering, and being potentially impacted by, the site. Both samples were submitted to Severn Trent Laboratories for chemical analysis of TCL volatile organic compounds, TCL semivolatile organic compounds, TCL pesticides, TCL PCBs and TAL metals. The analytical results for these samples are summarized in Table 6-4, while information concerning sample collection and analysis is given in Table 4-1.

The results of the organic analyses reveal the presence of both volatile and semivolatile organic compounds in the surface water samples collected from the Old Upper Mountain Road Site (Table 6-4). Eight volatile organic compounds were detected in the surface water samples including bromodichloromethane (1 sample), bromoform (1 sample), chloroform (2 samples), dichloroethene (1 sample), dibromochloromethane (1 sample), tetrachloroethene (1 sample), trichloroethane (1 sample) and trichloroethene (2 samples). Of these compounds, chloroform (1 sample), dichloroethene (1 sample), tetrachloroethene (1 sample) and trichloroethene (2 samples) were detected at concentrations that exceeded the NYSDEC surface water standards or guidance values (Table 6-4).

Eight semivolatile organic compounds were also detected in the surface water samples with five of these constituents being polycyclic aromatic hydrocarbons. Of these compounds, only benzo(a)anthracene (1 sample) was detected at a concentration that exceeded the NYSDEC surface water standards or guidance values (Table 6-4). Three phthalates, including bis(2-ethylhexyl)phthalate (2 samples), butylbenzylphthalate (2 samples) and di-n-octylphthalate (2 samples), were also detected in the surface water samples. Only the concentration of bis(2-ethylhexyl)phthalate in one sample, however, exceeded the NYSDEC surface water standards or guidance values (Table 6-4). This contaminant, however, was also detected in the blank.

The surface water samples collected from the Old Upper Mountain Road Site were also analyzed for PCBs and pesticides (Table 6-4). PCBs were not detected in either sample. Six pesticides were detected in the surface water samples collected from the site with only the concentration of heptachlor epoxide in the upstream sample exceeding the NYSDEC surface water standards or guidance values (Table 6-4).

Eight metals were detected in the surface water samples collected from the Old Upper Mountain Road

Site (Table 6-4). Of these compounds, only aluminum, iron and lead in the downstream sample were detected at concentrations that exceeded the NYSDEC surface water standards or guidance values, with lead being an EPA priority pollutant metal.

6.5 Sediment

Two sediment samples from the Old Upper Mountain Road Site were collected during the Site Investigation. One sample was collected from the SW-1 location (upstream sample), while the second sample was collected from the SW-2 location (downstream sample). The locations of these samples are shown on Figure 4-2. These samples were collected to evaluate the nature of sediment contamination at the site. Both samples were submitted to Severn Trent Laboratories for chemical analysis of TCL volatile organic compounds, TCL semivolatile organic compounds, TCL pesticides, TCL PCBs and TAL metals. One of the sediment samples was also analyzed for TCLP lead. The analytical results for these samples are summarized in Tables 6-2 and 6-5, while information concerning sample collection and analysis is given in Table 4-1.

The results of the organic analyses reveal the presence of both volatile and semivolatile organic compounds in the sediment samples collected from the Old Upper Mountain Road Site (Table 6-5). Five volatile organic compounds were detected in the sediment samples including acetone (2 samples), carbon disulfide (2 samples), dichloroethene (2 samples), tetrachloroethene (1 sample) and trichlorofluoromethane (2 samples). Of these compounds, only dichloroethene (2 samples) was detected at concentrations that exceeded the NYSDEC sediment criteria (Table 6-5).

Ten semivolatile organic compounds were detected in the sediment samples with all ten of these constituents being polycyclic aromatic hydrocarbons. Of these compounds, benzo(a)anthracene (2 samples), benzo(a)pyrene (2 samples), benzo(b)fluoranthene (2 samples), benzo(k)fluoranthene (2 samples), chrysene (2 samples) and indeno(1,2,3-cd)pyrene (2 samples) were detected at concentrations that exceeded the NYSDEC sediment criteria (Table 6-5).

The sediment samples collected from the Old Upper Mountain Road Site were also analyzed for PCBs and pesticides (Table 6-5). PCBs were detected in one sample, but at a concentration below the NYSDEC sediment criteria. Five pesticides were detected in the sediment samples collected from the site with the concentrations of all five pesticides exceeding the NYSDEC sediment criteria (Table 6-5).

Fifteen metals were detected in the sediment samples collected from the Old Upper Mountain Road Site (Table 6-5). Of these compounds, eleven were detected at concentrations that exceeded the NYSDEC

sediment criteria. Eight of these metals are EPA priority pollutant metals. The priority pollutant metals exceeding the sediment criteria (with the number of exceedances and maximum concentrations) include: arsenic (1 sample; 64.7 mg/kg), cadmium (2 samples; 4.5 mg/kg), chromium (2 samples; 131 mg/kg), copper (2 samples; 562 mg/kg), lead (2 samples; 1,230 mg/kg), mercury (1 sample; 0.166 mg/kg), nickel (2 samples; 180 mg/kg) and zinc (2 samples; 8,170 mg/kg).

Following a review of the TAL metal results, one sediment sample was further analyzed for hazardous waste characteristics using the Toxicity Characteristic Leaching Procedure (TCLP). The TCLP results for this sample are summarized in Table 6-2. This table shows that sediment at the Old Upper Mountain Road Site is not a characteristic hazardous waste, although lead can leach from this sediment at low concentrations.

6.6 Groundwater

Saturated soil/waste was not encountered at thicknesses sufficient to justify the installation of micro-wells. As a result, groundwater samples were not collected during the Site Investigation.

7.0 DISCUSSION AND RECOMMENDATION

7.1 Discussion

The overall objective of the Site Investigation was to obtain information sufficient to determine if the Old Upper Mountain Road Site should be included in the Registry of Inactive Hazardous Waste Sites, and if so, what the appropriate site classification should be. The specific objectives of this investigation were to: (1) evaluate the site to determine if hazardous wastes or substances were present, and if present, to determine if there was a consequential amount, and (2) to determine the degree to which historic waste disposal has contaminated environmental media at and near the site. These objectives were evaluated through the analysis of surface soil, waste, surface water and sediment samples obtained during the Site Investigation. This section discusses the analytical results presented in Section 6.0 as they relate to these objectives.

7.1.1 *Hazardous Waste Characteristics*

The results of the Site Investigation indicate that one surface soil sample and twelve waste samples collected from the Old Upper Mountain Road Site failed the TCLP Regulatory Limit for lead (Table 6-2 and Figure 7-1), indicating that characteristic hazardous waste (D008) is present at the site. Although not all samples failed TCLP, the areal distribution (Figure 7-1) and variable depth (Table 6-2 and Figure 7-1) of TCLP failures suggest that a consequential amount of hazardous waste is present at the site. In addition, the lead concentrations (28,000 mg/kg to 56,900 mg/kg; Table 3-2) in three historic samples collected from the site may also have failed the TCLP Regulatory Limit for lead had these samples been analyzed by the TCLP test.

7.1.2 *Volatile Organic Compounds (VOCs)*

The surface soil samples collected from the Old Upper Mountain Road Site during the Site Investigation were not analyzed for volatile organic compounds because these contaminants are generally absent or at low concentrations in surface soil due to volatilization. Two historic surface soil samples, however, were analyzed for volatile organic compounds. Volatile organic compounds detected in these samples including tetrachloroethene (1 sample), trichloroethane (2 samples) and trichloroethene (1 sample). None of the concentrations exceeded the NYSDEC Part 375 soil cleanup objectives (Table 3-2).

Three waste samples were analyzed for volatile organic compounds based upon PID readings detected during the soil boring program. Volatile organic compounds detected in the waste included acetone (1 sample), dichloroethane (2 samples), dichloroethene (2 samples), methylene chloride (3 samples), tetrachloroethene (3 samples), toluene (3 samples), trichloroethane (3 samples) and trichloroethene (3 samples). Of these compounds, only tetrachloroethene (2 samples) and trichloroethene (2 samples) were

detected at concentrations that exceeded the NYSDEC Part 375 soil cleanup objectives (Table 6-3). The concentration of both contaminants exceeded the soil cleanup objectives by a factor of four or more. Dichloroethane (3 samples), tetrachloroethene (10 samples), toluene (3 samples), trichloroethane (11 samples), trichloroethene (9 samples) and xylenes (1 sample) have historically been detected in waste samples collected from the site with concentrations of tetrachloroethene (1 sample) and trichloroethene (1 sample) having exceeded the NYSDEC Part 375 soil cleanup objectives (Table 3-2). The concentration of tetrachloroethene exceeded the soil cleanup objectives by a factor of four or more.

Eight volatile organic compounds were detected in the surface water samples collected during the Site Investigation at the Old Upper Mountain Road Site including bromodichloromethane (1 sample), bromoform (1 sample), chloroform (2 samples), dichloroethene (1 sample), dibromochloromethane (1 sample), tetrachloroethene (1 sample), trichloroethane (1 sample) and trichloroethene (2 samples). Of these compounds, chloroform (1 sample), dichloroethene (1 sample), tetrachloroethene (1 sample) and trichloroethene (2 samples) were detected at concentrations that exceeded the NYSDEC surface water standards or guidance values (Table 6-4). Chloroform (1 sample), dichloroethane (1 sample), dichloroethene (2 samples), tetrachloroethene (2 samples), trichloroethane (1 sample), trichloroethene (2 samples) and vinyl chloride (1 sample) have historically been detected in surface water at the site with concentrations of dichloroethene (2 samples), tetrachloroethene (2 samples), trichloroethene (2 samples) and vinyl chloride (1 sample) having exceeded the NYSDEC surface water standards or guidance values (Table 3-3). The concentrations of individual volatile organic compounds detected in the surface water samples collected during the Site Investigation were similar to those detected in 1997, but substantially lower than the concentrations detected in 1998 (compare Table 3-3 to Table 6-4). The exact cause of this discrepancy is unknown, but may be related to variable flow rates in Gulf Creek.

Five volatile organic compounds were detected in the sediment samples collected during the Site Investigation at the Old Upper Mountain Road Site including acetone (2 samples), carbon disulfide (2 samples), dichloroethene (2 samples), tetrachloroethene (1 sample) and trichlorofluoromethane (2 samples). Of these compounds, only dichloroethene (2 samples) was detected at a concentration that exceeded the NYSDEC sediment criteria (Table 6-5). Dichloroethene (1 sample) and trichloroethene (1 sample) have historically been detected in sediment from the site with concentrations of dichloroethene (1 sample) having exceeded the NYSDEC sediment criteria (Table 3-3).

In conclusion, volatile organic compounds were detected in waste samples collected from the Old Upper Mountain Road Site at concentrations that exceeded standards, criteria and guidance values (SCGs).

Although limited in extent, volatiles organic compounds in the waste have the potential to adversely impact other environmental media at and near the site due to the significant concentrations of tetrachloroethene and trichloroethene (Tables 3-2 and 6-3). This potential appears to be best borne out by the results obtained on surface water samples collected from the site; both contaminants were detected at concentrations that exceeded the NYSDEC surface water standards or guidance values (Tables 3-3 and 6-4). Other volatile organic compounds detected in the waste samples (e.g., dichloroethene) have also been detected in the surface water samples at concentrations that exceeded the NYSDEC surface water standards or guidance values (Tables 3-3 and 6-4). The presence of volatile organic compounds in the upstream surface water sample suggests, however, that an upstream source of volatile organic compounds exists in this area of Lockport. This source was not identified during the Site Investigation, although an attempt was made to identify the origin of the storm sewer that discharges to Gulf Creek.

Dichloroethene (3 samples) was the only volatile organic compound detected in sediment at concentrations that exceeded the NYSDEC sediment criteria (Tables 3-4 and 6-5). The sediment criterion utilized for this contaminant is for the protection of human health bioaccumulation. As a result, the presence of volatile organic compounds in sediment at the Old Upper Mountain Road Site may present a public health risk to fishermen and other recreational users at and near the site.

7.1.3 *Semivolatile Organic Compounds (SVOCs)*

Twenty-two semivolatile organic compounds were detected in the surface soil samples collected during the Site Investigation at the Old Upper Mountain Road Site. The majority of the these contaminants were polycyclic aromatic hydrocarbons. Of these compounds, only benzo(a)anthracene (2 samples), benzo(a)pyrene (3 samples), benzo(b)fluoranthene (2 samples), chrysene (2 samples), dibenzo(a,h)anthracene (2 samples) and indeno(1,2,3-cd)pyrene (2 samples) were detected at concentrations that exceeded the NYSDEC Part 375 soil cleanup objectives (Table 6-1). Chrysene was the only PAH detected in the historic surface soil samples collected from the site but at a concentration that did not exceed the NYSDEC Part 375 soil cleanup objective (Table 3-2).

Bis(2-ethylhexyl)phthalate (2 samples), di-n-octylphthalate (2 samples), carbazole (2 samples), 4-chloro-3-methylphenol (2 samples) and dibenzofuran (2 samples) were also detected in the surface soil samples collected during the Site Investigation (Table 6-1). Of these compounds, only 4-chloro-3-methylphenol (2 samples) was detected at concentrations that exceeded the NYSDEC TAGM 4046 soil cleanup objective. The concentration of this contaminant in both samples exceeded the soil cleanup objective by a factor of four or more. There is no NYSDEC Part 375 soil cleanup objective for this contaminant.

Bis(2-ethylhexyl)phthalate was also detected in both surface soil samples collected in 1997 but at concentrations that did not exceed the NYSDEC soil cleanup objective (Table 3-2).

Twenty-seven semivolatile organic compounds were detected in the waste samples collected during the Site Investigation at the Old Upper Mountain Road Site. The majority of the these contaminants were polycyclic aromatic hydrocarbons. Of these compounds, only benzo(a)anthracene (4 samples), benzo(a)pyrene (3 samples), benzo(b)fluoranthene (3 samples), benzo(k)fluoranthene (1 sample), chrysene (3 samples), dibenzo(a,h)anthracene (3 samples) and indeno(1,2,3-cd)pyrene (3 samples) were detected at concentrations that exceeded the NYSDEC Part 375 soil cleanup objectives (Table 6-3). The concentrations of benzo(a)anthracene (1 sample), benzo(b)fluoranthene (1 sample), chrysene (1 sample) and indeno(1,2,3-cd)pyrene (1 sample) exceeded the soil cleanup objectives by a factor of four or more. Semivolatile organic compounds were also detected in the historic waste samples collected from the site with the concentrations of benzo(a)anthracene (1 sample), benzo(a)pyrene (1 sample), benzo(b)fluoranthene (1 sample), benzo(k)fluoranthene (1 sample), chrysene (1 sample), dibenzo(a,h)anthracene (1 sample) and indeno(1,2,3-cd)pyrene (1 sample) detected at concentrations that exceeded the NYSDEC Part 375 soil cleanup objectives (Table 3-2). All of these concentrations, with the exception of dibenzo(a,h)anthracene, exceeded the soil cleanup objectives by a factor of four or more.

Bis(2-ethylhexyl)phthalate (5 samples), di-n-octylphthalate (2 samples), benzaldehyde (1 sample), biphenyl (1 sample), carbazole (6 samples), dibenzofuran (2 samples), hexachlorobenzene (1 sample), 4-methylphenol (1 sample), pentachlorophenol (1 sample) and phenol (1 sample) were also detected in the waste samples collected during the Site Investigation (Table 6-3). Of these compounds, only pentachlorophenol (1 sample) was detected at a concentration that exceeded the NYSDEC Part 375 soil cleanup objectives (Tables 6-3). Bis(2-ethylhexyl)phthalate (9 samples) and carbazole (3 samples) were also detected in the waste samples collected in 1997 but at concentrations that did not exceed the NYSDEC Part 375 or TAGM 4046 soil cleanup objective (Table 3-2).

Eight semivolatile organic compounds were detected in the surface water samples collected during the Site Investigation including benzo(a)anthracene (1 sample), bis(2-ethylhexyl)phthalate (2 samples), butylbenzylphthalate (2 samples), di-n-octylphthalate (2 samples), fluoranthene (1 sample), naphthalene (1 sample), phenanthrene (1 sample) and pyrene (1 sample). Of these compounds, only benzo(a)anthracene (1 sample) and bis(2-ethylhexyl)phthalate (1 sample) were detected at concentrations that exceeded the NYSDEC surface water standards or guidance values (Table 6-4). The concentration of benzo(a)anthracene exceeded the surface water guidance value by a factor of four or more. Semivolatile organic compounds were

not detected in the surface water sample collected in 1997 (Table 3-3); the 1998 sample was not analyzed for these contaminants.

Ten semivolatile organic compounds were detected in the sediment samples collected during the Site Investigation with all ten of these constituents being polycyclic aromatic hydrocarbons. Of these compounds, benzo(a)anthracene (2 samples), benzo(a)pyrene (2 samples), benzo(b)fluoranthene (2 samples), benzo(k)fluoranthene (2 samples), chrysene (2 samples) and indeno(1,2,3-cd)pyrene (2 samples) were detected at concentrations that exceeded the NYSDEC sediment criteria (Table 6-5), with all concentrations exceeding the sediment criteria by a factor of four or more. These contaminants were also detected in the sediment sample collected in 1997 at concentrations that exceeded the NYSDEC sediment criteria (Table 3-3).

In conclusion, semivolatile organic compounds were detected in surface soil and waste samples collected from the Old Upper Mountain Road Site at concentrations that exceeded SCGs. Several of these contaminants exceeded the soil cleanup objectives by a factor of four or more, suggesting that surface soil and waste have the potential to adversely impact other environmental media at and near the site. This potential appears to be best borne out by the results obtained on sediment samples collected from the site; the individual semivolatile organic compounds that significantly exceed (by a factor of four or more) the sediment criteria are the same contaminants that significantly exceeded the soil cleanup objectives in surface soil and waste samples collected from the site. The concentrations of the individual contaminants are also similar (compare Tables 6-1 and 6-3 with Table 6-5). The presence of semivolatile organic compounds in surface soil and waste, however, does not appear to have significantly impacted surface water at the site. This is not surprising as PAHs are not very water soluble. The presence of exposed ash throughout the site may also pose a public health risk due to the high concentrations of semivolatile organic compounds in this waste.

7.1.4 *Pesticides*

Thirteen pesticides were detected in the surface soil and waste samples collected during the Site Investigation of the Old Upper Mountain Road Site including aldrin (8 samples), BHC (9 samples), chlordane (6 samples), DDD (2 samples), DDE (7 samples), DDT (13 samples), dieldrin (6 samples), endosulfan II (4 samples), endosulfan sulfate (4 samples), endrin (1 sample), endrin aldehyde (3 samples), endrin ketone (1 sample) and methoxychlor (4 samples). Only the concentration of dieldrin in one surface soil sample, however, exceeded the NYSDEC soil cleanup objectives (Tables 6-1 and 6-3). These results are consistent with the historic surface soil and waste samples collected from the site; the only pesticides detected were DDD (2 samples) and DDT (5 samples) with none of the concentrations exceeding the Part 375 soil cleanup

objectives for these contaminants (Table 3-2).

Six pesticides were detected in the surface water samples collected during the Site Investigation including BHC (1 sample), chlordane (1 sample), DDT (1 sample), dieldrin (1 sample), endrin (1 sample) and heptachlor epoxide (1 sample). Of these compounds, only heptachlor epoxide in the upstream sample was detected at a concentration that exceeded the NYSDEC surface water standards or guidance values (Table 6-4). Pesticides were not detected in the surface water sample collected from the site in 1997 (Table 3-3); the 1998 sample was not analyzed for these contaminants.

Five pesticides were detected in the sediment samples collected during the Site Investigation including aldrin (1 sample), BHC (1 sample), DDE (1 sample), DDT (1 sample) and dieldrin (2 samples). The concentrations of all five pesticides exceeded the NYSDEC sediment criteria (Table 6-5), with the concentration of DDE exceeding the soil cleanup objectives by a factor of four or more. Pesticides were not detected in the sediment sample collected from the site in 1997 (Table 3-4).

In conclusion, pesticides were detected in the surface soil, waste, surface water and sediment samples collected from the Old Upper Mountain Road Site. Dieldrin (1 sample), however, was the only pesticide in surface soil and waste that exceeded the NYSDEC soil cleanup objectives (Tables 6-1 and 6-3). As a result, the presence of pesticides in surface soil and waste does not appear to be the source of pesticides in surface water and sediment in Gulf Creek. In addition, the presence of pesticides in the upstream surface water sample suggests that an upstream source of these contaminants exists in this area of Lockport. This source was not identified during the Site Investigation, although an attempt was made to identify the origin of the storm sewer that discharges to Gulf Creek.

7.1.5 *Polychlorinated Biphenyls (PCBs)*

PCBs were detected in the surface soil, waste and sediment samples collected from the Old Upper Mountain Road Site during the Site Investigation (Tables 6-1, 6-3 and 6-5). None of the concentrations, however, exceeded SCGs. PCBs were also detected in the historic surface soil and waste samples collected from the site, but none of the concentrations exceeded the NYSDEC Part 375 soil cleanup objective (Table 3-2). PCBs were not detected in the surface water samples collected during the Site Investigation (Table 6-4), nor were they detected in the 1997 sample (Table 3-3); the 1998 sample was not analyzed for these contaminants. As a result, PCBs at the Old Upper Mountain Road Site do not pose an environmental concern or a public health risk.

7.1.6 *Metals*

Seventeen metals were detected in the surface soil samples collected during the Site Investigation at the Old Upper Mountain Road Site (Table 6-1). Of these compounds, thirteen were detected at concentrations that exceeded the NYSDEC Part 375 or TAGM 4046 soil cleanup objectives, with ten of these metals being USEPA priority pollutant metals (Table 6-1). The priority pollutant metals exceeding the soil cleanup objectives include antimony (2 samples), arsenic (4 samples), cadmium (3 samples), chromium (5 samples), copper (3 samples), lead (3 samples), mercury (1 sample), nickel (1 sample), silver (1 sample) and zinc (1 sample). The concentrations of antimony (2 samples), cadmium (1 sample), chromium (1 sample), copper (2 samples), lead (3 samples), nickel (1 sample) and zinc (1 sample) exceeded the soil cleanup objectives by a factor of four or more. Metals were also detected in the historic surface soil samples collected from the site (Table 3-2). The priority pollutant metals exceeding the soil cleanup objectives in these samples include cadmium (6 samples), chromium (5 samples), copper (6 samples), lead (6 samples), mercury (1 sample), nickel (4 samples) and zinc (4 samples). The concentrations of cadmium (3 samples), chromium (1 sample), copper (5 samples), lead (4 samples), nickel (4 samples) and zinc (1 sample) exceeded the soil cleanup objectives by a factor of four or more.

Eighteen metals were detected in the waste samples collected during the Site Investigation (Table 6-3). Of these compounds, twelve were detected at concentrations that exceeded the NYSDEC Part 375 or TAGM 4046 soil cleanup objectives, with nine of these metals being USEPA priority pollutant metals. The priority pollutant metals exceeding the soil cleanup objectives include antimony (6 samples), arsenic (11 samples), cadmium (17 samples), chromium (12 samples), copper (15 samples), lead (18 samples), mercury (7 samples), nickel (3 samples) and zinc (9 samples). The concentrations of antimony (6 samples), cadmium (1 sample), chromium (2 samples), copper (7 samples), lead (14 samples), mercury (2 samples) and zinc (1 sample) exceeded the soil cleanup objectives by a factor of four or more. Metals were also detected in the historic waste samples collected from the site (Table 3-2). The priority pollutant metals exceeding the soil cleanup objectives in these samples include antimony (10 samples), arsenic (7 samples), cadmium (9 samples), chromium (7 samples), copper (9 samples), lead (11 samples), mercury (5 samples), nickel (3 samples), silver (3 samples), thallium (3 samples) and zinc (6 samples). The concentrations of antimony (8 samples), cadmium (6 samples), chromium (1 sample), copper (6 samples), lead (8 samples), mercury (1 sample) and silver (1 sample) exceeded the soil cleanup objectives by a factor of four or more.

Eight metals were detected in the surface water samples collected during the Site Investigation (Table 6-4). Of these compounds, only aluminum (1 sample), iron (1 sample) and lead (1 sample) were detected at concentrations that exceeded the NYSDEC surface water standards or guidance values. Lead is an EPA

priority pollutant metal. Metals were also detected in the historic surface water samples collected from the site. None of the concentrations, however, exceeded the NYSDEC surface water standards or guidance values (Table 3-3).

Fifteen metals were detected in the sediment samples collected during the Site Investigation with eleven of these compounds detected at concentrations that exceeded the NYSDEC sediment criteria. Eight of these metals are EPA priority pollutant metals. The priority pollutant metals exceeding the sediment criteria include arsenic (1 sample), cadmium (2 samples), chromium (2 samples), copper (2 samples), lead (2 samples), mercury (1 sample), nickel (2 samples) and zinc (2 samples). The concentrations of arsenic (1 sample), cadmium (1 sample), chromium (1 sample), copper (1 sample), lead (1 sample), nickel (1 sample) and zinc (1 sample) exceeded the sediment criteria by a factor of four or more. Metals were also detected in the historic sediment sample collected from the site (Table 3-4). The priority pollutant metals exceeding the sediment criteria in this sample include antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver and zinc. The concentrations of antimony, cadmium, copper, lead, silver and zinc exceeded the soil cleanup objectives by a factor of four or more.

In conclusion, metals were detected in the surface soil and waste samples collected from the Old Upper Mountain Road Site at concentrations that exceeded SCGs. Several metals exceeded the soil cleanup objectives by a factor of four or more, suggesting that surface soil and waste have the potential to adversely impact other environmental media at and near the site. This potential appears to be best borne out by the results obtained on sediment samples collected from the site; the individual metals that significantly exceed (by a factor of four or more) the sediment criteria are the same metals that significantly exceed the soil cleanup objectives in surface soil and waste samples collected from the site. In addition, all of the significant metal exceedances in sediment occurred in the downgradient samples. The presence of metals in these samples likely results from the erosion of waste material from the ravine into the creek below. The presence of metals in surface soil and waste, however, does not appear to have significantly impacted surface water at the site. The presence of exposed ash throughout the site may also pose a public health risk due to the high concentrations of metals in this waste.

7.2 Recommendation

Characteristic hazardous waste (D008 - lead) has been documented at the Old Upper Mountain Road Site. Although not all samples failed TCLP, the areal distribution (Figure 7-1) and variable depth (Table 6-2 and Figure 7-1) of TCLP failures suggest that a consequential amount of hazardous waste is present at the site. This waste also contains volatile organic compounds, semivolatile organic compounds and other metals

at concentrations that exceed the NYSDEC Part 375 or TAGM 4046 soil cleanup objectives. The concentrations of many of these contaminants exceeded the soil cleanup objectives by a factor of four or more. Similar contaminants have also been detected in surface water and/or sediment in Gulf Creek adjacent to the site, suggesting that contaminated surface soil and waste has adversely impacted these environmental media. Eighteenmile Creek, which receives water from Gulf Creek, has been identified by the International Joint Commission as one of the 43 Areas of Concern in the Great Lakes Basin. The NYSDEC has issued a Remedial Action Plan for this creek. The data collected during the Site Investigation suggests that the Old Upper Mountain Road Site is a contaminant contributor to Eighteenmile Creek. As a result, it is recommended that the Old Upper Mountain Road Site be listed in the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites in New York State as a Class 2 site.

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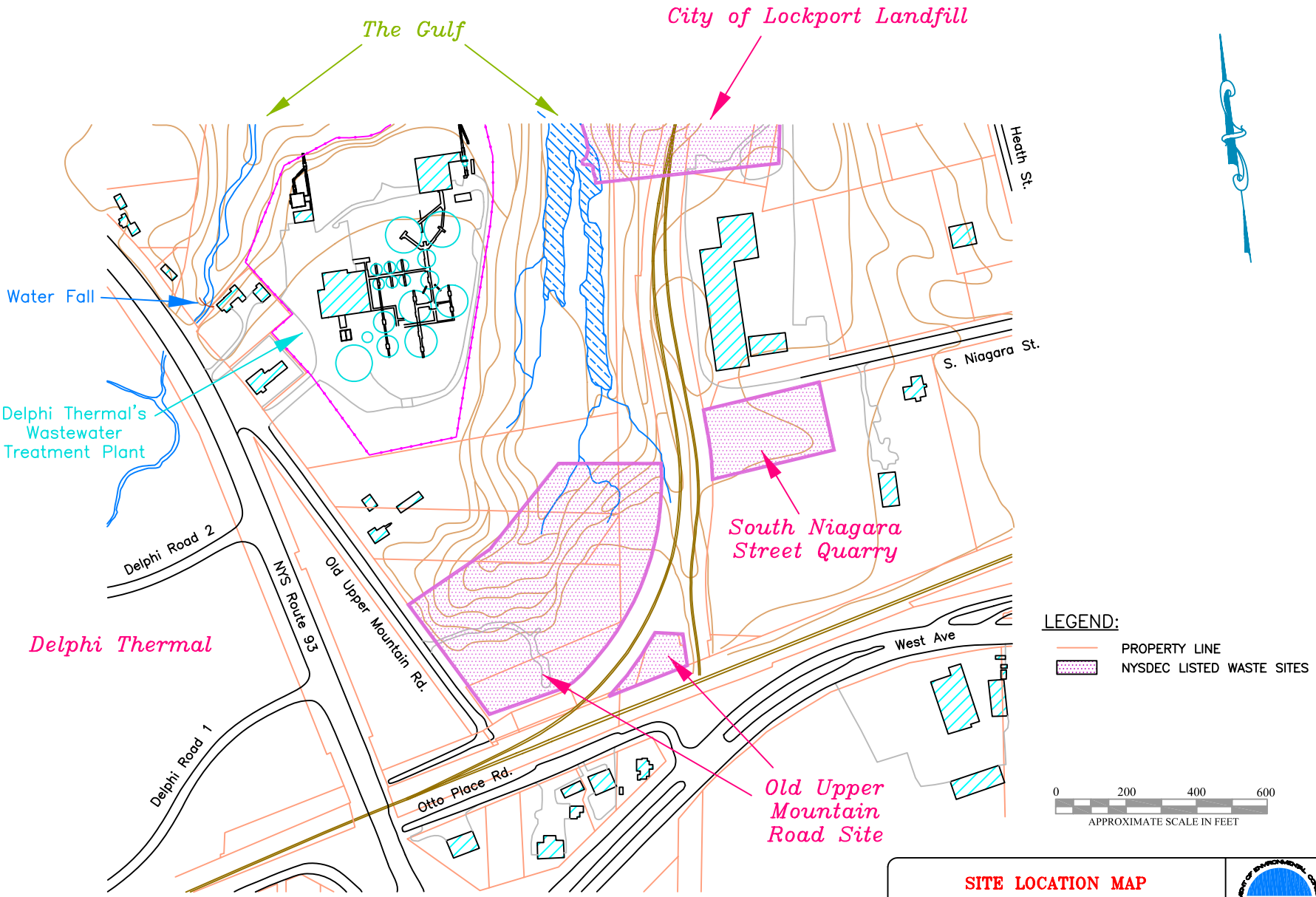
FIGURES

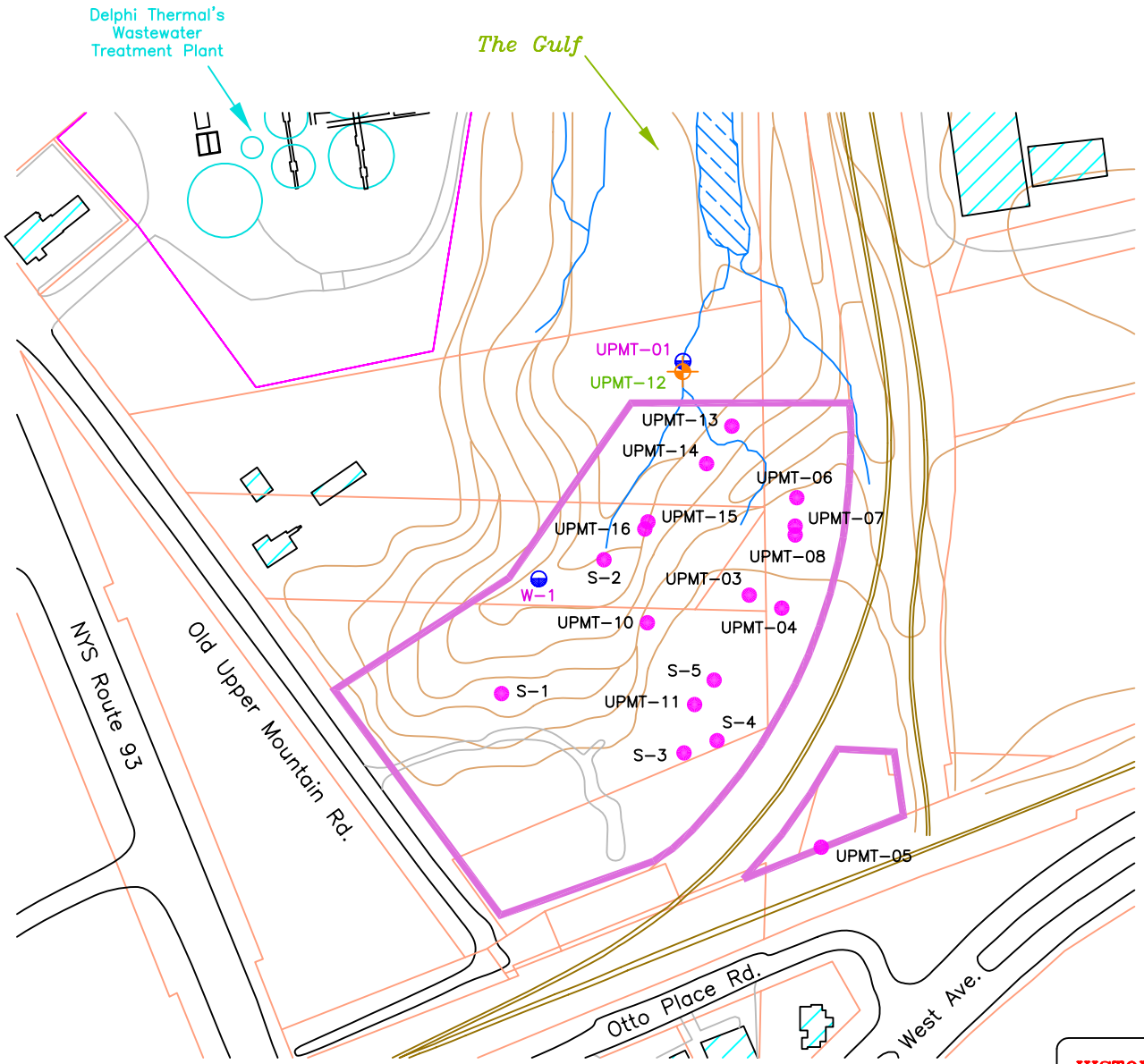


SITE LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 04/03/07 DRAWING: Upper Mtn Road.dwg

PROJECT: UPPER MOUNTAIN ROAD SITE FIGURE 1-1



LEGEND:

- SOIL AND WASTE SAMPLE
- WATER SAMPLE
- SEDIMENT SAMPLE

ALL SAMPLE LOCATIONS ARE APPROXIMATE

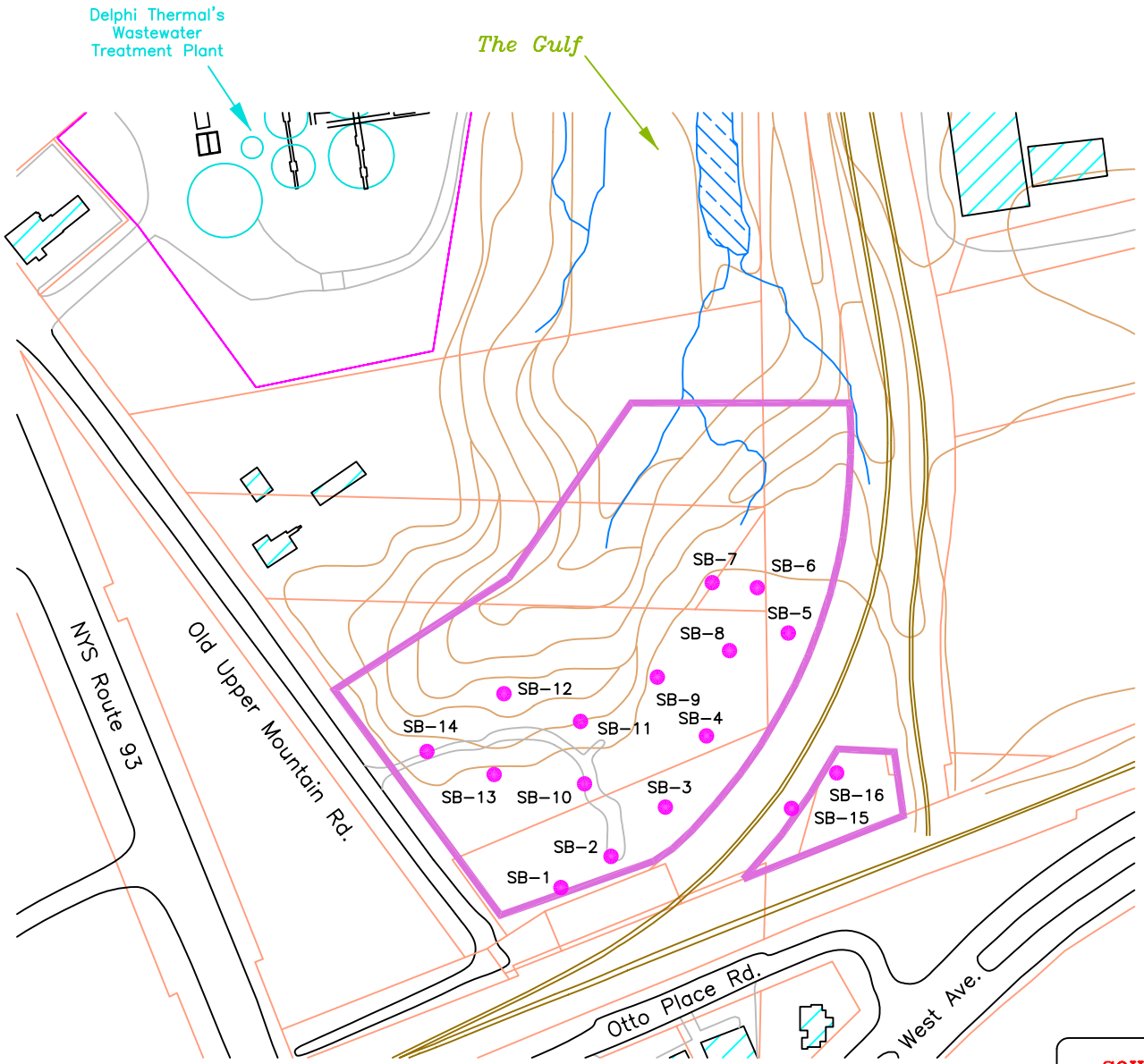
0 100 200 300
APPROXIMATE SCALE IN FEET

HISTORIC SAMPLE LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 04/03/07 DRAWING: Upper Mtn Road.dwg

PROJECT: UPPER MOUNTAIN ROAD SITE FIGURE 3-1



LEGEND:

● SOIL BORING

0 100 200 300

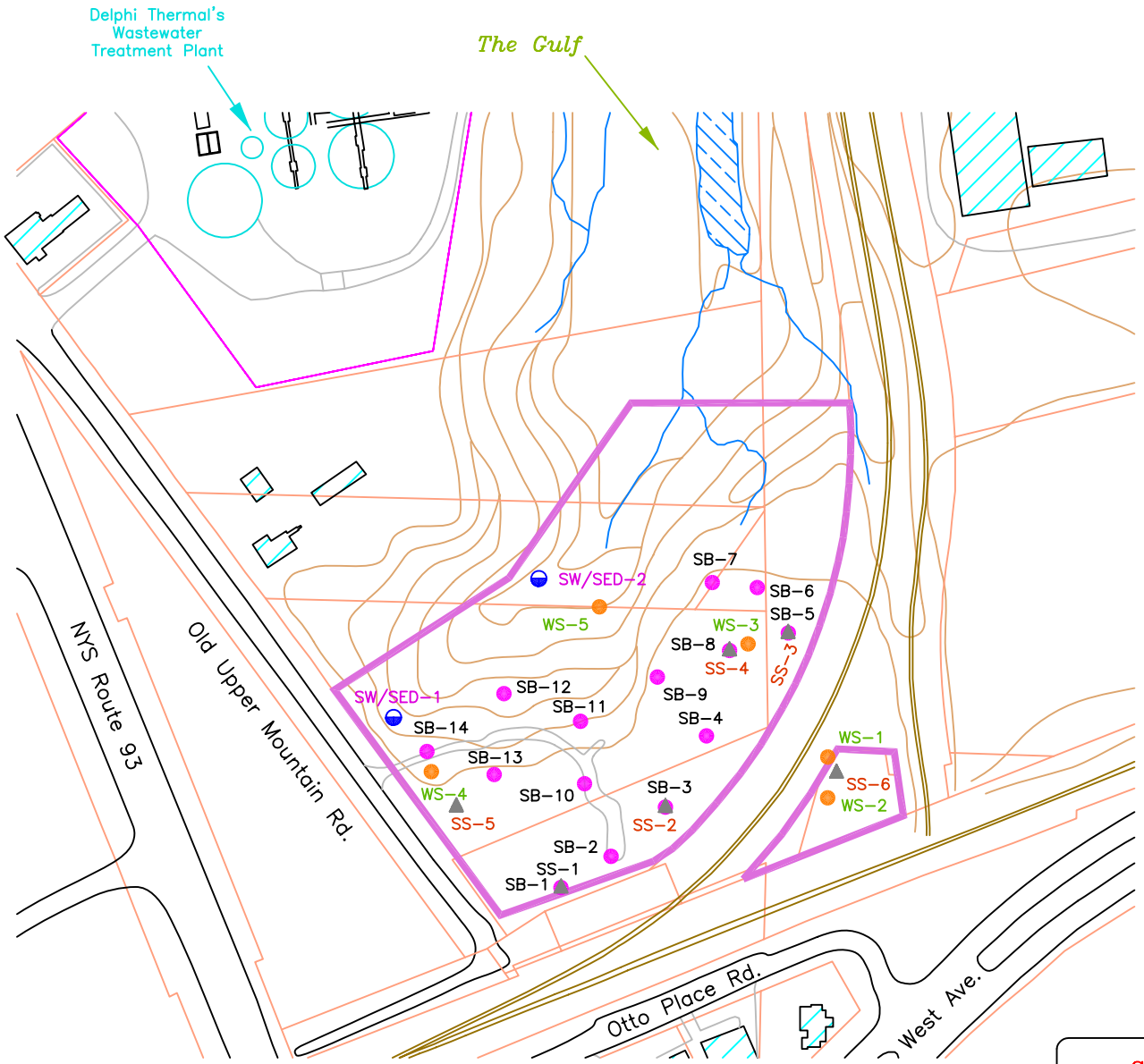
APPROXIMATE SCALE IN FEET

SOIL BORING LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 04/03/07 DRAWING: Upper Mtn Road.dwg

PROJECT: UPPER MOUNTAIN ROAD SITE FIGURE 4-1



LEGEND:

- WASTE SAMPLE FROM PIT
- WASTE SAMPLE FROM SOIL BORING
- SURFACE WATER/SEDIMENT SAMPLE
- SURFACE SOIL SAMPLE

0 100 200 300

APPROXIMATE SCALE IN FEET

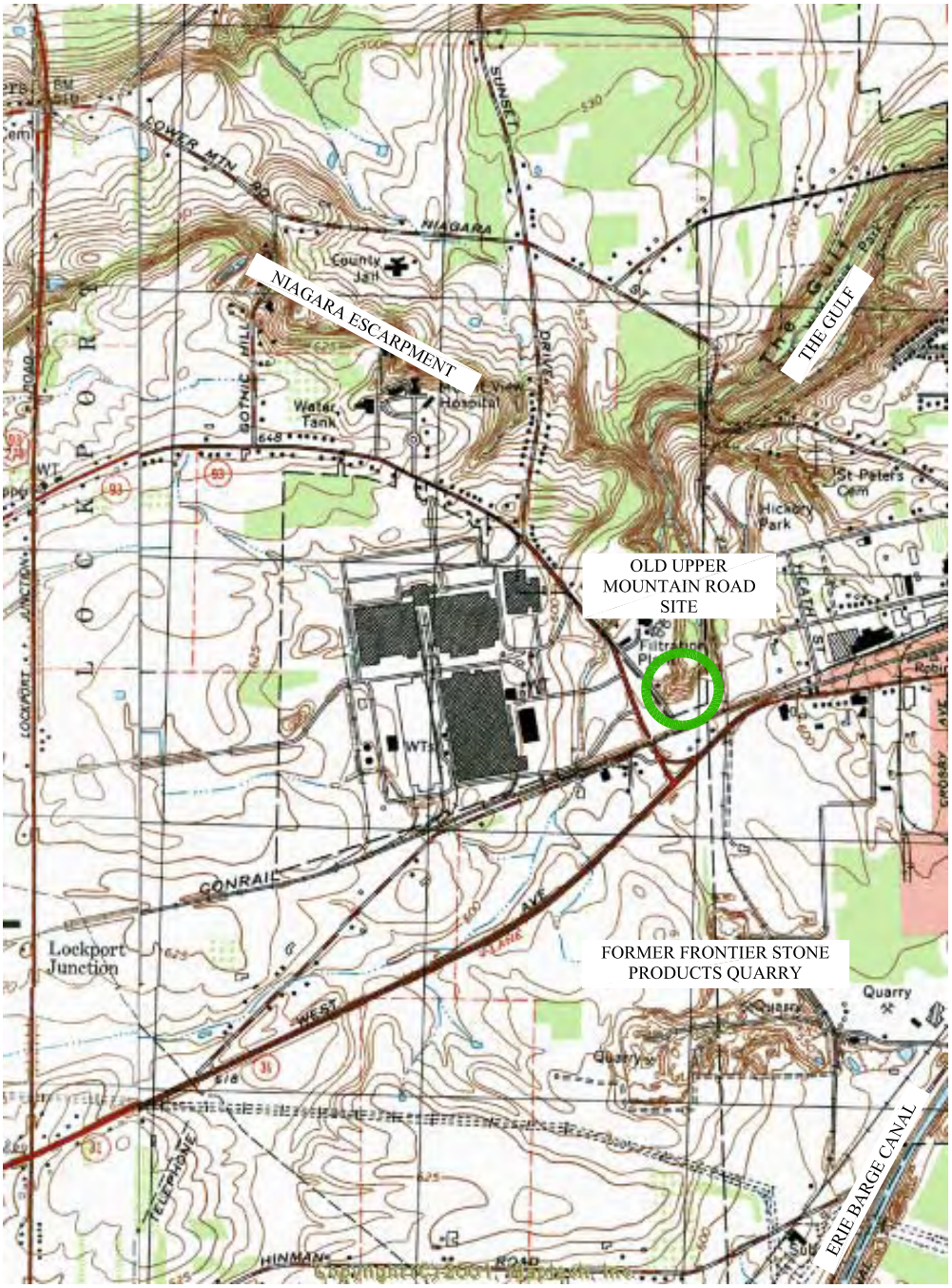
SAMPLE LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 04/03/07 DRAWING: Upper Mtn Road.dwg

PROJECT: UPPER MOUNTAIN ROAD SITE

FIGURE 4-2



Cambria & Lockport Quadrangles

Scale Depends on Final Plotted Size

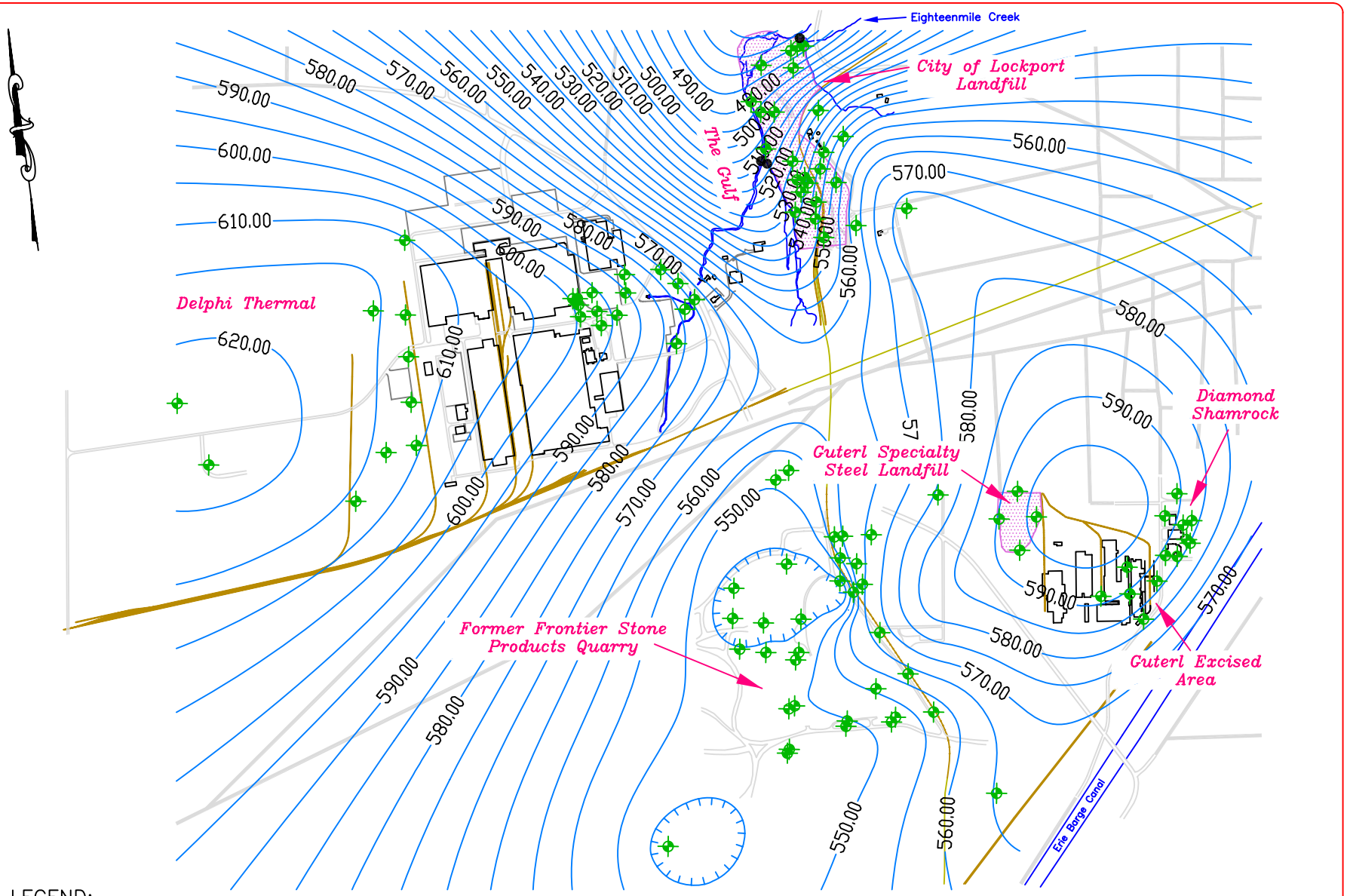
LOCKPORT AREA MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE:	DRAWING:
10/15/07	Lockport Area Map.dwg

SITE: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 5-1



REGIONAL GROUNDWATER FLOW CONTOUR MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 10/15/07 DRAWING: GW Flow Map.dwg

PROJECT: UPPER MOUNTAIN ROAD SITE

FIGURE 5-2

Figure 6-1. Photograph of the heavy vegetation in the ravine portion of the Old Upper Mountain Road Site. View looking northeast. Photograph taken by Brian Sadowski on June 5, 2007.

Figure 6-2. Aerial photograph of the Old Upper Mountain Road Site showing the steep slopes of the ravine, the junk automobiles and site roadways. View looking northeast. Photograph downloaded from Google Earth on May 22, 2007.

Figure 6-3. Photograph of the vegetation across the plateau portion of the Old Upper Mountain Road Site. View looking northeast. Photograph taken by Glenn May on October 1, 2007.

Figure 6-4. Photograph of the vegetation across the plateau portion of the Old Upper Mountain Road Site. An on-site roadway is in the foreground. View looking southwest. Photograph taken by Glenn May on October 1, 2007.

Figure 6-5. Photograph of the vegetation and an on-site roadway across the plateau portion of the Old Upper Mountain Road Site. View looking northeast. Photograph taken by Glenn May on October 1, 2007.

Figure 6-6. Photograph of the vegetation and an on-site roadway across the plateau portion of the Old Upper Mountain Road Site. View looking east. Photograph taken by Glenn May on October 1, 2007.

Figure 6-7. Photograph of the main on-site roadway across the plateau portion of the Old Upper Mountain Road Site. View looking south. Photograph taken by Glenn May on October 1, 2007.

Figure 6-8. Photograph of construction debris observed on the western plateau portion of the Old Upper Mountain Road Site. View looking west. Photograph taken by Glenn May on October 1, 2007.

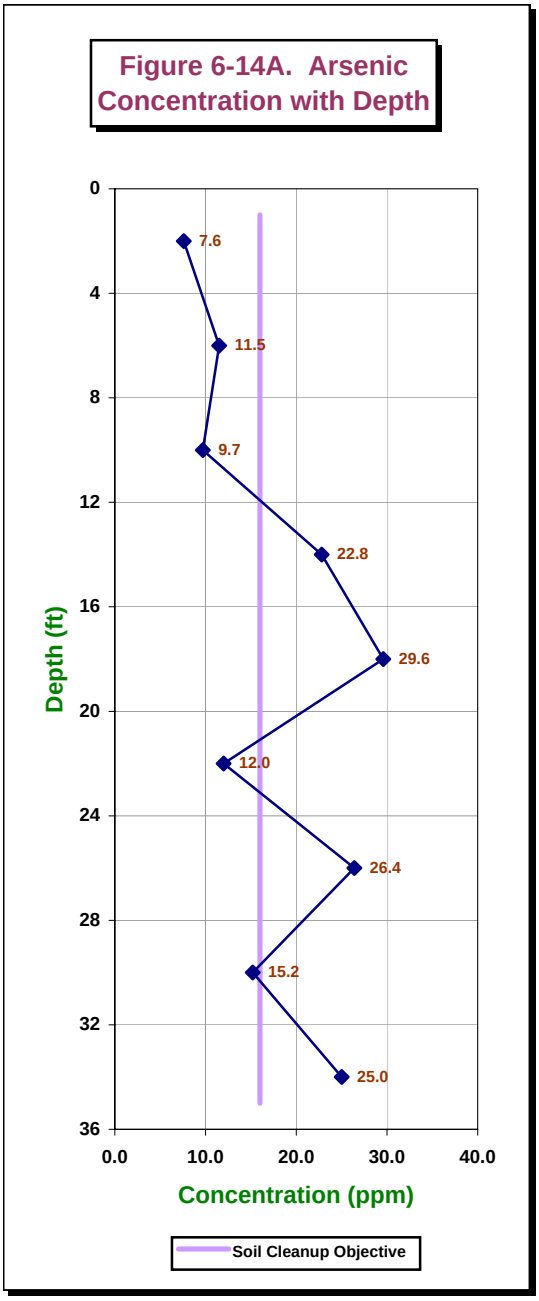
Figure 6-9. Photograph of recently burned trash observed on the eastern plateau portion of the Old Upper Mountain Road Site. View looking southwest. Photograph taken by Glenn May on October 1, 2007.

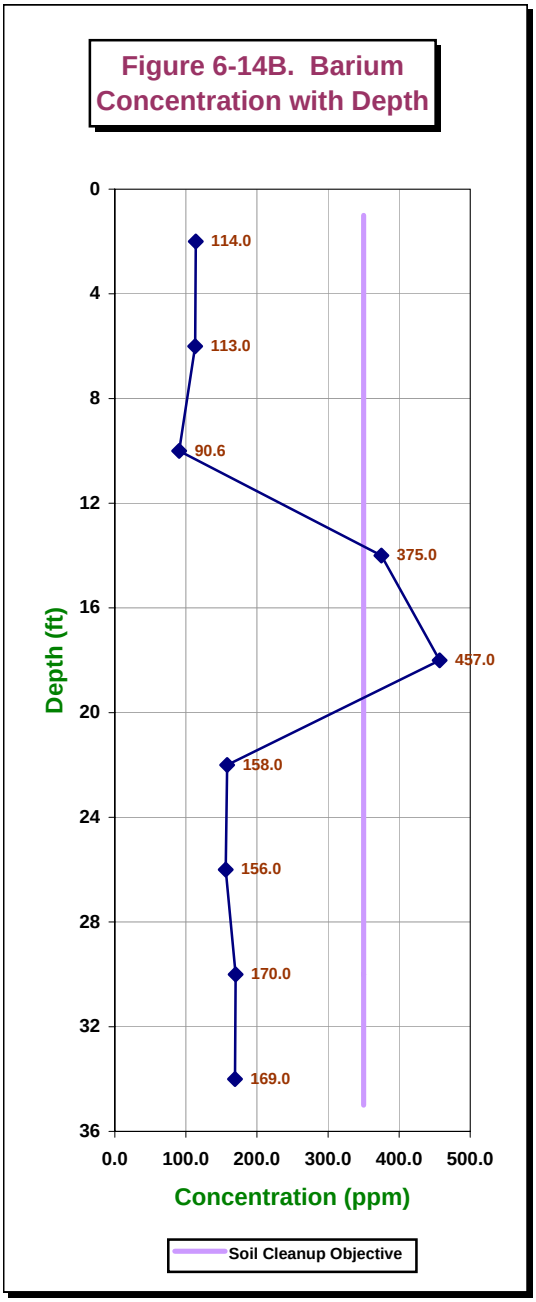
Figure 6-10. Photograph of ATV tracks observed on the western plateau portion of the Old Upper Mountain Road Site. View looking east. Photograph taken by Brian Sadowski on June 1, 2006.

Figure 6-11. Photograph of the tires from the former junk auto operation on the plateau portion of the Old Upper Mountain Road Site. View looking southeast. Photograph taken by Glenn May on October 1, 2007.

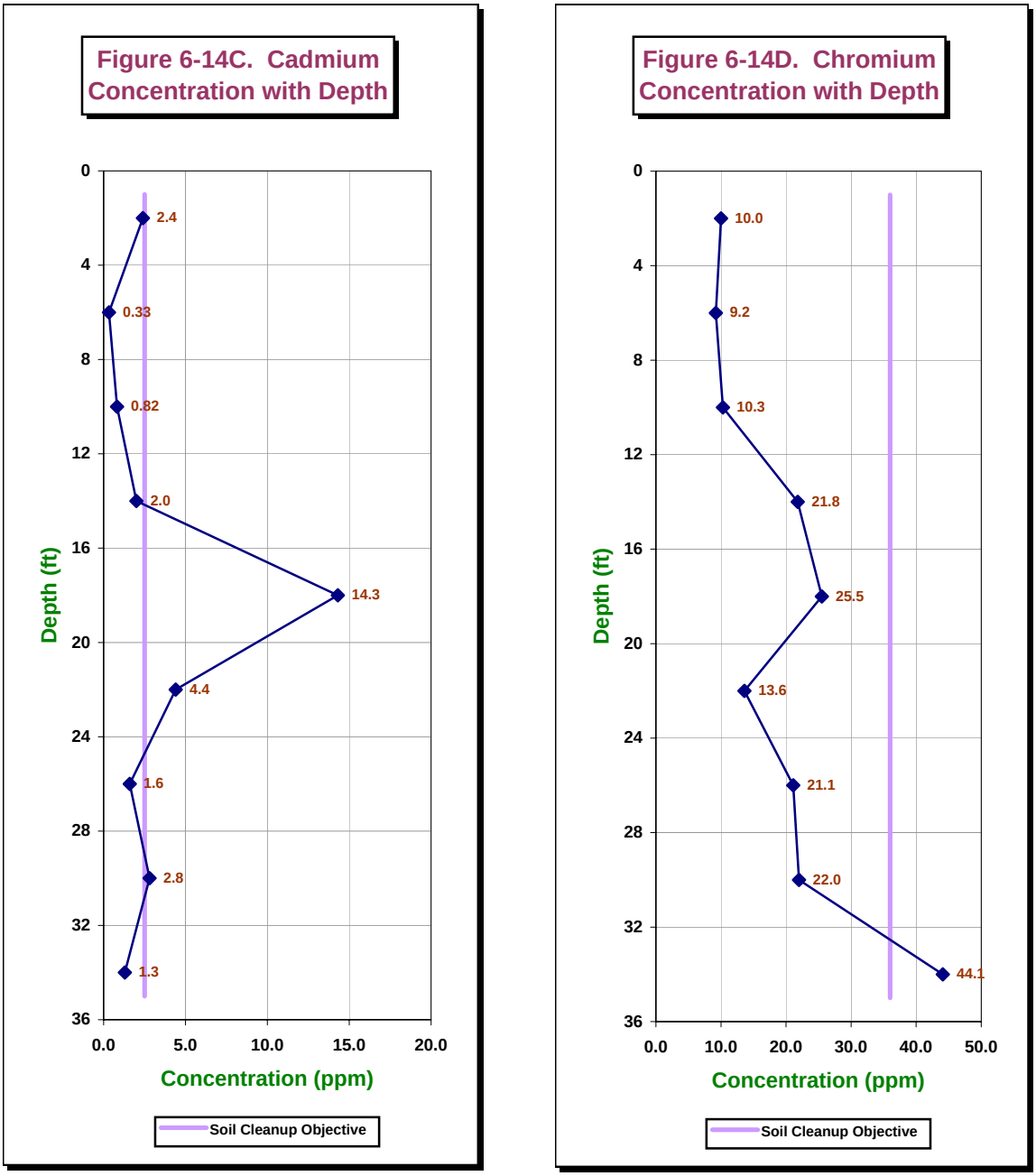
Figure 6-12. Photograph of a pit excavated into the ash by individuals apparently scavenging for antique bottles and other items. View looking west. Photograph taken by Glenn May on October 1, 2007.

Figure 6-13. Closeup photograph of a pit excavated into the ash. View looking west. Photograph taken by Brian Sadowski on June 1, 2006.

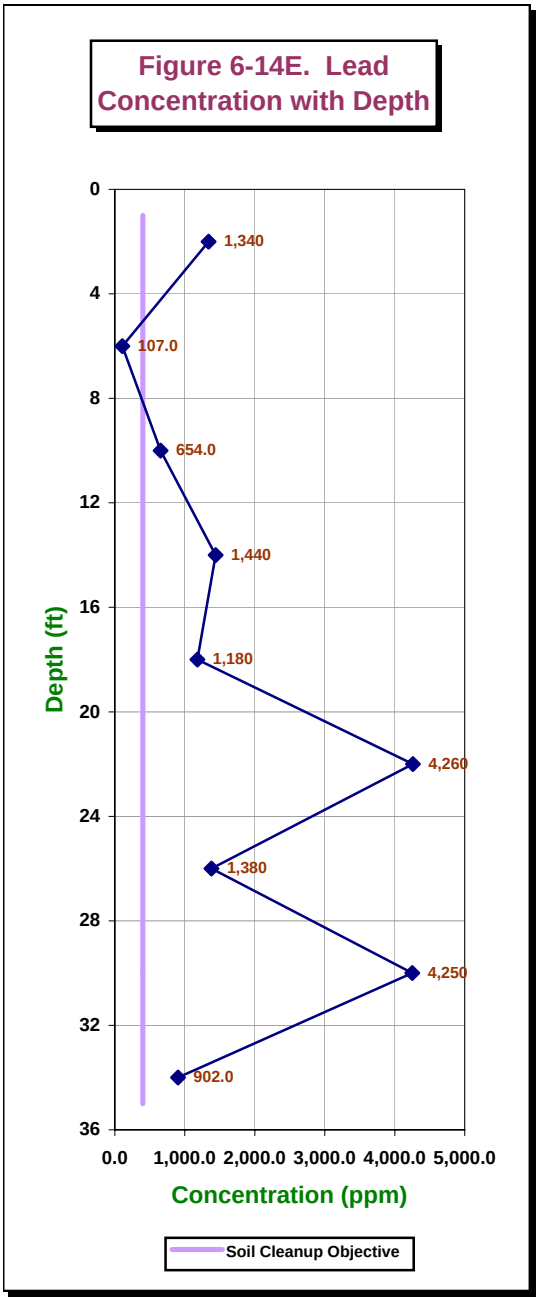


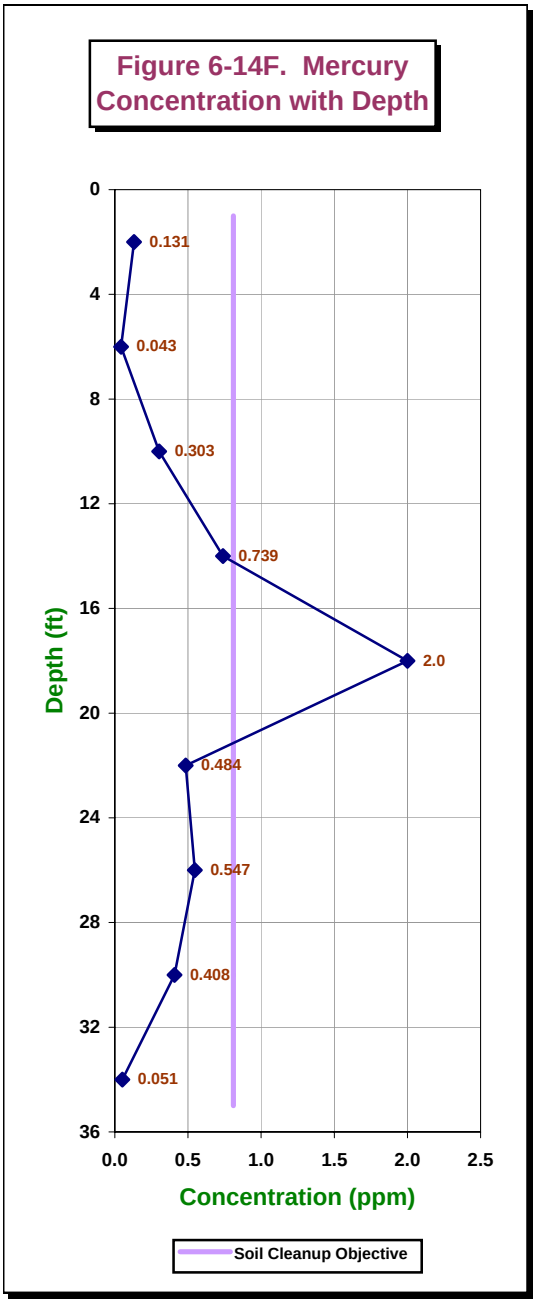


Figures 6-14A & B. Arsenic and barium concentrations with depth in soil boring SB-2. The results are plotted at the midpoint of the zone sampled (e.g., a sample collected from 28.0 to 32.0 feet depth is plotted at 32.0 feet).

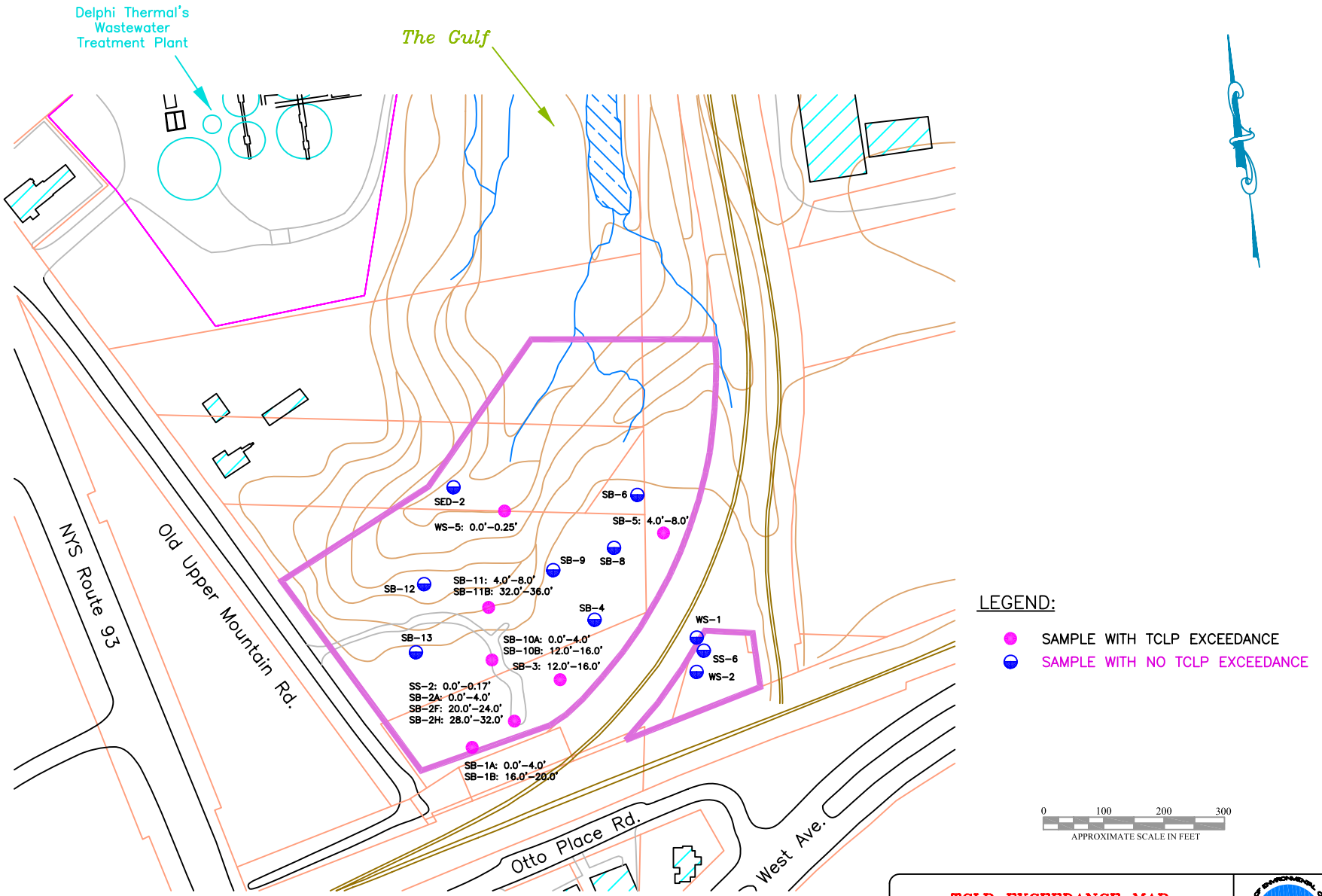


Figures 6-14C & D. Cadmium and chromium concentrations with depth in soil boring SB-2. The results are again plotted at the midpoint of the zone sampled.





Figures 6-14E & F. Lead and mercury concentrations with depth in soil boring SB-2. The results are again plotted at the midpoint of the zone sampled.



TCLP EXCEEDANCE MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 04/03/07 DRAWING: Upper Mtn Road.dwg

PROJECT: UPPER MOUNTAIN ROAD SITE FIGURE 7-1

TABLES

Table 3-1.
Summary Key for Historic Samples Collected from the Old Upper Mountain Road Site, Site No. 932112.

Lab ID	Sample ID	Date Sampled	Time Sampled	Interval Sampled*	Analytical Parameters	Comments	Table Reference
Soil Samples							
S-1	S-1	10/20/98	unknown	0.0' - 0.17'	Metals	washout area	Table 3-2
Waste Samples							
UPMT-03	UPMT-03	11/05/97	1002	1.0' - 1.5'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	cinders & grit	Table 3-2
UPMT-04	UPMT-04	11/05/97	1025	1.5'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	soil mixed with cinders & grit	Table 3-2
UPMT-05	UPMT-05	11/05/97	1040	2.0'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	brownish/gray soil with grit and some slag	Table 3-2
UPMT-06	UPMT-06	11/05/97	1050	2.0'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	ground up “scrap” mixed with soil	Table 3-2
UPMT-07	UPMT-07	11/05/97	1105	1.5'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	deep brown soil that is gritty	Table 3-2
UPMT-08	UPMT-08	11/05/97	1118	unknown	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	dirty white, somewhat crystalline and crumbly waste	Table 3-2
UPMT-09	UPMT-09	11/05/97	1120	2.5'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	reddish brown and gritty, like kitty litter	Table 3-2
UPMT-10	UPMT-10	11/05/97	1130	1.5'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	C&D waste, incinerator waste, old bottles	Table 3-2
UPMT-11	UPMT-11	11/05/97	1155	0.0' - 0.17'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	green “dirt”	Table 3-2
UPMT-13	UPMT-13	11/05/97	1238	0.0' - 0.17'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	tannish red, gritty, hard and dry material	Table 3-2
UPMT-14	UPMT-14	11/05/97	1240	1.0'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	incinerator grit	Table 3-2
UPMT-15	UPMT-15	11/05/97	1245	unknown	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	gritty mix of soil and some incinerator ash	Table 3-2
UPMT-16	UPMT-16	11/05/97	1250	unknown	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	greenish colored, gritty excrement mixed with soil	Table 3-2

Table 3-1 (Continued).
Summary Key for Historic Samples Collected from the Old Upper Mountain Road Site, Site No. 932112.

Lab ID	Sample ID	Date Sampled	Time Sampled	Interval Sampled*	Analytical Parameters	Comments	Table Reference
Waste Samples (Continued)							
S-2	S-2	10/20/98	unknown	0.0' - 0.17'	Metals	shiny silver surface debris	Table 3-2
S-3	S-3	10/20/98	unknown	0.0' - 0.17'	Metals	mixture of gray-green sandy material and black sandy material	Table 3-2
S-4	S-4	10/20/98	unknown	0.0' - 0.17'	Metals	ash material	Table 3-2
S-5	S-5	10/20/98	unknown	0.0' - 0.17'	Metals, TCLP Lead	mixture of tan sandy material and a rusty stained material	Table 3-2
Sediment Samples							
UPMT-12	UPMT-12	11/05/97	1225	0.0' - 0.17'	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	sediment mixed with incinerator waste	Table 3-3
Water Samples							
UPMT-01	UPMT-01	11/05/97	1228	N/A	VOCs, SVOCs, PCBs, Pesticides, Metals, cyanide	clear and cold, no surface sheen or odor	Table 3-4
W-1	W-1	10/20/98	unknown	N/A	VOCs	headwaters for the Gulf creek	Table 3-4

Table 3-2.
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	UPMT-03 11/05/97 1.0' - 1.5' Cinders & Grit	UPMT-04 11/05/97 1.5' Cinders & Grit	UPMT-05 11/05/97 2.0' Grit & Slag	UPMT-06 11/05/97 2.0' Soil with "Scrap"	UPMT-07 11/05/97 1.5' Gritty Soil	UPMT-08 11/05/97 Unknown Crystalline Waste
Volatile Organic Compounds (µg/kg or ppb)							
1,1-Dichloroethane	19,000				9 J	9 J	
1,1,1-Trichloroethane	100,000	15 J	24.0	41,000	160.0	99.0	27.0
Trichloroethene	10,000	3 J	6 J	**22,000 J**	20.0	8 J	
Tetrachloroethene	5,500	14 J	28.0	**600,000**	99.0	24.0	5 J
Toluene	100,000		4 J	5,500 J		6 J	
Xylene (Total)	100,000			19,000 J			
Semivolatile Organic Compounds (µg/kg or ppb)							
Acenaphthene	100,000		24 J				32 J
Acenaphthylene	100,000						
Anthracene	100,000		34 J				120 J
Benzo(a)pyrene	1,000		130 J		230 J	220 J	570.0
Benzo(a)anthracene	1,000		130 J		150 J	200 J	640.0
Benzo(b)fluoranthene	1,000		130 J	180 J	250 J	260 J	640.0
Benzo(g,h,i)perylene	100,000		100 J		230 J	170 J	290 J
Benzo(k)fluoranthene	1,000		160 J		240 J	290 J	570.0
Bis(2-ethylhexyl)phthalate	50,000 +		97 JB	2,900 B	290 JB	320 JB	85 JB
Carbazole	NS						62 J
Chrysene	1,000		140 J		170 J	240 J	630.0
Dibenzo(a,h)anthracene	330.0						92 J
Dibenzofuran	14,000						

Table 3-2 (Continued).
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	UPMT-03 11/05/97 1.0' - 1.5' Cinders & Grit	UPMT-04 11/05/97 1.5' Cinders & Grit	UPMT-05 11/05/97 2.0' Grit & Slag	UPMT-06 11/05/97 2.0' Soil with "Scrap"	UPMT-07 11/05/97 1.5' Gritty Soil	UPMT-08 11/05/97 Unknown Crystalline Waste
Semivolatile Organic Compounds (Continued)							
Di-n-butylphthalate	8,100 +	40 J	52 J	170 J	38 J	160 J	28 J
Fluoranthene	100,000	33 J	200 J		130 J	170 J	1,100
Fluorene	100,000						31 J
Hexachlorobenzene	410.0 +				280 J		
Indeno(1,2,3-cd)pyrene	500.0		82 J		210 J	160 J	310 J
2-Methylnaphthalene	36,400 +						
Naphthalene	100,000				25 J		
Phenanthrene	100,000		150 J		110 J	68 J	490 J
Pyrene	100,000	31 J	240 J	200 J	280 J	320 J	1,300
Total SVOCs	NS	104.0	1,669	3,450	2,633	2,578	6,990
Pesticides (µg/kg or ppb)							
4,4'-DDD	2,600		23 P				
4,4'-DDT	1,700		74 P			38.0	
PCBs (µg/kg or ppb)							
Aroclor-1254	-----		690.0				
Aroclor-1260	-----						
Total PCBs	1,000		690.0				
Inorganic Compounds (mg/kg or ppm)							
Aluminum	SB (11,670)	8,310	4,860	5,580	10,400	6,840	668.0
Antimony	SB (1.8)	**2.1 B**		**7.0 B**	**415.0**	**225.0**	**18.5**

Table 3-2 (Continued).
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**Part 375 Soil Cleanup Objective ***	**UPMT-03** **11/05/97** **1.0' - 1.5'** **Cinders & Grit**	**UPMT-04** **11/05/97** **1.5'** **Cinders & Grit**	**UPMT-05** **11/05/97** **2.0'** **Grit & Slag**	**UPMT-06** **11/05/97** **2.0'** **Soil with "Scrap"**	**UPMT-07** **11/05/97** **1.5'** **Gritty Soil**	**UPMT-08** **11/05/97** **Unknown** **Crystalline Waste**
Inorganic Compounds (Continued)							
Arsenic	16.0	**16.5**	10.8	12.5	**20.2**	**24.2**	2.0 B
Barium	350.0	321.0	**524.0**	**576.0**	**6,110**	**1,930**	125.0
Beryllium	14.0	0.91 B	0.52 B	0.68 B	0.19 B	0.39 B	0.20 B
Cadmium	2.5	1.8	**6.0**	**12.3**	**14.1**	**29.2**	0.35 B
Chromium	36.0	18.3	20.5	**53.6**	**148.0**	**121.0**	4.5
Cobalt	30.0 +	9.5 B	6.0 B	8.8 B	22.0	28.9	1.1 B
Copper	270.0	135 N	**655 N**	**2,060 N**	**7,050 N**	**2,690 N**	96.0 N
Cyanide	27.0	0.39 B	0.68	3.6	1.4	2.1	
Iron	SB (17,300)	**17,700**	11,800	17,200	**52,600**	**160,000**	2,130
Lead	400.0	**417 N**	**593 N**	**3,450 N**	**56,900 N**	**28,000 N**	**643 N**
Manganese	2,000	370.0	405.0	448.0	563.0	1,090	46.1
Mercury	0.81	0.10 B	0.35	0.21	**1.6**	**1.4**	
Nickel	140.0	31.0	44.4	96.1	**162.0**	123.0	7.4 B
Selenium	36.0	3.8	1.5	2.0	3.9	4.1	
Silver	36.0		5.1	13.9	**91.3**	**147.0**	0.48 B
Thallium	SB (2.6)	1.5 B			**3.4**	**3.3**	
Vanadium	150.0 +	40.7	17.2	21.7	23.6	52.7	2.0 B
Zinc	2,200	1,960	1,010	**2,340**	1,100	**6,510**	253.0

Table 3-2 (Continued).
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	UPMT-09 11/05/97 2.5' Gritty Waste	UPMT-10 11/05/97 1.5' Incinerator Waste	UPMT-11 11/05/97 0.0' - 0.17' Green Dirt	UPMT-13 11/05/97 0.0' - 0.17' Gritty Waste	UPMT-14 11/05/97 1.0' Incinerator Grit	UPMT-15 11/05/97 Unknown Gritty Soil
Volatile Organic Compounds (µg/kg or ppb)							
1,1-Dichloroethane	19,000						
1,1,1-Trichloroethane	100,000	7 J	11 J	22.0	8 J	8 J	16.0
Trichloroethene	10,000		12 J	5 J		2 J	19.0
Tetrachloroethene	5,500		36.0	4 J		8 J	82.0
Toluene	100,000						
Xylene (Total)	100,000						
Semivolatile Organic Compounds (µg/kg or ppb)							
Acenaphthene	100,000	100 J					
Acenaphthylene	100,000						
Anthracene	100,000	930 J				24 J	
Benzo(a)pyrene	1,000	**5,100**				150 J	110 J
Benzo(a)anthracene	1,000	**4,600**				130 J	94 J
Benzo(b)fluoranthene	1,000	**4,500**				150 J	130 J
Benzo(g,h,i)perylene	100,000	2,900				89 J	75 J
Benzo(k)fluoranthene	1,000	**4,700**				210 J	170 J
Bis(2-ethylhexyl)phthalate	50,000 +		200 JB	1,100 JB	370 JB	360 JB	170 JB
Carbazole	NS	330 J					
Chrysene	1,000	**4,900**	120 J	220 J		180 J	130 J
Dibenzo(a,h)anthracene	330.0	**960 J**					
Dibenzofuran	14,000	96 J					

Table 3-2 (Continued).
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**Part 375 Soil Cleanup Objective ***	**UPMT-09** **11/05/97** **2.5'** **Gritty Waste**	**UPMT-10** **11/05/97** **1.5'** **Incinerator Waste**	**UPMT-11** **11/05/97** **0.0' - 0.17'** **Green Dirt**	**UPMT-13** **11/05/97** **0.0' - 0.17'** **Gritty Waste**	**UPMT-14** **11/05/97** **1.0'** **Incinerator Grit**	**UPMT-15** **11/05/97** **Unknown** **Gritty Soil**
Semivolatile Organic Compounds (Continued)							
Di-n-butylphthalate	8,100 +	280 J					31 J
Fluoranthene	100,000	6,300				320 J	190 J
Fluorene	100,000	140 J					
Hexachlorobenzene	410.0 +						
Indeno(1,2,3-cd)pyrene	500.0	**2,900**				97 J	79 J
2-Methylnaphthalene	36,400 +						
Naphthalene	100,000	160 J					
Phenanthrene	100,000	3,000				160 J	110 J
Pyrene	100,000	6,200				290 J	210 J
Total SVOCs	NS	48,096	320.0	1,320	370.0	2,160	1,499
Pesticides (µg/kg or ppb)							
4,4'-DDD	2,600		14 P				
4,4'-DDT	1,700		54 P			16.0	
PCBs (µg/kg or ppb)							
Aroclor-1254	-----		690.0				
Aroclor-1260	-----	350.0					
Total PCBs	1,000	350.0	690.0				
Inorganic Compounds (mg/kg or ppm)							
Aluminum	SB (11,670)	8,380	7,120	3,860	8,010	3,470	8,690
Antimony	SB (1.8)	**40.1**	**80.3**	0.75 B		**14.1 B**	**111.0**

Table 3-2 (Continued).
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	UPMT-09 11/05/97 2.5' Gritty Waste	UPMT-10 11/05/97 1.5' Incinerator Waste	UPMT-11 11/05/97 0.0' - 0.17' Green Dirt	UPMT-13 11/05/97 0.0' - 0.17' Gritty Waste	UPMT-14 11/05/97 1.0' Incinerator Grit	UPMT-15 11/05/97 Unknown Gritty Soil
Inorganic Compounds (Continued)							
Arsenic	16.0	**26.5**	**29.9**	6.7	6.7	12.4	**35.6**
Barium	350.0	**1,160**	**1,800**	127.0	169.0	**2,870**	**1,400**
Beryllium	14.0	0.42 B	0.62 B	0.29 B	0.71 B	0.46 B	0.72 B
Cadmium	2.5	**8.3**	**15.7**	**7.7**		**5.7**	**17.7**
Chromium	36.0	**132.0**	**138.0**	**56.8**	4.6	34.4	**81.1**
Cobalt	30.0 +	18.9	24.1	5.4 B	3.2 B	9.4 B	13.5 B
Copper	270.0	**1,290 N**	**5,930 N**	**26,800 N**	45.4 N	**295 N**	**815 N**
Cyanide	27.0	2.9	2.8	0.82		1.3	1.2
Iron	SB (17,300)	**80,300**	**114,000**	**17,700**	3,090	**38,400**	**49,900**
Lead	400.0	**7,310 N**	**3,990 N**	**1,030 N**	26.0 N	**2,370 N**	**7,190 N**
Manganese	2,000	893.0	1,090	173.0	51.3	438.0	1,430
Mercury	0.81	**1.8**	**19.3**			0.24	**1.2**
Nickel	140.0	111.0	**148.0**	**348.0**	10.0 B	29.2	92.5
Selenium	36.0	3.0	2.2	1.4		3.0	5.8
Silver	36.0	9.1	10.3	11.8		3.4	**44.2**
Thallium	SB (2.6)	1.6 B	1.9 B	1.4 B		2.2 B	**5.2**
Vanadium	150.0 +	28.3	33.3	12.9	9.0 B	18.7	44.6
Zinc	2,200	**3,340**	**3,700**	2,080	27.6	2,150	**6,110**

Table 3-2 (Continued).
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	UPMT-16 11/05/97 Unknown Gritty Waste	S-1 10/20/98 0.0' - 0.17' Soil	S-2 10/20/98 0.0' - 0.17' Silver Debris	S-3 10/20/98 0.0' - 0.17' Sandy Material	S-4 10/20/98 0.0' - 0.17' Ash Material	S-5 10/20/98 0.0' - 0.17' Sandy Material
Volatile Organic Compounds (µg/kg or ppb)							
1,1-Dichloroethane	19,000	10 J	N/A	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	100,000	230.0	″	″	″	″	″
Trichloroethene	10,000	10 J	″	″	″	″	″
Tetrachloroethene	5,500	40.0	″	″	″	″	″
Toluene	100,000		″	″	″	″	″
Xylene (Total)	100,000		″	″	″	″	″
Semivolatile Organic Compounds (µg/kg or ppb)							
Acenaphthene	100,000		N/A	N/A	N/A	N/A	N/A
Acenaphthylene	100,000	74 J	″	″	″	″	″
Anthracene	100,000	150 J	″	″	″	″	″
Benzo(a)pyrene	1,000	570.0	″	″	″	″	″
Benzo(a)anthracene	1,000	670.0	″	″	″	″	″
Benzo(b)fluoranthene	1,000	630.0	″	″	″	″	″
Benzo(g,h,i)perylene	100,000	470.0	″	″	″	″	″
Benzo(k)fluoranthene	1,000	550.0	″	″	″	″	″
Bis(2-ethylhexyl)phthalate	50,000 +	160 JB	″	″	″	″	″
Carbazole	NS	80 J	″	″	″	″	″
Chrysene	1,000	760.0	″	″	″	″	″
Dibenzo(a,h)anthracene	330.0	150 J	″	″	″	″	″
Dibenzofuran	14,000		″	″	″	″	″

Table 3-2 (Continued).
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	UPMT-16 11/05/97 Unknown Gritty Waste	S-1 10/20/98 0.0' - 0.17' Soil	S-2 10/20/98 0.0' - 0.17' Silver Debris	S-3 10/20/98 0.0' - 0.17' Sandy Material	S-4 10/20/98 0.0' - 0.17' Ash Material	S-5 10/20/98 0.0' - 0.17' Sandy Material
Semivolatile Organic Compounds (Continued)							
Di-n-butylphthalate	8,100 +	110 J	N/A	N/A	N/A	N/A	N/A
Fluoranthene	100,000	1,100	″	″	″	″	″
Fluorene	100,000	32 J	″	″	″	″	″
Hexachlorobenzene	410.0 +		″	″	″	″	″
Indeno(1,2,3-cd)pyrene	500.0	380 J	″	″	″	″	″
2-Methylnaphthalene	36,400 +	43 J	″	″	″	″	″
Naphthalene	100,000	70 J	″	″	″	″	″
Phenanthrene	100,000	680.0	″	″	″	″	″
Pyrene	100,000	1,100	″	″	″	″	″
Total SVOCs	NS	7,779	″	″	″	″	″
Pesticides (µg/kg or ppb)							
4,4'-DDD	2,600		N/A	N/A	N/A	N/A	N/A
4,4'-DDT	1,700	24 P	″	″	″	″	″
PCBs (µg/kg or ppb)							
Aroclor-1254	-----		N/A	N/A	N/A	N/A	N/A
Aroclor-1260	-----		″	″	″	″	″
Total PCBs	1,000		″	″	″	″	″
Inorganic Compounds (mg/kg or ppm)							
Aluminum	SB (11,670)	10,800	9,750	**25,200**	5,590	**12,700**	**13,600**
Antimony	SB (1.8)	**11.0 B**					

Table 3-2 (Continued).
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**Part 375 Soil Cleanup Objective ***	**UPMT-16** **11/05/97** **Unknown** **Gritty Waste**	**S-1** **10/20/98** **0.0' - 0.17'** **Soil**	**S-2** **10/20/98** **0.0' - 0.17'** **Silver Debris**	**S-3** **10/20/98** **0.0' - 0.17'** **Sandy Material**	**S-4** **10/20/98** **0.0' - 0.17'** **Ash Material**	**S-5** **10/20/98** **0.0' - 0.17'** **Sandy Material**
Inorganic Compounds (Continued)							
Arsenic	16.0	**24.8**	**18.0**	7.7		7.9	12.0
Barium	350.0	**1,030**	**741.0**	**595.0**	180.0	**464.0**	**3,880**
Beryllium	14.0	0.54 B	1.1	0.6		0.7	1.2
Cadmium	2.5	**11.7**	**13.0**	**22.0**	**8.0**	**6.0**	**62.0**
Chromium	36.0	**121.0**	**75.0**	**130.0**	31.0	**109.0**	**974.0**
Cobalt	30.0 +	14.0 B	12.0	10.0	11.0	10.0	27.0
Copper	270.0	**1,860 N**	**442.0**	**1,770**	**88,700**	**2,040**	**11,800**
Cyanide	27.0	6.6	N/A	N/A	N/A	N/A	N/A
Iron	SB (17,300)	**122,000**	**98,000**	**32,900**	11,200	**20,400**	**85,000**
Lead	400.0	**2,370 N**	**1,750**	**3,440**	**2,080**	**1,240**	**36,600**
Manganese	2,000	1,610	793.0	1,050	132.0	313.0	981.0
Mercury	0.81	0.50	**2.0**	0.5	0.3	0.4	0.3
Nickel	140.0	**155.0**	70.0	**206.0**	**858.0**	101.0	**995.0**
Selenium	36.0	2.3	3.1	0.6		0.7	
Silver	36.0	7.1			8.0	6.0	13.0
Thallium	SB (2.6)						
Vanadium	150.0 +	32.6	26.0	33.0	9.0	31.0	29.0
Zinc	2,200	**6,120**	**3,990**	**4,090**	**5,090**	1,550	**29,600**

Table 3-2 (Continued).
Analytical Results for Historic Soil and Waste Samples Collected from the Old Upper Mountain Road Site.

*	6 NYCRR Part 375: Environmental Remediation Programs, Residential Soil Cleanup Objectives, NYSDEC, 2006.
+	NYSDEC Technical and Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1995.
B	Analyte detected in the associated blank, as well as in the sample (organics) or the value is greater than or equal to the instrument detection limit, but less than the contract required detection limit (inorganics).
J	Compound reported at an estimated concentration below the sample quantitation limit.
N	Spike sample recovery or spike analysis is not within quality control limits (inorganics).
NA	Not analyzed.
NS	No standard or guidance value available.
P	>25% difference between the analytical results on two GC columns. The lower value is reported.
SB	Site background concentration as determined during the Site Investigation of the Former Flintkote Plant Site (TVGA, 2005).
	Blanks indicate that the sample was analyzed for the associated compound but it was not detected.
	Shaded values equal or exceed the Part 375 or TAGM 4046 soil cleanup objectives.

Table 3-3.
Analytical Results for Historic Surface Water Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Location	Surface Water Standard *	UPMT-01 11/05/97 Downstream	W-1 10/20/98 Downstream
Volatile Organic Compounds (µg/L or ppb)			
Chloroform	7.0		5.8
1,1-Dichloroethane	5.0		0.5
1,2-Dichloroethene (total)	5.0	**9 J**	**220.7**
Tetrachloroethene	0.7 G	**4 J**	**15.0**
1,1,1-Trichloroethane	5.0		2.8
Trichloroethene	5.0	**9 J**	**79.0**
Vinyl Chloride	0.3 G		**0.5**
Inorganic Compounds (µg/L or ppb)			
Aluminum	100.0	52.5 B	N/A
Antimony	3.0		″
Arsenic	50.0		″
Barium	1,000	47.5 B	″
Beryllium	3.0 G		″
Cadmium	5.0	0.46 B	″
Chromium	50.0		″
Cobalt	5.0		″
Copper	200.0	16.0 B	″
Cyanide	200.0		″
Iron	300.0	49.9 B	″
Lead	50.0	4.2	″
Manganese	300.0	4.0 B	″
Mercury	0.7		″
Nickel	100.0	4.4 B	″
Selenium	10.0		″
Silver	50.0		″
Thallium	0.5 G		″
Vanadium	14.0		″
Zinc	2,000 G	231.0	″

Table 3-3 (Continued).
Analytical Results for Historic Surface Water Samples Collected from the Old Upper Mountain Road Site.

*	NYSDEC Ambient Water Quality Standards and Guidance Values, June 1998.
B	Value greater than or equal to the instrument detection limit, but less than the contract required detection limit (inorganics).
G	Guidance value.
J	Compound reported at an estimated concentration below the reporting limit.
NA	Not analyzed.
	Blanks indicate that the sample was analyzed for the associated compound but it was not detected.
	Shaded values equal or exceed the NYSDEC surface water standards or guidance values.

Table 3-4.
Analytical Results for Historic Sediment Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**NYSDEC Sediment Criteria ***	**UPMT-12** **11/05/97** **0.0' - 0.17'** **Sediment +**	
Volatile Organic Compounds (µg/kg or ppb)			
1,2-Dichloroethene	0.8 ●	**6 J**	
Trichloroethene	67.3 ●	2 J	
Semivolatile Organic Compounds (µg/kg or ppb)			
Acenaphthene	4,396	180 J	
Anthracene	3,363	290 J	
Benzo(a)pyrene	41.3 ●	**360 J**	
Benzo(a)anthracene	383.8	**560.0**	
Benzo(b)fluoranthene	41.3 ●	**570.0**	
Benzo(g,h,i)perylene	NS	220 J	
Benzo(k)fluoranthene	41.3 ●	**360 J**	
Bis(2-ethylhexyl)phthalate	3,759	770 B	
Carbazole	NS	140 J	
Chrysene	41.3 ●	**530.0**	
Dibenzofuran	NS	100 J	
Di-n-butylphthalate	NS	24 J	
Fluoranthene	32,028	1,100	
Fluorene	256.6	170 J	
Indeno(1,2,3-cd)pyrene	41.3 ●	**220 J**	
2-Methylnaphthalene	1,069	48 J	
Naphthalene	957	160 J	
Phenanthrene	3,768	1,200	
Pyrene	30,178	1,100	
Inorganic Compounds (mg/kg or ppm)			
Aluminum	SB (11,670) ++	3,920	
Antimony	2.0	**20.9**	
Arsenic	6.0	**16.8**	
Barium	433 **	**2,260**	
Beryllium	10 **	0.47 B	

Table 3-4 (Continued).
Analytical Results for Historic Sediment Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**NYSDEC Sediment Criteria ***	**UPMT-12** **11/05/97** **0.0' - 0.17'** **Sediment +**	
Inorganic Compounds (Continued)			
Cadmium	0.6	**3.7**	
Chromium	26.0	**31.7**	
Cobalt	30.0 ++	7.5 B	
Copper	16.0	**2,420 N**	
Cyanide	NS	0.67	
Iron	20,000	**54,800**	
Lead	31.0	**3,190 N**	
Manganese	460.0	277.0	
Mercury	0.15		
Nickel	16.0	**49.4**	
Selenium	3.9 **	2.5	
Silver	1.0	**7.5**	
Thallium	SB (2.6) ++		
Vanadium	150.0 ++	20.3	
Zinc	120.0	**1,530**	

***** **NYSDEC Technical Guidance for Screening Contaminated Sediments, January 1999. Sediment criteria calculated using a total organic carbon content of 3.14%. Sediment criteria given are for the protection of benthic aquatic life from chronic toxicity (organics) and the lowest effect level (metals) unless otherwise noted.**

● **Sediment criteria for the protection of human health bioaccumulation.**

+ **Sediment mixed with incinerator waste.**

****** **6 NYCRR Part 375: Environmental Remediation Programs, Soil Cleanup Objectives for the Protection of Ecological Resources, NYSDEC, 2006.**

++ **NYSDEC Technical and Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1995.**

B **Analyte detected in the associated blank, as well as in the sample (organics) or the value is greater than or equal to the instrument detection limit, but less than the contract required detection limit (inorganics).**

J **Compound reported at an estimated concentration below the sample quantitation limit.**

N **Spike sample recovery or spike analysis is not within quality control limits (inorganics).**

NS **No standard or guidance value available.**

SB **Site background concentration as determined during the Site Investigation of the Former Flintkote Plant Site (TVGA, 2005).**

Blanks indicate that the sample was analyzed for the associated compound but it was not detected.

Shaded values equal or exceed the NYSDEC sediment criteria, Part 375 soil cleanup objectives, or TAGM 4046 soil cleanup objectives.

Table 4-1.
Summary Key for Samples Collected During the Site Investigation of the Old Upper Mountain Road Site.

Lab ID	Sample ID	Date Sampled	Time Sampled	Interval Sampled*	Analytical Parameters	Comments	Table Reference
Surface Soil Samples							
SS-1	SS-1	06/07/07	1340	0.0' - 0.17'	SVOCs, PCBs, Pesticides, Metals, TCLP lead	Surface soil collected at soil boring location SB-1; peat	Table 6-1 & Table 6-2
SS-2	SS-2	06/07/07	1355	0.0' - 0.17'	SVOCs, PCBs, Pesticides, Metals, TCLP cadmium, chromium & lead	Surface soil collected at soil boring location SB-3; topsoil & fill	Table 6-1 & Table 6-2
SS-3	SS-3	06/07/07	1405	0.0' - 0.17'	Metals	Surface soil collected at soil boring location SB-5; soil	Table 6-2
SS-4	SS-4	06/07/07	1415	0.0' - 0.17'	SVOCs, PCBs, Pesticides, Metals	Surface soil collected at soil boring location SB-8; ash	Table 6-2
SS-5	SS-5	06/07/07	1430	0.0' - 0.17'	SVOCs, PCBs, Pesticides, Metals	Surface soil collected at proposed location of soil boring SB-14; ash	Table 6-2
SS-6	SS-6	06/08/07	1300	0.2' - 0.3'	SVOCs, PCBs, Pesticides, Metals, TCLP lead	Surface soil collected at soil boring location SB-16; ash	Table 6-1 & Table 6-2
Waste Samples							
WS-1	WS-1	06/08/07	1315	1.8' - 2.0'	SVOCs, PCBs, Pesticides, Metals, TCLP lead	Ash sample collected from a small pit 19 ft north of soil boring SB-16	Table 6-1 & Table 6-3
WS-2	WS-2	06/08/07	1340	1.5'	SVOCs, PCBs, Pesticides, Metals, TCLP lead	Ash sample collected from a pit between soil borings SB-15 and SB-16	Table 6-1 & Table 6-3
WS-3	WS-3	06/11/07	1040	1.5' - 2.0'	SVOCs, PCBs, Pesticides, Metals	Ash sample collected from a pit 17.5 ft east of soil boring SB-8	Table 6-3
WS-4	WS-4	06/11/07	1115	5.0'	SVOCs, PCBs, Pesticides, Metals	Ash sample collected from a pit near Old Upper Mountain Road	Table 6-3
WS-5	WS-5	06/13/07	0950	0.0' - 0.25'	SVOCs, PCBs, Pesticides, Metals, TCLP lead	Ash sample collected near the base of the embankment in the ravine	Table 6-1 & Table 6-3
SB-1A	SB-1A	09/25/07	1100	0.0' - 4.0'	VOCs, SVOCs, PCBs, Pesticides, Metals, TCLP lead	Ash sample collected from soil boring SB-1	Table 6-1 & Table 6-3
SB-1B	SB-1B	09/25/07	1120	16.0' - 20.0'	Metals, TCLP lead	Ash sample collected from soil boring SB-1	Table 6-1 & Table 6-3
SB-2A	SB-2A	09/25/07	1300	0.0' - 4.0'	RCRA Metals, TCLP lead	Waste sample collected from soil boring SB-2	Table 6-1 & Table 6-3
SB-2B	SB-2B	09/25/07	1310	4.0' - 8.0'	RCRA Metals	Ash sample collected from soil boring SB-2	Table 6-3

Table 4-1 (continued).
Summary Key for Samples Collected During the Site Investigation of the Old Upper Mountain Road Site.

Lab ID	Sample ID	Date Sampled	Time Sampled	Interval Sampled*	Analytical Parameters	Comments	Table Reference
Waste Samples (Continued)							
SB-2C	SB-2C	09/25/07	1315	8.0' - 12.0'	RCRA Metals	Ash sample collected from soil boring SB-1	Table 6-3
SB-2D	SB-2D	09/25/07	1325	12.0' - 16.0'	RCRA Metals, TCLP lead	Ash sample collected from soil boring SB-2	Table 6-1 & Table 6-3
SB-2E	SB-2E	09/25/07	1340	16.0' - 20.0'	RCRA Metals, TCLP lead	Ash sample collected from soil boring SB-2	Table 6-1 & Table 6-3
SB-2F	SB-2F	09/25/07	1350	20.0' - 24.0'	RCRA Metals, TCLP lead	Waste sample collected from soil boring SB-2	Table 6-1 & Table 6-3
SB-2G	SB-2G	09/25/07	1415	24.0' - 28.0'	RCRA Metals, TCLP lead	Waste sample collected from soil boring SB-2	Table 6-1 & Table 6-3
SB-2H	SB-2H	09/25/07	1430	28.0' - 32.0'	RCRA Metals, TCLP lead	Ash sample collected from soil boring SB-2	Table 6-1 & Table 6-3
SB-2I	SB-2I	09/25/07	1500	32.0' - 36.0'	RCRA Metals	Waste sample collected from soil boring SB-2	Table 6-3
SB-3A	SB-3A	09/26/07	1325	0.0' - 4.0'	VOCs	Waste sample collected from soil boring SB-3	Table 6-3
SB-3B	SB-3B	09/26/07	1330	4.0' - 8.0'	VOCs	Ash sample collected from soil boring SB-3	Table 6-3
SB-3	SB-3	09/26/07	1350	12.0' - 16.0'	SVOCs, PCBs, Pesticides, Metals, TCLP lead	Ash sample collected from soil boring SB-3	Table 6-1 & Table 6-3
SB-4	SB-4	09/26/07	1230	8.0' - 12.0'	Metals, TCLP lead	Ash sample collected from soil boring SB-4	Table 6-1 & Table 6-3
SB-5	SB-5	09/26/07	0920	4.0' - 8.0'	SVOCs, PCBs, Pesticides, Metals, TCLP lead	Waste sample collected from soil boring SB-5	Table 6-1 & Table 6-3
SB-6	SB-6	09/25/07	1600	4.0' - 8.0'	SVOCs, PCBs, Pesticides, Metals, TCLP lead	Ash sample collected from soil boring SB-6	Table 6-1 & Table 6-3
SB-7B	SB-7B	09/26/07	0850	4.0' - 5.6'	Metals	Ash sample collected from soil boring SB-7	Table 6-3
SB-8	SB-8	09/26/07	1010	8.0' - 10.1'	Metals, TCLP lead	Waste sample collected from soil boring SB-8	Table 6-1 & Table 6-3
SB-9A	SB-9A	09/26/07	1050	4.0' - 8.0'	SVOCs, PCBs, Pesticides	Waste sample collected from soil boring SB-9	Table 6-3
SB-9B	SB-9B	09/26/07	1115	12.0' - 16.0'	Metals, TCLP lead	Waste sample collected from soil boring SB-9	Table 6-1 & Table 6-3

Table 4-1 (continued).
Summary Key for Samples Collected During the Site Investigation of the Old Upper Mountain Road Site.

Lab ID	Sample ID	Date Sampled	Time Sampled	Interval Sampled*	Analytical Parameters	Comments	Table Reference
Waste Samples (Continued)							
SB-10A	SB-10A	09/26/07	1425	0.0' - 4.0'	SVOCs, PCBs, Pesticides, Metals, TCLP lead	Foundry sand sample collected from soil boring SB-10	Table 6-3
SB-10B	SB-10B	09/26/07	1455	12.0' - 16.0'	Metals, TCLP lead	Waste sample collected from soil boring SB-10	Table 6-1 & Table 6-3
SB-11	SB-11	09/27/07	0850	4.0' - 8.0'	Metals, TCLP lead	Ash sample collected from soil boring SB-11	Table 6-1 & Table 6-3
SB-11B	SB-11B	09/27/07	1740	32.0' - 36.0'	Metals, TCLP lead	Ash sample collected from soil boring SB-11	Table 6-1 & Table 6-3
SB-12	SB-12	09/27/07	1505	16.0' - 20.0'	SVOCs, PCBs, Pesticides	Ash sample collected from soil boring SB-12	Table 6-3
SB-12B	SB-12B	09/27/07	1515	20.0' - 24.0'	Metals, TCLP lead	Ash sample collected from soil boring SB-12	Table 6-1 & Table 6-3
SB-13	SB-13	09/28/07	0835	12.0' - 16.0'	Metals, TCLP lead	Ash sample collected from soil boring SB-13	Table 6-1 & Table 6-3
SB-14	SB-14	09/28/07	0930	8.0' - 12.0'	Metals	Ash sample collected from soil boring SB-14	Table 6-3
Surface Water Samples							
SW-1	SW-1	06/11/07	1145	N/A	VOCs, SVOCs, PCBs, Pesticides, Metals	Discharge pipe near Old Upper Mountain Road; upgradient	Table 6-4
SW-2	SW-2	06/13/07	1030	N/A	VOCs, SVOCs, PCBs, Pesticides, Metals	Base of ravine near 1998 surface water sample; downgradient	Table 6-4
Sediment Samples							
SED-1	SED-1	06/11/07	1145	0.0' - 0.17'	VOCs, SVOCs, PCBs, Pesticides, Metals	Sediment collected at surface water location SW-1	Table 6-5
SED-2	SED-2	06/13/07	1030	0.0' - 0.17'	VOCs, SVOCs, PCBs, Pesticides, Metals, TCLP lead	Sediment collected at surface water location SW-2	Table 6-1 & Table 6-5

Table 5-1.
Stratigraphic Sequence of the Western New York Area.
Compiled from Buehler and Tesmer (1963) and Brett et al. (1995).

Epoch	Group	Formation	Member
Middle Devonian	Hamilton	Moscow Shale	Windom Shale Kashong Shale
		Ludlowville Formation	Tichenor Limestone Wanakah Shale Ledyard Shale Centerfield Limestone
		Skaneateles Formation	Levanna Shale Stafford Limestone
		Marcellus Shale	Oatka Creek Shale
		Onondaga Limestone	Seneca Limestone Morehouse Limestone Nedrow Limestone Clarence Limestone Edgecliff Limestone
Late Silurian	Salina	Akron Dolostone	
		Bertie Dolostone	Williamsville Dolostone Scajaquada Dolostone Falkirk Dolostone Oatka Dolostone
		Camillus Shale Syracuse Formation Vernon Shale	
Middle Silurian	Lockport	Guelph Dolostone Eramosa Dolostone	
		Goat Island Dolostone	Vinemount Dolostone Ancaster Dolostone Niagara Falls Dolostone
		Gasport Limestone	Pekin Dolostone Gothic Hill Limestone
	Clinton	Decew Dolostone	
		Rochester Shale	Burleigh Hill Shale Lewiston Shale
		Irondequoit Limestone Rockway Dolostone Williamson Shale Merritton Limestone	
		Reynales Limestone	Hickory Corners Limestone
		Neahga Shale	
Early Silurian	Medina	Kodak Sandstone Cambria Shale Thorold Sandstone Grimsby Formation Devils Hole Shale Power Glen Shale Whirlpool Sandstone	
Late Ordovician	Richmond	Queenston Shale Oswego Sandstone	

Table 5-2.
Stratigraphic Summary of Borings Completed During the Site Investigation of the Old Upper Mountain Road Site.
All Depths and Elevations are Measured in Feet.

Boring Number	Ground Surface Elevation	Topsoil or Clean Fill			Waste			Native Silty Clay			Bedrock	
		Depth	Surface Elevation	Thickness	Depth	Surface Elevation	Thickness	Depth	Surface Elevation	Thickness	Depth	Surface Elevation
SB-1	572.0	0.0	572.0	0.3	0.3	571.7	18.1	18.4	553.6	1.6	20.0	552.0
SB-2	588.0				0.0	588.0	> 36.0					
SB-3	585.0				0.0	585.0	> 16.4					
SB-4	587.0	0.0	587.0	0.3	0.3	586.7	13.5	13.8	573.2	0.7	14.5	572.5
SB-5	583.0	0.0	583.0	2.7	2.7	580.3	10.4	13.1	569.9	1.4	14.5	568.5
SB-6	590.0	0.0	590.0	4.5	4.5	585.5	7.5	12.0	578.0	1.6	13.6	576.4
SB-7	592.0	0.0	592.0	2.2	2.2	589.8	> 3.4					
SB-8	592.0	0.0	592.0	0.4	0.4	591.6	9.7	10.1	581.9	2.6	12.7	579.3
SB-9	588.0	0.0	588.0	1.1	1.1	586.9	15.1	16.0	572.0	0.2	16.2	571.8
SB-10	593.0	0.0	593.0	0.4	0.4	592.6	> 18.4					
SB-11	578.0	0.0	578.0	2.2	2.2	575.8	> 33.8					
SB-12	578.0	0.0	578.0	5.1	5.1	572.9	> 23.9					
SB-13	575.0	0.0	575.0	0.1	0.1	574.9	21.2	21.3	553.7	0.7	22.0	553.0
SB-14	582.0				0.0	582.0	12.0	12.0	570.0	0.7	12.7	569.3
SB-15	598.0	0.0	598.0	0.9	0.9	597.1	> 0.7					
SB-16	595.0	0.0	595.0	0.6	0.6	594.4	6.0	6.6	588.4	> 1.4		

Table 6-1.
Analytical Results for Surface Soil Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SS-1 06/07/07 0.0' -0.17' Peat	SS-2 06/07/07 0.0' -0.17' Topsoil & Fill	SS-3 06/07/07 0.0' -0.17' Soil	SS-4 06/07/07 0.0' -0.17' Ash	SS-5 06/07/07 0.0' -0.17' Ash	SS-6 06/08/07 0.0' -0.17' Ash
Semivolatile Organic Compounds (µg/kg or ppb)							
Acenaphthene	100,000			NA		11 J	110 J
Acenaphthylene	100,000	240 J		″		110 J	350 J
Anthracene	100,000	220 J		″		160 J	580 J
Benzo(a)anthracene	1,000	640 J	**1,000 J**	″	20 J	550.0	**1,900 J**
Benzo(a)pyrene	1,000	**1,100 J**	**1,100 J**	″	22 J	460.0	**1,700 J**
Benzo(b)fluoranthene	1,000	920 J	**1,800 J**	″	48 J	690.0	**2,600**
Benzo(g,h,i)perylene	100,000	400 J	1,200 J	″	20 J	270.0	980 J
Benzo(k)fluoranthene	1,000	470 J	610 J	″		210.0	940 J
Bis(2-ethylhexyl)phthalate	50,000 +			″	110 BJ	76 BJ	
Carbazole	NS			″		73 J	330 J
Chrysene	1,000	470 J	**1,200 J**	″	16 J	500.0	**1,800 J**
4-Chloro-3-methylphenol	240.0 +	**3,800**	**1,100 J**	″			
Dibenzo(a,h)anthracene	330.0		**480 J**	″		83 J	**350 J**
Dibenzofuran	14,000			″		27 J	98 J
Di-n-octylphthalate	50,000 +			″	19 BJ	17 BJ	
Fluoranthene	100,000	1,400 J	1,100 J	″	21 J	940.0	4,000
Fluorene	100,000			″		11 J	
Indeno(1,2,3-cd)pyrene	500.0	300 J	**1,100 J**	″	16 J	250.0	**930 J**
2-Methylnaphthalene	36,400 +	160 J		″		40 J	87 J
Naphthalene	100,000			″		29 J	180 J

Table 6-1 (Continued).
Analytical Results for Surface Soil Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SS-1 06/07/07 0.0' -0.17' Peat	SS-2 06/07/07 0.0' -0.17' Topsoil & Fill	SS-3 06/07/07 0.0' -0.17' Soil	SS-4 06/07/07 0.0' -0.17' Ash	SS-5 06/07/07 0.0' -0.17' Ash	SS-6 06/08/07 0.0' -0.17' Ash
Semivolatile Organic Compounds (Continued)							
Phenanthrene	100,000	720 J	580 J	NA	15 J	530.0	2,200
Pyrene	100,000	660 J	1,100 J	″	14 J	630.0	2,600
Pesticides (µg/kg or ppb)							
4,4-DDE	1,800			NA		9.8	26.0
4,4'-DDT	1,700	120 B	160 B	″	2.1 BJ	25 B	57 B
Aldrin	19.0			″		2.2 J	6.4 J
alpha-BHC	97.0	34 J	38 J	″			8.9 J
alpha-Chlordane	910.0			″		2.8 J	11 J
delta-BHC	100,000			″		1.1 J	
Dieldrin	39.0	32 J	**40 J**	″		1.4 J	
Endosulfan II	4,800	49 J		″			
Endosulfan Sulfate	4,800			″		3.9 J	
Endrin Aldehyde	NS			″	1.2 J		23.0
Endrin Ketone	NS	34 J		″			
gamma-Chlordane	540.0 +			″	0.9 BJ	3.1 BJ	
Methoxychlor	NS		120.0	″			
PCBs (µg/kg or ppb)							
Aroclor-1254	-----			N/A			
Aroclor-1260	-----	270.0		″			
Total PCBs	1,000	270.0		″			

Table 6-1 (Continued).
Analytical Results for Surface Soil Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SS-1 06/07/07 0.0' -0.17' Peat	SS-2 06/07/07 0.0' -0.17' Topsoil & Fill	SS-3 06/07/07 0.0' -0.17' Soil	SS-4 06/07/07 0.0' -0.17' Ash	SS-5 06/07/07 0.0' -0.17' Ash	SS-6 06/08/07 0.0' -0.17' Ash
Inorganic Compounds (mg/kg or ppm)							
Aluminum	SB (11,670)	8,250	**12,200**	5,350	**16,400**	5,960	6,770
Antimony	SB (1.8)		**135.0**				**269.0**
Arsenic	16.0	**21.4**	16.0	3.7	**37.3**	**23.6**	**20.3**
Barium	350.0	**705.0**	**1,570**	65.1	230.0	265.0	**449.0**
Beryllium	14.0	1.2	1.3	0.3	0.67	0.59	0.55
Cadmium	2.5	**4.4**	**55.4**	1.6	0.5	0.7	**5.1**
Chromium	36.0	**56.2**	**297.0**	12.8	**37.7**	**43.1**	**42.5**
Cobalt	30.0 +	13.6	27.4	5.4	6.9	10.8	11.1
Copper	270.0	**277.0**	**22,300**	160.0	85.7	224.0	**1,230**
Iron	SB (17,300)	**40,800**	**61,500**	12,600	**24,100**	**80,300**	**30,100**
Lead	400.0	**1,310**	**24,300**	216.0	186.0	376.0	**3,280**
Manganese	2,000	177.0	573.0	534.0	809.0	434.0	533.0
Mercury	0.81	0.756	**1.9**	0.042		0.108	0.411
Nickel	140.0	134.0	**1,070**	26.1	25.0	89.1	84.3
Selenium	36.0						
Silver	36.0	1.1	**114.0**	1.0		0.94	3.0
Thallium	SB (2.6)						
Vanadium	150.0 +	22.2	25.6	13.1	31.4	22.8	34.1
Zinc	2,200	688.0	**13,400**	507.0	599.0	381.0	1,630

Table 6-1 (Continued).
Analytical Results for Surface Soil Samples Collected from the Old Upper Mountain Road Site.

*	6 NYCRR Part 375: Environmental Remediation Programs, Residential Soil Cleanup Objectives, NYSDEC, 2006.
+	NYSDEC Technical and Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1995.
B	Analyte detected in the associated blank, as well as in the sample (organics).
J	Compound reported at an estimated concentration below the sample quantitation limit.
NA	Not analyzed.
NS	No standard or guidance value available.
SB	Site background concentration as determined during the Site Investigation of the Former Flintkote Plant Site (TVGA, 2005).
	Blanks indicate that the sample was analyzed for the associated compound but it was not detected.
	Shaded values equal or exceed the Part 375 or TAGM 4046 soil cleanup objectives.

Table 6-2.
TCLP Results for Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Regulatory Level *	SS-1 06/07/07 0.0' - 0.17' Peat	SS-2 06/07/07 0.0' - 0.17' Topsoil & Fill	SS-6 06/08/07 0.0' - 0.17' Ash	WS-1 06/08/07 1.8' - 2.0' Ash	WS-2 06/08/07 1.5' Ash	WS-5 06/13/07 0.0' - 0.25' Ash
Inorganic Compounds (mg/L or ppm)							
Arsenic	5.0	NA	NA	NA	NA	NA	NA
Barium	100.0	″	″	″	″	″	″
Cadmium	1.0	″	0.597	″	″	″	″
Chromium	5.0	″	0.0135	″	″	″	″
Lead	5.0	0.809	**272.0**	0.948	0.639	2.51	**15.8**
Mercury	0.2	NA	NA	NA	NA	NA	NA
Selenium	1.0	″	″	″	″	″	″
Silver	5.0	″	″	″	″	″	″

***** **6 NYCRR Part 371: Identification and Listing of Hazardous Wastes, NYSDEC, 1995.**
NA **Not analyzed.**
Samples W3 and W4 were also analyzed for TCLP volatiles, semivolatiles and pesticides. None of these compounds were detected.
Exceedances are shaded.

Table 6-2 (Continued).
TCLP Results for Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Regulatory Level *	SB-1A 09/25/07 0.0' - 4.0' Ash	SB-1B 09/25/07 16.0' - 20.0' Ash	SB-2A 09/25/07 0.0' - 4.0' Waste	SB-2D 09/25/07 12.0' - 16.0' Ash	SB-2E 09/25/07 16.0' - 20.0' Ash	SB-2F 09/25/07 20.0' - 24.0' Waste
Inorganic Compounds (mg/L or ppm)							
Arsenic	5.0	NA	NA	NA	NA	NA	NA
Barium	100.0	″	″	″	″	″	″
Cadmium	1.0	″	″	″	″	″	″
Chromium	5.0	″	″	″	″	″	″
Lead	5.0	**101.0**	**7.4**	**31.0**	1.0	2.8	**76.9**
Mercury	0.2	NA	NA	NA	NA	NA	NA
Selenium	1.0	″	″	″	″	″	″
Silver	5.0	″	″	″	″	″	″

***** **6 NYCRR Part 371: Identification and Listing of Hazardous Wastes, NYSDEC, 1995.**
NA **Not analyzed.**
Exceedances are shaded.

Table 6-2 (Continued).
TCLP Results for Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Regulatory Level *	SB-2G 09/25/07 24.0' - 28.0' Waste	SB-2H 09/25/07 28.0' - 32.0' Ash	SB-3 09/26/07 12.0' - 16.0' Ash	SB-4 09/26/07 8.0' - 12.0' Ash	SB-5 09/26/07 4.0' - 8.0' Waste	SB-6 09/25/07 4.0' - 8.0' Ash
Inorganic Compounds (mg/L or ppm)							
Arsenic	5.0	NA	NA	NA	NA	NA	NA
Barium	100.0	″	″	″	″	″	″
Cadmium	1.0	″	″	″	″	″	″
Chromium	5.0	″	″	″	″	″	″
Lead	5.0	2.8	**16.1**	**9.1**	0.024	**23.4**	2.2
Mercury	0.2	NA	NA	NA	NA	NA	NA
Selenium	1.0	″	″	″	″	″	″
Silver	5.0	″	″	″	″	″	″

***** **6 NYCRR Part 371: Identification and Listing of Hazardous Wastes, NYSDEC, 1995.**
NA **Not analyzed.**
Exceedances are shaded.

Table 6-2 (Continued).
TCLP Results for Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Regulatory Level *	SB-8 09/26/07 8.0' - 10.1' Waste	SB-9B 09/26/07 12.0' - 16.0' Waste	SB-10A 09/26/07 0.0' - 4.0' Foundry Sand	SB-10B 09/26/07 12.0' - 16.0' Waste	SB-11 09/27/07 4.0' - 8.0' Ash	SB-11B 09/27/07 32.0' - 36.0' Ash
Inorganic Compounds (mg/L or ppm)							
Arsenic	5.0	NA	NA	NA	NA	NA	NA
Barium	100.0	″	″	″	″	″	″
Cadmium	1.0	″	″	″	″	″	″
Chromium	5.0	″	″	″	″	″	″
Lead	5.0	0.33	3.1	**31.8**	**7.2**	**25.9**	**27.0**
Mercury	0.2	NA	NA	NA	NA	NA	NA
Selenium	1.0	″	″	″	″	″	″
Silver	5.0	″	″	″	″	″	″

***** **6 NYCRR Part 371: Identification and Listing of Hazardous Wastes, NYSDEC, 1995.**
NA **Not analyzed.**
Exceedances are shaded.

Table 6-2 (Continued).
TCLP Results for Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**Regulatory Level ***	**SB-12B** **09/27/07** **20.0' - 24.0'** **Ash**	**SB-13** **09/28/07** **12.0' - 16.0'** **Ash**	**SED-2** **06/13/07** **0.0' - 0.17'** **Sediment**			
Inorganic Compounds (mg/L or ppm)							
Arsenic	5.0	NA	NA	NA			
Barium	100.0	″	″	″			
Cadmium	1.0	″	″	″			
Chromium	5.0	″	″	″			
Lead	5.0	1.6	0.83	0.810			
Mercury	0.2	NA	NA	NA			
Selenium	1.0	″	″	″			
Silver	5.0	″	″	″			

***** **6 NYCRR Part 371: Identification and Listing of Hazardous Wastes, NYSDEC, 1995.**
NA **Not analyzed.**
Exceedances are shaded.

Table 6-3.
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	WS-1 06/08/07 1.8' - 2.0' Ash	WS-2 06/08/07 1.5' Ash	WS-3 06/11/07 1.5' - 2.0' Ash	WS-4 06/11/07 5.0' Ash	WS-5 06/13/07 0.0' - 0.25' Ash
Volatile Organic Compounds (µg/kg or ppb)						
Acetone	100,000	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	59,000	″	″	″	″	″
1,1-Dichloroethane	19,000	″	″	″	″	″
Methylene Chloride	51,000	″	″	″	″	″
Tetrachloroethene	5,500	″	″	″	″	″
Toluene	100,000	″	″	″	″	″
trans-1,2-Dichloroethene	100,000	″	″	″	″	″
1,1,1-Trichloroethane	100,000	″	″	″	″	″
1,1,2-Trichloroethane	NS	″	″	″	″	″
Trichloroethene	10,000	″	″	″	″	″
Semivolatile Organic Compounds (µg/kg or ppb)						
Acenaphthene	100,000		420.0			
Acenaphthylene	100,000	20 J	250.0			
Anthracene	100,000	26 J	980.0	14 J		
Benzaldehyde	NS				620.0	
Benzo(a)anthracene	1,000	110 J	**2,300**	52 J	50 J	230 J
Benzo(a)pyrene	1,000	110 J	**2,000**	49 J	42 J	
Benzo(b)fluoranthene	1,000	190 J	**2,800**	86 J	78 J	
Benzo(g,h,i)perylene	100,000	160 J	1,100	35 J	34 J	

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	WS-1 06/08/07 1.8' - 2.0' Ash	WS-2 06/08/07 1.5' Ash	WS-3 06/11/07 1.5' - 2.0' Ash	WS-4 06/11/07 5.0' Ash	WS-5 06/13/07 0.0' - 0.25' Ash
Semivolatile Organic Compounds (Continued)						
Benzo(k)fluoranthene	1,000	72 J	950.0	18 J	32 J	
Biphenyl	NS		45 J			
Bis(2-ethylhexyl)phthalate	50,000 +	170 BJ	94 BJ	94 BJ	110 BJ	
Carbazole	NS	14 J	300.0			
Chrysene	1,000	120 J	**2,400**	49 J	60 J	
Dibenzo(a,h)anthracene	330.0	38 J	**360.0**	16 J	12 J	
Dibenzofuran	14,000		120 J			
Di-n-octylphthalate	50,000 +	11 BJ			19 BJ	
Fluoranthene	100,000	210.0	4,500	68 J	63 J	
Fluorene	100,000		350.0			
Hexachlorobenzene	410.0 +					
Indeno(1,2,3-cd)pyrene	500.0	110 J	**990.0**	31 J	36 J	
2-Methylnaphthalene	36,400 +		270 J			
4-Methylphenol	34,000		19 J			
Naphthalene	100,000		250.0			
Pentachlorophenol	2,400					**5,600 J**
Phenanthrene	100,000	93 J	3,600	38 J	22 J	
Phenol	100,000				43 J	
Pyrene	100,000	140 J	3,200	48 J	41 J	

Table 6-3 (Continued). Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.						
Sample Number Date Sampled Sample Depth Sample Type	**Part 375 Soil Cleanup Objective ***	**WS-1 06/08/07 1.8' - 2.0' Ash**	**WS-2 06/08/07 1.5' Ash**	**WS-3 06/11/07 1.5' - 2.0' Ash**	**WS-4 06/11/07 5.0' Ash**	**WS-5 06/13/07 0.0' - 0.25' Ash**
Pesticides (µg/kg or ppb)						
4,4-DDD	2600				0.70 J	7.4 J
4,4-DDE	1,800	1.9 J	25.0		2.9	11 J
4,4'-DDT	1,700	3.3 B	55 B	1.8 BJ	10 B	110.0
Aldrin	19.0	0.85 J	8.5 J	0.99 J	0.70 J	
alpha-BHC	97.0	0.76 J	9.0 J			7.4 J
delta-BHC	100,000	0.68 J		0.67 J	0.57 J	
Dieldrin	39.0			0.72 J	1.0 J	
Endosulfan II	4,800					4.8 J
Endosulfan Sulfate	4,800	0.80 J			1.6 J	
Endrin	2,200					
Endrin Aldehyde	NS					
gamma-Chlordane	540.0 +				0.84 BJ	5.2 J
Methoxychlor	NS	9.4	69.0			
PCBs (µg/kg or ppb)						
Aroclor-1248	-----					
Aroclor-1254	-----					
Aroclor-1260	-----					71.0
Total PCBs	1,000					71.0

Table 6-3 (Continued). Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.						
Sample Number Date Sampled Sample Depth Sample Type	**Part 375 Soil Cleanup Objective ***	**WS-1 06/08/07 1.8' - 2.0' Ash**	**WS-2 06/08/07 1.5' Ash**	**WS-3 06/11/07 1.5' - 2.0' Ash**	**WS-4 06/11/07 5.0' Ash**	**WS-5 06/13/07 0.0' - 0.25' Ash**
Inorganic Compounds (mg/kg or ppm)						
Aluminum	SB (11,670)	5,080	8,750	7,500	5,930	7,470
Antimony	SB (1.8)					**31.7**
Arsenic	16.0	**50.8**	**18.9**	14.7	8.4	**22.8**
Barium	350.0	225.0	**464.0**	**446.0**	198.0	**688.0**
Beryllium	14.0	0.40	0.77	0.77	0.60	0.57
Cadmium	2.5	**2.5**	**3.6**	1.0		**8.5**
Chromium	36.0	12.5	34.2	22.7	9.7	**82.9**
Cobalt	30.0 +	5.7	9.8	9.2	6.4	9.0
Copper	270.0	42.1	**1,310**	95.0	65.3	**566.0**
Iron	SB (17,300)	16,000	**34,200**	**42,900**	9,720	**52,500**
Lead	400.0	**1,700**	**1,740**	**539.0**	35.9	**2,380**
Manganese	2,000	389.0	528.0	320.0	77.7	396.0
Mercury	0.81	**2.3**	0.280	0.063	0.076	**1.6**
Nickel	140.0	16.5	64.3	27.6	15.4	47.3
Selenium	36.0	30.2				
Silver	36.0		5.1	1.8		12.5
Thallium	SB (2.6)					
Vanadium	150.0 +	25.3	27.5	27.4	22.1	22.9
Zinc	2,200	945.0	2,030	422.0	76.0	**2,510**

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**Part 375 Soil Cleanup Objective ***	**SB-1A** **09/25/07** **0.0' - 4.0'** **Ash**	**SB-1B** **09/25/07** **16.0' - 20.0'** **Ash**	**SB-3A** **09/26/07** **0.0' - 4.0'** **Waste**	**SB-3B** **09/26/07** **4.0' - 8.0'** **Ash**	**SB-3** **09/26/07** **12.0' - 16.0'** **Ash**
Volatile Organic Compounds (µg/kg or ppb)						
Acetone	100,000		NA	8 J		NA
cis-1,2-Dichloroethene	59,000		″	2 J	2 J	″
1,1-Dichloroethane	19,000		″	1 J	1 J	″
Methylene Chloride	51,000	18 B	″	170 B (15,000 B)	95 B (7,300 B)	″
Tetrachloroethene	5,500	27.0	″	**2,000 E (190,000)**	**1,300 E (91,000)**	″
Toluene	100,000	2 J	″	4 J	4 J	″
trans-1,2-Dichloroethene	100,000		″	1 J		″
1,1,1-Trichloroethane	100,000	12.0	″	24.0 (3,800 J)	15.0 (2,100 J)	″
1,1,2-Trichloroethane	NS		″		2,000 J	″
Trichloroethene	10,000	98.0	″	**840 E (48,000)**	**570 E (67,000)**	″
Semivolatile Organic Compounds (µg/kg or ppb)						
Acenaphthene	100,000		NA	NA	NA	
Acenaphthylene	100,000		″	″	″	140 J
Anthracene	100,000		″	″	″	260 J
Benzaldehyde	NS		″	″	″	
Benzo(a)anthracene	1,000	**1,800 J**	″	″	″	**4,000**
Benzo(a)pyrene	1,000		″	″	″	**2,400**
Benzo(b)fluoranthene	1,000		″	″	″	**4,800**
Benzo(g,h,i)perylene	100,000		″	″	″	2,800

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SB-1A 09/25/07 0.0' - 4.0' Ash	SB-1B 09/25/07 16.0' - 20.0' Ash	SB-3A 09/26/07 0.0' - 4.0' Waste	SB-3B 09/26/07 4.0' - 8.0' Ash	SB-3 09/26/07 12.0' - 16.0' Ash
Semivolatile Organic Compounds (Continued)						
Benzo(k)fluoranthene	1,000		″	″	″	**1,600 J**
Biphenyl	NS		″	″	″	
Bis(2-ethylhexyl)phthalate	50,000 +	13,000	″	″	″	
Carbazole	NS		″	″	″	100 J
Chrysene	1,000		″	″	″	**4,700**
Dibenzo(a,h)anthracene	330.0		″	″	″	**840 J**
Dibenzofuran	14,000		″	″	″	
Di-n-octylphthalate	50,000 +		″	″	″	
Fluoranthene	100,000		″	″	″	5,100
Fluorene	100,000		″	″	″	
Hexachlorobenzene	410.0 +		″	″	″	
Indeno(1,2,3-cd)pyrene	500.0		″	″	″	**2,200**
2-Methylnaphthalene	36,400 +		″	″	″	
4-Methylphenol	34,000		″	″	″	
Naphthalene	100,000		″	″	″	
Pentachlorophenol	2,400		″	″	″	
Phenanthrene	100,000		″	″	″	560 J
Phenol	100,000		″	″	″	
Pyrene	100,000		″	″	″	4,700

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SB-1A 09/25/07 0.0' - 4.0' Ash	SB-1B 09/25/07 16.0' - 20.0' Ash	SB-3A 09/26/07 0.0' - 4.0' Waste	SB-3B 09/26/07 4.0' - 8.0' Ash	SB-3 09/26/07 12.0' - 16.0' Ash
Pesticides (µg/kg or ppb)						
4,4-DDD	2600		NA	NA	NA	
4,4-DDE	1,800	21.0	″	″	″	
4,4'-DDT	1,700	70.0	″	″	″	
Aldrin	19.0		″	″	″	
alpha-BHC	97.0		″	″	″	
delta-BHC	100,000		″	″	″	
Dieldrin	39.0		″	″	″	
Endosulfan II	4,800	46.0	″	″	″	
Endosulfan Sulfate	4,800	10 J	″	″	″	
Endrin	2,200	11 J	″	″	″	
Endrin Aldehyde	NS	44.0	″	″	″	
gamma-Chlordane	540.0 +	16 J	″	″	″	
Methoxychlor	NS		″	″	″	
PCBs (µg/kg or ppb)						
Aroclor-1248	-----		NA	NA	NA	
Aroclor-1254	-----	520.0	″	″	″	
Aroclor-1260	-----		″	″	″	
Total PCBs	1,000	520.0	″	″	″	

Table 6-3 (Continued). Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.						
Sample Number Date Sampled Sample Depth Sample Type	**Part 375 Soil Cleanup Objective ***	**SB-1A 09/25/07 0.0' - 4.0' Ash**	**SB-1B 09/25/07 16.0' - 20.0' Ash**	**SB-3A 09/26/07 0.0' - 4.0' Waste**	**SB-3B 09/26/07 4.0' - 8.0' Ash**	**SB-3 09/26/07 12.0' - 16.0' Ash**
Inorganic Compounds (mg/kg or ppm)						
Aluminum	SB (11,670)	5,840	8,600	NA	NA	6,830
Antimony	SB (1.8)	**42.7 N**		″	″	
Arsenic	16.0	12.4 N	**19.5 N**	″	″	13.4 N
Barium	350.0	274.0	**420.0**	″	″	336.0
Beryllium	14.0	0.54	0.64	″	″	0.69
Cadmium	2.5	**5.3**	**4.7**	″	″	**3.3**
Chromium	36.0	**51.6 N**	**52.9 N**	″	″	**49.1 N**
Cobalt	30.0 +	7.2	11.1	″	″	9.2
Copper	270.0	**1,430**	**398.0**	″	″	**608.0**
Iron	SB (17,300)	**21,100**	**127,000**	″	″	**26,100**
Lead	400.0	**10,500 (7,560)**	**2,380 (1,180)**	″	″	**2,500 (2,620)**
Manganese	2,000	152.0	694.0	″	″	303.0
Mercury	0.81	0.141	0.052	″	″	0.356
Nickel	140.0	104.0	81.1	″	″	46.5
Selenium	36.0			″	″	
Silver	36.0	9.3	18.0	″	″	4.7
Thallium	SB (2.6)			″	″	
Vanadium	150.0 +	23.4	32.8	″	″	20.7
Zinc	2,200	**3,210**	1,000	″	″	938.0

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**Part 375 Soil Cleanup Objective ***	**SB-4** **09/26/07** **8.0' - 12.0'** **Ash**	**SB-5** **09/26/07** **4.0' - 8.0'** **Waste**	**SB-6** **09/25/07** **4.0' - 8.0'** **Ash**	**SB-7B** **09/26/07** **4.0' - 5.6'** **Ash**	**SB-8** **09/26/07** **8.0' - 10.1'** **Waste**
Volatile Organic Compounds (µg/kg or ppb)						
Acetone	100,000	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	59,000	″	″	″	″	″
1,1-Dichloroethane	19,000	″	″	″	″	″
Methylene Chloride	51,000	″	″	″	″	″
Tetrachloroethene	5,500	″	″	″	″	″
Toluene	100,000	″	″	″	″	″
trans-1,2-Dichloroethene	100,000	″	″	″	″	″
1,1,1-Trichloroethane	100,000	″	″	″	″	″
1,1,2-Trichloroethane	NS	″	″	″	″	″
Trichloroethene	10,000	″	″	″	″	″
Semivolatile Organic Compounds (µg/kg or ppb)						
Acenaphthene	100,000	NA			NA	NA
Acenaphthylene	100,000	″			″	″
Anthracene	100,000	″			″	″
Benzaldehyde	NS	″			″	″
Benzo(a)anthracene	1,000	″	230 J	470 J	″	″
Benzo(a)pyrene	1,000	″	96 J	480 J	″	″
Benzo(b)fluoranthene	1,000	″	420 J	440 J	″	″
Benzo(g,h,i)perylene	100,000	″	200 J	320 J	″	″

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SB-4 09/26/07 8.0' - 12.0' Ash	SB-5 09/26/07 4.0' - 8.0' Waste	SB-6 09/25/07 4.0' - 8.0' Ash	SB-7B 09/26/07 4.0' - 5.6' Ash	SB-8 09/26/07 8.0' - 10.1' Waste
Semivolatile Organic Compounds (Continued)						
Benzo(k)fluoranthene	1,000	″			″	″
Biphenyl	NS	″			″	″
Bis(2-ethylhexyl)phthalate	50,000 +	″			″	″
Carbazole	NS	″			″	″
Chrysene	1,000	″	280 J	360 J	″	″
Dibenzo(a,h)anthracene	330.0	″	54 J		″	″
Dibenzofuran	14,000	″			″	″
Di-n-octylphthalate	50,000 +	″			″	″
Fluoranthene	100,000	″	280 J	500 J	″	″
Fluorene	100,000	″			″	″
Hexachlorobenzene	410.0 +	″	220 J		″	″
Indeno(1,2,3-cd)pyrene	500.0	″	150 J	340 J	″	″
2-Methylnaphthalene	36,400 +	″	46 J		″	″
4-Methylphenol	34,000	″			″	″
Naphthalene	100,000	″	58 J		″	″
Pentachlorophenol	2,400	″			″	″
Phenanthrene	100,000	″	130 J	410 J	″	″
Phenol	100,000	″			″	″
Pyrene	100,000	″	280 J	540 J	″	″

Table 6-3 (Continued). Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.						
Sample Number Date Sampled Sample Depth Sample Type	**Part 375 Soil Cleanup Objective ***	**SB-4 09/26/07 8.0' - 12.0' Ash**	**SB-5 09/26/07 4.0' - 8.0' Waste**	**SB-6 09/25/07 4.0' - 8.0' Ash**	**SB-7B 09/26/07 4.0' - 5.6' Ash**	**SB-8 09/26/07 8.0' - 10.1' Waste**
Pesticides (µg/kg or ppb)						
4,4-DDD	2600	NA			NA	NA
4,4-DDE	1,800	″			″	″
4,4'-DDT	1,700	″		37.0	″	″
Aldrin	19.0	″	7.6 J	8.0 J	″	″
alpha-BHC	97.0	″			″	″
delta-BHC	100,000	″			″	″
Dieldrin	39.0	″		5.6 J	″	″
Endosulfan II	4,800	″			″	″
Endosulfan Sulfate	4,800	″			″	″
Endrin	2,200	″			″	″
Endrin Aldehyde	NS	″			″	″
gamma-Chlordane	540.0 +	″			″	″
Methoxychlor	NS	″	61.0		″	″
PCBs (µg/kg or ppb)						
Aroclor-1248	-----	NA			NA	NA
Aroclor-1254	-----	″			″	″
Aroclor-1260	-----	″			″	″
Total PCBs	1,000	″			″	″

Table 6-3 (Continued). Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.						
Sample Number Date Sampled Sample Depth Sample Type	**Part 375 Soil Cleanup Objective ***	**SB-4 09/26/07 8.0' - 12.0' Ash**	**SB-5 09/26/07 4.0' - 8.0' Waste**	**SB-6 09/25/07 4.0' - 8.0' Ash**	**SB-7B 09/26/07 4.0' - 5.6' Ash**	**SB-8 09/26/07 8.0' - 10.1' Waste**
Inorganic Compounds (mg/kg or ppm)						
Aluminum	SB (11,670)	7,660	3,040	6,940	7,300	10,100
Antimony	SB (1.8)	**36.1 N**	**276 N**	**26.5 N**		**33.2 N**
Arsenic	16.0	**33.3 N**	**47.9 N**	**42.7 N**	15.4 N	**44.5 N**
Barium	350.0	**904.0**	**1,650**	**752.0**	287.0	**1,810**
Beryllium	14.0	0.76	0.25	0.68	0.63	0.49
Cadmium	2.5	**3.8**	**13.7**	**10.0**	1.2	**4.9**
Chromium	36.0	**35.9 N**	**113 N**	**54.0 N**	20.8 N	**120 N**
Cobalt	30.0 +	10.1	10.7	8.1	8.6	19.7
Copper	270.0	**494.0**	**13,400**	**670.0**	208.0	**1,220**
Iron	SB (17,300)	**45,200**	**115,000**	**40,200**	**36,400**	**157,000**
Lead	400.0	**3,060 (1,660)**	**77,300 (13,900)**	**2,170 (2,490)**	385.0	**2,110 (1,360)**
Manganese	2,000	651.0	610.0	495.0	432.0	851.0
Mercury	0.81	0.370	0.105	0.765	0.097	0.430
Nickel	140.0	60.7	**336.0**	55.1	24.6	**248.0**
Selenium	36.0	5.5				
Silver	36.0	3.5	8.6	6.7		7.8
Thallium	SB (2.6)					
Vanadium	150.0 +	20.3	16.4	23.0	23.5	23.3
Zinc	2,200	1,980	**14,900**	**3,550**	573.0	**3,980**

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**Part 375 Soil Cleanup Objective ***	**SB-9A** **09/26/07** **4.0' - 8.0'** **Waste**	**SB-9B** **09/26/07** **12.0' - 16.0'** **Waste**	**SB-10A** **09/26/07** **0.0' - 4.0'** **Foundry Sand**	**SB-10B** **09/26/07** **12.0' - 16.0'** **Waste**	**SB-11** **09/27/07** **4.0' - 8.0'** **Ash**
Volatile Organic Compounds (µg/kg or ppb)						
Acetone	100,000	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	59,000	″	″	″	″	″
1,1-Dichloroethane	19,000	″	″	″	″	″
Methylene Chloride	51,000	″	″	″	″	″
Tetrachloroethene	5,500	″	″	″	″	″
Toluene	100,000	″	″	″	″	″
trans-1,2-Dichloroethene	100,000	″	″	″	″	″
1,1,1-Trichloroethane	100,000	″	″	″	″	″
1,1,2-Trichloroethane	NS	″	″	″	″	
Trichloroethene	10,000	″	″	″	″	″
Semivolatile Organic Compounds (µg/kg or ppb)						
Acenaphthene	100,000		NA		NA	NA
Acenaphthylene	100,000		″		″	″
Anthracene	100,000	76 J	″	39 J	″	″
Benzaldehyde	NS		″		″	″
Benzo(a)anthracene	1,000	450 J	″	440 J	″	″
Benzo(a)pyrene	1,000	360 J	″	440 J	″	″
Benzo(b)fluoranthene	1,000	700 J	″	800 J	″	″
Benzo(g,h,i)perylene	100,000	350 J	″	480 J	″	″

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SB-9A 09/26/07 4.0' - 8.0' Waste	SB-9B 09/26/07 12.0' - 16.0' Waste	SB-10A 09/26/07 0.0' - 4.0' Foundry Sand	SB-10B 09/26/07 12.0' - 16.0' Waste	SB-11 09/27/07 4.0' - 8.0' Ash
Semivolatile Organic Compounds (Continued)						
Benzo(k)fluoranthene	1,000		″	220 J	″	″
Biphenyl	NS		″		″	″
Bis(2-ethylhexyl)phthalate	50,000 +		″		″	″
Carbazole	NS	43 J	″	49 J	″	″
Chrysene	1,000	440 J	″	500 J	″	″
Dibenzo(a,h)anthracene	330.0	77 J	″	110 J	″	″
Dibenzofuran	14,000		″		″	″
Di-n-octylphthalate	50,000 +		″		″	″
Fluoranthene	100,000	730 J	″	750 J	″	″
Fluorene	100,000		″		″	″
Hexachlorobenzene	410.0 +		″		″	″
Indeno(1,2,3-cd)pyrene	500.0	250 J	″	390 J	″	″
2-Methylnaphthalene	36,400 +		″		″	″
4-Methylphenol	34,000		″		″	″
Naphthalene	100,000		″		″	″
Pentachlorophenol	2,400		″		″	″
Phenanthrene	100,000	370 J	″	270 J	″	″
Phenol	100,000		″		″	″
Pyrene	100,000	650 J	″	730 J	″	″

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SB-9A 09/26/07 4.0' - 8.0' Waste	SB-9B 09/26/07 12.0' - 16.0' Waste	SB-10A 09/26/07 0.0' - 4.0' Foundry Sand	SB-10B 09/26/07 12.0' - 16.0' Waste	SB-11 09/27/07 4.0' - 8.0' Ash
Pesticides (µg/kg or ppb)						
4,4-DDD	2600		NA		NA	NA
4,4-DDE	1,800		″		″	″
4,4'-DDT	1,700	17 J	″		″	″
Aldrin	19.0		″		″	″
alpha-BHC	97.0		″		″	″
delta-BHC	100,000		″		″	″
Dieldrin	39.0		″		″	″
Endosulfan II	4,800		″		″	″
Endosulfan Sulfate	4,800		″		″	″
Endrin	2,200		″		″	″
Endrin Aldehyde	NS		″		″	″
gamma-Chlordane	540.0 +		″		″	″
Methoxychlor	NS		″		″	″
PCBs (µg/kg or ppb)						
Aroclor-1248	-----		NA		NA	NA
Aroclor-1254	-----		″		″	″
Aroclor-1260	-----		″		″	″
Total PCBs	1,000		″		″	″

Table 6-3 (Continued). Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.						
Sample Number Date Sampled Sample Depth Sample Type	**Part 375 Soil Cleanup Objective ***	**SB-9A 09/26/07 4.0' - 8.0' Waste**	**SB-9B 09/26/07 12.0' - 16.0' Waste**	**SB-10A 09/26/07 0.0' - 4.0' Foundry Sand**	**SB-10B 09/26/07 12.0' - 16.0' Waste**	**SB-11 09/27/07 4.0' - 8.0' Ash**
Inorganic Compounds (mg/kg or ppm)						
Aluminum	SB (11,670)	NA	8,020	5,110	7,420	4,900
Antimony	SB (1.8)	″				
Arsenic	16.0	″	**29.1 N**	5.6 N	**37.0 N**	5.2
Barium	350.0	″	**353.0**	149.0	**720.0**	**677.0**
Beryllium	14.0	″	0.74	0.25	0.46	0.31
Cadmium	2.5	″	**5.2**	**5.0**	**4.8**	**20.9**
Chromium	36.0	″	27.2 N	29.5 N	**51.7 N**	**238.0**
Cobalt	30.0 +	″	6.9	5.1	12.4	**32.3**
Copper	270.0	″	192.0	**9,290**	**1,060**	**3,910**
Iron	SB (17,300)	″	**39,700**	**19,200**	**67,600**	**20,600**
Lead	400.0	″	**1,870 (3,350)**	**1,160 (1,100)**	**1,540 (1,120)**	**6,070 (9,310)**
Manganese	2,000	″	405.0	177.0	582.0	336.0
Mercury	0.81	″	**1.3**	0.117	**5.1**	**5.8**
Nickel	140.0	″	23.0	87.5	**171.0**	103.0
Selenium	36.0	″	4.5			
Silver	36.0	″	0.66	6.4	3.3	17.4
Thallium	SB (2.6)	″				
Vanadium	150.0 +	″	24.7	13.0	16.5	15.3
Zinc	2,200	″	1,070	**2,710**	1,810	**6,740**

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SB-11B 09/27/07 32.0' - 36.0' Ash	SB-12 09/27/07 16.0' - 20.0' Ash	SB-12B 09/27/07 20.0' - 24.0' Ash	SB-13 09/28/07 12.0' - 16.0' Ash	SB-14 09/28/07 8.0' - 12.0' Ash
Volatile Organic Compounds (µg/kg or ppb)						
Acetone	100,000	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	59,000	″	″	″	″	″
1,1-Dichloroethane	19,000	″	″	″	″	″
Methylene Chloride	51,000	″	″	″	″	″
Tetrachloroethene	5,500	″	″	″	″	″
Toluene	100,000	″	″	″	″	″
trans-1,2-Dichloroethene	100,000	″	″	″	″	″
1,1,1-Trichloroethane	100,000	″	″	″	″	″
1,1,2-Trichloroethane	NS	″	″	″	″	″
Trichloroethene	10,000	″	″	″	″	″
Semivolatile Organic Compounds (µg/kg or ppb)						
Acenaphthene	100,000	NA	180 J	NA	NA	NA
Acenaphthylene	100,000	″	45 J	″	″	″
Anthracene	100,000	″	440 J	″	″	″
Benzaldehyde	NS	″		″	″	″
Benzo(a)anthracene	1,000	″	**1,200**	″	″	″
Benzo(a)pyrene	1,000	″	**1,400**	″	″	″
Benzo(b)fluoranthene	1,000	″	**2,400**	″	″	″
Benzo(g,h,i)perylene	100,000	″	1,200	″	″	″

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SB-11B 09/27/07 32.0' - 36.0' Ash	SB-12 09/27/07 16.0' - 20.0' Ash	SB-12B 09/27/07 20.0' - 24.0' Ash	SB-13 09/28/07 12.0' - 16.0' Ash	SB-14 09/28/07 8.0' - 12.0' Ash
Semivolatile Organic Compounds (Continued)						
Benzo(k)fluoranthene	1,000	″		″	″	″
Biphenyl	NS	″		″	″	″
Bis(2-ethylhexyl)phthalate	50,000 +	″		″	″	″
Carbazole	NS	″	150 J	″	″	″
Chrysene	1,000	″	**1,100**	″	″	″
Dibenzo(a,h)anthracene	330.0	″	**340 J**	″	″	″
Dibenzofuran	14,000	″	110 J	″	″	″
Di-n-octylphthalate	50,000 +	″		″	″	″
Fluoranthene	100,000	″	2,000	″	″	″
Fluorene	100,000	″	160 J	″	″	″
Hexachlorobenzene	410.0 +	″		″	″	″
Indeno(1,2,3-cd)pyrene	500.0	″	**980.0**	″	″	″
2-Methylnaphthalene	36,400 +	″	71 J	″	″	″
4-Methylphenol	34,000	″		″	″	″
Naphthalene	100,000	″	170 J	″	″	″
Pentachlorophenol	2,400	″		″	″	″
Phenanthrene	100,000	″	1,500 B	″	″	″
Phenol	100,000	″		″	″	″
Pyrene	100,000	″	1,600	″	″	″

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	Part 375 Soil Cleanup Objective *	SB-11B 09/27/07 32.0' - 36.0' Ash	SB-12 09/27/07 16.0' - 20.0' Ash	SB-12B 09/27/07 20.0' - 24.0' Ash	SB-13 09/28/07 12.0' - 16.0' Ash	SB-14 09/28/07 8.0' - 12.0' Ash
Pesticides (µg/kg or ppb)						
4,4-DDD	2600	NA		NA	NA	NA
4,4-DDE	1,800	″		″	″	″
4,4'-DDT	1,700	″		″	″	″
Aldrin	19.0	″		″	″	″
alpha-BHC	97.0	″		″	″	″
delta-BHC	100,000	″		″	″	″
Dieldrin	39.0	″		″	″	″
Endosulfan II	4,800	″	3.8 J	″	″	″
Endosulfan Sulfate	4,800	″		″	″	″
Endrin	2,200	″		″	″	″
Endrin Aldehyde	NS	″		″	″	″
gamma-Chlordane	540.0 +	″		″	″	″
Methoxychlor	NS	″		″	″	″
PCBs (µg/kg or ppb)						
Aroclor-1248	-----	NA	36.0	NA	NA	NA
Aroclor-1254	-----	″	36.0	″	″	″
Aroclor-1260	-----	″		″	″	″
Total PCBs	1,000	″	72.0	″	″	″

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**Part 375 Soil Cleanup Objective ***	**SB-11B** **09/27/07** **32.0' - 36.0'** **Ash**	**SB-12** **09/27/07** **16.0' - 20.0'** **Ash**	**SB-12B** **09/27/07** **20.0' - 24.0'** **Ash**	**SB-13** **09/28/07** **12.0' - 16.0'** **Ash**	**SB-14** **09/28/07** **8.0' - 12.0'** **Ash**
Inorganic Compounds (mg/kg or ppm)						
Aluminum	SB (11,670)	7,230	NA	8,700	10,200	5,370
Antimony	SB (1.8)		″			
Arsenic	16.0	13.6	″	12.9	**32.1**	10.4
Barium	350.0	**772.0**	″	**919.0**	**1,560**	290.0
Beryllium	14.0	0.71	″	0.43	0.77	0.49
Cadmium	2.5	**6.4**	″	**2.7**	**5.2**	0.52
Chromium	36.0	**220.0**	″	**41.7**	28.1	8.8
Cobalt	30.0 +	15.6	″	8.9	9.0	4.4
Copper	270.0	**1,230**	″	**709.0**	**359.0**	125.0
Iron	SB (17,300)	**26,600**	″	**30,000**	**17,800**	5,150
Lead	400.0	**3,920 (6,180)**	″	**1,650 (2,280)**	**1,540 (2,180)**	150.0
Manganese	2,000	391.0	″	523.0	1,480	91.2
Mercury	0.81	**2.6**	″	**0.898**	0.175	0.321
Nickel	140.0	76.6	″	48.6	25.6	28.9
Selenium	36.0		″			
Silver	36.0	10.6	″	4.3	1.7	
Thallium	SB (2.6)		″			
Vanadium	150.0 +	21.2	″	18.9	31.9	22.2
Zinc	2,200	**3,610**	″	2,190	**2,910**	649.0

Table 6-3 (Continued).
Analytical Results for Waste Samples Collected from the Old Upper Mountain Road Site.

*	6 NYCRR Part 375: Environmental Remediation Programs, Residential Soil Cleanup Objectives, NYSDEC, 2006.
+	NYSDEC Technical and Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1995.
B	Analyte detected in the associated blank, as well as in the sample (organics).
J	Compound reported at an estimated concentration below the sample quantitation limit.
N	Spike sample recovery is not within control limits.
NA	Not analyzed.
NS	No standard or guidance value available.
SB	Site background concentration as determined during the Site Investigation of the Former Flintkote Plant Site (TVGA, 2005).
( )	Results of a duplicate analysis.
	Blanks indicate that the sample was analyzed for the associated compound but it was not detected.
	Shaded values equal or exceed the Part 375 or TAGM 4046 soil cleanup objectives.

Table 6-4.
Analytical Results for Surface Water Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Location	Surface Water Standard *	SW-1 06/11/07 Upstream	SW-2 06/13/07 Downstream
Volatile Organic Compounds (µg/L or ppb)			
Bromodichloromethane	50 G	2.9	
Bromoform	50 G	0.30 J	
Chloroform	7.0	**11.0**	1.9
1,2-Dichloroethene (total)	5.0	**5.0**	
Dibromochloromethane	50 G	1.3	
Tetrachloroethene	0.7 G		**5.8**
1,1,1-Trichloroethane	5.0		1.3
Trichloroethene	5.0	**20.0**	**12.0**
Semivolatile Organic Compounds (µg/L or ppb)			
Benzo(a)anthracene	0.002 G		**0.3 J**
Bis(2-ethylhexyl)phthalate	5.0	4 BJ	**5 B**
Butylbenzylphthalate	50 G	2 J	2 BJ
Di-n-octylphthalate	50 G	4 J	4 BJ
Fluoranthene	50 G		0.4 J
Naphthalene	13 G		0.2 J
Phenanthrene	50 G		0.2 J
Pyrene	50 G		0.3 J
Pesticides (µg/L or ppb)			
4,4'-DDT	0.2	0.039 J	
Dieldrin	0.004		0.021 J
Endrin	0.2	0.014 J	
gamma-BHC (Lindane)	0.05	0.016 J	
gamma-Chlordane	0.05	0.013 J	
Heptachlor Epoxide	0.03	**0.16**	
Inorganic Compounds (µg/L or ppb)			
Aluminum	100.0		**1,870**
Antimony	3.0		
Arsenic	50.0		

Table 6-4 (Continued).
Analytical Results for Surface Water Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Location	Surface Water Standard *	SW-1 06/11/07 Upstream	SW-2 06/13/07 Downstream
Inorganic Compounds (Continued)			
Barium	1,000	57.9	77.7
Beryllium	3.0 G		
Cadmium	5.0		
Chromium	50.0		5.2
Cobalt	5.0		
Copper	200.0		87.9
Iron	300.0	99.2	**2,700**
Lead	50.0		**57.2**
Manganese	300.0	5.6	76.4
Mercury	0.7		
Nickel	100.0		
Selenium	10.0		
Silver	50.0		
Thallium	0.5 G		
Vanadium	14.0		
Zinc	2,000 G	11.1	272.0

***** **NYSDEC Ambient Water Quality Standards and Guidance Values, June 1998.**
B **Value greater than or equal to the instrument detection limit, but less than the contract required detection limit (inorganics).**
G **Guidance value.**
J **Compound reported at an estimated concentration below the reporting limit.**
NA **Not analyzed.**
Blanks indicate that the sample was analyzed for the associated compound but it was not detected.
Shaded values equal or exceed the NYSDEC surface water standards or guidance values.

Table 6-5.
Analytical Results for Sediment Samples Collected from the Old Upper Mountain Road Site.

Sample Number **Date Sampled** **Sample Depth** **Sample Type**	**NYSDEC Sediment Criteria ***	**SED-1** **06/11/07** **0.0' - 0.17'** **Sediment**	**SED-2** **06/13/07** **0.0' - 0.17'** **Sediment**
Volatile Organic Compounds (µg/kg or ppb)			
Acetone	2,200 **	17 J	60 BJ
Carbon Disulfide	NS	2 J	6 J
1,2-Dichloroethene	0.8 ●	**6 J**	**7 J**
Tetrachloroethene	23.8 ●		6 J
Trichlorofluoromethane	NS	2 J	4 J
Semivolatile Organic Compounds (µg/kg or ppb)			
Benzo(a)pyrene	41.3 ●	**2,300 J**	**1,300 J**
Benzo(a)anthracene	383.8	**2,500 J**	**1,600 J**
Benzo(b)fluoranthene	41.3 ●	**3,500 J**	**1,700 J**
Benzo(g,h,i)perylene	NS	1,300 J	1,300 J
Benzo(k)fluoranthene	41.3 ●	**960 J**	**750 J**
Chrysene	41.3 ●	**1,800 J**	**1,200 J**
Fluoranthene	32,028	5,700 J	2,600 J
Indeno(1,2,3-cd)pyrene	41.3 ●	**1,200 J**	**1,200 J**
Phenanthrene	3,768	3,200 J	1,200 J
Pyrene	30,178	3,100 J	2,100 J
Pesticides (µg/kg or ppb)			
4,4'-DDE	0.3 ●		**6.8 J**
4,4'-DDT	31.4	**74 BJ**	
Aldrin	3.1 ●		**6.4 J**
alpha-BHC	2.0		**7.2 J**
Dieldrin	24.2	**60 J**	7.6 J
PCBs (µg/kg or ppb)			
Aroclor-1260	606.8		63.0
Inorganic Compounds (mg/kg or ppm)			
Aluminum	SB (11,670) ++	2,470	7,420
Antimony	2.0		
Arsenic	6.0	3.2	**64.7**

Table 6-5 (Continued).
Analytical Results for Sediment Samples Collected from the Old Upper Mountain Road Site.

Sample Number Date Sampled Sample Depth Sample Type	NYSDEC Sediment Criteria *	SED-1 06/11/07 0.0' - 0.17' Sediment	SED-2 06/13/07 0.0' - 0.17' Sediment
Inorganic Compounds (Continued)			
Barium	433 **	18.5	215.0
Beryllium	10 **		0.51
Cadmium	0.6	**0.60**	**4.5**
Chromium	26.0	**63.9**	**131.0**
Cobalt	30.0 ++	2.6	**36.7**
Copper	16.0	**33.1**	**562.0**
Iron	20,000	17,100	**417,000**
Lead	31.0	**70.1**	**1,230**
Manganese	460.0	**652.0**	**1,370**
Mercury	0.15		**0.166**
Nickel	16.0	**11.6**	**180.0**
Selenium	3.9 **		
Silver	1.0		
Thallium	SB (2.6) ++		
Vanadium	150.0 ++	8.9	17.5
Zinc	120.0	**165.0**	**8,170**

***** NYSDEC Technical Guidance for Screening Contaminated Sediments, January 1999. Sediment criteria calculated using a total organic carbon content of 3.14%. Sediment criteria given are for the protection of benthic aquatic life from chronic toxicity (organics) and the lowest effect level (metals) unless otherwise noted.

● Sediment criteria for the protection of human health bioaccumulation.

****** 6 NYCRR Part 375: Environmental Remediation Programs, Soil Cleanup Objectives for the Protection of Ecological Resources, NYSDEC, 2006.

++ NYSDEC Technical and Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1995.

B Analyte detected in the associated blank, as well as in the sample (organics) or the value is greater than or equal to the instrument detection limit, but less than the contract required detection limit (inorganics).

J Compound reported at an estimated concentration below the sample quantitation limit.

N Spike sample recovery or spike analysis is not within quality control limits (inorganics).

NS No standard or guidance value available.

SB Site background concentration as determined during the Site Investigation of the Former Flintkote Plant Site (TVGA, 2005).

Blanks indicate that the sample was analyzed for the associated compound but it was not detected.

Shaded values equal or exceed the NYSDEC sediment criteria, Part 375 soil cleanup objectives, or TAGM 4046 soil cleanup objectives.

APPENDICES

APPENDIX A

STRATIGRAPHIC LOGS

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-1
Site Number:	932112	**Date Completed:**	09/25/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	20.0 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**572.0**				
0.0	2.6' recovery		1			10.7
	0.0'-0.3': Topsoil with rootlets and a few rock fragments.	572.0				
	0.3'-4.0': Multi-colored, layered ash with slag, brick and silty clay. Foundry sand also observed in a 0.8' layer. Dry. FILL.	571.7				
4.0	1.5' recovery		2			1.8
	4.0'-8.0': Sample same as above with coal, glass and no foundry sand. Dry. FILL.					
8.0	1.9' recovery		3			1.4
	8.0'-12.0': Sample same as above with coal, concrete and rock. Moist. FILL.					
12.0	2.5' recovery		4			0.0
	12.0'-16.0': Sample same as above with concrete. Moist. FILL.					
16.0	2.9' recovery		5			0.0
	16.0'-18.4': Sample same as above with brick, rock and glass. Very moist. FILL.					
	18.4'-20.0' Brownish red silty clay with a white crystalline material and dolostone rock fragments. Moist. NATIVE.	553.6				
	20.0': Refusal. BEDROCK.	552.0				
20.0	BOH=20.0' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-2
Site Number:	932112	**Date Completed:**	09/25/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	36.0 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**588.0**				
0.0	1.6' recovery		1			0.0
	0.0'-0.6': Fine-grained, black and brown foundry sand. Dry. FILL.	588.0				
	0.6'-0.8': Red brown silty clay with dolostone rock fragments. Dry. FILL.	587.4				
	0.8'-4.0': Multi-colored, layered ash with a trace of wood, coal and rock. Dry. FILL.	587.2				
4.0	1.8' recovery with 0.4' of fall-in		2			0.0
	4.0'-8.0': Sample same as above. Dry. FILL.					
8.0	1.6' recovery		3			0.0
	8.0'-12.0': Gray ash with coal and rock. Moist. FILL.					
12.0	1.7' recovery with 0.2' of fall-in		4			0.0
	12.0'-16.0': Sample same as above with coal. Glass and a trace of brick in bottom 0.8' of sample. Moist. FILL.					
16.0	2.6' recovery with 0.8' of fall-in		5			0.0
	16.0'-20.0': Brown to gray ash with glass, coal, concrete and ceramic. Moist. FILL.					
20.0	2.4' recovery		6			0.0
	20.0'-24.0': Fine-grained, foundry sand with rock, coke and a trace of concrete. Coal and glass in bottom 0.7' of sample. Moist. FILL.	568.0				

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-2 cont.
Site Number:	932112	**Date Completed:**	09/25/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	36.0 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**588.0**				
24.0	4.0' recovery		7			0.3
	24.0'-25.0': Sample same as above with a trace of coke, ceramic and slag. Dry. FILL.					
	25.0'-26.1': Whitish gray ash with coal, slag and rock. Dry. FILL.	563.0				
	26.1'-26.4': Fine-grained, black foundry sand. Dry. FILL.	561.9				
	26.4'-26.7': Whitish gray ash. Moist. FILL.	561.6				
	26.7'-27.9': Fine-grained, black foundry sand. Moist. FILL.	561.3				
	27.9'-28.0': Whitish gray ash. Moist. FILL.	560.1				
28.0	4.0' recovery		8			0.8
	28.0'-31.7': Multi-colored, layered ash with slag, brick and rock. Moist. FILL.					
	31.7'-32.0': Brownish red silty clay. Moist. FILL.	556.3				
32.0	4.0' recovery with 1.9' of fall-in		9			0.0
	32.0'-32.9': Sample same as above. Moist. FILL.					
	32.9'-33.2': Rust colored foundry sand. Moist. FILL.	555.1				
	33.2'-36.0': Black foundry sand with glass. Moist. FILL.					
36.0	BOH=36.0' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-3
Site Number:	932112	**Date Completed:**	09/26/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	16.4 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**585.0**				
0.0	2.7' recovery		1			85.0
	0.0'-0.8': Fine-grained, dark brown foundry sand with a trace of rock. Dry. FILL.	585.0				
	0.8'-4.0': Multi-colored, layered ash with coal and a trace of brick. Dry. FILL.	584.2				
4.0	2.5' recovery		2			29.0
	4.0'-8.0': Sample same as above. Dry. FILL.					
8.0	2.3' recovery		3			22.6
	8.0'-12.0': Sample same as above. Dry. FILL.					
12.0	2.3' recovery		4			NM
	12.0'-16.0': Sample same as above with coal, slag and glass. Dry. FILL.					
16.0	0.9' recovery with 0.5' of fall-in		5			13.7
	16.0'-16.4': Gray ash with glass and rock. Dry. FILL.					
16.4	BOH=16.4' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-4
Site Number:	932112	**Date Completed:**	09/26/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	14.5 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**587.0**				
0.0	1.9' recovery		1			0.8
	0.0'-0.3': Topsoil with rootlets and rock. Moist.	587.0				
	0.3'-4.0': Multi-colored, layered ash with rock, brick and coal. Dry. FILL.	586.7				
4.0	1.2' recovery		2			0.0
	4.0'-8.0': Sample same as above. Dry to moist. FILL.					
8.0	1.4' recovery		3			0.0
	8.0'-12.0': Sample same as above with a trace of coal, glass, rock and metal. The bottom 0.3' of sample is red and contains a white crystalline material. Moist. FILL.					
12.0	2.2' recovery		4			1.5
	12.0'-13.8': Sample same as above with coal, brick, rock, glass and metal. Moist. FILL.					
	13.8'-14.5': Brown silty clay with dolostone rock fragments. Saturated. NATIVE.	573.2				
	14.5': Refusal. BEDROCK.	572.5				
14.5	BOH=14.5' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-5
Site Number:	932112	**Date Completed:**	09/26/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	14.5 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**583.0**				
0.0	3.8' recovery		1			0.8
	0.0'-2.7': Brown silty clay with rock and rootlets in the upper 0.4' of sample. Dry. FILL.	583.0				
	2.7'-4.0': Multi-colored, layered foundry sand with slag and brick. Dry. FILL.	580.3				
4.0	2.1' recovery		2			0.0
	4.0'-4.7': Sample same as above. Dry. FILL.					
	4.7'-8.0': Multi-colored, layered ash with a trace of glass, slag and coke in bottom 0.7' of sample. Dry. FILL.	578.3				
8.0	2.0' recovery		3			0.0
	8.0'-12.0': Sample same as above with glass and coal, and brick near the bottom of the sample. Dry. FILL.					
12.0	2.6' recovery		4			0.0
	12.0'-13.1': Sample same as above with glass, slag and metal. Dry. FILL.					
	13.1'-14.5': Brown red silty clay with dolostone rock fragments. Moist. NATIVE.	569.9				
	14.5': Refusal. BEDROCK.	568.5				
14.5	BOH=14.5' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-6
Site Number:	932112	**Date Completed:**	09/25/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	13.6 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**590.0**				
0.0	1.7' recovery		1			0.0
	0.0'-4.0': Brown silty clay with rock. Dry. FILL.	590.0				
4.0	2.3' recovery		2			NM
	4.0'-4.5': Sample same as above. Dry. FILL.					
	4.5'-8.0': Multi-colored, layered ash with metal, slag, rubber and brick. Dry. FILL.	585.5				
8.0	2.7' recovery		3			0.0
	8.0'-8.6': Sample same as above. Dry. FILL.					
	8.6'-10.0': Wood and wood fiber mixed with soil. Some rootlets. Moist. FILL.	581.4				
	10.0'-10.3': Concrete. FILL.	580.0				
	10.3'-12.0': Grayish brown ash with rock and some rootlets. Moist. FILL.	579.7				
12.0	3.2' recovery with 1.6' of fall-in		4			0.0
	12.0'-13.6': Brown silty clay with white staining, rust colored mottling and some rootlets. Moist. NATIVE.	578.0				
	13.6': Refusal. BEDROCK.	576.4				
13.6	BOH=13.6' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-7
Site Number:	932112	**Date Completed:**	09/26/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	5.6 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**592.0**				
0.0	3.0' recovery		1			0.0
	0.0'-2.2': Brown silty clay with rock and rootlets in the upper 0.3' of sample. Dry. FILL.	592.0				
	2.2'-4.0': Gray ash with a trace of coal and fibrous material (laminate?). Dry. FILL.	589.8				
4.0	1.1' recovery		2			0.0
	4.0'-5.6': Sample same as above with coal. Dry. FILL.					
5.6	BOH=5.6' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-8
Site Number:	932112	**Date Completed:**	09/26/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	12.7 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**592.0**				
0.0	1.6' recovery		1			0.0
	0.0'-0.4': Brown silty clay with rock and rootlets. Moist. FILL.	592.0				
	0.4'-4.0': Multi-colored, layered ash with glass, ceramic, rock and brick. Dry. FILL.	591.6				
4.0	3.0' recovery		2			1.3
	4.0'-4.7': Sample same as above. Dry. FILL.					
	4.7'-5.4': Rust colored foundry sand. Dry. FILL.	587.3				
	5.4'-8.0': Multi-colored, layered ash with coal, slag and a trace of glass. Moist. FILL.	586.6				
8.0	4.0' recovery		3			0.0
	8.0'-9.8': Sample same as above with more glass. Dry. FILL.					
	9.8'-10.1': Rust colored slag with glass in bottom of sample. Very moist. FILL.	582.2				
	10.1'-12.0': Brown silty clay with rust colored mottling and dolostone rock fragments. Moist. NATIVE.	581.9				
12.0	2.1' recovery with 1.4' of fall-in		4			0.0
	12.0'-12.7': Sample same as above. Very moist. NATIVE.					
	12.7': Refusal. BEDROCK.	579.3				
12.7	BOH=12.7' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-9
Site Number:	932112	**Date Completed:**	09/26/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	16.2 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**588.0**				
0.0	2.7' recovery		1			0.0
	0.0'-1.1': Brown silty clay with rock and rootlets in the upper 0.2' of sample. Dry. FILL.	588.0				
	1.1'-2.1': Multi-colored, layered ash with rock, metal and coke. Dry. FILL.	586.9				
	2.1'-4.0': Light to dark brown foundry sand, rust colored at bottom of sample. Trace of rock and metal. Dry. FILL.	585.9				
4.0	1.7' recovery		2			0.0
	4.0'-4.6': Sample same as above. Dry. FILL.					
	4.6'-4.9': White and gray ash with glass. Dry. FILL.	583.4				
	4.9'-5.2': Orange to brown silty clay with rock. Dry. FILL.	583.1				
	5.2'-8.0': Multi-colored, layered ash with coal and rock. Dry. FILL.	582.8				
8.0	2.0' recovery with 0.9' of fall-in		3			1.8
	8.0'-8.4': Sample same as above. Dry. FILL.					
	8.4'-9.0': Brown silty clay with rock. Moist. FILL.	579.6				
	9.0'-12.0': Rust colored ash with rock. Moist. FILL.	579.0				
12.0	2.8' recovery with 0.4' of fall-in		4			0.0
	12.0'-16.0': Multi-colored, layered ash with rock, coal, concrete and metal. Dry. FILL.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-9 cont.
Site Number:	932112	**Date Completed:**	09/26/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	16.2 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**588.0**				
16.0	0.2' recovery		5			NM
	16.0'-16.2': Dolostone rock fragments. NATIVE?	572.0				
	16.2': Refusal. BEDROCK?	571.8				
16.2	BOH=16.2' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-10
Site Number:	932112	**Date Completed:**	09/26/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	18.8 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**593.0**				
0.0	2.4' recovery		1			1.3
	0.0'-0.4': Brown silty clay with rock and rootlets. Moist. FILL.	593.0				
	0.4'-4.0': Multi-colored, foundry sand with slag and rock. Dry. FILL.	592.6				
4.0	2.2' recovery		2			0.0
	4.0'-8.0': Multi-colored, layered ash with coal, slag and a trace of glass. Moist. FILL.	589.0				
8.0	1.7' recovery		3			0.0
	8.0'-12.0': Sample same as above. Moist. FILL.					
12.0	2.2' recovery		4			0.0
	12.0'-13.9': Brown ash with glass, slag, brick, rock and coal. Moist. FILL.					
	13.9'-16.0': Fine-grained, brown foundry sand with a trace of rock. Moist. FILL.	579.1				
16.0	1.1' recovery		5			0.0
	16.0'-18.8': Brown and white ash with coal. Very moist. FILL.	577.0				
	18.8': Refusal.					
18.8	BOH=18.8' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-11
Site Number:	932112	**Date Completed:**	09/27/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	36.0 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**578.0**				
0.0	2.9' recovery		1			0.0
	0.0'-2.2': Brown silty clay with rock. Upper 0.15' is darker brown and contains rootlets. Dry. FILL.	578.0				
	2.2'-4.0': Brown ash with coal and rock. Tar in shoe of sampler. Dry. FILL.	575.8				
4.0	1.5' recovery with 0.8' of fall-in		2			NM
	4.0'-8.0': Black ash with rock and a trace of a white crystalline material. Moist. FILL.					
8.0	1.8' recovery with 0.6' of fall-in		3			0.0
	8.0'-12.0': Multi-colored, layered ash with brick, ceramic, glass and rock. Moist. FILL.					
12.0	1.5' recovery		4			0.0
	12.0'-16.0': Sample same as above with coal. Glass content increases near bottom of sample. A concrete fragment was in the shoe of the sampler. Moist. FILL.					
16.0	2.7' recovery		5			0.0
	16.0'-20.0': Sample same as above with slag, ceramic, rock, glass and coke. Moist. FILL.					
20.0	3.3' recovery		6			0.0
	16.0'-20.0': Sample same as above with brick, rock, glass and coal. Moist. FILL.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-11 cont.
Site Number:	932112	**Date Completed:**	09/27/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	36.0 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**578.0**				
24.0	2.2' recovery 24.0'-28.0': Brown to black ash with rock, slag, brick, coke and coal. Moist. FILL.		7			0.0
28.0	2.2' recovery 28.0'-32.0': Multi-colored, layered ash with glass, coal, slag and brick. A 0.1' layer of brown foundry sand near bottom of sample. Moist. FILL.		8			0.0
32.0	2.5' recovery 32.0'-36.0': Sample same as above. Moist. FILL.		9			0.0
36.0	BOH=36.0' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-12
Site Number:	932112	**Date Completed:**	09/27/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	29.0 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**578.0**				
0.0	2.7' recovery		1			0.0
	0.0'-4.0': Brown silty clay with brick and rock. Dry. FILL.	578.0				
4.0	1.8' recovery		2			0.0
	4.0'-5.1': Sample same as above. Dry. FILL.					
	5.1'-8.0': Brown ash with brick and brown silty clay. Tar in shoe of sampler. Moist. FILL.	572.9				
8.0	1.7' recovery		3			0.0
	8.0'-8.9': Sample same as above, layered. Moist. FILL.					
	8.9'-12.0': Dark brown ash with glass and rock. Moist. FILL.					
12.0	2.4' recovery with 0.9' of fall-in		4			0.0
	12.0'-16.0': Multi-colored, layered ash with brick, glass and slag. Moist. FILL.					
16.0	2.8' recovery		5			0.0
	16.0'-20.0': Sample same as above with coal, glass, brick and coke. One 0.4' layer of a white, crystalline material near bottom of sample. Moist. FILL.					
20.0	1.4' recovery		6			NM
	20.0'-24.0': Brown ash with brick, glass and a trace of hardened rubber. White ash in shoe of sampler with glass and coal. Moist. FILL.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-12 cont.
Site Number:	932112	**Date Completed:**	09/27/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	29.0 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**578.0**				
24.0	2.7' recovery 24.0'-28.0': Multi-colored, layered ash, silty clay and brick. The ash contains coal, rock and glass. Moist. FILL.		7			0.0
28.0	2.4' recovery with 1.4' of fall-in 28.0'-29.0': Brown ash with metal, coal and glass. Moist. FILL. 29.0': Refusal.		8			0.0
29.0	BOH=29.0' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-13
Site Number:	932112	**Date Completed:**	09/28/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	22.0 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**575.0**				
0.0	2.9' recovery		1			0.0
	0.0'-0.1': Dark brown silty clay with rootlets. Moist. FILL.	575.0				
	0.1'-0.5': Slag. FILL.	574.9				
	0.5'-4.0': Whitish gray ash with coal, rock and glass. Some rust colored ash near bottom of sample. Dry. FILL.	574.5				
4.0	1.5' recovery		2			0.0
	4.0'-8.0': Sample same as above with metal and slag, and a thin layer of black ash. One piece of firebrick in shoe of sampler. Dry to moist. FILL.					
8.0	1.8' recovery		3			NM
	8.0'-12.0': Multi-colored, layered ash with concrete, brick, glass and coal. Dry. FILL.					
12.0	2.4' recovery		4			0.0
	12.0'-16.0': Sample same as above with a white crystalline material in shoe of sampler. Moist. FILL.					
16.0	2.2' recovery		5			NM
	16.0'-20.0': Gray to brown, layered ash with concrete, glass, coal and a trace of metal. Moist. FILL.					
20.0	3.3' recovery with 1.3' of fall-in		6			0.0
	20.0'-21.3': Multi-colored, layered ash and foundry sand with glass, coal, rock and a trace of a white crystalline					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-13 cont.
Site Number:	932112	**Date Completed:**	09/28/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	22.0 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**575.0**				
	material. Moist. FILL.					
	21.3'-22.0': Brown clayey silt with dolostone rock fragments. Saturated. NATIVE.	553.7				
	22.0': Refusal. BEDROCK	553.0				
22.0	BOH=22.0' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-14
Site Number:	932112	**Date Completed:**	09/28/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Direct Push
Total Depth:	12.7 feet	**Sampling Method:**	Macro Core

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**582.0**				
0.0	1.3' recovery		1			0.0
	0.0'-4.0': White and gray, layered ash with glass and coal. Powdery. Dry. FILL.	582.0				
4.0	1.3' recovery		2			0.0
	4.0'-8.0': Whitish gray ash with glass, ceramic and a trace of coal. Powdery. Dry. FILL.					
8.0	1.4' recovery		3			0.0
	8.0'-12.0': Sample same as above with glass. Ash still powdery but more granular. Solidified ash in shoe of sampler. Dry. FILL.					
12.0	1.3' recovery with 0.6' of fall-in		4			0.0
	12.0'-12.7': Brown clayey silt with dolostone rock fragments. Saturated. NATIVE.	570.0				
	12.7': Refusal. BEDROCK	569.3				
12.7	BOH=12.7' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-15
Site Number:	932112	**Date Completed:**	10/05/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Drop Hammer
Total Depth:	1.6 feet	**Sampling Method:**	Split Spoon

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**598.0**				
0.0	1.5' recovery		1	6 18		NM
	0.0'-0.9': Brown clayey silt with rock and rootlets in the upper 0.3' of sample. Trace of coal and brick. Moist. FILL.	598.0		48 50/1	66	
	0.9'-1.3': Sample same as above with rock, slag, ash and coal. Moist. FILL.					
	1.3'-1.6': Black ash with a large percentage of coal. Moist. FILL.	597.1				
	1.6': Refusal.					
1.6	BOH=1.6' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

NYSDEC - Region 9 - Division of Environmental Remediation
Stratigraphic Log (Overburden)

Project Name:	Old Upper Mountain Road	**Hole Designation:**	SB-16
Site Number:	932112	**Date Completed:**	10/05/07
Location:	Lockport, New York	**Drilling Company:**	SJB Services, Inc.
Logged By:	Glenn M. May	**Drilling Method:**	Drop Hammer
Total Depth:	8.0 feet	**Sampling Method:**	Split Spoon

Depth (ft bgs)	Stratigraphic Description & Remarks	Elevation (ft amsl)	Sample			
			NUMBER	COUNT	N VALUE	HNU
	Ground Surface	**595.0**				
0.0	0.6' recovery		1	12 13		NM
	0.0'-0.6': Brown, peat-like material with coal, rock and brick. Dry. FILL.	595.0		10 16	23	
	0.6'-2.0': No recovery. Probably ash based upon an observation of pits in the general vicinity. FILL.	594.4				
			2	7		NM
2.0	0.0' recovery			11 9	20	
	2.0'-4.0': No recovery. Probably ash based upon an observation of pits in the general vicinity. FILL.			6		
4.0	0.6' recovery with 0.3' of fall-in		3	4 3		NM
	4.0'-6.0': Multi-colored, layered ash with plastic, rock and brick. Dry. FILL.			7 11	10	
6.0	2.0' recovery		4	11 21		NM
	6.0'-6.6': Sample same as above with brick, glass, rock and a trace of wood. Dry. FILL.			21 18	42	
	6.6'-8.0': Brown clayey silt with a trace of mottling and rootlets. Dry. NATIVE.	588.4				
8.0	BOH=8.0' bgs.					

Notes: Measuring Point Elevations May Change: Refer to Current Elevation Table

Grain Size ◯ Water Found ▽ Static Level ▼

APPENDIX B

SOIL BORING COMPLETION SUMMARY

Table B-1.
Summary of Borings Completed at the Old Upper Mountain Road Site.

Soil Boring/ Well Number	Date Completed	Total Boring Depth	NAD 83 Coordinates	
			Latitude	Longitude
SB-1	09/25/07	20.0	43º 9.911 N	78º 43.481 W
SB-2	09/25/07	36.0	43º 9.918 N	78º 43.465 W
SB-3	09/26/07	16.4	43º 9.929 N	78º 43.448 W
SB-4	09/26/07	14.5	43º 9.946 N	78º 43.436 W
SB-5	09/26/07	14.5	43º 9.971 N	78º 43.410 W
SB-6	09/25/07	13.6	43º 9.981 N	78º 43.420 W
SB-7	09/26/07	5.6	43º 9.982 N	78º 43.434 W
SB-8	09/26/07	12.7	43º 9.967 N	78º 43.428 W
SB-9	09/26/07	16.2	43º 9.959 N	78º 43.451 W
SB-10	09/26/07	18.8	43º 9.934 N	78º 43.474 W
SB-11	09/27/07	36.0	43º 9.949 N	78º 43.475 W
SB-12	09/27/07	29.0	43º 9.955 N	78º 43.499 W
SB-13	09/28/07	22.0	43º 9.937 N	78º 43.502 W
SB-14	09/28/07	12.7	43º 9.942 N	78º 43.523 W
SB-15	10/05/07	1.6	43º 9.929 N	78º 43.408 W
SB-16	10/05/07	8.0	43º 9.938 N	78º 43.395 W

APPENDIX C

ANALYTICAL DATA