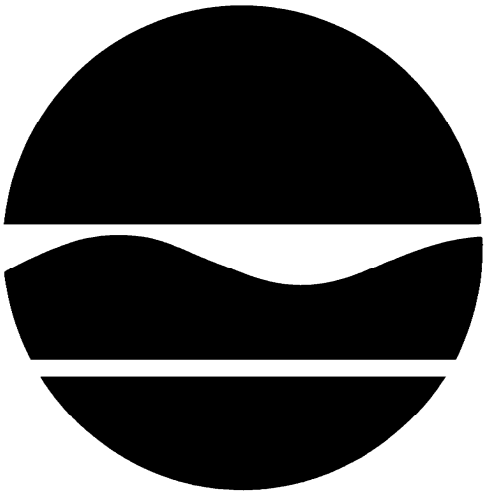
PROPOSED REMEDIAL ACTION PLAN
Former Adirondack Steel
Operable Unit No. 1
Colonie, Albany County New York
Site No. 401039

February 2010



Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

PROPOSED REMEDIAL ACTION PLAN

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Operable Unit No. 1
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Site No. 401039
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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the Former Adirondack Steel Site, Operable Unit No. 1, an abandoned steel foundry and forge. As more fully described in Sections 3 and 5 of this document, careless maintenance practices, vandalism and scavenging for scrap metals resulted in the disposal of hazardous wastes, including polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs). These wastes contaminated the soil at the site, and resulted in:

- a significant threat to human health associated with potential exposure to surface and subsurface soil and surface water; and

- a significant environmental threat associated with the potential impacts of contaminants to groundwater.

During the course of the investigation certain actions, known as interim remedial measures (IRMs), were undertaken at the Former Adirondack Steel Site in response to the threats identified above. An IRM is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the remedial investigation/feasibility study (RI/FS). The IRMs undertaken at this site included:

- removal of transformers and other abandoned electrical equipment containing PCBs; and

- excavation and off-site disposal of soil and fill from the site to prevent contact with PCBs.

Based on the implementation of the above IRMs, the findings of the investigation of this site indicate that Operable Unit No. 1 of the site no longer poses a significant threat to human health or the environment; therefore No Further Action along with the placement of an environmental easement and development of a site management plan is proposed as the remedy for this site.

The proposed remedy, discussed in detail in Section 6, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform to promulgated standards and criteria that

are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

This Proposed Remedial Action Plan (PRAP) identifies "no further action" as the preferred remedy and discusses the reasons for this preference. The Department will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The Department has issued this PRAP as a component of the Citizen Participation Plan developed pursuant to the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375. This document is a summary of the information that can be found in greater detail in the August 2008 "Final Remedial Investigation Report for the Former Adirondack Steel Site, Colonie New York", the January 2010 "Interim Remedial Measure Report for the Adirondack Steel Site, Colonie New York", and other relevant documents. The public is encouraged to review the project documents, which are available at the following repositories:

NYSDEC
625 Broadway, 12th Floor
Albany, New York 12233-7016
Please call Ian Beilby, P.E. at (518) 402-9767 for an appointment.

William K. Sanford Library
629 Albany-Shaker Road
Loudonville, New York 12211
(518) 458-9274

Watervliet Public Library
1501 Broadway
Watervliet, NY 12189
(518) 274-4471

The Department seeks input from the community on all PRAPs. A public comment period has been set from February 24 to March 25, 2010 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for March 9th at the Watervliet High School Auditorium beginning at 6:30 PM.

At the meeting, the results of the RI/FS and IRM will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP. Written comments may also be sent to Mr. Beilby at the above address through March 25th.

The Department may modify the proposed remedy or select another based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Former Adirondack Steel site (site) is located in the Town of Colonie, Albany County, New York at 191 Watervliet-Shaker Rd at the corner of Lincoln Ave and Watervliet-Shaker Rd as shown in Figure 1 of this PRAP. It is the location of an abandoned steel mill called the "Adirondack Steel Casting Co. Inc.." The area is mixed industrial-residential use that borders on undeveloped land to the west and an active rail line to the east. The site occupies approximately 0.5 acres of a 38.5acre former industrial property and is defined as the original location of the PCB-contaminated fluid spills. There are drainageways to the east of the property as well as to the north of the former main production area. The drainageway to the east is largely stagnant and is located between the site and the rail line. The drainageway to the north of the former production area flows to the east between the site and an industrial landfill. The landfill is related to the site and comprised largely of foundry sands.

The site is located within a mile of five other sites in a New York State remedial program. It is approximately 0.5 miles to the north of "AL Tech Steel" and 0.25 miles to the west of "Perfection Plating" and the "Watervliet Arsenal Siberia Area"; all Class 2 Inactive Hazardous Waste Disposal Sites; 0.75 miles to the northwest of an Environmental Restoration Project site, "Schuyler Heights Fire District"; and is adjacent to a Class 3 site, "Passonno Corp. Roof Coating Facility," situated immediately to the west.

Non-native soils and fill comprise a large area of the site and the property. The underlying native soil is primarily composed of grey and brown clays with some fine sand. Thickness of the overburden varies across the entire property from 28 feet to less than 1 foot. Bedrock at the site is Snakehill Shale and as such, it is typically grey or black and is highly fractured with a high density of folding and faults.

Photograph 1: Leaking transformer at the North Power Station prior to removal (August 1992).

Two groundwater bearing zones were investigated. The overburden groundwater is shallow, generally within 5 feet of the ground surface. Bedrock groundwater is also shallow, within five feet below ground surface (bgs) down to 17 feet bgs. Flow direction for each bearing zone is to the east-northeast. Groundwater elevations appear to indicate that the groundwater in the bedrock flow regime is confined as the elevations are often above the top of bedrock. This is borne out through hydraulic testing which indicated groundwater to be flowing from bedrock to overburden in the western wells. Wells on the east of the study area indicated groundwater flowing from overburden to bedrock at slow rates.

Operable Unit (OU) No. 1, which is the subject of this document, consists of the soils in the vicinity of the North Power Station and the South Power Station where electrical equipment containing fluid with PCBs and

VOCs was maintained or damaged resulting in releases of the fluid to the ground surface. These releases resulted in contamination of the soils in three locations totaling less than 0.5 acres (Figure 1) over a portion of the Adirondack Steel Property. An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

The remaining operable unit for this site includes OU No. 2: The drainageways to the east of the Adirondack Steel property and north of the former production area. Sediments and soil along the banks of the drainageways are contaminated with PCBs originally released from OU No. 1. Extensive investigation into the full extent of the contamination in these drainageways is nearly complete and a final remedy is under development.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

Large amounts of electricity were required while the Adirondack Steel foundry was in operation. To satisfy this demand, there were multiple electrical stations to transfer electricity from the supplier and distribute it around the facility. As was common during the 1960's and 1970's, much of the commercial electrical equipment incorporated fluid that contained a percentage of PCBs, especially the transformers used to transfer power from one electrical circuit to another. Capacitors, another electrical component that incorporated PCB-containing fluid on a frequent basis, were also used at the site. After the production of PCBs was prohibited in 1977, alternate additives to dielectric fluid were used, including VOCs. At the site, a common replacement for PCBs, 1,2,4-trichlorobenzene was found in the North Transformer Area while performing an IRM.

Photograph 2: Abandoned capacitors. Underlying soil PCB concentrations exceeded hazardous waste thresholds (2007).

There are three likely scenarios for the PCBs to have reached the soils at the site; routine maintenance, poor handling of used fluids, and/or unauthorized scavenging. The electrical components generally required little maintenance but could become damaged or require service that would provide the opportunity for the fluids to leak from the components to the ground. Poor handling or on-site dumping of spent fluids may have contributed to the releases and subsequent contamination. These two scenarios may have taken place anytime after the installation of the power stations, likely in the 1960's. Finally, the abandonment and poor security of the plant also led to the opportunity for unauthorized scavenging of the equipment for the copper contained in the transformers. Reportedly, the fluid would be drained from the transformers directly to the ground during scavenging. The scavenging took place at various times during the 1980's and 90's.

PCBs were also found outside of the Class 2 listed portions of the property within a 3-acre area. These locations often corresponded to a piece of electrical equipment or a drum that had been relocated after the initial designation of the Class 2 area.

Through the 1990's, the Adirondack Steel property was also known as the Adirondack Industrial Park. Various buildings and parcels were leased to businesses including asphalt paving companies, auto repair facilities, solid waste haulers and scrap dealers. In addition to the disposal of significant quantities of construction and demolition debris at the site, there has been significant potential for the disposal of hazardous wastes as a result of some of these companies' operations.

3.2: Remedial History

In 1992, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

Multiple preliminary investigations were conducted throughout the history of the site. The on-site landfill was first investigated in 1979 by Clough Associates on behalf of the Adirondack Steel Casting Corp. The investigation was performed in accordance with recently promulgated solid waste regulations that required the facility to review its landfilling operations and to obtain an operating permit. Information relevant to this PRAP from the investigation report includes a description of the waste stream. Limited soil analytical data was presented without the origin of the data being specified. The concentrations were similar to data obtained during the recent RI.

The landfill waste stream included "byproducts of the manufacture of steel castings and consist of used foundry sand/core sand, furnace slag and refractories, and dust from collectors." (Clough Associates, "Industrial Landfill Solid Wastes Management Report," 1979). In addition to the sands, a phenolic resin was added during the casting process, much of which was burned off when molten steel was poured into the mold. Some, however, likely made it through the casting phase and was disposed of at the landfill. Phenol was detected in one of two samples. Based on results of the investigation performed by Clough Associates, no remedial action was recommended.

A Site Inspection Report was completed in 1991 by NUS for the United States Environmental Protection Agency (USEPA). The report was based on an investigation performed by NUS at that time as well as the Clough Associates report from 1979. A total of 16 samples were collected from soil, sediment and surface water and while the findings indicated the presence of multiple hazardous wastes, including PCBs and chlorobenzenes in multiple media, a "no further remedial action planned" recommendation was stated in the report.

In 1992, the Department ordered the property owner, Timmons Corp., to take appropriate remedial actions based on an evaluation of analytical data from soil samples collected by the Department while investigating a spill at the site. The data showed concentrations of PCBs at the North transformer pad well above hazardous waste thresholds. Because the owner was nonresponsive, the Department then referred the site to the USEPA for an emergency removal action. The USEPA initiated a removal action at the site in 1993. Contaminated soils were excavated and stored in a small, secured warehouse building on-site, significantly reducing the potential for additional off-site migration of the PCB laden soils. In 1998, the owner consolidated the contaminated soils and placed them in another secure

building on the east side of the property with the intent of disposing them off-site. Timmons Corp. failed to follow through with the removal and the USEPA completed disposal of the previously excavated soils in 1999.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include: Timmons Corporation,15 Stearns Road, Keene, NH, 03431.

The PRPs declined to implement the RI/FS at the site when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

SECTION 5: SITE CONTAMINATION

A remedial investigation (RI) has been conducted to identify the nature and extent of contamination at the site. Multiple IRMs were implemented as described in Section 5.2 of this PRAP during the RI to remove sources of PCB and VOC contamination

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between December 2005 and August 2008. The field activities and findings of the investigation are described in the RI report.

The RI included the sampling of environmental media (soil, sediment, surface water and groundwater) to determine the nature and extent of contamination at the site and surrounding areas considered to be potential areas of hazardous waste disposal or susceptible to migration of hazardous waste from known source areas. The area included in the scope of the RI was designated “the Study Area.” The Study Area comprised 118 acres of land formerly owned by Adirondack Steel Castings Corp which includes the Class 2 area, several abandoned buildings with collections of miscellaneous drums and stained floors, the landfill containing used foundry sand/core sand, furnace slag, refractories, and dust from collectors as well as the adjacent drainageways on the east and north of the property. Tasks conducted in the RI also included test pitting to determine the footprint of the landfill in the north end of the property, groundwater flow characteristics, and development of a final report to document the findings of the investigation. Two IRMs were performed to remove sources of contamination contributing to the significant threat posed by the site.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil, subsurface soil, surface water, groundwater and sediment contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the Department's Cleanup Objectives "Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels" and on Tables 375-6.8(a) and (b) of Title 6 of the New York Code of Rules and Regulations [6NYCRR] Part 375 Soil Cleanup Objectives [SCOs].

- Sediment SCGs are based on the Department's "Technical Guidance for Screening Contaminated Sediments."

An evaluation of the RI data utilizing the above SCGs and potential public health and environmental exposure routes, certain media and areas of the site required remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report. For contaminants without approved or published SCGs, site background concentrations were obtained and used for evaluation of on-site contaminants. In section 5.1.2 and Figures 2 through 8, the data are compared to applicable SCGs, to determine the full extent of contamination at the property. Concentrations of metals, VOCs and semivolatile organic compounds (SVOCs) in soil were compared to commercial SCOs in Figures 3 and 5. PCB concentrations in soil are shown in Figures 2 and 4. Groundwater, surface water, and sediment data summaries are provided in Figures 6 through 8. Soil contaminant concentrations are compared to unrestricted SCOs in section 5.1.2.

5.1.2: Nature and Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigated. As described in the RI report, soil, groundwater, surface water and sediment samples were collected to characterize the nature and extent of contamination. As seen in Figures 2 through 10, the main categories of contaminants that exceed their SCGs are polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and inorganics (metals). For reference purposes, SCGs are provided for each contaminant detected at the Study Area in soil, water and sediment in Table 1.

Chemical concentrations are reported in parts per billion (ppb) for water, parts per million (ppm) for waste, soil, and sediment.

Figures 2 and 4 summarize the degree of contamination for the contaminants of concern in the surface and subsurface soil and compare the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Waste Materials

Transformers

One transformer remained on-site at the South Power Station when the RI was initiated in 2005. Inspection and sampling of the transformer indicated that it still held PCB-containing fluid with a concentration of 168 ppm. It was removed from the site.

Capacitors

Three discarded capacitors in various states of disrepair remained on-site when the RI was initiated. Stained soil was apparent underneath the capacitors. Based on sample results from the soil, it was determined that the capacitors contained PCBs and should be removed from the site for proper treatment and disposal. All three capacitors were taken off-site.

Drums

Four drums were discovered on the west side of the Study Area. The drums contained unknown liquids that appeared to be different types of oils. The liquids were sampled and found to contain multiple VOCs, SVOCs and metals. Based on the results, the drums were taken off-site for disposal.

Downed Asbestos-Containing Stack

A large, steel-jacketed smoke stack containing asbestos insulation had long ago fallen in the vicinity of the site. The asbestos insulation was exposed and susceptible to disturbance by trespassers at the property. Soil in the area was found to be contaminated with PCBs related to one of the abandoned capacitors and the presence of the stack hindered access to the contaminated soil. For these reasons, the entire stack, including the insulation, was containerized and removed from the site by a New York State licensed contractor and disposed of in accordance with all applicable state regulations at a facility permitted to accept asbestos waste.

Waste identified during the RI/FS was addressed during IRM No. 1 described in Section 5.2.

Surface Soil

Surface soil includes only the top layer of soil and included soil down to 6 inches below ground surface (bgs). Surface soil samples were collected over the entire Study Area to assess the contamination on the listed portion of the property (the site) as well as to address the potential for contamination on the remainder of the property. A total of 76 sample locations were selected over the property to encompass the landfill and manufacturing areas as well as to provide background locations for data comparison. The selection of 39 locations was biased to address observed environmental concerns such as close proximity to a storage tank or drums, step out locations from previously sampled contaminated areas, and to include documentation of background conditions. Surface soil from 21 of these locations was analyzed for multiple categories of contaminants including SVOCs, metals, VOCs, pesticides and PCBs. At 18 locations, samples were analyzed only for PCBs. The remaining 37 locations were selected based on a grid system over the site to specifically determine the areal extent of PCB disposal and were, therefore, only analyzed for PCBs. The grid consisted of 50-foot by 50-foot spacing between sample locations focused on the north and east of the North Power Station as well as the southeast corner of the landfill. The latter area was alleged to have been a disposal location for PCB-contaminated soils.

PCBs are the main contaminant of concern (COC) that was detected in the surface soils in the Study Area. They were primarily measured at high concentrations on and around the site over an area about 3 acres in size. As shown in Figure 2, there were detections of PCBs (less than 1 ppm) in samples collected from the entire property. Commercial SCOs were exceeded only in the areas adjacent to the 0.5-acre listed site.

SVOCs and metals were found in samples collected from the property exceeding commercial SCOs. SVOCs were isolated to a few locations and appeared related to commercial activities occurring at the property after the steel plant closed. Metals were more widespread across the property. They were frequently detected above the unrestricted SCOs. Of 21 surface soil samples, 19 contained concentrations of at least one metal that exceeded unrestricted SCOs. Exceedances of commercial SCOs occurred slightly less frequently with 15 of 21 sample concentrations of metals greater than SCOs. Figure 3 shows the locations and concentrations of samples where commercial exceedances of SVOCs and metals occurred. Of the 21 surface soil samples collected and analyzed for contaminants in addition to PCBs, 6 were collected from the 0.5-acre listed site, of which four locations were later excavated as part of the IRM to remove PCB-contaminated soil. As a result, no contaminant concentrations remain in the surface soil above commercial SCOs.

Surface soil contamination identified during the RI/FS was addressed during the IRM described in Section 5.2.

Subsurface Soil

Subsurface soils include the layer of soil extending from approximately 6 inches bgs to bedrock. As was done for the surface soils, subsurface soil samples were collected over the entire Study Area to assess the contamination on the listed portion of the property (the site) as well as address the potential for contamination on the remainder of the property. A total of 166 subsurface soil samples were collected over the property including the landfill and manufacturing areas. Not all samples were submitted to the laboratory for analysis pending a determination that analysis was necessary. The selection of 118 locations was biased to address observed environmental concerns such as close proximity to a storage tank or drums, step out locations from previously sampled contaminated areas, or to avoid subsurface obstacles such as utilities or foundations. The biased locations also included monitoring well boreholes and test trench locations. The remaining locations were selected based on a 250-foot by 250-foot grid system over the site. During the RI, 95 samples were analyzed; 37 were for PCBs only, 13 were for metals and were collected from the landfill, and the remaining 45 samples were analyzed for multiple categories of contaminants including SVOCs, metals, VOCs, pesticides and PCBs.

PCBs are the main COC detected in the subsurface soils from the Study Area and were primarily measured at high concentrations on and around the site over an area about 3 acres in size. As shown in Figure 4, there were detections of PCBs (less than 1 ppm) in samples collected from the northern half of the property but SCGs were exceeded only in the areas adjacent to the 0.5-acre listed site. One sample location had a PCB concentration of 19,000 ppm. Other locations yielded PCB concentrations in the hundreds of parts per million.

SVOCs were detected above Part 375 unrestricted SCOs in only 4 locations, one of which (GP-B9) was near the shoulder of NYS Route 155. Of those four, only 1 location had SVOC concentrations greater

than commercial SCOs. Again, the location was GP-B9. Figure 5 shows the locations and concentrations of SVOCs exceeding commercial SCOs.

Metals were detected at concentrations above Part 375 unrestricted SCOs in 32 locations. Of the 32 locations, only 2 had exceedances of commercial SCOs; GP-06 for copper and Test Trench 09 for cadmium, both of which are located in the off-site landfill. Additional site-specific screening criteria derived from background samples were exceeded in 22 locations for metals including aluminum, iron, calcium, sodium, and antimony. Antimony never exceeded 3.6 ppm, 1.8 ppm higher than the highest analyzed background concentration. Figure 5 indicates the locations and concentrations of metals exceeding commercial SCOs.

In addition to the analyses previously described, samples from the landfill were also evaluated for the ability of the metals to leach from the soil and waste into surrounding soils and groundwater. The purpose of this analysis was to determine the hazardous waste potential of these soils and landfilled waste. None of the samples yielded concentrations of metals that are considered hazardous and that would indicate consequential disposal of hazardous waste.

One VOC (Acetone) was detected above the Part 375 unrestricted SCO in 2 locations in the plant area. It was never found above commercial SCOs. Other VOCs were frequently detected (40 locations) in the low ppb range. They were most common in the landfill subsurface soils but were also common in the plant area.

Subsurface soil contamination identified during the RI/FS was addressed during the IRM described in Section 5.2.

Groundwater

Groundwater was investigated at the site through the installation and sampling of 5 pairs of monitoring wells. The first 5 wells were installed in the overburden or overburden/bedrock interface and 5 were installed in the bedrock. This configuration allowed monitoring of both flow regimes at the property. Two rounds of sampling were performed to collect groundwater samples for analysis. No VOCs, SVOCs, pesticides or PCBs of concern were found. Metals were found above groundwater SCGs in all groundwater samples. The most frequently occurring were iron and sodium which were found in nearly all samples. Other metals that frequently exceeded SCGs included: barium, magnesium and manganese. Thallium and antimony occasionally (4 and 3 times respectively) exceeded SCGs. Arsenic, lead, and nickel each slightly exceeded SCGs once over the two rounds. A summary of the groundwater data is included in Figure 6.

No site-related groundwater contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for groundwater.

Surface Water

Surface water samples were collected from both on-site and off-site locations. Surface water on-site exists only in one stagnant pool where soil and fill had been removed. Off-site surface water samples were collected from the drainageways that run proximate to the site in upstream, adjacent, and

downstream locations. Both on and off-site locations were analyzed for VOCs, SVOCs, metals, pesticides and PCBs.

On-site surface water sample results indicated impacts from SVOCs, metals and PCBs. SVOC detections were below SCGs aside from bis(2-ethylhexyl)phthalate, a common lab contaminant, that was detected in the stagnant, pooled water at the SW-05 location. Concentrations of total PCBs and four metals were greater than SCGs. The concentration of PCBs was 2.6 ppb. The metals included aluminum (900 ppb), iron (3,610 ppb), zinc (182 ppb) and mercury (0.33 ppb).

Most off-site surface water sample results showed exceedances of SCGs for two metals, aluminum and iron. Analysis of a surface water sample down gradient from the 0.5-acre listed site showed impacts from PCBs at concentrations above SCGs. Analysis of a surface water sample down gradient to the south of the 0.5-acre listed site indicated exceedances for seven metals other than aluminum and iron as well as pyrene, an SVOC. However, this location is also down gradient from storm sewers located along NYS Route 155 and may be impacted by road surface runoff.

PCB exceedances in the off-site surface water are likely due to PCB contamination found in drainageway sediments and sidewall soils of OU-2. Though PCBs have a very low solubility in water, there is potential for the compounds to leach from the soil and migrate into the surface water.

On-site surface water contamination identified during the RI/FS was addressed during the IRM described in Section 5.2. On-site surface water was pumped and treated during the course of soil excavation. Off-site surface water will be addressed by the OU-2 remedy.

Sediments

Sediment samples were collected from both on-site and off-site locations. On-site sediment generally exists only in one stagnant pool where soil and fill had been removed. Concentrations of SVOCs, metals, and PCBs exceeded SCGs in the on-site sediment location. Off-site sediments most often had concentrations of metals and PCBs that exceeded SCGs though one VOC and limited SVOCs were also found above SCGs.

Because the extent of the PCB contamination discovered during the RI in the off-site sediments down gradient from the on-site source is significant, the drainageways were judged to constitute a separate operable unit and are currently being addressed under OU-2. Figure 7 illustrates non-PCB summary data from sediments collected during the RI excluding the drainageway sediments in OU-2. Sediments in the off-site drainageways are identified as OU-2. Figure 8 provides a summary of PCB concentrations in drainageway sediment samples collected during the OU-1 RI. Extensive additional sampling in the drainageways is part of the OU-2 investigation and the results will be presented in subsequent reports.

On-site sediment contamination identified during the RI was addressed during the IRM described in Section 5.2.

Soil Vapor/Sub-Slab Vapor/Air

Soil vapor samples were not collected because no release of VOCs had been documented and soil sampling prior to the IRM did not indicate a VOC source that might contribute to soil vapor impacts. VOCs were encountered in on-site soils during the IRM to remove PCB contaminated soils from the site. Confirmation sampling performed as part of the IRM indicates that the VOC contaminated soils were excavated and disposed off-site as part of the IRM. Additionally, there are no structures on the Former Adirondack Steel property suitable for occupancy.

No site-related soil vapor contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for this medium.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

Two separate IRMs were performed at the Adirondack Steel property. The first IRM addressed the abandoned PCB-contaminated electrical equipment at the property. One transformer and several capacitors were removed from the site and disposed of at a permitted facility. The second IRM was performed from May through August of 2009 and included the excavation and disposal of PCB and newly discovered VOC source areas from the site and other off-site PCB-contaminated soils in the immediate vicinity. Excavations were planned to meet the PCB cleanup goals stated in TAGM 4046. Those goals recommend concentrations less than or equal to 1 ppm total PCBs in the top foot of soil and less than 10 ppm total PCBs at any depth.

Photograph 3: Excavation of soil at the location of the former North Power Station, OU-1 (July 2009).

During soil excavation at the North Power Station, an on-site location, a VOC (1,2,4-trichlorobenzene) was encountered at high concentrations, up to 18,000 ppm. The soil was excavated and disposed of at a permitted facility and confirmation samples from the bottom and sidewalls of the of the excavated area indicate that no 1,2,4-trichlorobenzene remains at the site. To ensure that the contaminant had not migrated to groundwater, a temporary well was installed down gradient so that groundwater samples could be collected for analysis. Results of the analysis indicated that groundwater had not been impacted by the 1,2,4-trichlorobenzene.

To conduct the IRM, areas of contaminated soil to be removed were marked using soil and subsurface soil data collected during the RI. A large asbestos-containing smokestack was removed from one of the PCB contaminated areas to provide access prior to commencing excavation. An excavator was used to remove and stockpile the soil prior to loading and transport. Once the planned excavation was complete, confirmation samples were collected and analyzed from the bottom and sidewalls of the excavated area. If the cleanup goals were met, no further excavation was performed. If cleanup goals were not met, additional soil was removed until analytical data showed PCB concentrations in the remaining soil to be below the cleanup goals.

Photograph 4: Placement of clean fill at remediated North Power Station, OU-1 (July 2009).

Prior to transport, soil was separated into hazardous and non-hazardous waste based on the PCB concentrations. Soil and fill were excavated in 13 separate areas totaling 2,044 tons of hazardous waste and 1,600 tons of non-hazardous waste removed, thereby eliminating the significant threats to human health and the environment from OU No. 1. In addition to the removal of soil and fill, contaminated sediment and surface water from the vicinity of the former North Power Station was also removed.

Backfill was placed where excavated areas presented a physical danger posed by deep pits or ponded water to individuals on-site.

Confirmation sampling from the excavations shows that the cleanup goals have been met or exceeded through implementation of the IRM. In all but one area located on-site, the former Nort Power Station, soils contain residual PCB concentrations of less than 1 ppm. At the Site, one confirmation sample yielded analytical results of 4.6 ppm at a depth of 6.5 feet, well below the cleanup goal of 10 ppm at depths below 1 foot.

Additional details regarding the IRM are included in the final summary report, “Interim Remedial Measure Report for the Former Adirondack Steel Site, Colonie NY, January 2010.”

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways was presented in the RI report. An updated assessment is presented in Section 6 of the IRM report to reflect the removal of PCB source areas.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Contaminated surface and sub-surface soil has been removed to meet cleanup levels established in the Interim Remedial Measure Workplan. Therefore, direct contact with contaminated soils is not a potential exposure pathway. Ingestion of contaminated groundwater is unlikely since the area is served by public drinking water.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site prior to the IRM. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

No ecologically significant resources were identified on-site during the RI and an IRM was performed to prevent future groundwater impacts from the on-site PCBs and VOCs.

PCB contaminated soils were removed from the Class 2 area and vicinity of the property in 2009 through an IRM. Off-site sediments in drainageways to the north and east contain concentrations up to 890 ppm. There are SVOCs present at the site at concentrations below applicable soil cleanup objectives for the site. Inorganics are present at the site, largely found at levels below applicable soil cleanup objectives for the site.

The potential for impacts to off-site resources will be evaluated under OU No. 2, the drainageways to the east of the Adirondack Steel property and north of the former production area.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND PROPOSED REMEDY

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous wastes disposed at the site through the proper application of scientific and engineering principles.

Prior to the completion of the IRM described in Section 5.2, the remediation goals for this site were to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to PCBs and VOCs in soil; and
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards.

The main SCGs applicable to this project are as follows:

Soil SCGs are based on the Department's Cleanup Objectives "Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels" and on Title 6 of the New York Code of Rules and Regulations [6NYCRR] Part 375-6 Restricted Use Soil Cleanup Objectives [SCOs], Table 375-6.8(b)

No further action is required to meet these SCGs because they were attained through the implementation of the IRMs as described in Section 5.2. The IRMs successfully removed PCB contaminated electrical equipment and soil so that SCGs have been met.

The Department believes that the IRM has accomplished the remediation goals and satisfied the SCGs for the site.

Based on the results of the investigations at the site, the IRM that has been performed, and the evaluation presented here, the Department is proposing No Further Action with placement of an environmental easement to restrict the use of soil from the site as the preferred alternative for the site. The Department believes that this alternative would be protective of human health and the environment and would satisfy all SCGs as described above. Overall protectiveness is achieved through meeting the remediation goals listed above.

Therefore, the Department concludes that No Further Action is needed other than institutional and engineering controls. The elements of the IRM already completed and the institutional and engineering controls are listed below:

1. Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the site to commercial use, which would also permit industrial use; (b) compliance with the approved site management plan; and (c) the property owner to complete and submit to the Department a periodic certification of institutional controls.

2. Development of a site management plan which would include the following controls: (a) development of a soils management plan that would prevent the surfacing of subsurface soils. Excavated soil would be tested, properly handled to protect the health and safety of workers and the nearby community, and would be properly managed in a manner acceptable to the Department; (b) identification of any use restrictions on the site.

3. The property owner would provide a periodic certification of institutional controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the

Department notifies the property owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

Table 1: Standards, Criteria and Guidance Values Utilized for Environmental Media at the Former Adirondack Steel Site for Detected Compounds

Soil Screening Criteria			Sediment Screening Criteria			Surface & Groundwater Screening Criteria		
Contaminant	**Criteria**	**Criteria Source**	**Contaminant**	**Criteria**	**Criteria Source**	**Contaminant**	**Criteria**	**Criteria Source**
PCBs (mg/kg)			**PCBs (ug/kg)**	0.0096	(4)	**PCBs (ug/L)**	0.000001	(5)
Surface	1	(2)						
Subsurface	10	(2)	**Metals (mg/kg)**			**Metals (ug/L)**		
			Aluminum	NA		Aluminum	100	(5)
Metals (mg/kg)			Antimony	2	(4)	Arsenic	150	(5)
Aluminum	17,200	(3)	Arsenic	6	(4)	Barium	1,100	(5)
Antimony	1.8	(3)	Barium	NA		Beryllium	NA	
Arsenic	16	(1)	Beryllium	NA		Calcium	25	(5)
Barium	400	(1)	Cadmium	0.6	(4)	Chromium, trivalent[h]	NA	
Beryllium	590	(1)	Calcium	NA		Cobalt	5	(5)
Cadmium	9.3	(1)	Chromium	26	(4)	Copper	78	(5)
Calcium	25,700	(3)	Cobalt	NA		Iron	300	(5)
Chromium, hexavalent[h]	400	(1)	Copper	16	(4)	Lead	506	(5)
Chromium, trivalent[h]	1,500	(1)	Iron	20,000	(4)	Magnesium	NA	(5)
Cobalt	28.7	(3)	Total Cyanide	NA		Manganese	NA	
Copper	270	(1)	Lead	31	(4)	Total Mercury	0.0007	(5)
Iron	37,600	(3)	Magnesium	NA		Nickel	79	(5)
Total Cyanide	27	(1)	Manganese	460	(4)	Potassium	NA	
Lead	1,000	(1)	Total Mercury	0.15	(4)	Selenium	4.6	(5)
Magnesium	9,800	(3)	Nickel	16	(4)	Sodium	NA	
Manganese	10,000	(1)	Potassium	NA		Vanadium	14	(5)
Total Mercury	2.8	(1)	Selenium	NA		Zinc	79	(5)
Nickel	310	(1)	Silver	1	(4)			
Potassium	3,180	(3)	Sodium	NA		**Volatiles (ug/L)**		
Selenium	1,500	(1)	Vanadium	NA		1,1,1-Trichloroethane	NA	
Silver	1,500	(1)	Zinc	120	(4)			
Sodium	244	(3)				**Semivolatiles (ug/L)**		
Thallium	1.8	(3)	**Volatiles (ug/kg)**			bis(2-Ethylhexyl)phthalate	0.6	(5)
Vanadium	38.2	(3)	1,1,1-Trichloroethane	NA		Fluoranthene	NA	
Zinc	10,000	(1)	1,1-Dichloroethene	0.24	(4)	Pyrene	4.6	(5)
			1,3-Dichlorobenzene	144	(4)			
Volatiles (mg/kg)			1,4-Dichlorobenzene	144	(4)			
1,1,1-Trichloroethane	500	(1)	2-Butanone	NA				
1,1-Dichloroethane	240	(1)	Acetone	NA				
1,1-Dichloroethene	500	(1)	Carbon Disulfide	NA				
1,2-Dichlorobenzene	500	(1)	Chlorobenzene	42	(4)			
1,2-Dichloroethane	30	(1)	Chloroform	NA				
cis-1,2-Dichloroethene	500	(1)	Methyl Acetate	NA				
trans-1,2-Dichloroethene	500	(1)	Methylene chloride	NA				
1,3-Dichlorobenzene	280	(1)	Styrene	NA				
1,4-Dichlorobenzene	130	(1)	Toluene	588	(4)			
1,4-Dioxane	130	(1)	1,2,4-Trichlorobenzene	1,092	(4)			
Acetone	500	(1)	Xylene (mixed)	1,104	(4)			
Benzene	44	(1)						

(1) Soil Clean Up Objectives from 6NYCRR Part 375, Table 6.8(b)
(2) Technical and Administrative Guidance Memorandum 4046
(3) Evaluated Against Site Background Soil Concentrations
(4) NYSDEC Guidance for Evaluating Contaminated Sediments, January 1999
(5) Tecnical and Operational Guidance #1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998, Table 1
NA - Not Available

Table 1: Standards, Criteria and Guidance Values Utilized for Environmental Media at the Former Adirondack Steel Site for Detected Compounds

Soil Screening Criteria			Sediment Screening Criteria			Surface & Groundwater Screening Criteria		
Contaminant	**Criteria**	**Criteria Source**	**Contaminant**	**Criteria**	**Criteria Source**	**Contaminant**	**Criteria**	**Criteria Source**
Volatiles (cont)			**Semivolatiles (ug/kg)**					
Butylbenzene	500	(1)	Acenaphthene	1,680	(4)			
Carbon tetrachloride	22	(1)	Acetophenone	NA				
Chlorobenzene	500	(1)	Anthracene	1,284	(4)			
Chloroform	350	(1)	Benzaldehyde	NA				
Ethylbenzene	390	(1)	Benz(a)anthracene	144	(4)			
Hexachlorobenzene	6	(1)	Benzo(a)pyrene	15.6	(4)			
Methyl ethyl ketone	500	(1)	Benzo(b)fluoranthene	15.6	(4)			
Methyl tert-butyl ether	500	(1)	Benzo(g,h,i)perylene	NA				
Methylene chloride	500	(1)	Benzo(k)fluoranthene	15.6	(4)			
n-Propylbenzene	500	(1)	bis(2-Ethylhexyl)phthalate	2,394	(4)			
sec-Butylbenzene	500	(1)	Carbazole	NA				
tert-Butylbenzene	500	(1)	Chrysene	NA				
Tetrachloroethene	150	(1)	Dibenz(a,h)anthracene	NA				
Toluene	500	(1)	Dibenzofuran	NA				
Trichloroethene	200	(1)	Dimethylphthalate	NA				
1,2,4-Trimethylbenzene	190	(1)	Fluoranthene	12,240	(4)			
1,3,5- Trimethylbenzene	190	(1)	Fluorene	96	(4)			
Vinyl chloride	13	(1)	Indeno(1,2,3-cd)pyrene	15.6	(4)			
Xylene (mixed)	500	(1)	2-Methylnapthaline	408	(4)			
			Naphthalene	360	(4)			
Semivolatiles (mg/kg)			Phenanthrene	1,440	(4)			
Acenaphthene	500	(1)	Pyrene	11,532	(4)			
Acenapthylene	500	(1)						
Anthracene	500	(1)						
Benz(a)anthracene	5.6	(1)						
Benzo(a)pyrene	1	(1)						
Benzo(b)fluoranthene	5.6	(1)						
Benzo(g,h,i)perylene	500	(1)						
Benzo(k)fluoranthene	56	(1)						
Chrysene	56	(1)						
Dibenz(a,h)anthracene	0.56	(1)						
Fluoranthene	500	(1)						
Fluorene	500	(1)						
Indeno(1,2,3-cd)pyrene	5.6	(1)						
m-Cresol	500	(1)						
Naphthalene	500	(1)						
o-Cresol	500	(1)						
p-Cresol	500	(1)						
Pentachlorophenol	6.7	(1)						
Phenanthrene	500	(1)						
Phenol	500	(1)						
Pyrene	500	(1)						

(1) Soil Clean Up Objectives from 6NYCRR Part 375, Table 6.8(b)
(2) Technical and Administrative Guidance Memorandum 4046
(3) Evaluated Against Site Background Soil Concentrations
(4) NYSDEC Guidance for Evaluating Contaminated Sediments, January 1999
(5) Tecnical and Operational Guidance #1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998, Table 1
NA - Not Available

Class 2 Site Outline

Former Adirondack Steel Property

1 - AL Tech Specialty Steel
2 - Perfection Plating
3 - Watervliet Arsenal: Siberia Area
4 - Schuyler Heights Fire District
5 - Pasonno Corp. Roof Coating

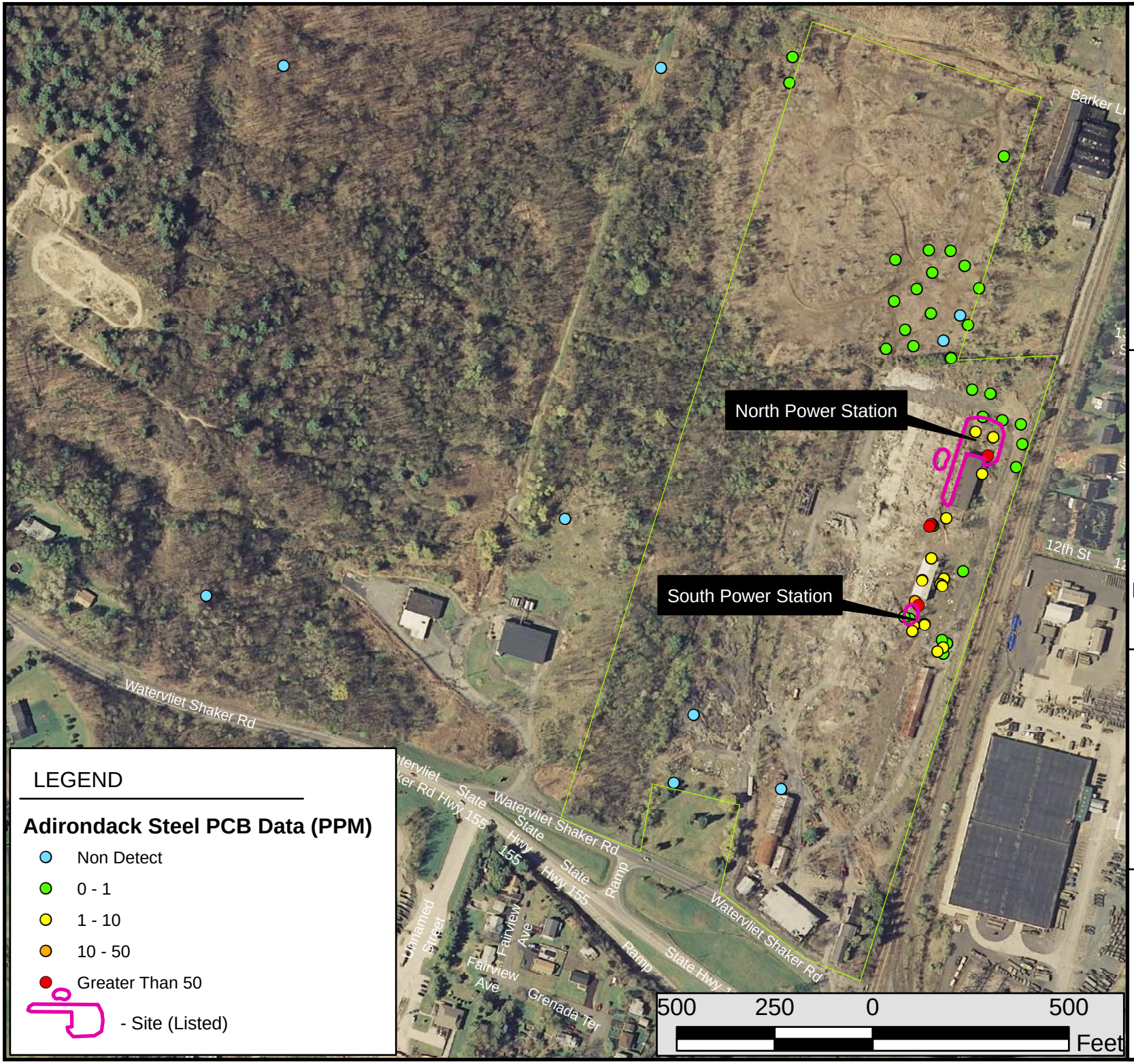
Feet
1,000 500 0 1,000 2,000

N
W E
S

SITE LOCATION

Former Adirondack Steel Site
4-01-039

Figure 1



LEGEND

Adirondack Steel PCB Data (PPM)

- Non Detect
- 0 - 1
- 1 - 10
- 10 - 50
- Greater Than 50
- Site (Listed)

New York State
Department of Environmental
Conservation

Division of
Environmental Remediation

Former
Adirondack Steel

DEC Site No.: 4-01-039

FIGURE 2

Distribution of Polychlorinated Biphenyl Concentrations in Surface Soils

Map Details

Created in ArcMap 9.3
Date of Last
Revision: 01.07.2010

N
W E
S

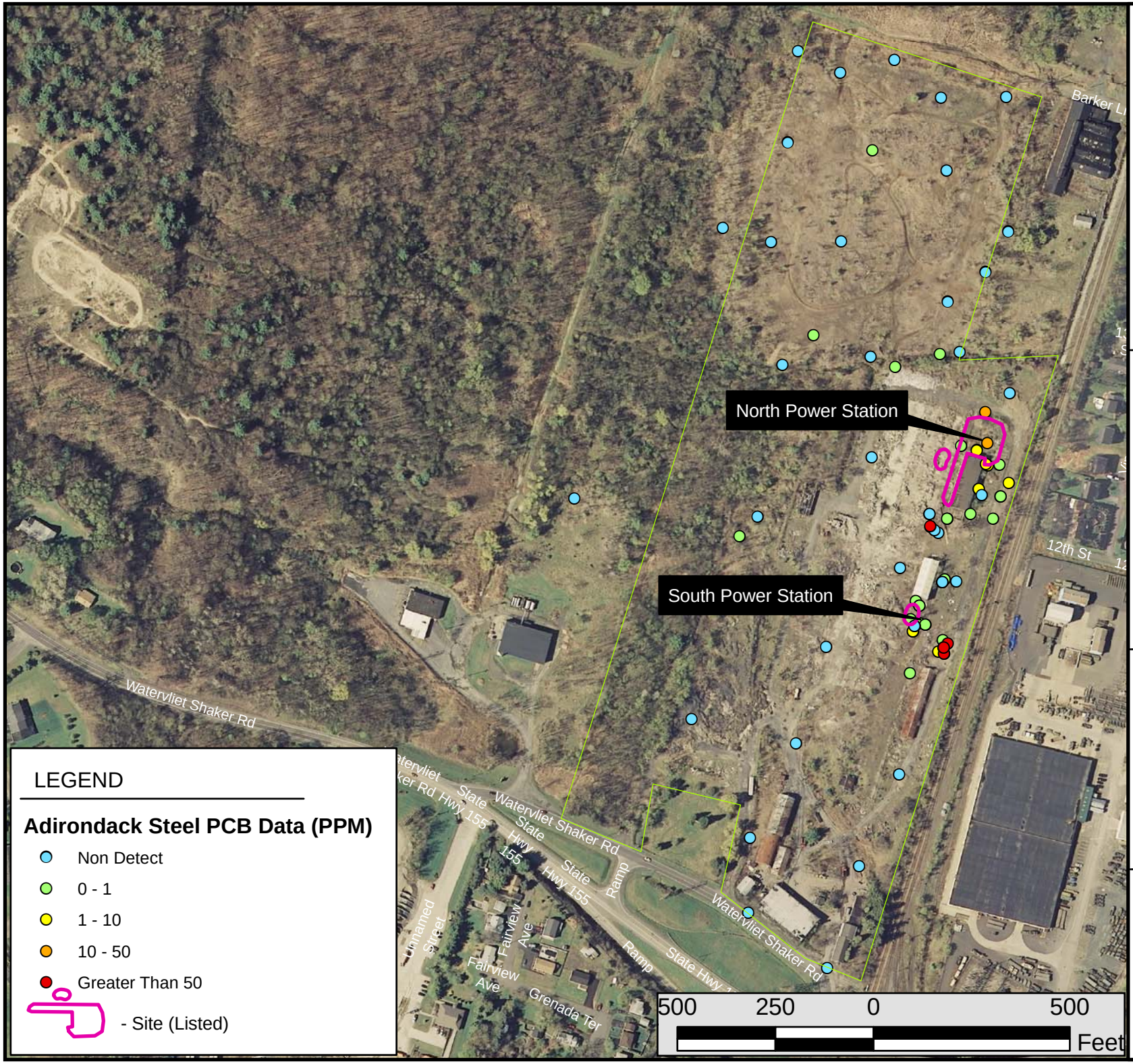
North American Datum 1983
UTM Zone 18

02:002699.ID10.06/Fig 5-3.CDR-07/17/08-GRA

Source: New York State High Resolution Statewide Digital Orthoimagery Program, 2001.

Figure 3

Summary of Positive Analytical Results in Surface Soil Samples Exceeding SCGs (non-PCBs)
Former Adirondack Steel Remedial Investigation
Colonie, New York



New York State
Department of Environmental
Conservation

Division of
Environmental Remediation

Former Adirondack Steel

DEC Site No.: 4-01-039

FIGURE 4

Distribution of Polychlorinated Biphenyl Concentrations in Subsurface Soils

Map Details

Created in ArcMap 9.3
Date of Last
Revision: 01.07.2010

N
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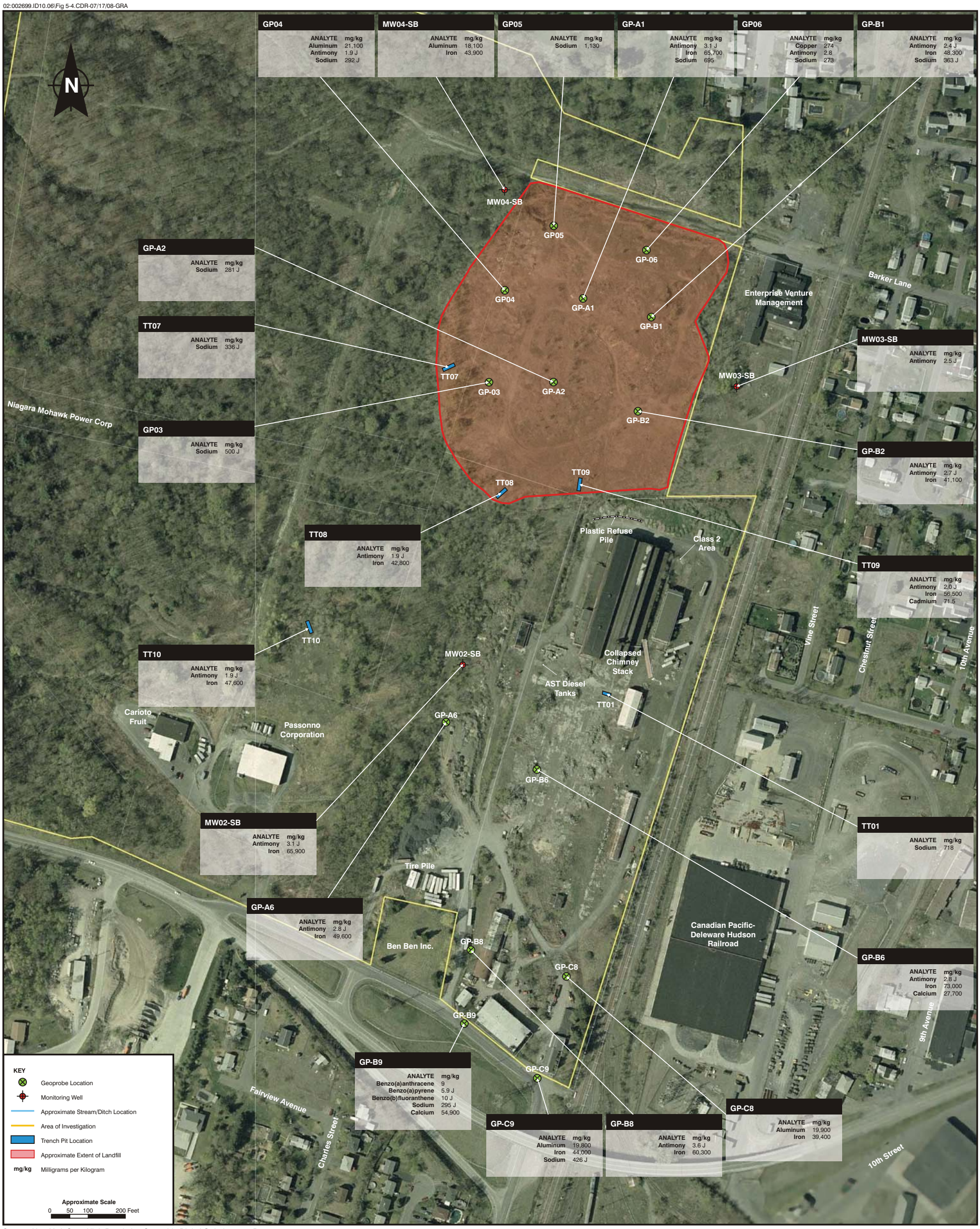
North American Datum 1983
UTM Zone 18

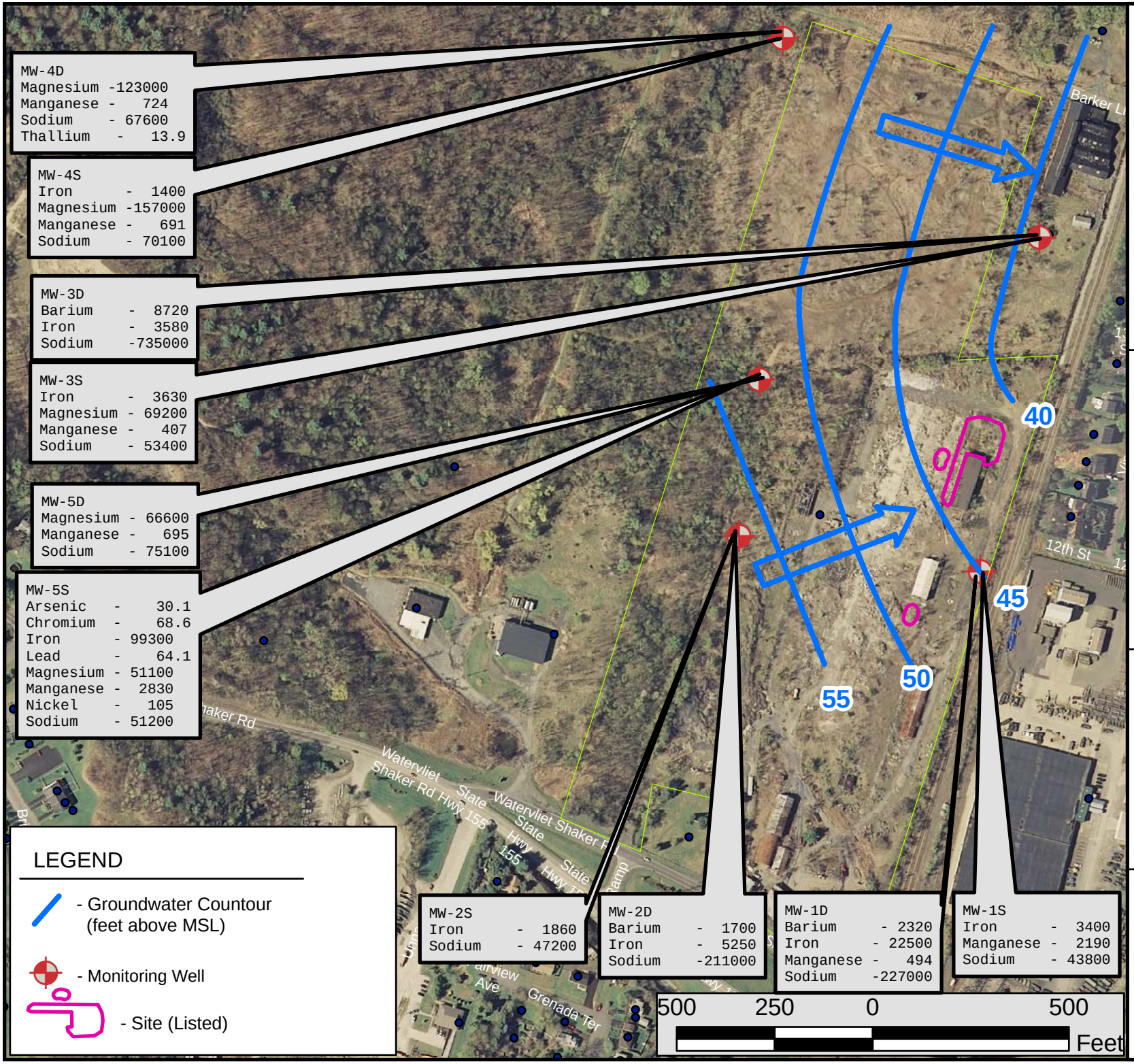
02:002699.ID10.06\Fig 5-4.CDR-07/17/08-GRA



Source: New York State High Resolution Statewide Digital Orthoimagery Program, 2001.

Figure 5

Summary of Positive Analytical Results for Subsurface Soil Samples Exceeding SCGs (non-PCBs) Former Adirondack Steel Remedial Investigation Colonie, New York



New York State
Department of Environmental Conservation

Division of
Environmental Remediation

Former
Adirondack Steel

DEC Site No.: 4-01-039

FIGURE 6

Groundwater Analytical Results December 2005

Map Details

Created in ArcMap 9.3
Date of Last Revision: 12.28.2009

N
W E
S

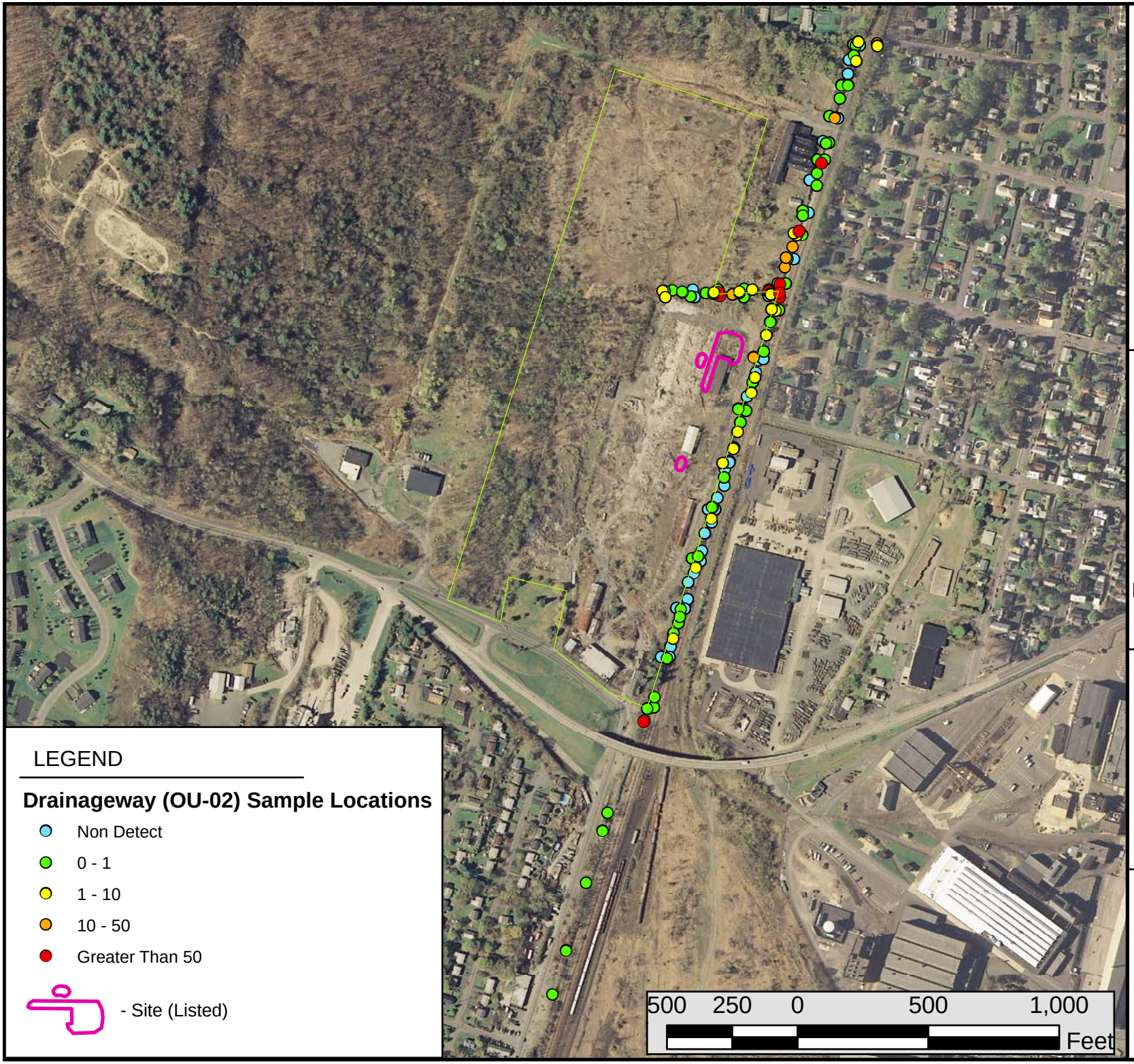
North American Datum 1983
UTM Zone 18

02:002699.ID10.06/Fig 5-2.CDR-07/17/08-GRA

Source: New York State High Resolution Statewide Digital Orthoimagery Program, 2001.

Figure 7

Summary of Positive Analytical Results for Sediment Samples Exceeding SCGs (non-PCBs) Former Adirondack Steel Remedial Investigation Colonie, New York



New York State
Department of Environmental
Conservation

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Former
Adirondack Steel

DEC Site No.: 4-01-039

FIGURE 8

Distribution of Polychlorinated Biphenyl Concentrations in Drainageways

Map Details

Created in ArcMap 9.3
Date of Last
Revision: 02.12.2010

N
W E
S

North American Datum 1983
UTM Zone 18