Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Former Bouchard Junkyard
Town of New Lebanon,
Columbia County, New York
Site Number 411014

March 2004

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Former Bouchard Junkyard Inactive Hazardous Waste Disposal Site
Town of New Lebanon, Columbia County, New York
Site No. 411014

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Former Bouchard Junkyard site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Former Bouchard Junkyard inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Former Bouchard Junkyard site and the criteria identified for evaluation of alternatives, the NYSDEC has selected soil washing to clean up PCBs to 1 ppm in soil from 0 to 18 inches and to 10 ppm deeper than 18 inches. The components of the remedy are as follows:

1. Bench-scale tests will determine the surfactant or combinations of surfactants which will best remove the contaminants present at the site.

2. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

3. An estimated 34,500 cubic yards of soil and sediment will be stockpiled and screened to remove larger cobbles and gravel.

4. The finer-grained soil fraction will be mixed with water and a surfactant to strip the PCBs from the soil. Treated soil will be tested and, if clean (below 1 ppm PCBs), used for backfill on the property.

5. The water/surfactant mix will be treated to remove some of the contaminants, and the treated water will be reused in the washing process. Ultimately, the water will be disposed in a hazardous waste disposal facility.

6. The site will be restored by grading, placement of topsoil (if necessary), and seeding of excavated and/or filled areas.

7. An environmental easement will be imposed that will require compliance with the approved site management plan. The property owner will complete and submit to the NYSDEC an annual certification until the NYSDEC notifies the property owner in writing that this certification is no longer needed.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

MAR 3 1 2004

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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RECORD OF DECISION

Former Bouchard Junkyard
Town of New Lebanon, Columbia County, New York
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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Former Bouchard Junkyard. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this remedy. As more fully described in Sections 3 and 5 of this document, general operation of the junkyard and the presumed spraying of oil for dust/weed control have resulted in the disposal of hazardous wastes, including PCBs, semi-volatile organic contaminants (SVOCs), and metals. These wastes have contaminated the soil and sediment at the site, and have resulted in:

- a significant threat to human health associated with current exposure to soil.
- an environmental threat related to the impacts of contaminants to the sediment in Wyomanock Creek and its tributaries.

To eliminate or mitigate these threats, the NYSDEC has selected the following remedy:

- Excavate up to 28,000 cubic yards of surface soil contaminated with PCBs greater than one part per million (from the surface to a depth of eighteen inches), 2,700 cubic yards of subsurface soil with PCBs greater than ten parts per million (depth greater than eighteen inches), and 3,800 cubic yards of aquatic sediments with PCBs greater than one part per million.
- Large rocks and gravel from the excavated materials will be physically separated, since the contaminants are primarily associated with the fraction of soil which contains fine sand, silt, and clay (the “fines”).
- The fines will be treated using soil washing, where water and a surfactant will strip the contaminants from the fines. A surfactant is a substance, like detergent, which makes it easier to remove a contaminant bound to the soil.

- The cleaned soil, along with the previously removed rocks and gravel, will be tested and, if clean, will be backfilled on-site. If concentrations of contaminants above cleanup goals remain, the soil would be re-treated as necessary.

- Since soil washing is a relatively new technology for use with PCBs, a pilot test will be performed to determine if the site's characteristics are appropriate for this technology. Additionally, this study will determine the surfactant or combination of surfactants which will best remove the PCBs.

- In the event that soil washing would not be effective at cleaning the soil, an alternate remedy of thermal separation/desorption will be selected.

- If thermal separation is used, soil will be excavated and heated to a temperature high enough to drive off the contaminants. Hot gases will be collected and processed to remove the contaminants and the clean soil will be backfilled on the site.

- With either soil washing or thermal separation, there will be short-term monitoring of groundwater and surface water to confirm that the remedy was effective in cleaning up the site.

- Envi ronmental easements will be placed on the property to limit excavation on the site, and an approved site management plan will be developed to address residual contaminated soils that may be excavated from the site during future development. The property owner will complete and submit to the NYSDEC an annual certification until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal will contain certification that the institutional controls put in place, pursuant to the Record of Decision, are still in place, have not been altered, and are still effective.

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially 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.

SECTION 2: SITE LOCATION AND DESCRIPTION

The approximately 17-acre property is an irregularly shaped parcel of land that is relatively flat with a gentle downward slope to the southeast. Topographic relief across the site is approximately 25 feet. The site is located in a rural community near the intersection of US Route 20 and New York State Route 22 (see Figure 1). The site is bounded on the north and east by Lovers Lane, on the south by US Route 20, and on the west by private residential property (see Figure 2). An abandoned railroad bed formerly bisected the site from west to east, but the only indication of it now exists on properties east and west of the site. Wyomanock Creek, a New York State Class C (TS) stream, is located southwest of the site and flows from southeast to northwest. Tributaries flow from north to south along the eastern and western boundaries of the site.

Three buildings are currently located at the site. At the time of the investigation, these buildings were rented by three businesses and occupied by employees and customers during business hours. The businesses were a theater group, automobile repair shop, and engineering company. The remainder of the property has been utilized as farmland but is not currently used for agricultural purposes. South of the property, across US Route 20, are a construction company and residential properties. Residential properties are located to the north, east, and west of the site. Agricultural lands are situated to the northwest. This area is served by private homeowner wells.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Former Bouchard Junkyard site is the location of a former automobile junkyard operated from before 1959 through February 1969 by Mr. Henri Bouchard. Mr. Edward Weisberg purchased the property from the widow of Mr. Bouchard in February 1969, and continued its use as a junkyard. The junkyard was ordered closed in 1971 for operating without a licence. All salvage was removed from the site in the late 1970s.

In July 1998, General Electric (GE) provided NYSDEC with an internal memorandum dated October 10, 1980, suggesting that drums of oil and pyranol (polychlorinated biphenyls or PCBs) had either been disposed or burned at the site. The property was purchased by the current property owner, Mr. Ralph Chittenden, in 1985. Since the removal of the junk cars, a theater group, automobile repair shop, and engineering company were tenants in the three buildings on-site, however, prior to GE's notification, much of the property not occupied by buildings was utilized as farmland.

Historic aerial photographs indicate that the junk cars were placed in well-organized rows covering the majority of the site during the operation of the junkyard. The aerial photographs also suggest that the area at the east side of the site, behind the current Theater Barn building was filled some time before 1959. Apparent burn areas at the site can be observed in the aerial photographs. It has been reported that a metal fence was constructed in 1969 at the southern boundary of the junkyard on the north side of US Route 20. The automobile repair shop which operates at the site is located in the building that formerly served as the junkyard building. The buildings for the theater group and engineering company were constructed in 1989 and 1990, respectively. Some contaminated soil excavated during construction of these buildings was used as fill on a residential property just west of the former junkyard. This area of contamination is considered part of the site, even though it is on a different tax parcel.

3.2: Remedial History

In 2000, the NYSDEC 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.

In September 1998, the NYSDEC collected surface and subsurface soil samples from across the site and from the burn areas identified in the aerial photographs. Water samples from private water supply wells on or near the property were also collected. The sampling results showed widespread PCB contamination in the soil across the site. Following this sampling program, discussions ensued between NYSDEC and GE regarding continuing studies at the site, but the parties could not reach agreement and the site was referred for State Superfund action on November 30, 2000.

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 Bouchard Junkyard site was a former automobile junkyard operated from before 1959 through February 1969 by Mr. Bouchard, and through 1971 by Mr. Weisberg. According to a 1980 internal "memo to file" that General Electric provided to the NYSDEC, drums containing oil and pyranol from GE's Pittsfield facility were burned or disposed at a "dump" in New Lebanon operated by Mr. Bouchard.

No agreement could be reached with any PRP to perform the RI/FS. After the remedy is selected, any PRPs will be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the NYSDEC 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/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threat to human health or the environment.

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 October 2001 and November 2001 with additional samples collected in May 2002. The field activities and findings of the investigation are described in the RI report.

The following activities were conducted during the RI:

- Research of historical information;
- Geophysical survey to locate buried metallic objects;
- Excavation of thirty-four test pits to investigate areas identified in the geophysical survey;

- Installation of six soil borings and monitoring wells for analysis of soils and groundwater as well as physical properties of soil and hydrogeologic conditions;

- Collection of two rounds of water samples from the six new monitoring wells and five private water supply wells;

- Collection of soil samples from more than 259 locations on and near the site;

- Collection of two rounds of surface water samples from seven locations;

- Collection of thirteen aquatic sediment samples;

To determine whether the soil, groundwater, surface water, and sediment contained 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 NYSDEC "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the NYSDEC "Technical and Administrative Guidance Memorandum (TAGM) 4046; Determination of Soil Cleanup Objectives and Cleanup Levels".

- Sediment SCGs are based on the NYSDEC "Technical Guidance for Screening Contaminated Sediments."

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the RI report.

5.1.1: <u>Site Geology and Hydrogeology</u>

Local natural land surface is at a high near the north end of the site with elevation of 713 feet above mean sea level. The natural land surface of the site decreases gently in elevation to the southeast reaching an elevation of 688 feet above mean sea level at the southeast end of the site. This 25-foot change in elevation occurs over a horizontal distance of about 1,100 feet and defines an overall slope of 2.3 percent.

Surface water drainage at the site consists of two small unnamed tributaries that flow from north to south along the eastern and western boundaries of the site. The on-site tributaries flow into Wyomanock Creek, a New York State Class C (TS) stream, located to the south of the site across US Route 20. Shaker Swamp is also located across US Route 20 to the south and southeast of the site. Shaker Swamp is a NYSDEC designated Class 1 (CA-4) wetland.

Wyomanock Creek flows from southeast to northwest in the vicinity of the site and drains into Kinderhook Creek approximately 3.2 miles west of the site. Kinderhook Creek flows west into the Hudson River.

A north-south oriented ditch located at the south central portion of the site collects runoff from the parking lot and buildings and is a tributary to Wyomanock Creek. A second ditch forming the perimeter of a farm field originates adjacent to the northwest corner of the site and follows the western boundary of the property until it flows southward beneath US Route 20 and offsite. During the period of the field investigation from October through November 2001, no surface water was observed in either of these ditches.

Unconsolidated deposits at the site consist of coarse to fine gravels with sand. These deposits are associated with proglacial fluvial deposition and are generally well rounded and stratified. Based on 6 borings and 34 test pits ranging from 3.0 to 25.5 feet deep, overburden on the site consists predominantly of brown to gray, poorly sorted fine to coarse sand, fine to coarse gravel, and silt (0 to 14 feet below grade). A more uniform fine to medium sand with some silt layers was observed from 14 feet below grade to 25.5 feet below grade at monitoring well MW-1, which was the deepest boring advanced at the site. Glacially derived cobbles and boulder-sized rock fragments were observed during the excavation of test pits.

Little is known about the geology or hydrogeology of the bedrock at the site. The deepest boring advanced during this investigation was terminated at a depth of 25.5 feet below grade. Bedrock at the site is approximately 90 feet deep based on the well log of a water supply well at the site.

The first occurrence of groundwater or saturated conditions is in the overburden layer. Water level monitoring of the wells indicates that the depth of groundwater in the wells averages 9.3 feet below ground surface with a range of 3.4 to 20.3 feet below ground surface. Precipitation falling on the site runs off-site to the perimeter ditches and streams or infiltrates downward through the unconsolidated materials. Where no ditches exist, shallow groundwater discharges create wetland areas adjacent to the site. One such area is located south of the site across US Route 20. Shallow groundwater that originates at the site flows off the site in a southwest direction. Figure 3 depicts a typical water table surface for the site.

5.1.2: <u>Nature of Contamination</u>

As described in the RI report, many soil, groundwater, and sediment samples were collected to characterize the nature and extent of contamination. As summarized in Table 1, the main categories of contaminants that exceed their SCGs are polychlorinated biphenyls (PCBs) and pesticides, semivolatile organic compounds (SVOCs), and inorganics (metals).

The PCB of concern is Aroclor 1260. Polychlorinated biphenyls are a family of chemicals which were blended in different combinations (called Aroclors) according to their desired properties. Aroclor 1260 is a mixture of PCBs with a higher chlorine content. PCBs show a strong affinity to organic material, and so have essentially remained bound up in the upper soil layers. PCBs are not readily dissolved in water and are thus not expected to be found in groundwater or surface water unless associated with fine-grained material suspended in these media.

A number of pesticides were reported as detected in soil samples collected at the site. However, there is a strong correlation between the pesticide detections and the Aroclor 1260 detections, and it is probable that these results are false positives resulting from interference with the chemical pattern of Aroclor 1260 during the chemical analyses.

SVOCs present at the site are primarily polyaromatic hydrocarbons (PAHs). PAHs are commonly associated with bituminous materials, such as asphalt pavement, or combustion. PAHs may occur at various areas across the site due to the former railroad bed or burning of automotive waste materials. On the Bouchard Junkyard site, PAHs do not occur in areas where the soil is not also contaminated with PCBs.

A number of metals are included in the chemical analyses of the environmental samples collected from the site. Metals occur naturally in soil and water at various concentrations. Simply because a metal is detected in an environmental sample does not automatically mean that it is a contaminant. Metal concentrations in the analytical samples are compared to levels commonly found in the region or in samples from locations near the site, but not affected by it (background samples). In many cases, even background samples collected for this site had metals concentrations above SGCs.

5.1.3: Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigat

Chemical concentrations are reported in parts per billion (ppb) for water, and parts per million (ppm) for soil and sediment. For comparison purposes, where applicable, SCGs are provided for each medium.

Table 1 summarizes the degree of contamination for the contaminants of concern in surface and subsurface soil, sediment, groundwater, and surface water and compares 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.

Surface Soil (0-1.5 feet)

Based on the results of the remedial investigation, the contaminants of concern for the surface soils at the Bouchard Junkyard site are PCBs and, to a lesser extent, SVOCs and metals (see Figure 4). Waste oil containing PCBs was thought to have been spread at the site as a means of dust control and weed control. Sampling of surface soils throughout the site showed exceedances of the SCG for PCBs (1 ppm) and indicated widespread occurrence of PCBs (Aroclor 1260) across the entire site (see Figure 5). A maximum PCB concentration of 1,200 ppm occurred at the southern boundary of the site, approximately twenty feet from US Route 20. Other PCB hot spots with concentrations greater than 50 ppm (the NYS hazardous waste threshold concentration) occurred in the central portion of the site. Surface soil samples from a parcel immediately west of the site, formerly owned by Mr. Bouchard, exceeded the SCG for PCBs. PCBs in concentrations of 50 ppm or greater are defined as hazardous waste. The surface soil cleanup goal is 1 ppm, thus, PCB concentrations in the surface soil at the site represent a significant threat to human health. It is estimated that up to 28,000 cubic yards of surface soil exceed the SCG of 1 ppm PCBs.

Pesticides were found above SCGs in surface soil samples, but as described previously, these are believed to be false positives.

Individual SVOC exceedances occurred at various areas across the site. Ten offsite surface soil samples were analyzed for SVOCs and two slightly exceeded the SCG for one PAH.

A number of metals (antimony, arsenic, barium, beryllium, calcium, copper, iron, lead, magnesium, manganese, mercury, nickel, selenium, sodium, thallium, and zinc) were detected above SCGs in surface soil, however, the concentrations were generally within published background concentrations for the eastern United States.

Subsurface Soil (1.5-5 feet)

Subsurface soil contaminants include PCBs and SVOCs and, to a lesser extent, metals (see Figure 6). The SCG for PCBs in subsurface soil (10 ppm) was exceeded at isolated portions of the site. Six subsurface soil samples exhibited total PCB concentrations greater than 50 ppm (the NYS hazardous waste threshold concentration), with a maximum concentration of 260 ppm. Most subsurface soil samples exceeding SCGs for PCBs underlie surface soils with concentrations of PCBs greater than 10 ppm and all underlie surface soils with concentrations of PCBs greater than 1 ppm. It is estimated that there are 2,700 cubic yards of subsurface soil exceeding the 10 ppm SCG for subsurface PCBs.

Individual SVOCs exceeding SCGs were detected in subsurface soil samples that were collected throughout the site.

A number of metals (aluminum, antimony, arsenic, beryllium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, and zinc) were detected above SCGs in subsurface soil samples, however, the concentrations were generally within published background concentrations for the eastern United States. SCGs and published background concentrations were slightly exceeded for aluminum, antimony, copper, lead, nickel and silver in one subsurface soil sample collected from a test pit containing scrap metal and debris associated with the junkyard. Selenium was detected in one subsurface soil sample at a concentration slightly above both the SCG and published background concentrations and appears to be an isolated occurrence. Pesticides, believed to be false positives, exceeded compound-specific SCGs in subsurface soil samples collected from the site. SCGs were slightly exceeded for acetone in one subsurface soil sample, but no other VOCs were identified in concentrations above SCGs. The detection of acetone is considered isolated and unrelated to other site contaminants.

Sediments

Aquatic sediment contaminants included PCBs and pesticides, and, to a lesser extent, SVOCs and metals (refer to Figure 7). PCBs were detected above SCGs in sediment samples collected from on-site and downgradient off-site locations. Pesticides were detected above SCGs in samples collected at an on-site location (northwest corner), immediately adjacent to the site (east side) and downgradient on-site location (south central). The same pesticide compounds were also detected in on-site surface soil samples and are likely false positives.

SVOCs, which were comprised entirely of PAHs, were detected above SCGs in sediment samples collected from upgradient and downgradient off-site locations and locations immediately adjacent to roadways. SVOCs were also present in site soils, however, several of these SVOCs were also detected in upgradient samples. The occurrence of these SVOCs does not for the most part appear site-related.

Metals were detected above SCGs in each of the thirteen sediment samples. These metals included antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, nickel, and zinc. These metals were detected in sediment samples collected at upgradient and downgradient off-site locations. Although some of these metals did not exceed SCGs for upgradient sediment samples, they did occur in off-site background surface soil samples as well as on-site surface soil samples. As a result, metals in sediment may in part be attributable to on-site contamination. Sediment samples contained no exceedances of SCGs for VOCs or cyanide.

Groundwater/Water Supply

Groundwater samples contained PCBs and to a lesser extent metals (see Figure 8). Shallow groundwater (averaging approximately nine feet below ground surface) collected from six monitoring wells at the site in November 2001 contained no exceedances of SCGs for VOCs, SVOCs, pesticides, PCBs, or cyanide. A second round of shallow groundwater samples collected from the six monitoring wells in May 2002 contained one sample where the groundwater standard of 0.09 ppb was slightly exceeded for PCBs. This sample was collected from a well located in the central portion of the site where surface soil and subsurface soil exceedances of PCB SCGs exist.

Metals were detected above SCGs, however, the concentrations of these metals in upgradient and downgradient samples were similar and did not appear to increase in the direction of groundwater flow and, therefore, likely represent background conditions.

Water supply well contamination is not a concern at the site based on the results of the remedial investigation. Samples were collected from five water supply wells at or adjacent to the site in November 2001. SCGs were exceeded for one VOC (tetrachloroethene at a concentration of 44 ppb) in one sample collected from the well at the automotive repair shop. A second round of samples collected from the five water supply wells in May 2002 contained no exceedances of SCGs.
Iron and manganese were the only metals detected above SCGs and exhibit similar concentrations at up- and downgradient wells. These metals most likely occur naturally in the area.

Surface Water

Surface water contamination is not a major concern at the site based on the results of the remedial investigation. Two rounds of surface water samples were collected from five locations in the stream located to the east of the site. One round of surface water samples was collected from two locations from the stream channel to the west of the site (see Figure 9). No VOCs, SVOCs or PCBs were detected above SCGs in any of these surface water samples.

Several metals (aluminum, cobalt, copper, iron, selenium, silver, thallium, and zinc) were found above SCGs in an upgradient sample location, as well as two locations adjacent to the site. It is likely that these metals were naturally occurring and not site-related. Two metals, mercury and vanadium, exceeded SCGs in two surface water samples collected in October 2001 from locations adjacent to the site, however, these metals did not exceed SCGs in downgradient samples and the SCGs for mercury and vanadium were not exceeded in any of the surface water samples collected in May 2002.

SCGs were slightly exceeded for cyanide in two of the surface water samples collected. Cyanide did not exceed SCGs in surface or subsurface soil samples collected from the site. The detection of cyanide in surface water is considered isolated and unrelated to other site contaminants.

SCGs were slightly exceeded for heptachlor epoxide in one of the surface water samples that was collected. Heptachlor epoxide did not exceed SCGs in any other media sampled at the site and the exceedance for this pesticide was in the sample collected from an upgradient off-site location.

5.2: <u>Interim Remedial Measures</u>

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.

There were no IRMs performed at this site during the RI/FS.

5.3: <u>Summary of Human Exposure Pathways</u>

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 can be found in Section 6 of the RI report.

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.

Potential Human Exposure Pathways

- Dermal contact, inhalation, and incidental ingestion exposures to PCBs in surface soil by workers and patrons of the existing on-site businesses. Those exposures are thought to be minimal due to the nature of the facilities.

- Dermal contact, inhalation, and incidental ingestion exposures to PCBs in surface soil by residents of the residential property where contaminated soil from the former junkyard was used for fill.

- Dermal contact, inhalation, and incidental ingestion exposures to PCBs in surface soil by future occupants of the property.

- Direct contact, inhalation, and incidental ingestion exposures to future utility workers who may excavate and handle contaminated soil on- or off-site.

5.4: Summary of Environmental Impacts

This section summarizes the existing and potential future environmental impacts presented by the site. 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.

The Fish and Wildlife Impact Analysis, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors. The following environmental exposure pathways and ecological risks have been identified:

- Fish and wildlife communities could be exposed to site-related contaminants present in the shallow soils by several mechanisms: direct ingestion of soil, acute or chronic toxicity to soil organisms, vegetative uptake of contaminants from soil and related food web effects, and food web effects of ingesting soil organisms containing elevated body burden of contaminants.

- Concentrations of SVOCs, several metals, and PCBs (Aroclor 1260) in aquatic sediments exceed the NYSDEC sediment quality criteria. Fish and wildlife communities could be exposed to site-related contaminants present in the aquatic sediments by several mechanisms: acute or chronic toxicity to benthic organisms (macroinvertebrates), and accumulation and concentration through the food web to fish and fish-eating birds and mammals.

Wyomanock Creek provides valuable fish habitat. The other surface water resources on the site provide only limited habitat value due to their intermittent nature and lack of riparian cover.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- direct contact (dermal absorption, inhalation, and incidental ingestion) with surface and subsurface soil, and;
- migration by runoff of contaminants to surface water and sediment, and;
- infiltration of precipitation through contaminated soil and adverse impacts to groundwater, and;
- exposure of biota to contaminated sediment.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Former Bouchard Junkyard Site were identified, screened and evaluated in the FS report which is available at the document repositories identified in Section 1.

A summary of the remedial alternatives that were considered for this site are discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. A discount rate of 5% was used for this site. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring will cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The Feasibility Study identified Bioremediation as a viable alternative to address contaminated soil at this site, but the NYSDEC has removed it from further consideration because bioremediation has not proved to be an effective remedy for PCB-contaminated soil.

The following potential remedies were considered to address the contaminated soil and sediment at the site.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, for thirty years, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Present Worth: *$153,000*
Capital Cost: *$0*
Annual OM&M (Years 1-5): *$22,000*
Annual OM&M (Years 6-30): *$5,000*

Alternative 2: Hot Spot Removal and Permeable Cover with Monitoring

This alternative would include excavating soils with PCB concentrations exceeding 50 ppm for off-site disposal followed by placement of a 24-inch permeable soil cover over the approximately 16 acres of contaminated surface soil. Approximately 2,300 cubic yards of surface soil (to a depth of 1.0 foot below grade) would be removed. In addition, subsurface soil requiring removal would include approximately 100 cubic yards from 1.0 to 2.5 feet below grade. This would result in a total of about 2,400 cubic yards of soil that would require off-site disposal as hazardous waste. All excavated areas would be backfilled with clean soil to existing grade. The soil cover over approximately 16 acres would consist of 18 inches of general fill and 6 inches of topsoil to mitigate contact with and runoff of contaminated soil. Approximately 37,000 cubic yards of general fill and 12,000 cubic yards of topsoil would be required to implement this alternative. Placement of a 24-inch permeable soil cover would affect the grade of the site and may not be practical at areas around structures at the site.

Appropriate precautions would be taken during excavation of contaminated soil to mitigate dust from migrating off-site and/or impacting on-site workers. It is anticipated that water would be adequate to control dust. Sediment control measures, such as silt fencing, would be required to minimize the release of soil and sediment to downstream surface waters. Long-term groundwater and surface water monitoring and institutional controls (environmental easements) are also included as part of this alternative to evaluate the effectiveness of the soil cover and to control use of the site. Maintenance of this alternative would include site inspections and cutting of the vegetated cover.

This alternative would take six months for design and three months to implement. Because PCBs would remain on-site beneath the permeable soil cap, the third remedial goal of reducing infiltration would only partially be met. Additionally, this alternative would not address the contaminated sediments at the site

Present Worth: *$1,962,000*
Capital Cost: *$1,633,000*

Annual OM&M (Years 1-5): $33,000
Annual OM&M (Years 6-30): $17,000

Alternative 3: Ex-Situ Soil Washing with Short-term Monitoring

Soil washing would involve excavation of all soil and sediment exceeding SCGs (refer to Figure 5). It is estimated that a total of 34,500 cubic yards of soil (28,000 cubic yards of surface soil [PCBs greater than one ppm] from grade to eighteen inches below grade, 2,700 cubic yards of subsurface soil [PCBs greater than 10 ppm] greater than eighteen inches below grade, and 3,800 cubic yards of sediment [PCBs greater than 1 ppm - assumes an area of 100 feet by 500 feet by 2 feet deep]) would require treatment. Subsequent to excavation, physical separation of soils would be performed so that the contaminants, which are primarily associated with the fine size fraction of the soil, would be separated from the uncontaminated larger size fraction. The washing fluid would be composed of water and a surfactant capable of removing the contaminants from the soil. A liquid-solid separation would be performed where the fluid could leach the contaminants.

The soil washing process would result in clean soil, wash water, dissolved contaminants, and/or precipitated solids, and a finer fraction containing adsorbed organics and precipitated soils. The contaminants would be concentrated into a relatively small volume of material, which would be disposed off-site. Treated soil and the previously removed larger size fraction of the soil would be analyzed to confirm that contaminants have been removed to below SCGs and this material would be used to backfill excavated areas. Additional clean backfill would be brought to the site to return the site to original grades.

Treatment of contaminated soil and sediment at the site would require approximately 700,000 gallons of water. Since a municipal water source does not exist for this site, water would need to be delivered to the site or on-site groundwater resources would need to be utilized. Water used during the soil washing process would be treated and re-used, then ultimately disposed off-site at a hazardous waste disposal facility.

Controls would need to be implemented during the excavation and physical separation of the soil and sediment prior to actually performing the soil washing process to prevent the airborne release of contaminants. These controls would most likely include water to control dust. Sediment control measures, such as silt fencing, would be required to minimize the release of soil and sediment to downstream surface waters.

After cleanup, short-term groundwater and surface water monitoring would include monitoring of six groundwater monitoring wells, three private water supply wells, and three surface water locations.

This alternative would take six months for design and 6 - 12 months to implement. It would attain all remedial goals when complete, but would require environmental easements and a site management plan

A bench scale and/or pilot study would be required to determine the effectiveness of this technology for this site.

Present Worth: *$5,536,000*
Capital Cost: *$5,488,000*
Annual OM&M (Years 1-5 only): *$11,000*

Alternative 4: Ex-Situ Soil Washing to 1 ppm with Short-term Monitoring

This alternative would be the same as Alternative 3 except that it would treat all contaminated soil with PCBs greater than 1 ppm, regardless of depth. This would mean that an additional 4,600 cubic yards of subsurface soil with PCB concentrations between 10 ppm and 1 ppm would be treated. All other assumptions for this alternative would be the same as with Alternative 3 except that environmental easements and a site management plan would not be necessary.

Present Worth: *$6,198,000*
Capital Cost: *$6,150,000*
Annual OM&M (Years 1-5 only): *$11,000*

Alternative 5: Thermal Separation/ Desorption with Short-term Monitoring

Thermal separation would involve excavation and treatment of all soil and sediment exceeding SCGs. As with Alternative 3, 34,500 cubic yards of contaminated soil and sediment would require treatment. Subsequent to excavation, soil and sediment would be placed into a hopper that feeds the thermal processor. Soil would be heated to 400 to 500 °F to remove moisture. A second stage heater would be capable of achieving temperatures to 1,000 °F to remove the contaminants. Water would be applied to the soil exiting the thermal processor to cool the soil and minimize dust. Desorbed organics and stack gases would exit the processor through a fabric filter baghouse, air-cooled condenser, refrigerated condenser, and then be treated by carbon absorption. Treated soil would be analyzed to confirm that the contaminants have been removed to levels below SCGs and then this material would be used to backfill excavated areas. Additional clean backfill would be brought to the site to return the site to original grades, as needed.

Appropriate precautions would be taken during excavation of contaminated soil to mitigate dust from migrating off-site and/or impacting on-site workers. It is anticipated that water would be adequate to control dust. Sediment control measures, such as silt fencing, would be required to minimize the release of soil and sediment to downstream surface waters. Groundwater and surface water monitoring would include monitoring of six groundwater monitoring wells, three private water supply wells, and three surface water locations.

This alternative would take nine months for design and 12 - 15 months to implement. It would attain remedial goals when complete, but would require environmental easements and a site management plan

A bench scale and/or pilot study would be required to determine the effectiveness of this technology for this site.

Present Worth: *$7,162,000*

Capital Cost: $7,114,000
Annual OM&M (Years 1-5 only): $11,000

Alternative 6: Excavation and Off-Site Disposal

Soil exceeding SCGs would be excavated from the site. Approximately 28,000 cubic yards of surface soil (to a depth of eighteen inches below grade) would require removal. In addition, subsurface soil requiring removal would include 300 cubic yards from 1.5 to 2.5 feet below grade and 2,400 cubic yards from 1.5 to 5.0 feet below grade. Approximately 3,800 cubic yards of sediment would be excavated as well. This would result in about 34,500 cubic yards of soil and sediment that would require off-site disposal. All excavated areas would be backfilled with clean soil to existing grade.

Appropriate precautions would be taken during excavation of contaminated soil to mitigate dust from migrating off-site and/or impacting on-site workers. It is anticipated that water would be adequate to control dust. Sediment control measures, such as silt fencing, would be required to minimize the release of soil and sediment to downstream surface waters. Groundwater and surface water monitoring would include monitoring of six groundwater monitoring wells, three private water supply wells, and three surface water locations.

This alternative would take six months for design and three months to implement. It would attain remedial goals when complete, but would require environmental easements and a site management plan.

Present Worth: $7,106,000
Capital Cost: $7,058,000
Annual OM&M (Years 1-5 only): $11,000

7.2: Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York State. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the NYSDEC has determined to be applicable on a case-specific basis.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectivness. Capital costs and operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the NYSDEC addressed the concerns raised.

In general, the public comments received were supportive of the selected remedy. Several comments were received, however, pertaining to ongoing trespassing at the site, the effectiveness of soil washing, soil volume calculations, and details of the monitoring program.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected Alternative 3, Ex-Situ Soil Washing with Short-term Monitoring, as the remedy for this site. As a backup technology, Alternative 5, Thermal Separation/Desorption with Short-term Monitoring, will be implemented if preliminary testing shows site conditions are not conducive to soil washing or its use is ineffective. The elements of these remedies are described at the end of this section.

The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative 3 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by treating the soils that present the most significant threat to public health and the environment. Treatment of the soil to remove the contaminants would take away the direct contact threat and eliminate the migration of contaminants via runoff. Since contaminants would be removed, infiltration of precipitation through the soil would no longer pose a threat to groundwater or water supply wells.

Alternatives 2 (hot spot removal and soil cover), 4 (soil washing to 1 ppm), 5 (thermal separation), and 6 (excavation and removal) would also comply with the threshold selection criteria. Although Alternative 2 would leave PCBs in subsurface soil greater than the 10 ppm guidance value, the soil cover and environmental easements would prevent contact with contaminated soil. Alternative 1 (no action) would not comply with the criteria.

Because Alternatives 3, 4, 5, and 6 all equally satisfy the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternatives 2 and 6 would have short-term impacts on the community due to the increased truck traffic needed to remove contaminated soil and bring cap or backfill material to the site. Alternatives 2, 3, 4, 5, and 6 would all involve some sort of disturbance of the soil, which could generate dust or runoff. However, these aspects could be controlled by proper use of dust suppressants and erosion controls. Activities associated with Alternatives 3, 4, and 5 would be largely confined to the site.

The time needed to achieve the remediation goals would be shortest for Alternatives 2 and 6 and longer for Alternatives 3, 4, and 5.

Long-term effectiveness is best accomplished by those alternatives that address the contamination at the site, either through outright removal (Alternative 6) or by treatment (Alternatives 3, 4, and 5). Alternative 2 would remove the most highly contaminated soils, but would leave lower concentrations at the site beneath a soil cap.

Alternative 2 (hot spot removal and soil cover), would do little to reduce the toxicity, mobility, or volume of hazardous waste through treatment. Removal of 2,400 cubic yards of soil with PCBs greater than 50 ppm would be the only reduction of volume on the site under that alternative. Alternatives 3 and 4 (soil washing) and, in part, Alternative 5 (thermal separation) would concentrate the contaminants so they could be removed, thus reducing the volume of contaminants at the site. Alternative 5 would also reduce the toxicity, mobility, and volume in part through physical treatment by destroying the contaminants.

As with Alternatives 2, 3, 4, and 5, excavation and removal (Alternative 6) would reduce the toxicity, mobility, and volume of the waste relative to the site, but since the soils would be untreated before disposal, the toxicity, mobility, and volume of hazardous waste would not be reduced overall.

Alternatives 3, 5, and 6 would not result in removal of all of the contaminants at the site, but low residual concentrations remaining after treatment would be below the SCGs and would be protective of human health with proper environmental easements. Alternative 4 would allow unrestricted use of the property after remediation because all soils would be treated to below 1 ppm PCBs.

Alternatives 2, 3, 4, 5, and 6 are readily implementable, though bench-scale testing or other pilot testing would be required with Alternatives 3, 4, and 5 before they could be fully implemented.

The cost of the alternatives varies significantly. Although hot spot removal with soil cover (Alternative 2) is less expensive than soil washing (Alternative 3), hot spot removal is not a permanent remedy. The increased volume of soil that would be treated for Alternative 4 (soil washing to 1 ppm) increases the cost relative to Alternative 3. Thermal separation (Alternative 5) and excavation and removal (Alternative 6) are the most costly remedies, though both are reliable and proven technologies. Because wastes would be removed from the site with Alternatives 3, 4, 5, and 6, either through straight removal or by treatment, the cost for operation, maintenance, and monitoring (OM&M) is much lower due to only five years of OM&M rather than the thirty years with the other alternatives.

Soil washing contaminated soil to a depth of 1.5 feet to 1 ppm (Alternative 3) is preferred over washing all soil with PCBs greater than 1 ppm (Alternative 4) due to the increased cost associated with Alternative 4. Since the contamination does not appear to be a threat to groundwater, Alternative 3, with institutional controls, would provide the same level of protection as Alternative 4 for a lower cost.

Because soil washing is a relatively untried technology for removal of PCBs from soil (though it appears that site conditions are favorable for it due to the low silt and clay content of the soil), the NYSDEC is identifying thermal separation (Alternative 5) as a backup technology in case soil washing proves ineffective. Thermal separation would involve a similar amount of disturbance at the site and is a proven technology for removal of PCBs from soil. It is, however, a more costly remedy.

Thermal separation would be selected as a secondary remedy over excavation and removal (Alternative 6) because of similar cost and the preference for treating the soil to reduce the toxicity, mobility, and volume of the contaminants over disposing it in a secure landfill. It would also allow the site to be used, within the bounds spelled out in the environmental easements, without the need to transport and place a large volume of off-site backfill.

The estimated present worth cost to implement the remedy is $5,536,000 ($7,162,000 for the backup technology). The cost to construct the remedy is estimated to be $5,488,000 ($7,114,000 for the backup) and the estimated average annual operation, maintenance, and monitoring costs for 5 years is $11,000 (both technologies).

The elements of the selected remedy are as follows:

1. Samples of contaminated soil from the site will be collected for laboratory analysis to determine the soil and waste characteristics. Bench-scale tests will experiment with a number of different surfactants or combinations of surfactants to determine the best one to use to remove the contaminants present at the site. If it is determined that soil washing cannot adequately remove the PCBs from the soil, then thermal separation will be pursued as the remedial method. (In thermal separation, soil will be excavated and heated to drive off the contaminants. Hot gases will be collected and processed to remove the contaminants, and the clean soil will be backfilled on the site.)

2. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

3. Equipment will be mobilized on the site. Excavate and stockpile up to 28,000 cubic yards of surface soil contaminated with PCBs greater than one part per million (from the surface to a depth of eighteen inches), 2,700 cubic yards of subsurface soil with PCBs greater than ten parts per million (depth greater than eighteen inches), and 3,800 cubic yards of aquatic sediments with PCBs greater than one part per million.

4. The stockpiled soil will be screened to remove larger cobbles and gravel. Since the PCBs in the soil are associated with the fine-grained fraction of the soil, this step will decrease the volume of soil which will need to be processed further.

5. The finer-grained soil fraction will be mixed with water and a surfactant to strip the PCBs from the soil. Treated soil will be tested and, if clean (below 1 ppm PCBs), used for backfill on the property. Cleaned soil will be separated from soil with PCB concentrations between 1 and 10 ppm by a demarcation layer. If concentrations of contaminants above cleanup goals remain, the soil will be re-washed as necessary or removed for off-site disposal.

6. The water/surfactant mix will be treated to remove some of the contaminants, and the treated water will be reused in the washing process. Ultimately, the water will be disposed in a hazardous waste disposal facility.

7. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the NYSDEC determines that continued operation is technically impracticable or not feasible.

8. The site will be restored by grading, placement of topsoil (if necessary), and seeding of excavated and/or filled areas.

9. A site management plan will be developed to address residual contaminated soils that may be excavated from the site during future redevelopment. The plan will require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations.

10. An environmental easement will be imposed, in such form as the NYSDEC may approve, that will require compliance with the approved site management plan.

    The property owner will complete and submit to the NYSDEC an annual certification until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal will contain certification that the institutional controls put in place, pursuant to the Record of Decision, are still in place, have not been altered, and are still effective.

11. Under a monitoring program, water samples from on-site monitoring wells, water supply wells, and surface water will be collected for laboratory analysis. This program will allow the effectiveness of the soil washing process or thermal separation/desorption to be monitored and will be a component of the operation, maintenance, and monitoring for the site.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.
- A Fact Sheet was prepared and sent to the public contact list in November 2001, during the Remedial Investigation field work.
- A Fact Sheet was prepared and sent to the public contact list in January 2004, announcing the public meeting and the availability of the PRAP.
- A public meeting was held on February 19, 2004 to present and receive comment on the PRAP.
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

TABLE 1
Nature and Extent of Contamination
October 2001 - May 2002

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Hexachlorobenzene	ND - 0.820	0.410	1 of 21
	Benzo(a)pyrene	ND - 0.160	0.061	4 of 21
PCB/Pesticides	Aroclor 1260	ND - 1,200	1	34 of 52
	Aroclor 1248	ND - 28	1	1 of 52
	Dieldrin	ND - 4.2	0.044	7 of 28
	Endosulfan Sulfate	ND - 8.7	1	5 of 28
	4,4'-DDT	ND - 5.3	2.1	1 of 28
	Methoxychlor	ND - 24	10	2 of 28
	gamma-Chlordane	ND - 14	0.54	4 of 28
Inorganic Compounds	Antimony	ND - 10.1	1.0	4 of 21
	Arsenic	4.9 - 13.2	7.9	6 of 21
	Barium	37.4 - 653	300	2 of 21
	Beryllium	0.23 - 0.49	0.46	1 of 21
	Calcium	73.8 - 15,100	2,810	4 of 21
	Copper	18.2 - 461	38.3	5 of 21
	Iron	22,300 - 82,100	30,500	9 of 21
	Lead	18.9 - 1,150	400	2 of 21
	Magnesium	3,610 - 6,840	5,840	2 of 21
	Manganese	297 - 1,430	1,320	2 of 21
	Mercury	ND - 0.34	0.1	6 of 21
	Nickel	15.5 - 136	23.8	7 of 21
	Selenium	ND - 2.9	1.8	6 of 21
	Sodium	28.2 - 280	69.4	2 of 21

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
	Thallium	1.5 - 5.1	4.2	3 of 21
	Zinc	73.4 - 6,470	119	9 of 21

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Acetone	ND - 0.240	0.200	1 of 31
Semivolatile Organic Compounds (SVOCs)	Phenol	ND - 0.210	.030	1 of 31
	Benzo(a)anthracene	ND - 4.1	0.244	2 of 31
	Chrysene	ND - 4.1	0.400	2 of 31
	bis(2-Ethylhexyl)phthalate	ND - 180	50	1 of 31
	Benzo(b)fluoranthene	ND - 5.5	1.1	2 of 31
	Benzo(k)fluoranthene	ND - 1.5	1.1	1 of 31
	Benzo(a)pyrene	ND - 3.5	0.061	6 of 31
	Dibenzo(a,h)anthracene	ND - 0.270	0.014	2 of 31
PCB/Pesticides	Aroclor 1260	ND - 260	10	13 of 195
	Dieldrin	ND - 0.550	0.044	9 of 173
	Endosulfan Sulfate	ND - 2.7	1	4 of 173
	gamma-Chlordane	ND - 2.4	0.540	1 of 173
Inorganic Compounds	Aluminum	8,250 - 166,000	16,300	4 of 31
	Antimony	ND - 17.0	1.0	4 of 31
	Arsenic	ND - 12.5	7.9	6 of 31
	Beryllium	0.13 - 0.75	0.46	4 of 31
	Calcium	ND - 4,100	2,810	1 of 31
	Chromium	8.7 - 79.2	50	1 of 31
	Copper	3.6 - 6,950	38.3	9 of 31

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Inorganic Compounds	Iron	11,900 - 50,700	30,500	8 of 31
	Lead	5.7 - 3,460	400	1 of 31
	Magnesium	1,860 - 8,980	5,840	9 of 31
	Manganese	180 - 11,400	1,320	3 of 31
	Mercury	ND - 0.28	0.1	1 of 31
	Nickel	11.4 - 956	23.8	14 of 31
	Potassium	237 - 1,500	1,220	2 of 31
	Selenium	ND - 4.5	1.8	6 of 31
	Silver	ND - 2.9	ND	1 of 31
	Sodium	22.0 - 120	69.4	4 of 31
	Thallium	ND - 5.8	4.2	3 of 31
	Zinc	38.9 - 1,650	119	8 of 31

SEDIMENTS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene	ND - 0.320	0.208[d]	2 of 13
	Chrysene	ND - 0.300	0.0225[d]	5 of 13
	Benzo(b)fluoranthene	ND - 0.490	0.0225[d]	5 of 13
	Benzo(k)fluoranthene	ND - 0.190	0.0225[d]	3 of 13
	Benzo(a)pyrene	ND - 0.260	0.0225[d]	4 of 13
	Indeno(1,2,3-cd)pyrene	ND - 0.110	0.0225[d]	2 of 13
PCB/Pesticides	Aroclor 1260	ND - 6.7	1	3 of 13
	Dieldrin	ND - 0.023	0.00173[d]	1 of 13
	4,4'-DDE	ND - 0.019	0.000173[d]	1 of 13
	Endrin	ND - 0.045	0.0138[d]	2 of 13
	4,4'-DDT	ND - 0.0073	0.000173[d]	1 of 13
	Methoxychlor	ND - 0.100	0.01038[d]	1 of 13

SEDIMENTS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
	gamma-Chlordane	ND - 0.081	0.0000173[d]	1 of 13
Inorganic Compounds	Antimony	ND - 2.4	LEL[c] - 2	1 of 13
			SEL[c] - 25	0 of 13
	Arsenic	3.0 - 11.1	LEL - 6	9 of 13
	Arsenic	3.0 - 11.1	SEL - 33	0 of 13
	Cadmium	ND - 5.1	LEL - 0.6	2 of 13
			SEL - 9	0 of 13
	Copper	12.8 - 39.9	LEL - 16	11 of 13
			SEL - 110	0 of 13
	Iron	16,400 - 37,800	LEL - 20,000	12 of 13
Inorganic Compounds	Iron	16,400 - 37,800	SEL - 40,000	0 of 13
	Lead	7.6 - 118	LEL - 31	4 of 13
			SEL - 110	1 of 13
	Manganese	414 - 1,260	LEL - 460	12 of 13
			SEL - 1100	2 of 13
	Mercury	ND - 0.39	LEL - 0.15	3 of 13
			SEL - 1.3	0 of 13
	Nickel	16.6 - 28.6	LEL - 16	13 of 13
			SEL - 50	0 of 13
	Zinc	66.9 - 358	LEL - 120	4 of 13
			SEL -270	1 of 13

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
PCB/Pesticides	Aroclor 1260	ND - 0.25	0.09	1 of 12
Inorganic	Iron	84.4 - 7,000	300	5 of 6

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Compounds	Manganese	12 - 2,370	300	5 of 6
	Sodium	3,410 - 37,400	20,000	1 of 6
	Thallium	ND - 10.2	0.5	1 of 6

WATER SUPPLY	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Tetrachloroethene	ND - 44	5	1 of 10
Inorganic Compounds	Iron	51.6 - 7,820	300	4 of 5
	Manganese	2.8 - 369	300	4 of 5

SURFACE WATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
PCB/Pesticides	Heptachlor Epoxide	ND - 0.037	0.00003	1 of 12
Inorganic Compounds	Aluminum	ND - 21,300	100	6 of 12
	Cobalt	0.46 - 39.5	5	3 of 12
	Copper	1.5 - 41.4	12.7[e]	5 of 12
	Iron	32.1 - 47,300	300	8 of 12
	Mercury	ND - 0.38	0.00007	2 of 12
	Selenium	ND - 6.0	4.6	5 of 12
	Silver	ND - 1.4	0.1	6 of 12
	Thallium	ND - 23.3	8	3 of 12
	Vanadium	ND - 47.0	14	2 of 12
	Zinc	ND - 296	111[e]	4 of 12
	Cyanide	ND - 19.1	5.2	2 of 12

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

[b] SCG = standards, criteria, and guidance values;

[c] LEL = Lowest Effects Level and SEL = Severe Effects Level. A sediment is considered to be contaminated if either of these criteria is exceeded. If both criteria are exceeded, the sediment is severely impacted. If only the LEL is exceeded, the impact is considered to be moderate.

[d] SCGs for these contaminants in sediments are based on the organic carbon content of the samples. An average organic carbon content of 1.73% was used to illustrate an average sediment standard, but the number of samples exceeding the SCG was based on the organic carbon content of each individual sample.

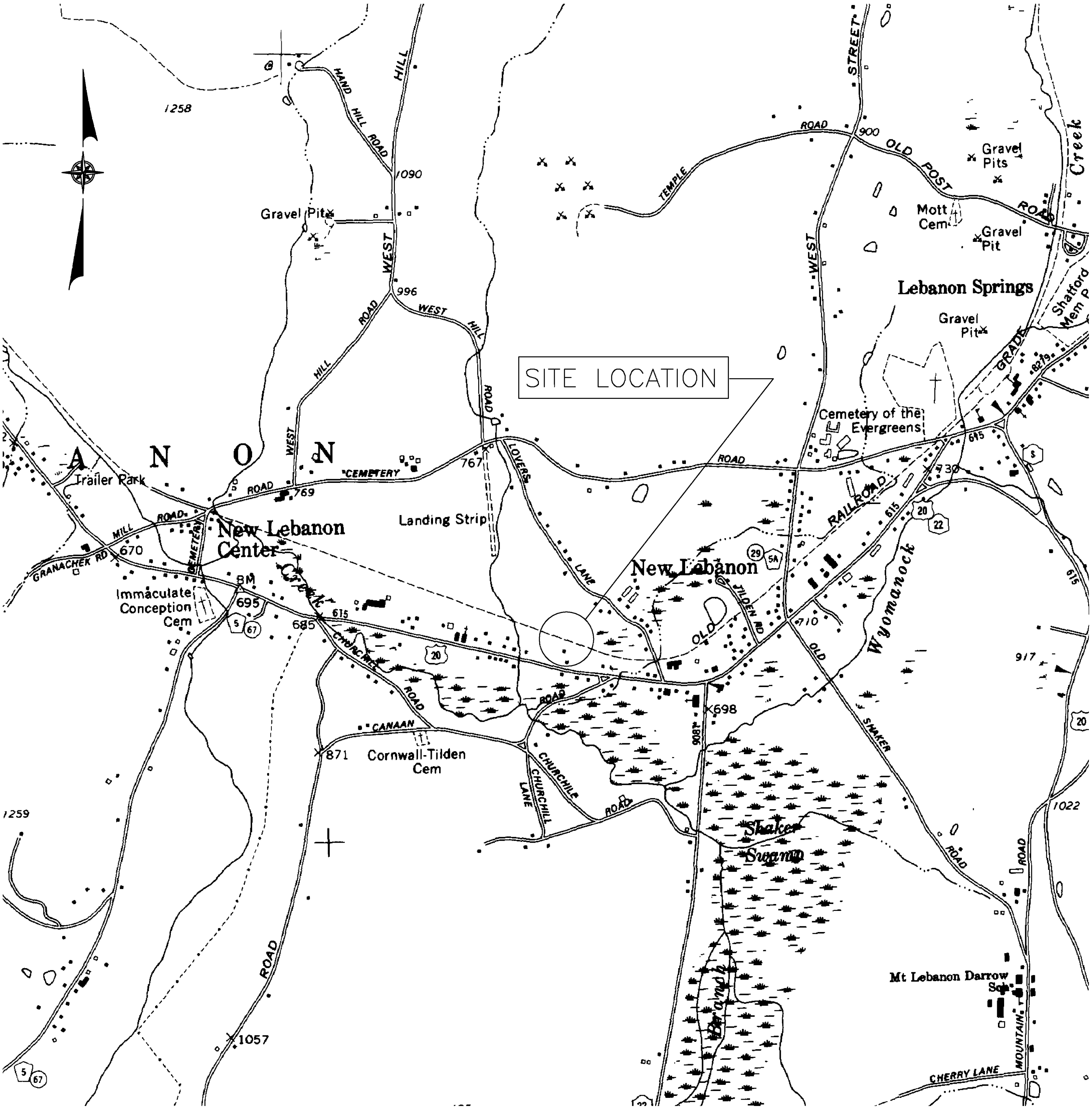
[e] SCGs for these inorganics in surface water are dependent on the hardness of the water. An average hardness of 94 ppm was used to illustrate an average surface water standard, but the number of samples exceeding the SCG was based on the actual hardness of each individual sample.

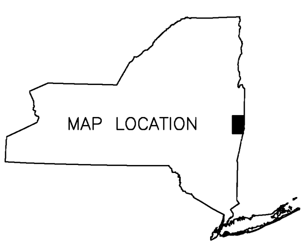
ND = Not Detected

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual OM&M	Total Present Worth
1. No Action	$0	$22,000 (years 1-5) $5,000 (years 6-30)	$153,000
2. Hot Spot Removal and Permeable Cover	$1,633,000	$33,000 (years 1-5) $17,000 (years 6-30)	$1,962,000
3. Soil Washing and Short-Term Monitoring	$5,488,000	$11,000 (years 1-5)	$5,536,000
4. Soil Washing to 1 ppm and Short-Term Monitoring	$6,150,000	$11,000 (years 1-5)	$6,198,000
5. Thermal Separation/Desorption and Short-Term Monitoring	$7,114,000	$11,000 (years 1-5)	$7,162,000
6. Excavation and Off-Site Disposal and Short-Term Monitoring	$7,058,000	$11,000 (years 1-5)	$7,106,000

FIGURES





SOURCE: USGS CANAAN QUADRANGLE

0 1000 2000
SCALE IN FEET

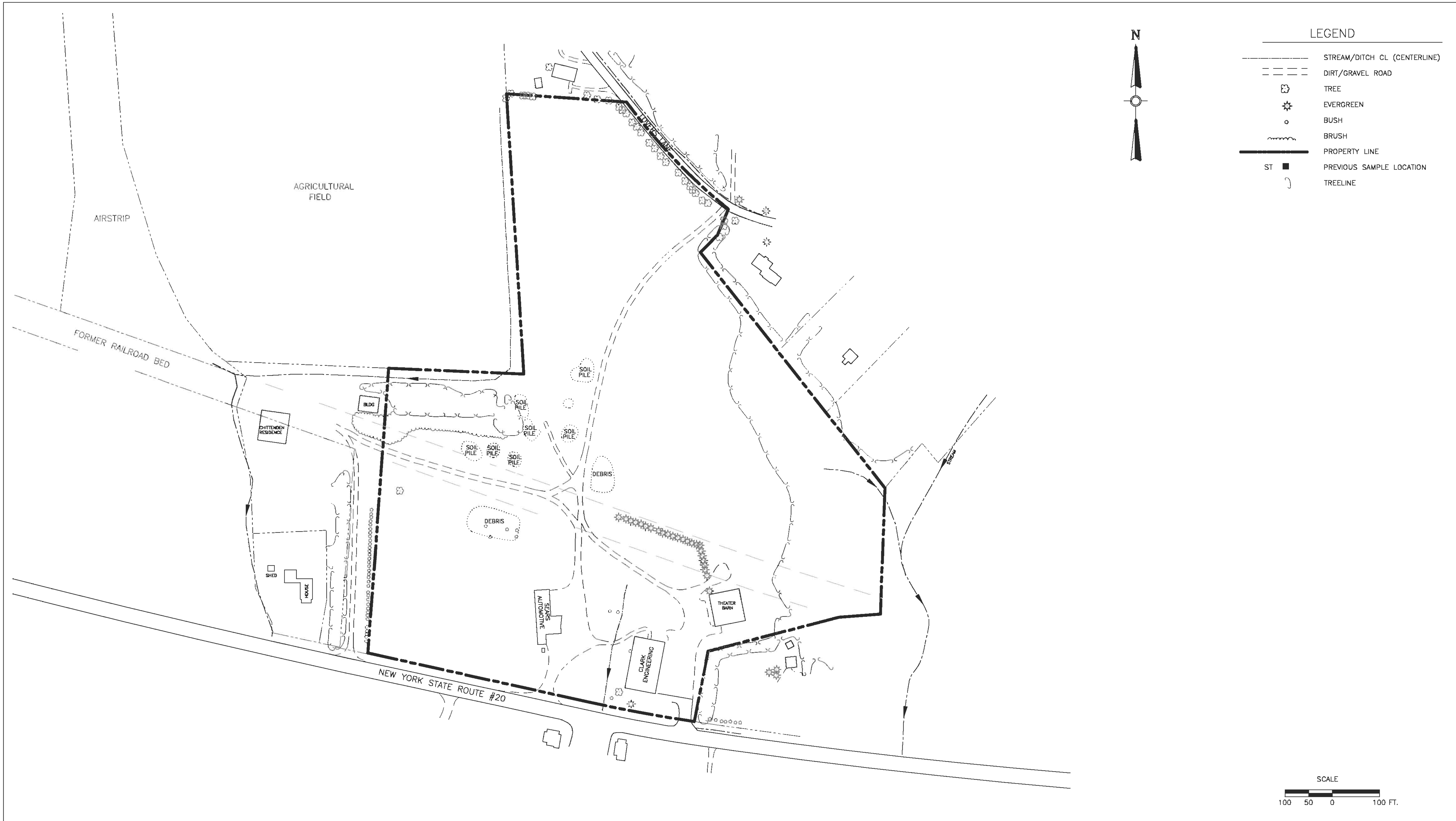
BOUCHARD JUNKYARD SITE
NEW LEBANON, NEW YORK

SITE LOCATION

Dvirka and Bartilucci
Consulting Engineers

FIGURE 1

WED, JAN 16, 2002 14:30 P SEP C:\1913\1913-siteloc.dwg



C:\1913\bouchardFSbase.dwg\sitemap

NOV 12, 2002 SEP

BOUCHARD JUNKYARD SITE
NEW LEBANON, NEW YORK

SITE MAP

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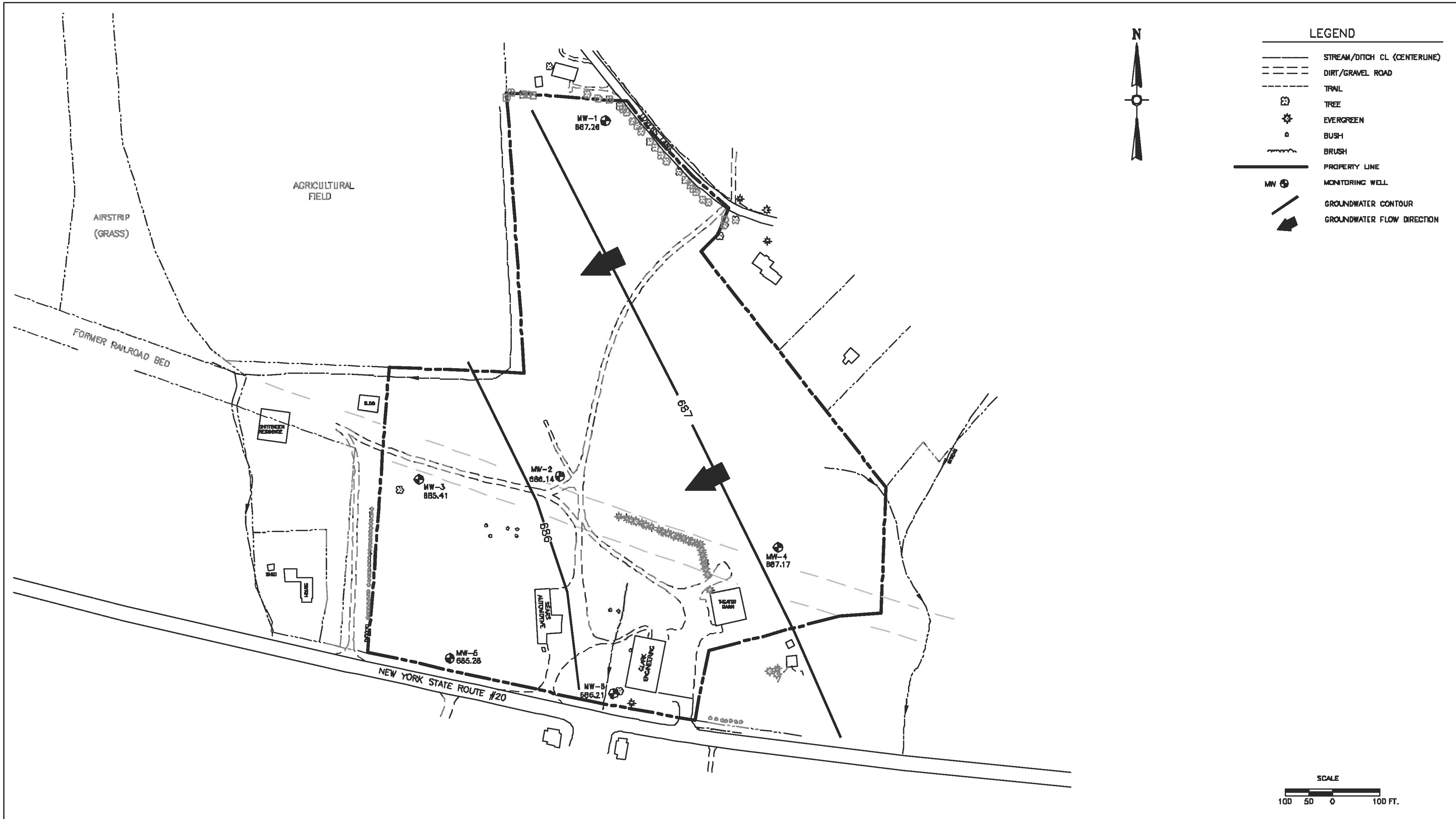
FIGURE 2



C:\1913\bouchardbase.dwg\watertable

JUL 12, 2002 SEP

BOUCHARD JUNKYARD SITE
NEW LEBANON, NEW YORK

WATER TABLE SURFACE ELEVATION
NOVEMBER 27, 2001

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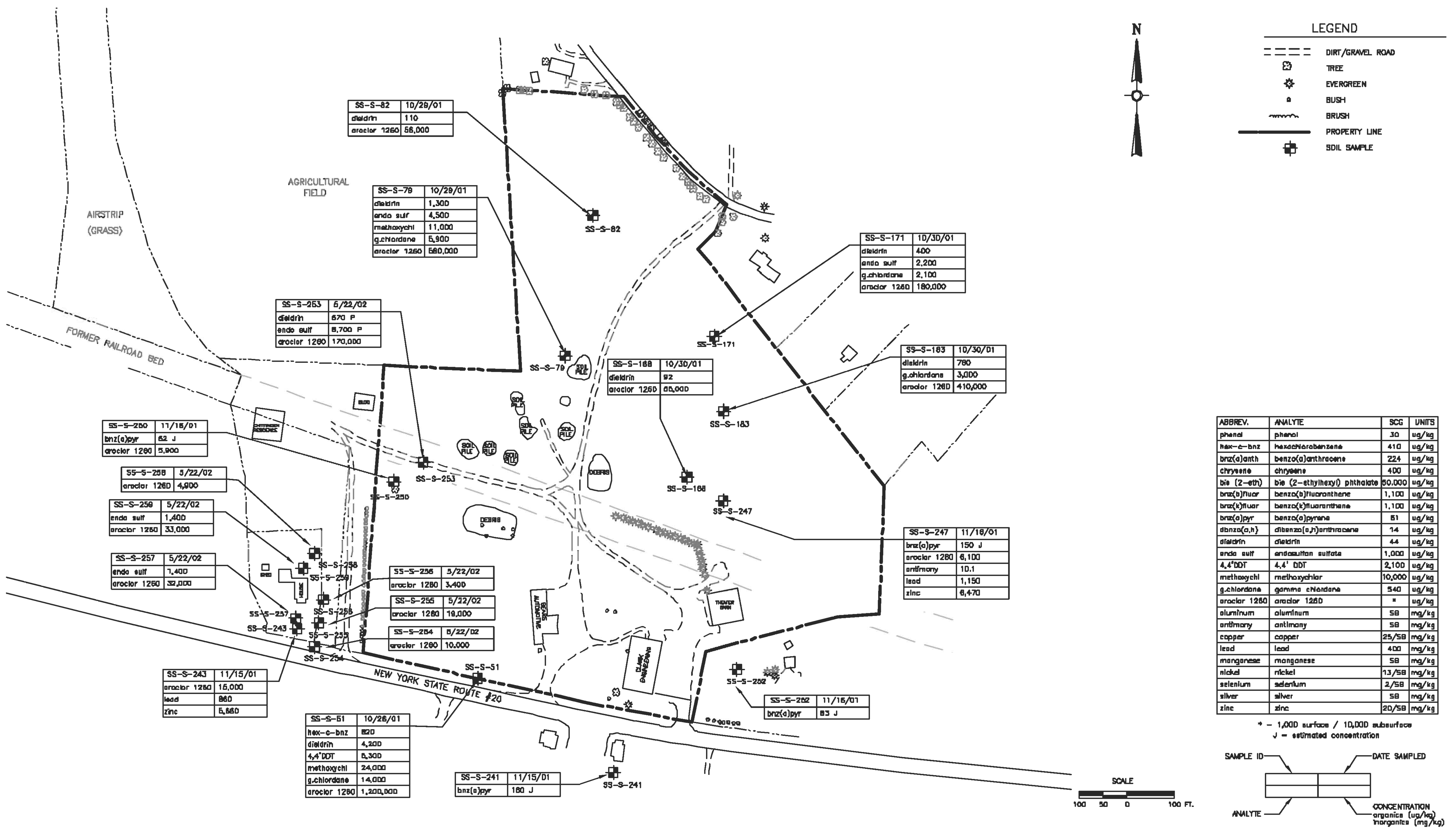
FIGURE 3



ABBREV.	ANALYTE	SCG	UNITS
phenol	phenol	30	ug/kg
hex-c-bnz	hexachlorobenzene	410	ug/kg
bnz(a)anth	benzo(a)anthracene	224	ug/kg
chrysene	chrysene	400	ug/kg
bis (2-eth)	bis (2-ethylhexyl) phthalate	50,000	ug/kg
bnz(b)fluor	benzo(b)fluoranthene	1,100	ug/kg
bnz(k)fluor	benzo(k)fluoranthene	1,100	ug/kg
bnz(a)pyr	benzo(a)pyrene	61	ug/kg
dbnzo(a,h)	dibenzo(a,h)anthracene	14	ug/kg
dieldrin	dieldrin	44	ug/kg
endo sulf	endosulfan sulfate	1,000	ug/kg
4,4'DDT	4,4' DDT	2,100	ug/kg
methoxychl	methoxychlor	10,000	ug/kg
g.chlordane	gamma chlordane	540	ug/kg
aroclor 1260	aroclor 1260	*	ug/kg
aluminum	aluminum	SB	mg/kg
antimony	antimony	SB	mg/kg
copper	copper	25/SB	mg/kg
lead	lead	400	mg/kg
manganese	manganese	SB	mg/kg
nickel	nickel	13/SB	mg/kg
selenium	selenium	2/SB	mg/kg
silver	silver	SB	mg/kg
zinc	zinc	20/SB	mg/kg

* - 1,000 surface / 10,000 subsurface
J - estimated concentration

BOUCHARD JUNKYARD SITE
NEW LEBANON, NEW YORK

SCG EXCEEDANCES IN SURFACE SOIL (LABORATORY DATA ONLY)

FIGURE 4

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JUL 12, 2002 SEP C:\1913\bouchardbase.dwg\soilexceed

THURS, FEB 20, 2003 SEP C:\1913\bouchardbase.dwg\pcbexceeds

BOUCHARD JUNKYARD SITE
NEW LEBANON, NEW YORK

AREAS WITH PCBs EXCEEDING STANDARDS, CRITERIA AND GUIDANCE

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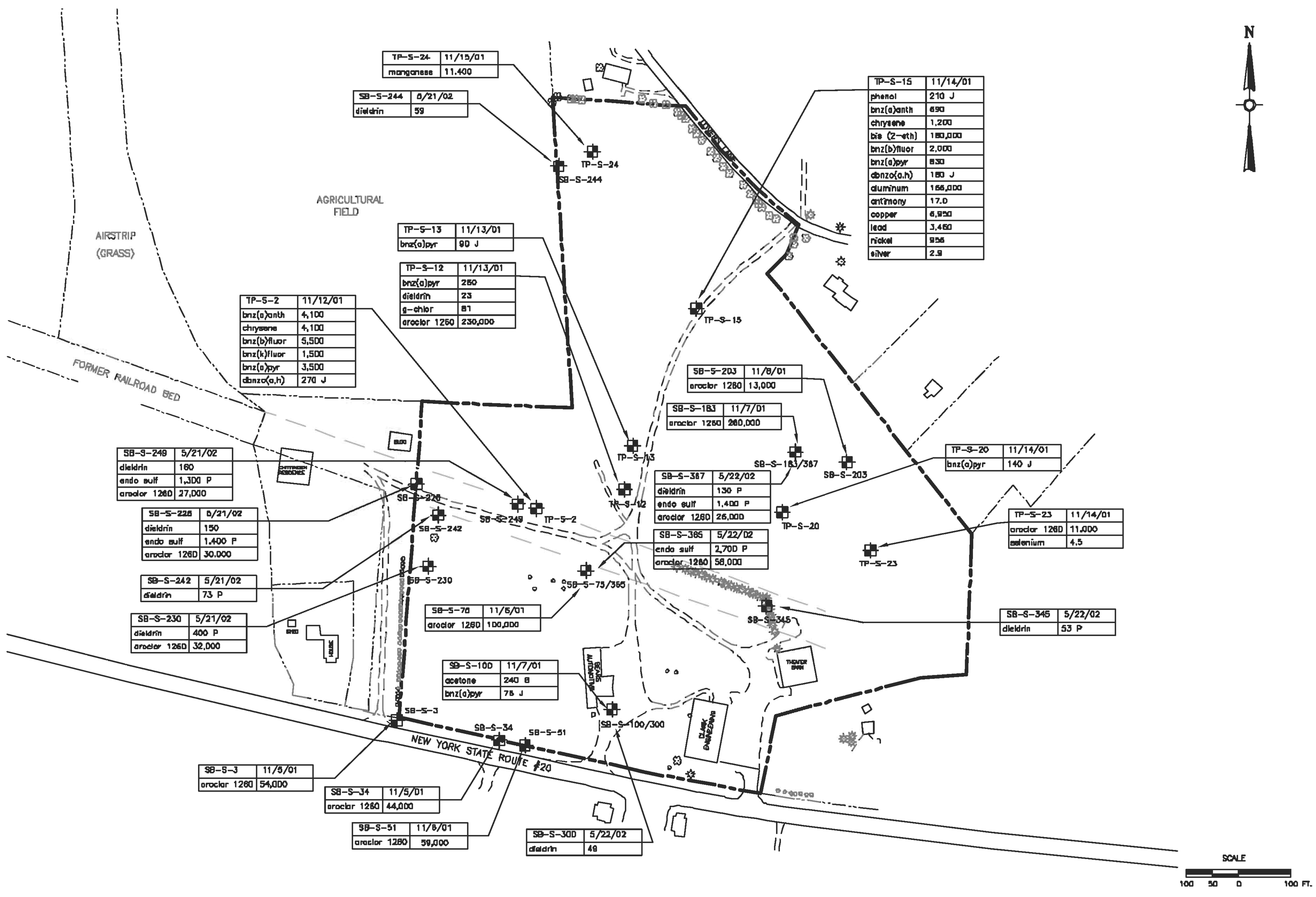
FIGURE 5



LEGEND

DIRT/GRAVEL ROAD
TREE
EVERGREEN
BUSH
BRUSH
PROPERTY LINE
SOIL SAMPLE

ABBREV.	ANALYTE	SCG	UNITS
phenol	phenol	30	ug/kg
hex-c-bnz	hexachlorobenzene	410	ug/kg
bnz(a)anth	benzo(a)anthracene	224	ug/kg
chrysene	chrysene	400	ug/kg
bis (2-eth)	bis (2-ethylhexyl) phthalate	50,000	ug/kg
bnz(b)fluor	benzo(b)fluoranthene	1,100	ug/kg
bnz(k)fluor	benzo(k)fluoranthene	1,100	ug/kg
bnz(a)pyr	benzo(a)pyrene	61	ug/kg
dbnzo(a,h)	dibenzo(a,h)anthracene	14	ug/kg
dieldrin	dieldrin	44	ug/kg
endo sulf	endosulfan sulfate	1,000	ug/kg
4,4'DDT	4,4' DDT	2,100	ug/kg
methoxychl	methoxychlor	10,000	ug/kg
g.chlordane	gamma chlordane	540	ug/kg
aroclor 1260	aroclor 1260	*	ug/kg
aluminum	aluminum	SB	mg/kg
antimony	antimony	SB	mg/kg
copper	copper	25/SB	mg/kg
lead	lead	400	mg/kg
manganese	manganese	SB	mg/kg
nickel	nickel	13/SB	mg/kg
selenium	selenium	2/SB	mg/kg
silver	silver	SB	mg/kg
zinc	zinc	20/SB	mg/kg

* – 1,000 surface / 10,000 subsurface
J – estimated concentration

SAMPLE ID — DATE SAMPLED
ANALYTE — CONCENTRATION organics (ug/kg) inorganics (mg/kg)

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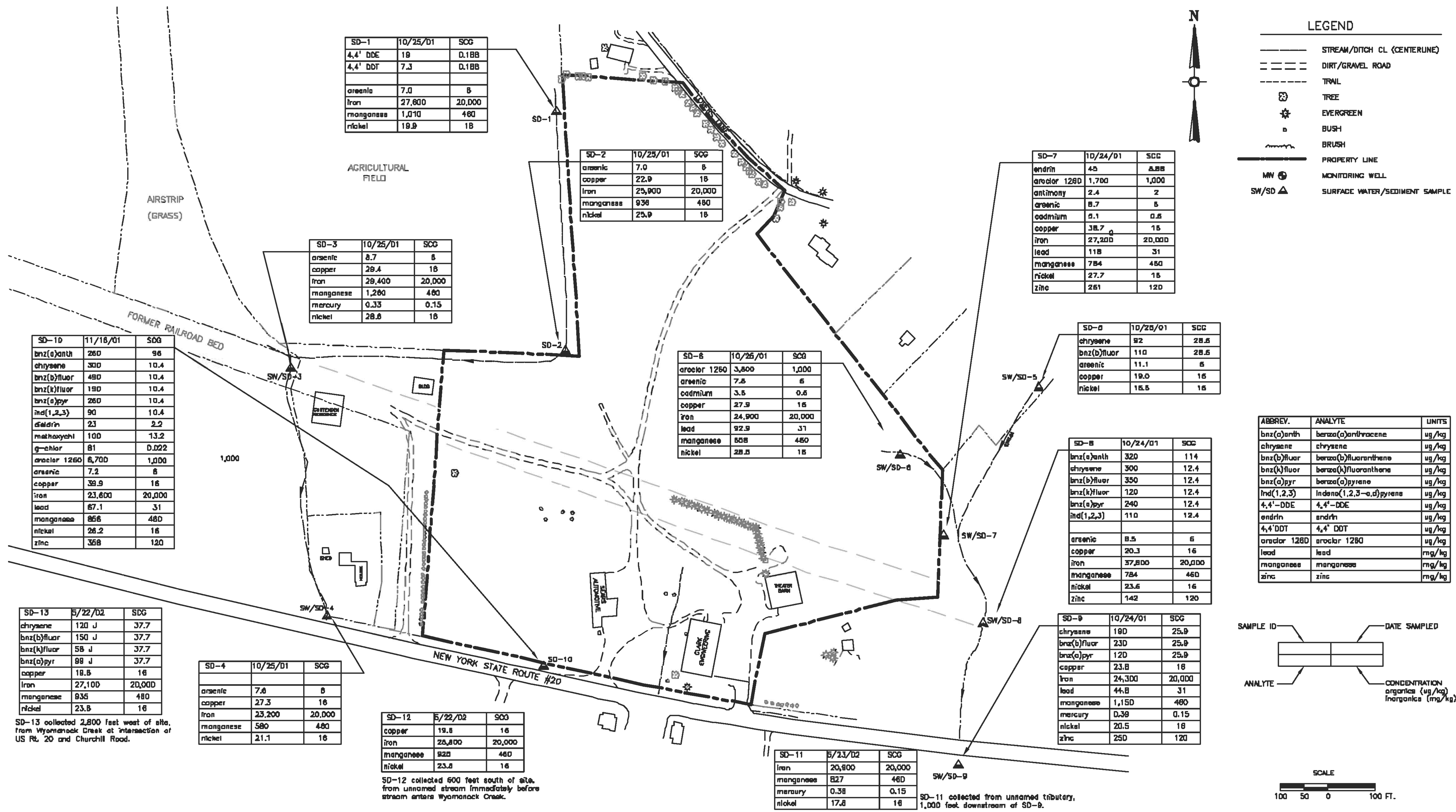
JUL 12, 2002 SEP

Dvirka and Bartilucci
Consulting Engineers
A Division of William F. Cosulich Associates, P.C.

BOUCHARD JUNKYARD SITE
NEW LEBANON, NEW YORK

SCG EXCEEDANCES IN SUBSURFACE SOIL
(LABORATORY DATA ONLY)

FIGURE 6



SD-1	10/25/01	SCG
4,4' DDE	19	0.188
4,4' DDT	7.3	0.188
arsenic	7.0	6
iron	27,600	20,000
manganese	1,010	460
nickel	19.9	16

SD-2	10/25/01	SCG
arsenic	7.0	6
copper	22.9	16
iron	25,900	20,000
manganese	936	460
nickel	25.9	16

SD-3	10/25/01	SCG
arsenic	8.7	6
copper	29.4	16
iron	29,400	20,000
manganese	1,260	460
mercury	0.33	0.15
nickel	28.6	16

SD-10	11/16/01	SCG
bnz(a)anth	260	96
chrysene	300	10.4
bnz(b)fluor	490	10.4
bnz(k)fluor	190	10.4
bnz(a)pyr	260	10.4
ind(1,2,3)	90	10.4
dieldrin	23	2.2
methoxychl	100	13.2
g-chlor	81	0.022
aroclor 1260	6,700	1,000
arsenic	7.2	6
copper	39.9	16
iron	23,600	20,000
lead	67.1	31
manganese	856	460
nickel	26.2	16
zinc	368	120

SD-7	10/24/01	SCG
endrin	45	4.88
aroclor 1260	1,700	1,000
antimony	2.4	2
arsenic	8.7	6
cadmium	5.1	0.6
copper	38.7	16
iron	27,200	20,000
lead	118	31
manganese	784	460
nickel	27.7	16
zinc	261	120

SD-5	10/25/01	SCG
chrysene	92	28.6
bnz(b)fluor	110	28.6
arsenic	11.1	6
copper	19.0	16
nickel	16.6	16

SD-6	10/25/01	SCG
aroclor 1260	3,800	1,000
arsenic	7.8	6
cadmium	3.6	0.6
copper	27.9	16
iron	24,900	20,000
lead	92.9	31
manganese	608	460
nickel	28.5	16

ABBREV.	ANALYTE	UNITS
bnz(a)anth	benzo(a)anthracene	ug/kg
chrysene	chrysene	ug/kg
bnz(b)fluor	benzo(b)fluoranthene	ug/kg
bnz(k)fluor	benzo(k)fluoranthene	ug/kg
bnz(a)pyr	benzo(a)pyrene	ug/kg
ind(1,2,3)	indeno(1,2,3-c,d)pyrene	ug/kg
4,4'-DDE	4,4'-DDE	ug/kg
endrin	endrin	ug/kg
4,4'DDT	4,4' DDT	ug/kg
aroclor 1260	aroclor 1260	ug/kg
lead	lead	mg/kg
manganese	manganese	mg/kg
zinc	zinc	mg/kg

SD-8	10/24/01	SCG
bnz(a)anth	320	114
chrysene	300	12.4
bnz(b)fluor	350	12.4
bnz(k)fluor	120	12.4
bnz(a)pyr	240	12.4
ind(1,2,3)	110	12.4
arsenic	8.5	6
copper	20.3	16
iron	37,800	20,000
manganese	784	460
nickel	23.6	16
zinc	142	120

SD-9	10/24/01	SCG
chrysene	190	25.9
bnz(b)fluor	230	25.9
bnz(a)pyr	120	25.9
copper	23.8	16
iron	24,300	20,000
lead	44.8	31
manganese	1,150	460
mercury	0.39	0.15
nickel	20.5	16
zinc	250	120

SD-13	5/22/02	SCG
chrysene	120 J	37.7
bnz(b)fluor	150 J	37.7
bnz(k)fluor	58 J	37.7
bnz(a)pyr	98 J	37.7
copper	18.6	16
iron	27,100	20,000
manganese	935	460
nickel	23.6	16

SD-13 collected 2,800 feet west of site, from Wyomanock Creek at intersection of US Rt. 20 and Churchill Road.

SD-4	10/25/01	SCG
arsenic	7.6	6
copper	27.3	16
iron	23,200	20,000
manganese	580	460
nickel	21.1	16

SD-12	5/22/02	SCG
copper	19.6	16
iron	26,800	20,000
manganese	920	460
nickel	23.8	16

SD-12 collected 600 feet south of site, from unnamed stream immediately before stream enters Wyomanock Creek.

SD-11	5/23/02	SCG
iron	20,900	20,000
manganese	827	460
mercury	0.38	0.15
nickel	17.8	16

SD-11 collected from unnamed tributary, 1,000 feet downstream of SD-9.

BOUCHARD JUNKYARD SITE
NEW LEBANON, NEW YORK

SCG EXCEEDANCES IN SURFACE WATER SEDIMENT

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FIGURE 7

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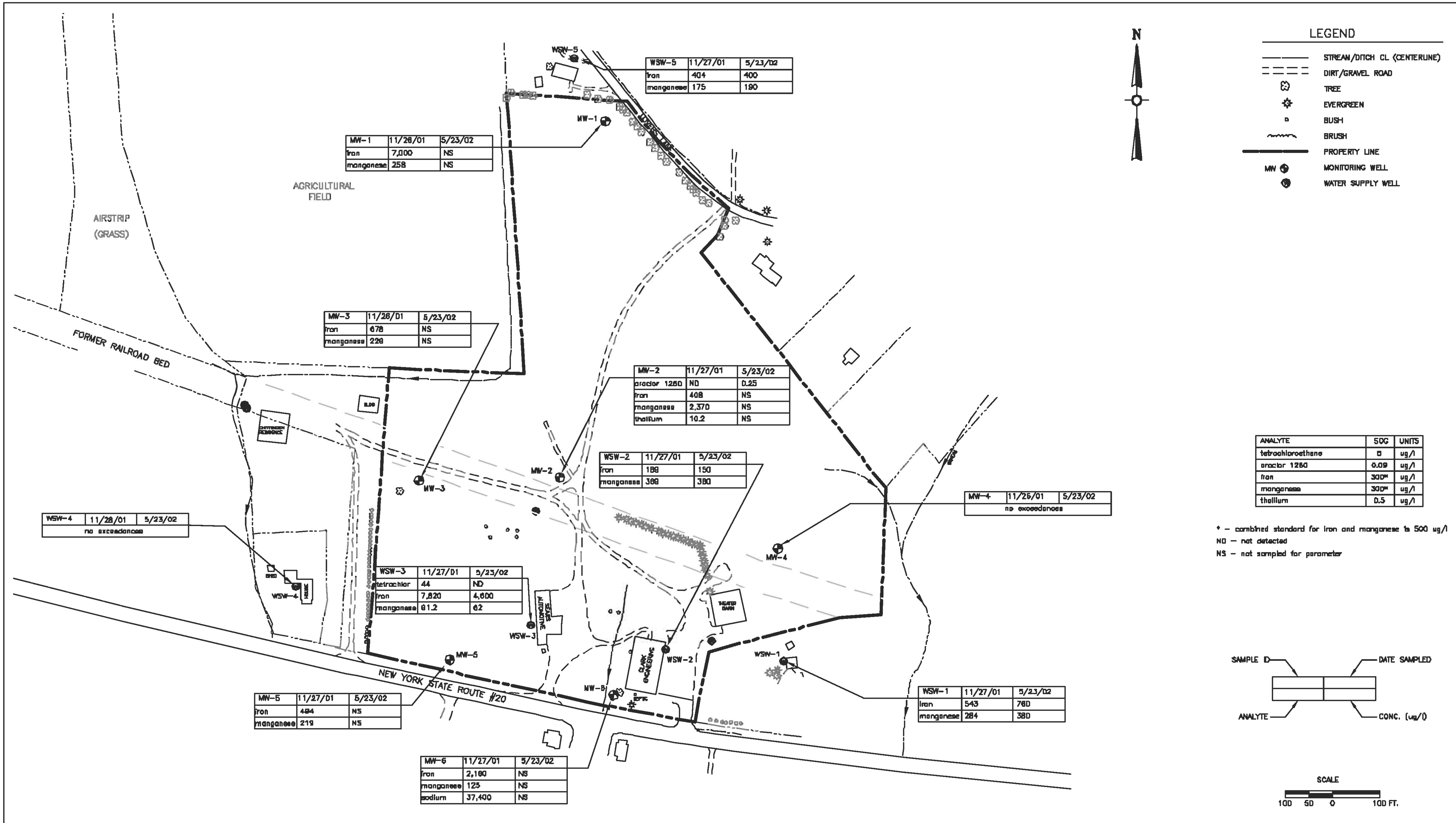

BOUCHARD JUNKYARD SITE
NEW LEBANON, NEW YORK

SCG EXCEEDANCES IN GROUNDWATER

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FIGURE 8

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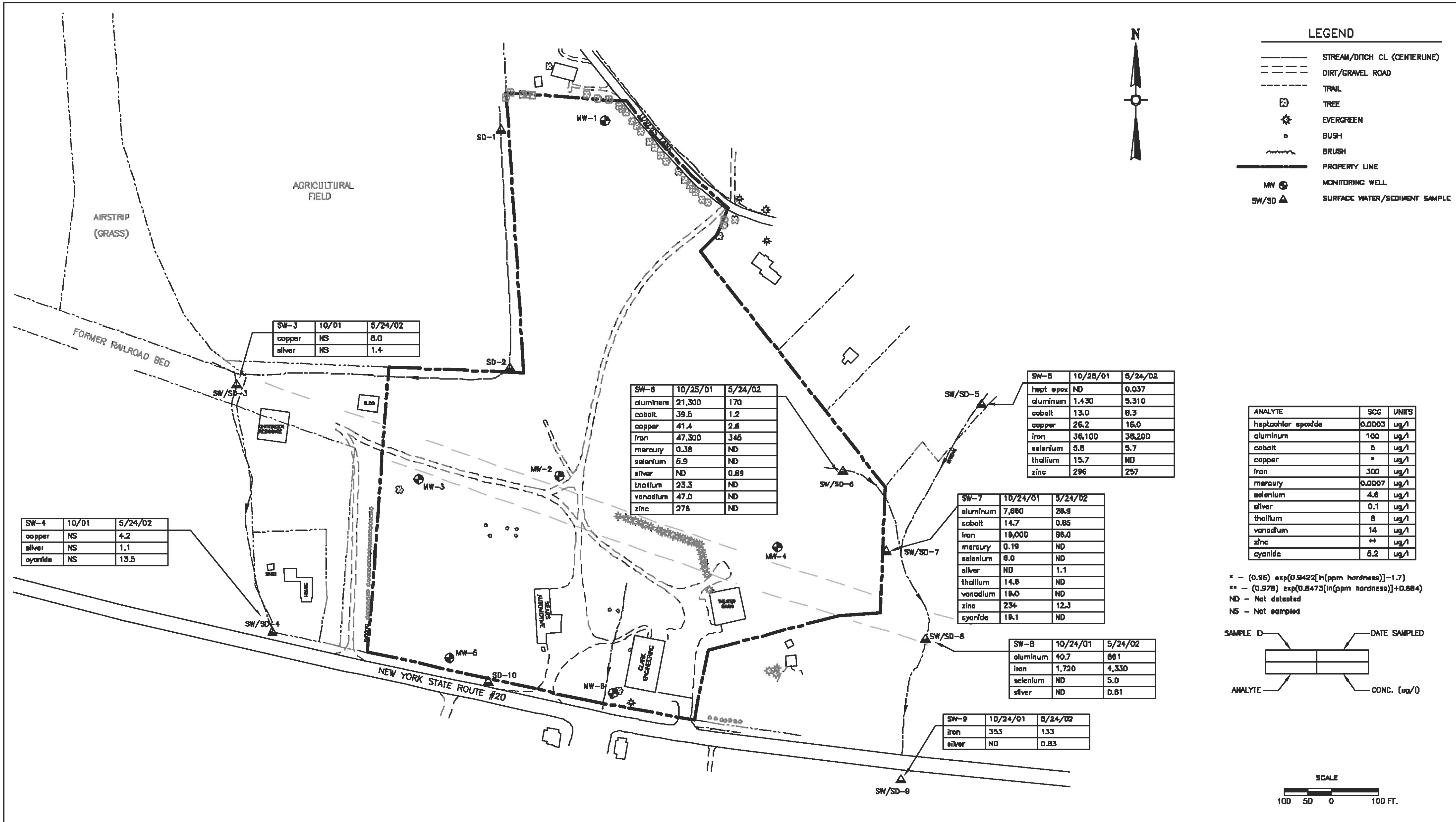

SW-3	10/01	5/24/02
copper	NS	8.0
silver	NS	1.4

SW-4	10/01	5/24/02
copper	NS	4.2
silver	NS	1.1
cyanide	NS	13.5

SW-5	10/25/01	5/24/02
hept epox	ND	0.037
aluminum	1.430	5.310
cobalt	13.0	8.3
copper	26.2	16.0
iron	36.100	38.200
selenium	5.8	5.7
thallium	15.7	ND
zinc	296	257

SW-6	10/25/01	5/24/02
aluminum	21,300	170
cobalt	39.5	1.2
copper	41.4	2.6
iron	47,300	346
mercury	0.38	ND
selenium	5.9	ND
silver	ND	0.89
thallium	23.3	ND
vanadium	47.0	ND
zinc	276	ND

SW-7	10/24/01	5/24/02
aluminum	7,660	28.9
cobalt	14.7	0.65
iron	19,000	66.0
mercury	0.19	ND
selenium	6.0	ND
silver	ND	1.1
thallium	14.6	ND
vanadium	19.0	ND
zinc	234	12.3
cyanide	19.1	ND

SW-8	10/24/01	5/24/02
aluminum	40.7	661
iron	1,720	4,330
selenium	ND	5.0
silver	ND	0.61

SW-9	10/24/01	5/24/02
iron	353	133
silver	ND	0.83

ANALYTE	SCG	UNITS
heptachlor epoxide	0.0003	ug/l
aluminum	100	ug/l
cobalt	5	ug/l
copper	*	ug/l
iron	300	ug/l
mercury	0.0007	ug/l
selenium	4.6	ug/l
silver	0.1	ug/l
thallium	8	ug/l
vanadium	14	ug/l
zinc	**	ug/l
cyanide	5.2	ug/l

* – (0.96) exp(0.8422[ln(ppm hardness)]–1.7)
** – (0.978) exp(0.8473[ln(ppm hardness)]+0.884)
ND – Not detected
NS – Not sampled

BOUCHARD JUNKYARD SITE
NEW LEBANON, NEW YORK

SCG EXCEEDANCES IN SURFACE WATER

FIGURE 9

Dvirka and Bartilucci
Consulting Engineers
A Division of William F. Cosulich Associates, P.C.

MON, JAN 21, 2002 11:00 A SEP C:\1913\bouchardbase.dwg\swexceed

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Former Bouchard Junkyard
Town of New Lebanon, Columbia County, New York
Site No. 411014

The Proposed Remedial Action Plan (PRAP) for the Former Bouchard Junkyard site was prepared by the New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on January 27, 2004. The PRAP outlined the remedial measure proposed for the contaminated soil and sediment at the Former Bouchard Junkyard site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on February 19, 2004, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on February 28, 2004.

This responsiveness summary responds to all questions and comments raised during the public meeting and the following written comments received during the comment period. All of the following correspondence is included in Attachment No. 1 of this Appendix.

1. Letter dated February 19, 2004 from Ralph Chittenden, site owner;

2. E-mail dated February 20, 2004 from Richard O. York;

3. E-mail dated February 20, 2004 from Richard O. York (second);

4. Letter dated February 25, 2004 from Albert I. Wheeler, Supervisor, Town of New Lebanon;

5. E-mail dated February 27, 2004 from Jeffry and Diane Sheldon;

6. Letter dated February 27, 2004 from Edward K. LaPoint, P.E., GE Corporate Environmental Programs.

The following are the comments received, with the NYSDEC's responses:

I. REMEDIAL INVESTIGATION

Comment 1: How did the Remedial Investigation results compare to the results from the initial investigation in 1998?

Response: There was very good correlation between the results.

Comment 2: To what depth was the electromagnetic survey effective and how small an object could it pick up?

Response: The electromagnetic survey was effective to a depth of about 15 feet. During excavation of test pits, we found that objects as small as a hubcap near the ground surface showed up as anomalies on the survey.

Comment 3: How deep did the excavator reach?

Response: The deepest test pits were excavated to a depth of ten feet below the ground surface. Generally, there were no signs of disturbance of the soil below a depth of about five feet.

Comment 4: Were soil samples collected from the test pits?

Response: Yes. In some cases, more than one sample was collected from a test pit. In other cases where no soil staining was found and the object that caused the anomaly during the electromagnetic survey was easily identified (e.g., a car wheel), no sample was collected.

Comment 5: What is the definition of "sediment"?

Response: Sediment can be loosely defined as a collection of fine-, medium-, and coarse-grained minerals and organic particles that are found at the bottom of lakes, rivers, etc.

Comment 6: How do the concentrations of PCBs at this site compare to PCBs in the Hudson River sediment?

Response: Of the 246 soil samples collected from the Bouchard Junkyard site for laboratory analysis, only two samples had a PCB concentration over 500 ppm (the highest was 1,200 ppm) and less than 7% had PCBs over 50 ppm. More than 5,000 sediment samples were collected from the Hudson River from Hudson Falls to the Northumberland Dam in October 2002. Of those samples, 29% had PCB concentrations exceeding 50 ppm, and two samples had PCBs greater than 10,000 ppm.

Comment 7: Are there concerns about an impact to wildlife at the site?

Response: There might be some impacts to burrowing animals coming in contact with contaminated soil, but there have been no observations of rare, threatened, or endangered species, or species of special concern on, or in the immediate vicinity of, the site.

Comment 8: Were any fish tested for this investigation?

Response: No. Analysis of fish tissue was not in the scope of this investigation. If sediments had shown significant PCB concentrations, fish tissue would have been tested.

Comment 9: Was any vegetation tested to see if it took up PCBs?

Response: No. However, the subject of PCB uptake in corn was researched and it was determined that corn does not readily bioaccumulate PCBs.

Comment 10: Were maps showing soil PCB concentration laid over the aerial photo of the junkyard to explain the presence of the hot spots?

Response: No. The oblique angle of the aerial photo did not allow this comparison to be made. Additionally, the aerial photo represented only a single instant in 1969. The junkyard operated at the site since at least 1959, and the locations of burning or dumping areas likely changed through the years

Comment 11: Could hot spots be at the locations of burn areas?

Response: It is well documented that there were fires at the site which were used to burn trash or other flammable items. It is possible that the PCB hot spots represent these burn areas, but there are other possible explanations for the hot spots. Some of the test pits showed some dark soil layers, which may have represented areas where burning took place, but soil samples from those areas did not exhibit significant PCB concentrations.

Comment 12: Will PCB oil burn? What are the breakdown products when there is incomplete combustion of PCBs?

Response: Various PCB mixtures were used in electrical equipment for their fire retardant properties. This fact, combined with the pattern of PCBs found on the site, leads us to believe that the oil was not burned at the site. If it was burned, we would have expected to see PCBs only at the burn areas, not spread widely across the site in the surface soil. Incomplete combustion of PCB results in the formation of PCDFs (polychlorinated dibenzofurans) and PCDDs (polychlorinated dibenzodioxins) some of which are highly toxic.

Comment 13: In the Pittsfield (Massachusetts) area, GE provided a mixture of solvents and PCBs to local fire departments for practice burns. Could a similar mixture have been disposed here?

Response: Since the analytical results did not show significant concentrations of solvents in the soi or groundwater, this particular scenario is unlikely at this site. Typically, properties used for practice burns using solvents have associated groundwater contamination.

II. SELECTION OF THE REMEDY

Comment 14: How were the six alternatives selected?

Response: The remedial technologies initially examined fell under the following categories: institutional controls, isolation or containment, treatment, solidification or stabilization, and excavatio and removal. With the exception of Alternative 1 (No Action), the five alternatives examined were ones that remained after screening out other remediation technologies due to their effectiveness, implementability, cost, etc. Details of this process can be found in Section 2 of the Feasibility Study report. The "No Action" alternative serves as a baseline to compare and evaluate the effectiveness of the other alternatives.

Comment 15: What is bioremediation?

Response: Bioremediation is the breakdown of contaminants through microbial activity. The NYSDEC removed bioremediation from consideration because it has not proved to be an effective remedy for PCB-contaminated soil.

Comment 16: Why are there two different PCB cleanup goals, 1 ppm and 10 ppm?

Response: It depends on the depth of the soil. Surface soil (for this site defined as 0 to 18 inches) has a 1 ppm cleanup goal for PCBs. Subsurface soil (soil deeper than 18 inches) has a 10 ppm cleanup goal for PCBs. The 1 ppm goal is for protection of human health while the 10 ppm goal is for the protection of groundwater.

Comment 17: What would short-term monitoring look for?

Response: The present concept is that monitoring would include the annual sampling of the six existing groundwater monitoring wells, three water supply wells, and three surface water locations. Samples would be analyzed for volatiles, semi-volatiles, pesticides/PCBs, metals, and cyanide. Monitoring would continue for five years after remediation. The number of samples, locations, chemic analyses, and monitoring period will be evaluated during remedial design. Basically, we would want to confirm that the remedy was effective in cleaning up the site.

Comment 18: Will the site's location in the floodplain affect the cleanup priority for the site?

Response: The cleanup priority for this site has already taken into account the location of the site.

Comment 19: Are there gains for the community by selecting Alternative 4, which would result in a more thorough cleanup?

Response: Alternative 4, Soil Washing to 1 ppm, was the only alternative examined that would clean up all the soil PCBs to a concentration of 1 ppm or less. While it is true that Alternative 4 would not require easements and a site management plan after remediation, Alternative 3, with the institutiona controls of easements and a site management plan, would provide the same level of protection as Alternative 4 but at a lower cost.

Alternatives 5 and 6 could have also been modified to address soil with PCBs between 1 ppm and 10 ppm at depths greater than 18 inches, but the argument would be the same - cleaning surface and subsurface soil to 1 and 10 ppm PCBs, respectively, with appropriate institutional controls, would provide the same level of protection as cleaning all the soil to 1 ppm or less, but at a lower cost.

During pre-design, design, and remedial activities, we will be refining the estimates for the volume of s which will need to be treated. Based on that information, the NYSDEC <u>may</u> examine the feasibility of treating some of the contaminated soil (e.g., from a more sensitive area of the site) to a cleanup goal o less than 10 ppm.

III. IMPLEMENTATION OF THE REMEDY

Comment 20: How successful will soil washing be?

Response: Until further testing is done, we cannot answer this question. We feel the site conditions are conducive to this type of remedy, but if it is determined that soil washing is not feasible at this site, we have already preselected an alternate cleanup method using thermal desorption.

Comment 21: How will soil on adjacent properties be dealt with? Was it tested?

Response: We are confident that we have identified the limits of the contamination at the site. It appears that the junk cars were stored within the limits of the property lines. The only area we know of where there is off-site contamination is the property adjacent to the southwest corner of the site. Contaminated soil from the former junkyard was placed there at a later time to fill in some low spots. During the remediation, confirmatory samples will be collected from the edges of the site to make sur all the contaminated soil has been excavated. Any off-site soil above the cleanup criteria will be treated.

Comment 22: Will the selected remedy prevent migration or further migration of PCBs into sediments surface water, and groundwater?

Response: Yes. We are confident that remediation of site soil and sediment will prevent migration of PCBs into the environment.

Comment 23: Will dust generation be a problem during remediation? Will air monitoring be done?

Response: Intermittent dust can be expected to be generated during excavation activities; however, appropriate precautions will be taken during excavation of contaminated soil to mitigate dust from migrating off-site and/or impacting on-site workers. It is anticipated that wetting the soil and wat misting will be adequate to control dust emissions. Air monitoring will be done during remedial activities.

Comment 24: ATVs and dirt bikes use the site and cause dust to rise in the air. We feel this is an immediate hazard to those individuals and a secondary hazard to residents. Will fencing be constructed or signs be posted on the site to warn of the hazardous conditions?

Response: At this time, the New York State Department of Health does not believe limited casual presence on the site represents a significant health concern, however, any exposure to known contaminated media should be avoided. We will encourage the site owner to post "No Trespassing" signs on his property. During implementation of the remedy, the site will be posted and access to the site will be controlled.

Comment 25: Will there be noise during the site remediation?

Response: Yes. It will be a construction project and some noise should be expected. However, the soil washing process will not operate on a 24-hour schedule. Thermal desorption, the alternate remedy (if needed), would probably run on a 24-hour, 7 days a week schedule.

Comment 26: Where does the water and surfactant entrained with PCBs end up?

Response: This treatment water would ultimately be disposed off-site in a hazardous waste disposal facility.

Comment 27: What happens if we hit groundwater during excavation of contaminated soil?

Response: We have not found contaminated soil at the water table depth and do not anticipate we will encounter those conditions.

Comment 28: How long will cleanup take?

Response: We estimate the remedy will take six months to design and six to twelve months to implement.

Comment 29: If remediation takes several years to implement, will PCBs migrate far in that time?

Response: No. PCBs have a strong affinity for organic material, such as that found in soil. Once attached to this organic matter, PCBs are likely to remain there. For example, while we do not know when PCBs were disposed at this site, it was prior to 1971. In the intervening 33 years, it has not migrated into the deeper subsurface soil (without human help) or into the groundwater.

Comment 30: Will the easements be permanent?

Response: Yes.

Comment 31: Would people be able to build houses on the property after the cleanup?

Response: Yes. But the requirements for a site management plan and annual certification, and environmental easements placed on the property would stay with the property, regardless of future changes in ownership or subdivision. As long as the terms of the site management plan are met (e.g., excavated soil is tested for the presence of PCBs and handled accordingly), houses could be built on the property.

Comment 32: Who pays for the cleanup?

Response: We will explore all options which may lead to a responsible party funding the remedial design and construction. If a responsible party cannot be identified, the site will be cleaned up using State Superfund money. If a responsible party is subsequently identified, we will pursue cost recovery efforts.

Comment 33: How will the site be monitored after five years? Would the community be involved?

Response: If monitoring confirms that the site was cleaned up to our satisfaction, monitoring woulc be discontinued after five years. The number of samples, locations, chemical analyses, and monitoring period will be evaluated during remedial design. We do not anticipate any community involvement in monitoring process, but we will share our findings with the community. Also, keep in mind that after tl five-year monitoring period ends, an additional measure of state oversight will be realized through routine inspections and the annual certification requirements, which will remain in place after routine monitoring stops.

IV. OTHER ISSUES

Comment 34: Did GE have a contract with the owner to dispose of PCBs?

Response: Not that we know of.

Comment 35: Did the NYSDEC discuss this site with the Massachusetts Department of Environmental Protection (DEP)?

Response: We will explore all options which may lead to either having a responsible party fund the remedial design and construction or obtaining information to strengthen the state's cost recovery effor This will likely include discussions with the Massachusetts DEP and the USEPA.

The following comments were provided in a letter from Edward K. LaPoint, P.E., remedial Project Manager for GE Corporate Environmental Programs:

Comment 36: GE questions whether soil washing will be effective at the site. At what sites has soil washing been successfully used to treat PCBs in soil and sediment?

Response: Soil washing has been used to successfully treat PCBs at the following sites:

Springfield Township Dump - Davisburg, Michigan - Earthtech
US Navy Environmental Leadership Program - Coronado, California - Terra Kleen
Saginaw Bay Confined Disposal Facility - Saginaw, Michigan - Bergmann
Kai Tak Approach Channel Reclamation - Kowloon, Hong Kong - Biogenesis (Bench Study)
Port of New York/New Jersey - Biogenesis (Bench and Pilot Studies)

Comment 37: What vendors, if any, were contacted to determine if soil washing is appropriate for the site conditions?

Response: Vendors that were contacted during the preparation of the Feasibility Study included Biogenesis and Terra Kleen. In addition, Mr. Kevin Adler (USEPA Region 5) was contacted regarding the use of soil washing at the Springfield Township Dump site in Michigan.

Comment 38: Did the NYSDEC consider performing soil washing treatability studies on soil from the site during the RI/FS?

Response: No. Since we had not selected a proposed remedy or backup remedy until after the completion of the RI/FS, treatability studies were not part of the scope of work for this site. These studies will be part of the remedial design.

Comment 39: How did the NYSDEC arrive at the 1% figure for residual soil which will require off-site disposal after soil washing? GE believes that the volume of residual soil which will require off-sit disposal will be greater than 1%.

Response: The 1% figure for residual material was obtained from the USEPA Innovative Technology Evaluation Report, "Biogenesis Soil Washing Technology", dated September 1993. It should be clarified that this is residual soil that is retained in the washing process following treatment a does not suggest that there is only 1% fine-grained material at the Bouchard site. The actual figure for residual material that will require off-site disposal after soil washing will be determined during the remedial design, however, at this time the use of a figure other than 1% cannot be substantiated.

Comment 40: What surfactants are proposed to be used? How will they be disposed?

Response: Selection of a specific surfactant or surfactants will be made during remedial design. It is assumed that the wash water will ultimately be disposed at a hazardous waste disposal facility.

Comment 41: What wash water treatment and recycling process will be used?

Response: The wash water treatment and recycling process will be determined during remedial design. If the water cannot be treated for reuse, or additional wash cycles are necessary, then the treatment cost will likely increase, and the NYSDEC would consider using the alternate technology of thermal desorption.

Comment 42: How many wash cycles were assumed for the selected alternative?

Response: One cycle was assumed for costing purposes. This information will be fine-tuned after treatability studies and during the remedial design process.

Comment 43: Have vendors provided unit costs for soil washing? What was the basis of their estimates? GE questions whether the estimated costs in the FS are sufficiently accurate and requests a explanation of how these estimates were derived.

Response: As indicated in the Feasibility Study, costs for site work (e.g., excavation, backfilling, etc.) were estimated using costs obtained from USEPA publications, Means Environmental Remediation Cost Data for 2002, experience in construction adjusted for hazardous site remediation, and discussion with remedial contractors, material suppliers, trucking companies and disposal facilitie A range of unit costs for soil washing were provided by Biogenesis which were not broken down to the line item level presented in the Feasibility Study. However, the unit cost that was presented by Biogenesis did agree with the numbers presented in the Feasibility Study. In addition, personnel from

Biogenesis reviewed the costs for soil washing that were presented in the Feasibility Study and concurred that the figures presented were accurate based on the current information available.

Comment 44: Given the uncertainties associated with the effectiveness of soil washing, GE feels that the backup technology, thermal desorption, will be implemented. This will both delay implementation the remedy and increase the costs.

Response: Switching to the backup technology would indeed delay cleanup and increase costs. However, we feel the innovative technology of soil washing shows sufficient promise to pursue it as th proposed remedy. Treatability studies during remedial design will determine the efficacy of this technology. If treatability studies show that soil washing is ineffective at this site, then we would switc to the backup technology without having spent a great deal of time and effort.

Comment 45: Both the proposed remedy and the contingent remedy would take more time to implement than Alternative 6 (Excavation and Off-Site Disposal).

Response: The criteria used to evaluate the remedial alternatives were 1) protection of human health and the environment, 2) compliance with New York State standards, criteria, and guidance, 3) short-term effectiveness, 4) long-term effectiveness and permanence, 5) reduction of toxicity, mobilit or volume, 6) implementability, 7) cost-effectiveness, and 8) community acceptance.

Implementation times for the various alternatives are rough estimates, however the proposed and contingent remedies would likely take longer to implement than Alternative 6. Alternatives 3 and 5 were selected over Alternative 6 in part because of a preference for reducing the toxicity or volume of the contaminants in the soil over disposing the untreated soil in a secure landfill. Also, the estimated cost of Alternative 6 is almost the same as Alternative 5.

Comment 46: Alternative 2 (Hot Spot Removal and Permeable Cover) could meet the 1 part per million cleanup guidance in the surface soil with a 12-inch cover, as opposed to the 24-inch cover proposed. Both the proposed remedy and the contingent remedy would take more time to implement than Alternative 2. Also, Alternative 2 would not require treatability testing.

Response: Alternative 2 used a 24-inch cover instead of a 12-inch cover to provide adequate separation between contaminated and clean soil, which would allow the site to be used for agricultural purposes after remediation. A 12-inch soil cover would meet the 1 ppm surface soil PCB cleanup guidance, however, the 10 ppm PCB guidance for subsurface soil would not be met under this alternative, regardless of the depth of the soil cover. Implementation time is only one of the criteria examined in selecting a remedy. Alternatives 3 and 5 were selected over the other remedies for reasons other than implementation time.

Comment 47: Alternative 2 could be modified to include excavation and off-site disposal of sediments that could not be capped.

Response: True. However, the 10 ppm guidance for subsurface soil would still not be met under this modified alternative.

Comment 48: Alternative 6 (Excavation and Off-Site Disposal) would be a better contingent remedy than Alternative 5 because it costs less, does not require treatability studies, takes less time to implement, and does not require an air emission source.

Response: Alternative 5 was selected as a contingent remedy over Alternative 6 due to its lower impact on local traffic and a preference for permanently reducing the toxicity or volume of the contaminants in the soil over disposing the untreated soil in a secure landfill.

Comment 49: NYSDEC did not consider in-situ thermal desorption using thermal wells as an alternative.

Response: We investigated in-situ thermal desorption and found it to be effective, but more costly than ex-situ thermal desorption. This is true because in-situ technology would still involve excavation and stockpiling of contaminated soil for treatment, but the cost of the in-situ treatment outweighs the cost of the standard ex-situ thermal desorption.

Comment 50: How were soil volume estimates calculated?

Response: Soil volumes were calculated based on scale drawings of the site plotted in AutoCad. The calculated areas at given depths are multiplied by the thickness of the soil layer to determine the volume of soil to be removed to meet the remedial goals for the site. For example, if four acres of the surface soil is contaminated to a depth of 18 inches above a 1 ppm PCB cleanup goal, this equates to about 9,700 cubic yards of soil. If two acres of soil at a depth of 18 to 30 inches is contaminated above a 10 ppm PCB cleanup goal, this would equate to an additional 3,300 cubic yards of soil.

Comment 51: Additional soil sampling is needed to more accurately determine the distribution of PCBs. The estimated volume of 3,800 cubic yards of sediment is too high.

Response: The volumes and limits of excavation will be refined by additional soil and sediment sampling during remedial design, where necessary.

Comment 52: Why is surface soil being defined as the top 18 inches rather than the usual 12 inches? At what other sites has 18 inches been used?

Response: Based on the past use of the site for agricultural purposes and the stated desire of the property owner to continue this practice, 18 inches was used to allow for an additional level of protectiveness. We feel the agricultural use of this site is somewhat unique, and justifies using a differ definition of "surface" soil. This definition has not been used at other sites in New York State. The difference in soil volume estimates in going from 12 to 18 inches is 2,200 cubic yards.

Comment 53: If the volume estimates of soil and sediment to be treated vary from the assumptions made during the FS, then the proposed and contingent remedies may be less cost effective.

Response: While the estimates of soil and sediment which will require treatment may change, we do not feel they will affect the selection of the remedy and contingent remedy, since the selected remedies were not based solely on cost considerations.

Comment 54: Does the NYSDEC expect to perform additional sampling to refine the volume of soil which would need to be treated? What analyses would be performed on the additional samples?

Response: The volumes and limits of excavation will be refined by additional soil and sediment sampling during remedial design, where necessary. These samples will be analyzed for PCBs only.

Comment 55: Why does post-remedial monitoring call for analysis of non-PCB parameters?

Response: As evaluated in the FS, the present concept is that samples would be analyzed for volatiles, semi-volatiles, pesticides/PCBs, metals, and cyanide. The number of samples, locations, chemical analyses, and monitoring period will be evaluated during remedial design. Though the cost associated with five years of post-remedial monitoring is quite small when compared to the capital cos of the selected remedy, the NYSDEC will look to save money where possible.

Comment 56: Based on the data collected during the RI, post remedial monitoring should not include any sampling for PCBs in drinking water or surface water. If groundwater is included samples should be collected from on-site monitoring wells on one or two occasions for confirmation purposes using low-flow sampling techniques to minimize sample turbidity. If PCBs are detected in monitoring wells, then a more comprehensive water monitoring program could be implemented.

Response: Post-remedial sampling will include groundwater from drinking water wells and monitoring wells, and surface water. Use of low-flow sampling techniques is a good idea. The number of samples, locations, chemical analyses, and monitoring period will be evaluated during remedial design.

APPENDIX A

Attachment No. 1

RECEIVED
FEB 23 2004

2-19-04

Dear Lawrence Alden,

Re: In answer to your letter:

As I have already stated my feelings against any easement on the property after the cleanup . I would like to at least have you consider using alternative # 4 in your plan so as to minimize the permitting or questions for work on the property after the cleanup.

Sincerely,

Ralph Chittenden.

From: "royork" <royork@prodigy.net>
To: <ljalden@gw.dec.state.ny.us>
Date: 2/20/04 9:40AM
Subject: Thursday evening's hearing

Larry,

Thank you for addressing this issue with us last.

The public has to understand that ANY potentialities of THIS remediation, regarding the negative, short-term impacts of the dynamitic are a small price to pay for the long-term gain on all aspects of human health and local property values, and overall quality of life in the immediate vicinity of the site and throughout the Lebanon Valley.

Over coffee this morning my wife and I discussed the PRAP. She looked over the maps in the PRAP as we chatted about the meeting (she was unable to attend). She grew up a couple houses down from the junkyard and remembers the junkyard as a "playground" during her youth. She has clear memory of certain physical characteristics of the junkyard, Bouchard's house (and swimming pool) and remembers visiting and playing there regularly. She talked of rows of barrels and tires [I believe on the west perimeter] that they'd play "hop-scotch" on. The consequence of missing-the-mark was landing in the "sludge"! She also remembers the barrels were stored in the junk cars as well as in piles and doesn't recall them spraying oil at all, ever. She claims that it wasn't busy enough traffic-wise, at least during the time she lived and played there. She does remember the piles of barrels and the constant fires. The "hot spots" are most likely from stockpiles of barrels, both in the in the back locations and against the fence in front.

I am most curious about the "re-classification" and the easements and restrictions that might follow the remediation process. Are there gains for this community should a more expensive and thorough remediation process be used, and I ask directly regarding the restrictions and easements attached to the property and its long-term value? Would less PPM's lower the classification rating? I'm not suggesting we spend more money needlessly but wonder if that property has more value over the years if the extra money is spent now to reduce the PPMs using one of the other alternatives. It is in a prime location in the community although it's certainly not "prime property" now. Too bad for all of us!

Thanks again.

Richard O. York
76 Pool Hill Rd.
New Lebanon, NY 12125
518.794.0760

From: "royork" <royork@prodigy.net>
To: <ljalden@gw.dec.state.ny.us>
Date: 2/20/04 6:05PM
Subject: Bouchard Site; PMAP information correct?

Larry,

With regards to the PMAP for the Bouchard site . . .on page 13, under Alternative 4, Ex-Situ Soil Washing to 1ppm with Short-term Monitoring . . . do I read correctly that with positive results using this method of remediation that "environmental easements and a soil management plan would not be necessary as stated in the paragraph just above the "present worth" figure? This, according to the PMAP literature distributed, is the only means of remediation that would not require easements and a soil management plan. If it were to be correct the difference is merely $700,000 more than Alternative 3. It's my supposition that this is a missed-edit. Am I correct? Please clarify this.
Thank you.
Richard O. York

TOWN OF NEW LEBANON

BOX 328
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Supervisor
Albert I. Wheeler
(518) 794-8024 (home)
(518) 794-8889 (office)

Town Clerk
Colleen Teal
(518) 794-8888 (office)

Highway Superintendent
Jeffrey Winestock
(518) 794-8580 (office)

Councilmen
Lawrence Benson
David Katzenstein
Margaret Robertson
John L Yurish

RECEIVED
FEB 26 2004

February 25, 2004

Lawrence J. Alden, PE
NYS DEC Central Office
625 Broadway, 12th Floor
Albany, New York 12233-7013

Dear Mr. Alden,

This letter is with regard to Site #411014, former Bouchard Junkyard in the Town of New Lebanon.

Upon further review of the Proposed Remedial Action Plan, it has been brought to our attention that Alternate #4 will be the best for the property. Without the need for an environmental easement and soil management plan, the property will become a primer commercial property that will be more attractive for development and will also allay the fears of some residents.

Therefore, I as Supervisor and the rest of the Town Board plus some constituents hereby request that PRAP Alternate #4 become the Remedial Action Plan (RAP).

Thank you for your consideration.

Sincerely,

Albert I. Wheeler
Supervisor

From: <SJeffry@aol.com>
To: <ljalden@gw.dec.state.ny.us>
Date: 2/27/04 2:47PM
Subject: PRAP for Former Bouchard Junkyard

February 27, 2004

Lawrence J. Alden, P.E.
NYSDEC
625 Broadway, 12 th Floor
Albany, NY 122233-7013

Dear Mr. Alden

Thank you for your work and planning regarding the Proposed Remedial Action Plan of the former Bouchard Junkyard in New Lebanon. We attended the public meeting on February 19, 2004, and found the presentation very helpful and professional. We do continue to have a few concerns regarding the remediation of this site.

1. Individuals continue to ride ATVs on the site which causes dust to rise in the air. We believe this is an immediate hazard to those individuals and a secondary hazard to residents of the neighborhood who might inadvertantly inhale contaminated airborne dust particles. In order to diminish this hazard, we recommend that the NYSDEC strongly encourage the owner to post warning signs at a minimum. Fencing and warning signs would be appropriate considering the hazard involved to human health. While the owner may be reluctant to take these steps due to personal expense, we believe it would be reasonable for the State to incur these costs because of the acknowledged hazards of the area.

2. While we support the proposal to wash the soil as specified in Alternatives 3 and 4, we would like to see the soil washed to the standards in Alternative 4, despite its somewhat higher cost. The reason we believe the higher standard is important is that there is no assurance that subsoil will not be disturbed in the future. We are particularly concerned that the site may be developed in the future requiring excavation for building foundations and septic systems. There is also the possibility that the land may be farmed employing cultivation techniques that disturb the subsoil.

3. The funding for the remediation of the site is likely to be through the State Superfund, which is limited in its financial scope on an annual basis by the State Legislature. We believe it would be prudent to begin remediation as soon as possible in order to assure that funding remains intact.
Furthermore, we believe more research should be persued regarding financial responsibility for the cleanup. At present there appears to be at least circumstantial evidence that General Electric was involved. We would encourage NYSDEC attorneys to contact Mr. Tim Gray of the Housatonic River Initiative at 413-243-3353.
It appears that his organization has a history of successfully locating evidence required for legal action.

Thank you for your work and concern in facilitating the cleanup of this site.

Jeffry and Diane Sheldon
112 Lovers Lane
New Lebanon, NY 12125

GE Corporate
Environmental Programs

Edward K. LaPoint, P.E.

General Electric Company
Great Oaks Office Park, Ste: 323
Albany, NY 12203
Fax: (518) 862-2731
Dial Comm: 8 232-2734*
Telephone: (518) 862-2734

27 February 2004

MAR - 1 2004

Mr. Larry Alden, Project Manager
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7013

Re: Comments on Proposed Remedial Action Plan
Former Bouchard Junkyard, Site Number 411014

Dear Mr. Alden:

The General Electric Company (GE) has reviewed the Proposed Remedial Action Plan (PRAP) for the former Bouchard Junkyard and supporting Remedial Investigation (RI) and Feasibility Study (FS) Reports prepared by Dvirka & Bartilucci Consulting Engineers. The company's questions and comments follow.[1] The main points are:

- We do not believe that the effectiveness of soil washing has been demonstrated at PCB sites. If soil washing proves to be ineffective at

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[1] GE's interest in submitting these comments stems from references in an Inactive Hazardous Waste Disposal Report dated April 1, 2003, and the PRAP dated January 2004. These references could be read to suggest that NYSDEC considers GE a Potentially Responsible Party (PRP). The references from the aforementioned documents are apparently based on a 1980 memo that GE voluntarily turned over to NYSDEC in 1998, in which a GE employee noted that he had received hearsay information suggesting that drums containing oil and Pyranol from GE's Pittsfield facility "may" have been burned or disposed at this site. GE is aware of no credible information which would provide a basis to suggest that GE is a PRP, not withstanding an exhaustive search. In addition, GE has confirmed with NYSDEC's Division of Environmental Enforcement that it has no information concerning GE's nexus to this site other than the "internal memo" mentioned above. Accordingly, GE expressly denies any liability for conditions at the site and the submission of these comments should not be construed to the contrary.

this site, and the contingent remedy is implemented, the result will be unnecessary delay and higher costs.

- Soil washing treatability studies should have been conducted on site soils during the RI/FS. At a minimum, grain size analyses should have been performed. It is likely that the FS substantially underestimates the amount of residual soil that will have to be disposed off-site after soil washing. This could significantly affect remedial costs.
- The FS and PRAP provide insufficient information on the surfactants that are proposed for use during soil washing. The use of surfactants can significantly impact water treatment and, therefore, the cost of the soil washing remedy.
- NYSDEC's soil volume estimates are subject to considerable uncertainty, which may impact the basis of remedy selection.
- Many elements of the long-term monitoring program proposed in the Record of Decision (ROD) are unnecessary and result in unnecessary costs.

A. Proposed Soil Washing Remedy

1. GE questions whether the proposed soil washing technology will be effective in meeting the remedial action objectives for the site. The FS Report references the United States Environmental Protection Agency's (USEPA's) 1993 Innovative Technology Evaluation Report on Soil Washing Technology. The results of the pilot test conducted under that program are not applicable to the Bouchard Junkyard site. The study was conducted on soils impacted by petroleum-based hydrocarbons and oils, not polychlorinated biphenyls (PCBs). Yet, page 3-13 of the FS Report states, "Soil washing has been successfully utilized to treat PCBs, pesticides, and SVOC [semi-volatile organic compounds] contaminated soils at several sites under the USEPA SITE Program to levels below the site SCGs [standards, criteria and guidance]". Please provide the basis

for this statement, including identifying those sites where soil washing has been successfully used to treat PCBs in soils and sediments. Please provide any other technical references or other information supporting the statement in the FS that soil washing has been successfully used to treat PCBs.

2. Did NYSDEC contact soil washing vendors during the technology screening process of the FS to determine if this technology is appropriate for the site conditions? If so, NYSDEC should provide in the Responsiveness Summary (RS) the name of the vendors, and the substance of the information provided by those vendors.

3. Did NYSDEC consider performing soil washing treatability studies on site soils during the RI/FS? If so, why were such studies not performed given that the PRAP states that soil washing is a "relatively new technology for use with PCBs"?

4. NYSDEC should identify any RI data or other information that supports the FS assumption of 1% residual soil for off-site disposal after soil washing (i.e., 345 cubic yards of the 34,500 cubic yard excavation estimate). Are the site soils as coarse as those treated in the USEPA case study referenced in the FS Report? Please provide specific information on any grain size analyses conducted to determine the amount of silt and clay in site soils. RI boring descriptions indicate that many of the stratigraphic units (especially at the surface) are either silt or sand and silt. Hydraulic conductivity results from the RI also appear to indicate the average site soil was silty sand. Thus, GE is unable to discern the basis for the FS assumption that the residual soil volume requiring off-site disposal would be only 1%. Please elaborate on the effect on the remedy costs and the amount of material that must be disposed off-site if the residual soil volume is greater than 1%, as GE believes it would be.

5. NYSDEC should provide more detail on the proposed surfactants to be used during the soil washing. Information should be provided which supports the assumption that specific surfactants can effectively be used to wash PCB contaminated soils. In addition, NYSDEC should specify how the surfactants will be disposed after use.

6. How will the presence of surfactants impact the stated desire to treat the wash water for reuse during the soil washing process? The PRAP and/or underlying FS Report should provide a description of the wash water treatment and recycling process. If the water cannot be treated for reuse, how much will the estimated costs of the soil washing remedy change? The PRAP estimates that 700,000 gallons of wash water will be required, and states that the wash water will be disposed off-site as a hazardous waste at the end of the project. The PRAP and/or underlying FS Report should provide a description of the wash water treatment and recycling process.

7. The USEPA soil washing study referenced in the FS Report was conducted on petroleum hydrocarbon impacted soils and required two washes on each batch to meet treatment goals. If the FS has underestimated the percentage of fines in the soil, and the ability of the soil wash to remove the PCBs, several wash cycles will be required. Does NYSDEC have an estimate on how many wash cycles will be necessary to achieve the remedial action objectives? If so, please provide such estimate. Please describe how the need for additional wash cycles would affect the costs of the remedy. How many wash cycles were assumed in preparing the cost estimate for the proposed remedy?

8. Have any vendors provided unit costs for soil washing? If so, please identify the vendors and specify the cost information they provided,

including the basis of their estimates considering the limited site-specific geotechnical data that has been collected.

9. GE believes that the cost of soil washing in the FS is underestimated. Given the uncertainties of the site soil properties and the volume of soil and sediment to be treated (discussed below), and the limited information on soil washing technologies, GE questions whether the FS estimated costs are sufficiently accurate and requests NYSDEC to explain how these estimates were derived.

B. Contingent Ex-Situ Thermal Remedy

1. Page 1 of the PRAP states that soil washing is a relatively new technology for PCBs in soils. Consequently, NYSDEC has identified ex-situ thermal desorption (Alternative 5, the most expensive alternative) as a backup technology. Given the uncertainties associated with the effectiveness of soil washing technology, it is likely that the contingent remedy (i.e., ex-situ thermal desorption) will be implemented. This will both delay the implementation of the remedy and increase the costs. NYSDEC should address this comment in the RS and provide additional information that supports the efficacy of soil washing for treatment of PCBs in soil.

2. The PRAP states that the contingent ex-situ thermal desorption remedy will require a pilot test to determine its effectiveness. If performed concurrently with the soil wash testing, and the thermal remedy is not conducted, unnecessary costs will be incurred. In contrast, if a thermal pilot is performed subsequently, implementation of the remedy would be delayed. The PRAP estimates that the contingent remedy would take nine months to design, and 12 to 15 months to implement. This is longer than the proposed remedy, which the PRAP estimates will require only six months to design and only six to 12 months to implement. Both the

proposed remedy and the contingent remedy are estimated to take considerably more time to design and implement than other alternatives. For example, the PRAP estimates that Alternative 6 would require six months to design and only three months to implement. Thus, the total amount of time required to implement the contingent remedy would be considerably more than the proposed remedy, which would, in turn, be considerably more than Alternative 6.

C. Other Remedial Alternatives

1. Alternative 2 specifies a 24-inch soil cover. Considering that NYSDEC's guidance and practice for PCBs in surface soil is 1 part per million (ppm) in the top foot, a 12-inch soil cover would be just as protective. This could consist of 6 inches of fill and 6 inches of topsoil. Using this realistic soil cover thickness would significantly reduce the amount of clean fill that would need to be brought to the site, reducing costs. The PRAP states that Alternative 2, like the proposed alternative, would comply with NYSDEC's threshold selection criteria. However, the time to implement Alternative 2 is much shorter than for the proposed remedy or the contingent remedy. Further, while pre-design sampling is needed for any remedy, Alternative 2 does not require any treatability testing before implementation. The non-volume-related uncertainty associated with the cost estimate for Alternative 2 is also considerably less than for the proposed and contingent alternatives. Finally, the PRAP suggests that 24 inches of fill and/or topsoil "would affect the grade of the site and may not be practicable at areas around structures at the site". This concern provides additional support for a 12-inch layer of cover.

2. The FS Report states that Alternative 2 would not mitigate the risk associated with PCBs above 1 ppm in sediment in the drainage ditch located at the southeast corner of the site. However, Alternative 2 could

be modified to require excavation and off-site disposal of the sediments in the drainage ditch. In addition, the soil excavations on the site could be backfilled with soil removed from near the structures, minimizing any concern regarding grading, and also reducing the amount of backfill that would need to be brought in to the site. This alternative, herein referred to as Alternative 2A, should be developed and compared to other alternatives before any final remedy decision is reached. In short, NYSDEC should consider an Alternative 2A, which uses a 12-inch soil cover and adds excavation and off-site disposal of the drainage ditch sediments. If this modified alternative is rejected, NYSDEC should provide its rationale.

3. Based on the information presented in the PRAP and supporting FS Report, Alternative 6 has more merit than Alternative 5, the contingent remedy. It accomplishes the same objectives and is somewhat less expensive, has far less cost uncertainty and is therefore more cost-effective. While the PRAP estimates the difference in cost at only $56,000, the cost estimate associated with the contingent remedy is subject to much greater uncertainty than the excavation and off-site disposal approach in Alternative 6. According to the PRAP (page 14), the contingent remedy also requires a bench-scale test and/or pilot study to determine the effectiveness of ex-situ thermal desorption for this site. Alternative 6 requires no such testing. The contingent remedy involves an air emission source, which is often a concern to the public. In addition, according per the PRAP, the contingent remedy would take 12 to 15 months to implement. Contrastingly, the PRAP states that Alternative 6 would only take three months to implement. For all these reasons, Alternative 6 appears to be better than Alternative 5 and, at a minimum, should be the contingent remedy if soil washing proves to be ineffective.

4. NYSDEC did not consider using in-situ thermal desorption using thermal wells as an alternative to ex-situ thermal desorption. This alternative (referred to herein as Alternative 5A) would involve the consolidation of soils and sediment that contain PCBs above NYSDEC's guidance (i.e., 1 ppm for surface soils and 10 ppm for subsurface soils) to create a treatment cell, which could be located in the area where the PCB-impacts extend the deepest (i.e., at the former burn pit). In-situ thermal desorption would then be performed using thermal wells installed into the treatment cell. The vendor that employs this technology uses a flameless thermal oxidizer to treat the off-gasses from the desorption. Preliminary calculations suggest that the capital costs associated with Alternative 5A could be significantly less than for the contingent remedy.

D. Volume Estimates and Pre-Design Needs

There are many issues regarding the volume estimates on which the PRAP is based. These are discussed further below, and are summarized as:

- Recreating NYSDEC's volume estimating process is difficult using existing documents;
- There are many vertical and horizontal soil and sediments data gaps;
- There are no continuously sampled soil sample locations to determine the profile of PCBs;
- NYSDEC's use of the top 18 inches to define surface soil is not justified;
- Volume estimates are key factors in the remedial cost estimates; and
- Plans for pre-design sampling have not been presented.

1. It is very difficult to independently calculate the estimated volume of surface and subsurface soils (i.e., 28,000 and 2,700 cubic yards, respectively) based on the information provided in the PRAP and its

supporting documents. Please describe the method used by NYSDEC to obtain these estimates and provide back-up information.

2. Based on our review of the RI Report, additional sampling of surface soils, subsurface soils and sediments is needed to more accurately determine the distribution of PCBs and, therefore, the lateral and vertical limits of excavation associated with the proposed or contingent remedies and Alternatives 2, 4 and 6 (and also Alternatives 2A and 5A discussed herein). For example, a review of the available data shows that the deepest soil sample collected at some locations contained PCBs above 50 ppm, the level used to define the hot-spot removal associated with Alternative 2 and the level above which additional regulatory requirements must be considered. Further, at other locations, the deepest soil sample contained PCBs above 10 ppm, the NYSDEC's cleanup goal for subsurface soils at this site. It appears that additional sampling must be performed during the remedial design to fill these data gaps. Does NYSDEC expect additional sampling to be performed during the remedial design? If not, how will the lateral and vertical limits of the excavation be determined to avoid over-excavation?

3. On page 7, the PRAP states that "waste oil containing PCBs was thought to have been spread at the site as a means of dust control and weed control". Thus, the depth of PCB-impacted soil is likely to be quite shallow across much of the site. During the RI, the vertical distribution of PCBs was not defined by collecting samples from 0 to 3 inches, 6 to 12 inches, 12 to 18 inches and 18 to 24 inches. At several locations, no samples were collected within the top 2 feet except for a sample from 0 to 2.4 inches. Additional surface and subsurface soil sampling is needed during remedial design to limit over-excavation and, therefore, avoid unnecessary expenditures. Does NYSDEC expect additional sampling to be performed

during the remedial design? If not, how will the lateral and vertical limits of the excavation be determined to avoid over-excavation?

4. The PRAP estimates that 3800 cubic yards of sediment would be excavated from the drainage ditch under either the proposed or contingent remedy or Alternative 6. This appears to be based on overly conservative assumptions, namely, that the sediment excavation would be 500 feet long, 100 feet wide and 2 feet deep. Thus, the "footprint" of the excavation is estimated at 50,000 square feet. Three sediment samples appear to have been collected during the RI from within the proposed excavation area. However, based on Figure 4-8 of the RI Report, PCBs were reported in one of the three samples (i.e., SD-8) at only 0.077 ppm, considerably less than the NYSDEC's SCG of 1 ppm for sediment in Table 1 of the PRAP. Eliminating this sample would appear to reduce the footprint of the excavation by about 12,500 square feet, which, assuming a 2-foot depth, would reduce the volume of excavated sediment by approximately 925 cubic yards, or almost 25 percent of the original estimate of 3800 cubic yards. In addition to the above, the three sediment samples collected during the RI from within the footprint of the proposed excavation area were all obtained from the centerline of the ditch and were collected from the 0- to 6-inch depth interval. No information is presented to justify excavating sediment to a depth of 2 feet. Further, no information is presented to justify a 100-foot wide excavation. The distance between the top of the bank on either side of the drainage ditch is estimated at about 60 feet on average. Using an assumed total width and depth of 60 feet and 6 inches, respectively, and adjusting the length as described above, the footprint of the proposed excavation would decrease from 50,000 square feet to just 22,500 square feet, and the volume of excavated sediment would decrease from 3800 cubic yards to slightly less than 420 cubic yards, an 89 percent reduction. Does NYSDEC expect the

lateral and vertical excavation limits to be refined during the remedial design? If not, how will over-excavation be avoided?

5. The FS and PRAP select an 18-inch depth to distinguish between surface and subsurface soils. What is the basis of this decision? Selecting an18-inch depth rather than 12 inches to distinguish between surface and subsurface soils significantly increases the estimated volume of excavation for several alternatives, including the proposed and contingent remedy, and, therefore, significantly increases the estimated capital costs. This additional volume could approach 9000 cubic yards, or 25 percent of the total volume estimated in the PRAP. NYSDEC should revise the surface soil definition to be the top 12 inches, or, at a minimum, explain why a depth of 18 inches provides any appreciable extra protectiveness. If 18 inches is used, please identify other sites where a depth of 18 inches has been used to define surface soil.

6. The estimates of the volume of excavated soil and sediment may not simply be a remedial design issue. Because the cost behavior of the various alternatives differs, changes in the estimated volume have the potential to impact remedy selection. For example, the "fixed" costs associated with the proposed and contingent remedies are much higher, and the "variable" costs much lower, than for the excavation and off-site disposal approach associated with Alternative 6. Thus, if the volume of excavated soil and sediment is actually much lower than 34,500 cubic yards, as we expect based on our review, the proposed and contingent remedies will appear much less cost effective.

7. It is not clear from the PRAP whether NYSDEC expects additional sampling to be performed during remedial design to determine the actual volume of surface and subsurface soils that need to be excavated for either the proposed or contingent remedies. Therefore, we request that

NYSDEC clarify its expectations, and, if additional sampling is envisioned, we ask that NYSDEC state what analyses would be performed on the additional samples. If NYSDEC envisions additional sampling during the remedial design for non-PCB parameters, we request that the basis for those other analyses be provided.

E. Long-Term Monitoring

1. The results of sampling performed during the RI, before the implementation of any remedial action, do not support the need for an extensive long-term monitoring program after the remedy is implemented. VOCs, SVOCs, pesticides and cyanide were not detected above SCGs in groundwater from the monitoring wells. Metals detected in groundwater from the monitoring wells represent background levels. SVOCs, pesticides and cyanide were not detected above SCGs in groundwater from the private water supply wells. SVOCs, pesticides and cyanide were not detected above SCGs in groundwater from the private water supply wells. Metals detected in groundwater samples from the private water supply wells represent background. VOCs and SVOCs were not detected above SCGs in surface water samples. Pesticides, metals and cyanide found in surface water samples are not site-related. Why does the long-term monitoring included in the PRAP and underlying FS Report include sampling for non-PCB parameters given these pre-remedial conditions? Eliminating the analysis of non-PCB parameters would reduce operation and maintenance (O&M) costs and appears to be appropriate given the results of the RI.

2. PCBs are the only constituent of concern at the site for which NYSDEC has proposed cleanup objectives, and PCBs were not detected in any of the drinking water samples collected during the RI or in any of the surface water samples collected during the RI. In the monitoring wells, PCBs

were detected in one monitoring well at 0.25 parts per billion (PPB) during one of the two sampling rounds; PCBs were not detected in any of the other monitoring well samples. The single sample that showed PCBs was from monitoring well MW-2, located near the center of the site. As discussed in the PRAP on page 6, "PCBs are not readily dissolved in water and are thus not expected to be found in groundwater or surface water unless associated with fine-grained material suspended in these media", and, given the location of well MW-2, we suspect that the detection of PCBs in this well during one of the two sampling rounds was due to sample turbidity. Based on the data collected during the RI, the monitoring included in Alternatives 2 through 6 should not include any sampling for PCBs in drinking water wells or surface water. If groundwater sampling is included, it should consist of collecting samples from existing on-site monitoring wells on one or two occasions for confirmation purposes. Low-flow sampling should be employed to help minimize the likelihood of false positives associated with sample turbidity. If PCBs are detected in the on-site monitoring wells, then a more comprehensive water monitoring program, including drinking water wells, could be implemented.

Please feel free to contact me if you have any questions regarding GE's comments.

Sincerely,

Edward K. LaPoint /bg

Edward K. LaPoint, P.E.
Remedial Project Manager

cc: Michael S. Elder, Esq.

APPENDIX B

Administrative Record

Administrative Record

Former Bouchard Junkyard
Site No. 411014

1. Proposed Remedial Action Plan for the Former Bouchard Junkyard, dated January 2004, prepared by the NYSDEC.

2. Referral Memorandum dated November 16, 2000 for the Former Bouchard Junkyard.

3. RI/FS Work Plan for the Former Bouchard Junkyard, dated November 2001, prepared by Dvirka & Bartilucci Consulting Engineers.

4. Citizen Participation Plan for the Former Bouchard Junkyard, dated November 2001, prepared by the NYSDEC.

5. Fact Sheet prepared November 2001 by NYSDEC.

6. Remedial Investigation Report, dated August 2002, prepared by Dvirka & Bartilucci Consulting Engineers.

7. Feasibility Study Report, dated April 2003, prepared by Dvirka & Bartilucci Consulting Engineers.

8. Fact Sheet prepared January 2004 by NYSDEC.

9. Letter dated February 19, 2004 from Ralph Chittenden, site owner.

10. E-mail dated February 20, 2004 from Richard O. York.

11. E-mail dated February 20, 2004 from Richard O. York (second).

12. Letter dated February 25, 2004 from Albert I. Wheeler, Supervisor, Town of New Lebanon.

13. E-mail dated February 27, 2004 from Jeffry and Diane Sheldon.

14. Letter dated February 27, 2004 from Edward K. LaPoint, P.E., GE Corporate Environmental Programs.

15. New York State Department of Health ROD concurrence letter, dated March 29, 2004.