Sterling Environmental Engineering, P.C.

NEW YORK STATE BROWNFIELD CLEANUP PROGRAM

NORTHEAST TREATERS OF NEW YORK, LLC
ATHENS, NY
BCP #C420029

REMEDIAL INVESTIGATION REPORT

Prepared for:

Northeast Treaters of New York, LLC
796 Schoharie Turnpike
Athens, New York 12015

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NEW YORK STATE BROWNFIELD CLEANUP PROGRAM

NORTHEAST TREATERS OF NEW YORK, LLC
ATHENS, NY
SITE #C420029

REMEDIAL INVESTIGATION REPORT

CERTIFICATION

I, Mark Millspaugh, certify that I am a New York State registered professional engineer and that this Remedial Investigation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Mark P. Millspaugh, P.E.
NY PE 059182

Professional Seal:

1.0 INTRODUCTION AND PURPOSE

Sterling Environmental Engineering, P.C. (STERLING) prepared this Remedial Investigation (RI) Report on behalf of Northeast Treaters of New York, LLC (hereinafter “Northeast Treaters”) in association with Brownfield Cleanup Program (BCP) Site #C420029 (hereinafter “the Site”). The New York State Department of Environmental Conservation (NYSDEC) requires the completion of a RI for sites accepted into the BCP.

This RI Report summarizes environmental investigations conducted at the Site and addresses NYSDEC comments provided on the draft RI Report dated February 27, 2015. The NYSDEC comment letter dated April 3, 2015 and a response to comments are provided as Appendix A.

1.1 Description of Project

Northeast Treaters operates a pressure treated wood manufacturing facility located on approximately 13 acres on the north side of the Schoharie Turnpike in the Town of Athens, New York. The facility was originally constructed in the mid-1970s. The location of the facility is presented on Figure 1. Figure 2 presents an aerial view of the facility and the parcel boundaries.

The owner seeks to modernize the existing plant in order to remain competitive, energy-efficient and current with environmental and health and safety standards. The key elements/improvements associated with the proposed facility modernization include:

- In-place capping of a 30 ft. x 57 ft. (1,710 square feet) northern section of the existing drip pad with asphalt pavement;
- Construction of a new 88 ft. x 200 ft. (17,600 square feet) drip pad over the remaining portion of the existing drip pad;
- Construction of a new 88 ft. x 200 ft. (17,600 square feet) building (Process Building) over the entire new drip pad;
- Installing modern and efficient pressure treating equipment over a containment structure;
- Consolidating existing bulk storage activities in the Process Building, inside an improved secondary containment structure;
- Construction of a new 31.5 ft. x 50 ft. (1,575 square feet) office to replace the existing offices;
- Limited Site grading in the immediate vicinity of the Process Building;
- Paving the area beyond the Process Building;
- Storm water drainage improvements; and
- Implementing a plan to manage stormwater during the construction process.

In order to implement the proposed upgrade, the owner must construct spread footers with frost walls and piers for the new Process Building which require removal of a portion of the existing concrete drip pad.

1.2 Facility Background

The Northeast Treaters facility originally operated as a saw mill owned by Atlantic Wood Industries, Inc. (AWII). Operation as a pressure treating wood manufacturing facility began in 1979. For a period of time, the facility utilized chromated copper arsenate (CCA) to pressure treat wood products. In 2003 the facility switched to Micronized Copper Azole, a non-hazardous preservative. The existing facility consists of three (3) main buildings: the Lumber Stacking Building, the Process Building and the Maintenance Building. Wood is treated in the Process Building in an 80 foot long by 6 foot diameter treatment cylinder. The cylinder is filled with a solution and a pressure is then created to force the solution into the wood. After treatment under pressure, a vacuum in the cylinder extracts excess solution from the wood. Once removed from the cylinder, the wood is then stacked on the drip pad in the Process Building.

The drip pad, as well as the concrete floor under the treatment cylinder, drains to a large concrete sump. The entire drip pad is contained within the Process Building. Sumps, located at each end of the treatment cylinder, collect excess solution from the treatment process cylinder and from the drip pad for recycling back into the wood treatment process. The sumps are constructed of concrete and are approximately 8 ft. x 8 ft. x 3 ft. deep.

The facility generates hazardous wastes consisting primarily of dry wastes (floor sweepings, etc.) generated from cleaning activities and filter bags used to filter particulates from the material in the solution recycle sump. Even though the facility uses a non-hazardous preservative, under the Federal and New York State hazardous waste regulations, floor sweepings, filter bags, etc. are managed as hazardous waste, as defined by 6 NYCRR Part 371.1(d)(2)(ii), because they came into contact with the drip pad and sumps, which were in place when the facility used CCA. These hazardous wastes are temporarily stored in a designated area in the Process Building prior to shipment for offsite disposal.

The Process Building also houses four (4) aboveground tanks, consisting of three (3) 18,000 gallon working tanks and one (1) additional 4,800 gallon tank. These tanks are used to store non-hazardous products used in the pressure treating process. The facility is also equipped with several petroleum bulk storage (PBS) tanks. One (1) of the facility's PBS tanks is located within the boundaries of the Site and this tank will be taken temporarily out-of-service in conformance with 6 NYCRR Parts 598.10 and 613.9 during this modernization project. The chemical and petroleum tanks will then be relocated to the Process Building in a single aboveground bulk storage facility.

2.0 SITE DESCRIPTION

The Site is limited to the easternmost portion of the Northeast Treaters property in the area of the Process Building; the Site totals approximately 1.68 acres (see Figure 2).

2.1 Land Use

A zoning map, a summary table of permitted uses, and a summary table of lot requirements established by the Town of Athens zoning code are provided as Appendix B. The Site is zoned and currently used as an industrial property (i.e., the LI-2 District). Upon completion of remedial activities, the Site will continue to be used for manufacturing of treated wood products and so will remain industrial.

The general remedial program provisions set forth at 6 NYCRR Part 375-1.8(f)(9) authorize NYSDEC to consider land use in selecting site remedies provided there is "reasonable certainty associated with such use" and identify a host of factors that may be considered in making such an assessment. The BCP regulations at 6 NYCRR Part 375-3.8(a)(2) specifically provide that the selection of a remedy at a BCP site "will take into account the current, intended, and reasonably anticipated future land uses of the site and its surroundings." In distinguishing among sites for purposes of establishing cleanup requirements, NYSDEC considers the "primary" use of the site. For example, a site may be classified as "industrial" if "the primary purpose" of the site is "manufacturing, production, fabrication or assembly processes and ancillary services" (6 NYCRR Part 375-1.8(g)(2)(iv)).

In the present case, the sole use at the Site currently is industrial. Going forward, the entire BCP application is premised on the applicant constructing a new manufacturing plant, with an anticipated useful life of approximately 30 years. The construction of the plant is being financed with long term debt secured by the entire Site. The intended future use of the Site as an industrial wood treatment facility aligns with the visions of the July 2007 Greene County Comprehensive Economic Development Plan to expand the Athens Industrial Park.

While the Athens Zoning Code allows some uses (either as of right or with site plan approval or a special use permit) in the LI-2 District that are not strictly industrial, none of those uses are anticipated by Northeast Treaters for the Site. In order to conduct some less restrictive use (residential or commercial), the applicant would need to eliminate all or a portion of the manufacturing activity and subdivide out the vacant parcel. The subdivided parcel would have to meet the requirements for frontage, road access, onsite water and septic. Based upon a review of the subdivision requirements and applicable codes, counsel for Northeast Treaters has concluded that the possibility of permitting a residential or commercial use at the Site is remote.

2.2 Site Topography

The Site is generally flat, at an elevation of approximately 140 feet above mean sea level (amsl). The surrounding topography located one-half (½) mile to the north, south, and west of the Site is relatively flat and is at an elevation between 130 - 150 feet amsl. The area located one-half (½) mile to the east of the Site is at an elevation of approximately 200 feet amsl and slopes west towards the Site.

2.3 Surface Water, Wetlands, and Floodplains

The nearest surface water, a tributary to Murderers Creek, is located approximately 1,000 feet to the north of the Site. Murderers Creek, a regulated Class C waterbody, is located approximately 1.6 miles to the north of the Site and flows towards Sleepy Hollow Lake, which is located approximately 1.6 miles to the east of the Site.

Federal and State regulated wetlands (Wetland No. HN-108) are located near the northwesternmost portion of the Northeast Treaters' property, approximately 500 feet northwest of the Site.

The Site is not located in a designated floodway or within one-half (½) mile of a 100-year floodplain.

2.4 Geology and Hydrogeology

The mobility of Site-related contaminants is dependent on the geological and hydrogeological conditions at the Site. These conditions are taken into consideration when developing and evaluating remedial alternatives.

The Site is located in the glaciated area that transitions from the Hudson-Mohawk Lowlands to the Alleghany Uplands physiographic provinces, approximately 2.3 miles west of the Hudson River. Information on soil maps from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Web Soil Survey (provided as Appendix C) indicate the Site consists of Covington and Madalin soils to the west and Kingsbury and Rhinebeck soils to the east. These soils are derived from glaciolacustrine (glacial lake) deposits, generally consist of clay and silt, and are described as poorly drained with varying transmissivities, according to the soil survey.

As discussed in Section 4.1, soil borings were drilled at 43 sample locations from November 17 to 20, 2014 for the purpose of collecting samples for laboratory analysis. Forty-three of these borings penetrated through the fill into the underlying glaciolacustrine unit. Four (4) of these borings penetrated through the glaciolacustrine unit into the underlying glacial till. Soils penetrated during drilling activities are consistent with the geologically mapped units described above on the Surficial Geologic Map of New York State, Hudson-Mohawk Sheet. Information from the soil borings drilled at the Site indicates that the sequence of materials beneath the Site (i.e., stratigraphy), in descending order is as follows:

- A layer of approximately 3 to 4 feet of fill material overlies the natural glaciolacustrine unit at the Site. Fill material is comprised of gray to light gray sand and gravel with pebbles and cobbles. The fill appears to have been placed to level the area for development and construction of buildings. The natural surface beneath the fill slopes gently to the west, based on review of the topographic map of the area (Figure 1). The fill is thicker in very limited areas of the Site where the underlying glaciolacustrine material was excavated to install the existing wood treatment cylinder and associated sump system. Greater thicknesses of fill are not expected, other than at these locations, based on the known development history of the property.

- Glaciolacustrine deposits typically are comprised of fine-grained material (silt and clay) deposited in a glacial lake. The permeability of glaciolacustrine deposits normally is very low because of they are comprised of fine grained sediments. The glaciolacustrine unit encountered in the soil borings drilled at the Site is described as light gray to light brown clay with some silt.

- Glacial till was encountered at depths ranging from nine (9) to 12.5 feet below grade beneath the glaciolacustrine unit; glacial till was not encountered in some soil borings which exceeded 12.5 feet below grade surface (bgs). Glacial till is comprised of a heterogeneous mixture of sand, gravel, silt, and clay with the matrix consisting primarily of silt and clay. The glaciolacustrine unit encountered in the soil borings drilled at the Site is described as fine-grained, neutral gray soil.

- Bedrock beneath the Site consists primarily of the middle Ordovician age Austin Glen Formation, comprised of interbedded graywacke and shale according to the New York State Geologic Bedrock Map. The depth to bedrock in the vicinity of the Site ranges from approximately 22 to 84 feet bgs as indicated by logs of water wells at the facility. Well Completion Logs are provided as Appendix D and information obtained from these reports is summarized in the table on the following page. Lithologic descriptions from the well logs indicate that bedrock consists of black and gray shale and some sandstone. Borings drilled at the Site for the remedial investigation reached a maximum depth of 15 feet and did not encounter bedrock.

A geologic cross section of the Site is provided as Figure 5.

Past studies of the Site indicate that the glacial till and glaciolacustrine units at the Site act as confining units that restrict the vertical movement of groundwater. To confirm this conclusion, four monitoring wells (identified as MW-1 to MW-4) were installed as part of the RI to determine the presence or absence of groundwater at the Site. Well Competition Logs are provided as Appendix D, and a well location map is provided as Figure 6.

Measurements of perched water obtained from MW-1 through MW-4 during the RI (provided in Table 3a) range between 0.4 feet bgs to no observed perched water. Moreover, water levels recorded during the installation of facility water wells (below) indicate piezometric levels within the boundaries of the Site are between ten (10) and 19.33 feet bgs. These data indicate water that infiltrates the paved area or at the margins of the paved area (e.g. MW-1) migrates downward and perches on top of the natural glaciolacustrine material, and that perched water occurs in isolated locations, or is not present in the fill. The basis for this interpretation is described in Section 4.2. The perched water in the fill would not migrate because of its sporadic occurrence.

NYSDEC Well No.	G1806	G2560	G2542	G2547
Latitude	N 42° 17.341'	N42° 17.18	N42° 17.20	N43° 17.23
Longitude	W73° 50.153	W73° 50.30	W73° 50.42	W73° 50.41
Install Date	8/19/2004	9/20/2007	8/15/2007	9/4/2007
Well Depth (feet)	802	265	83	210
Top of Rock (feet)	55	22	83	84
Depth to Water (feet)	19.33	10	2	4
Stabilized Q (gpm)	2	2 - 3	15	20
Max D.D. (feet)	300	260	7.6	NA
Test Duration (hrs.)	4	2	6	8
Test Method	Pump	Bailer	Pump	Pump
Drilling Company	Hanson Well Drilling & Pump Co., Inc.	L.H. Heimburge Well Drilling	L.H. Heimburge Well Drilling	L.H. Heimburge Well Drilling

Information obtained from the NYSDEC Environmental Assessment Form (EAF) Mapper indicates the Site is not located over, or immediately adjoining, a primary, principal, or sole source aquifer. No sand or gravel water-bearing units were encountered in the soil borings drilled at the Site.

2.5 Previous Investigations

Historical sampling locations investigated prior to 2014 are shown on Figure 3 and the respective analytical data are summarized in Tables 1a and 1b. Sample locations recently sampled by STERLING during and after 2014 are provided on Figure 4 and the respective analytical data are summarized in Tables 2a through 2j.

The facility has been subject to several environmental studies by the NYSDEC, the United States Environmental Protection Agency (USEPA) and the former Site owner. These studies include: (a) a 1989 "corrective action prior to loss of interim status" (CAPT LOIS) inspection prepared by A.T. Kearney under contract with USEPA (provided as Appendix E); (b) a 1993 preliminary Resource Conservation and Recovery Act (RCRA) facility assessment prepared by TRC under contract with USEPA (provided as Appendix F); (c) a report entitled *Modified Phase I Environmental Site Assessment and Compliance Audit* dated December 1995 prepared by Groundwater Technology, Inc. at the request of AWII for Northeast Treaters (hereinafter "Phase I Site Assessment")(provided as Appendix G); (d) a 1997 report prepared by KU Resources entitled *Report of Findings CCA Solution Recycle Sump (SWMU 3) Integrity Evaluation*; and (e) a 1999 report prepared by KU Resources entitled *Report of Findings Sampling Visit Work Plan Implementation* (hereinafter "KU Resources Report"). The 1997 and the 1999 reports prepared by KU Resources are provided as Appendix H.

The Phase I Site Assessment, prepared utilizing American Society for Testing and Materials Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E 1527), provides a summary of environmental conditions and includes the results of surficial soil sampling at various locations across the Northeast Treaters property, as well as the installation of borings to a depth of 13 to 22 feet. Samples were analyzed for total copper, total chromium, total arsenic, toxicity characteristic leaching procedure (TCLP) copper, TCLP chromium and TCLP arsenic.

Surface soils on the Northeast Treaters property were found to be impacted to varying degrees. The Phase I Site Assessment concluded that "In the opinion of Groundwater Technology, based upon our extensive knowledge of environmental conditions at wood preservation facilities, the results of the analyses performed should not be considered to be of environmental concern."

The Phase I Site Assessment also notes a spill of approximately three (3) pounds of arsenic pentoxide occurred on May 2, 1990. The approximate spill area is located between the Treating Building and the Fixation Building and identified on Figure 3. A valve on the treatment tank was left open and CCA solution was released onto the ground. The cleanup was completed under NYSDEC oversight. By letter dated August 21, 1990, the NYSDEC determined that remedial activities associated with the spill could be discontinued and the spill closed.

Investigations of the Site were conducted in 1997 and 1999 as a follow-up to the 1989 CAPT LOIS report. The first investigation focused on the area around the south sump while the second evaluated the south sump, the north sump, the drip pad and the former underground tank. The investigations, which are summarized in the KU Resources Report, provide a description of the sampling and reported analytical results. The sampling conducted by KU Resources focused on:

- CCA Solution Recycle Sump (south sump)
- Treating Cylinder Pit (north sump)
- Drip Pad
- Former Underground Tank

Background sampling was also performed. The KU Resources Report states that the drip pad is "compliant with RCRA Subpart W". The sampling results were interpreted to indicate no evidence of continuing releases. However, certain locations on the Northeast Treaters property were observed with concentrations consistent with incidental drippage through routine handling of treated lumber and CCA. The report further concludes that the observed CCA in soil is not mobile due to the substantial thickness of natural, low permeability clay unit beneath the gravel fill at the surface. NYSDEC's review of the 1999 investigation and report is summarized by the NYSDEC in a June 13, 2000 letter which allows for the remediation of impacted soils in the vicinity of the drip pad to be addressed upon drip pad closure and when the soils become accessible. The letter concludes that at the time of transmittal, "the RCRA Facility Assessment [indicated] that there are no other known releases from the Northeast Treaters facility that require RCRA corrective action."

On June 23, 2014, STERLING conducted focused sampling of the existing concrete drip pad and subsurface soils associated with the Site. The findings of this sampling investigation was summarized in the *Sampling for Chromium and Arsenic in Drip Pad Concrete and Subsoils* report and incorporated into the *Drip Pad Work Plan*, September 3, 2014. The primary purpose of this sampling event was to properly characterize the concrete debris from the drip pad and subsurface soils. A total of 12 concrete samples and 20 soil samples were collected, at various depths, at four (4) sample locations. Concrete and soil samples were analyzed for total metals and TCLP metals via USEPA Method 6010C. Samples were only analyzed for the hazardous components of CCA, arsenic and chromium.

3.0 SCOPE OF WORK COMPLETED

The initial RI was performed by STERLING from November 17, 2014 through November 20, 2014 in accordance with the RI Work Plan dated October 30, 2014. The primary objectives of the initial RI are as follows:

- Collect soil/fill samples to supplement available information and better delineate the extent of impacted soils;

- Confirm extent of suspected contaminant source areas; and

- Evaluate the concentration of parameters identified in 6 NYCRR Part 375-6.8, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and polychlorinated biphenyls (PCBs), relative to applicable Soil Cleanup Objectives (SCOs).

Additional sampling was performed by STERLING on January 22, 2015, in accordance with the sampling procedures and methodology described in the October 30, 2014 RI Work Plan, to further delineate the lateral extent of impacted surface soils.

Supplemental RI sampling was performed by STERLING on April 15, 2015 and April 20, 2015 in accordance with the Supplemental RI Work Plan dated April 13, 2015 and revised April 30, 2015 to provide further definition of onsite and offsite conditions. The primary objectives of the Supplemental RI are as follows:

- Further delineate the nature and extent of contamination at the Site;

- Evaluate the potential offsite migration of Site-related contamination;

- Conduct analysis of potential impacts to fish and wildlife resources; and

- Evaluate groundwater quality at the Site.

Prior to initiating ground intrusive investigations at the Site, a Dig Safely New York utility stake-out was requested by SJB Services, Inc. (SJB).

During the initial RI, 84 soil samples were collected from 43 sample locations between grade surface and approximately fifteen (15) feet bgs in order to evaluate the magnitude and extent of impacted soil. During the supplemental sampling investigation, an additional six (6) surface soil samples were collected from six (6) sample locations located near the perimeter of the Site. Descriptions of soil and geological materials encountered during the initial RI are provided in Table 4a.

Of the above samples, a total of twenty (20) soil samples were analyzed for all parameters identified in 6 NYCRR Part 375-6.8 ("full parameter samples"). A total of 70 soil samples were analyzed for total arsenic, total chromium, and hexavalent chromium only.

During the Supplemental RI, 56 soil samples were collected from 32 sample locations between grade surface and approximately one (1) foot bgs. An additional three (3) sediment samples and five (5) surface soil samples were collected from 8 sample locations to evaluate the migration potential of Site-related contaminants through the facility's stormwater management system. Soil and sediment samples collected during the Supplemental RI were analyzed for total arsenic, total chromium, and hexavalent chromium only. Descriptions of soil and geological materials encountered during the supplemental RI are provided in Table 4b. Boring logs obtained during the Supplemental RI are provided as Appendix I.

One (1) sample of perched groundwater was obtained from MW-1, a shallow monitoring well, on April 15, 2015 to investigate groundwater impacts at the Site. The groundwater sample was analyzed for total arsenic, chromium and hexavalent chromium and dissolved arsenic, chromium and hexavalent chromium. Insufficient levels of groundwater were observed from wells MW-2, MW-3, and MW-4, and therefore no groundwater samples were obtained from these wells. Due to the lack of groundwater in downgradient wells, no downgradient water samples could be collected as described in the Supplemental RI Work Plan dated April 30, 2015.

Soil cores were obtained by SJB utilizing direct-push Geoprobe® sampling methodology. Soil samples were collected by STERLING utilizing a stainless steel bowl, a stainless steel spoon, and laboratory supplied sample containers. Laboratory analytical reports associated with these sampling events are provided in Appendix J.

3.1 Full Parameter Sampling

Full parameter sampling consisted of two (2) sump samples, four (4) drip pad samples, six (6) drip pad perimeter surface samples and eight (8) Site perimeter samples. A total of twenty (20) soil samples were analyzed for all parameters identified in 6 NYCRR Part 375-6. Samples analyzed for all parameters identified in 6 NYCRR Part 375-6.8 are identified by a "+" symbol on Figures 7, 8 and 9. The results of full parameter sampling are summarized in Table 2a.

3.2 Sump Sample Location

One (1) sampling location, SUMP-01, was identified adjacent to the sump associated with the lumber pressure treatment cylinder. One (1) soil sample was collected from fill material immediately below the concrete drip pad at the SUMP-01 sample location. An additional four (4) soil samples were collected approximately three (3) to fifteen (15) feet bgs, from clay material located beneath the fill material, to determine the maximum vertical extent of contamination. The SUMP-01 sample location is shown on Figure 7.

3.3 Drip Pad Sample Locations

Drip pad sample locations are shown on Figure 7. A total of (18) samples were collected from four (4) drip pad sample locations. Drip pad samples (identified as "DP" samples) were obtained from fill and clay material located beneath the concrete drip pad. Sample locations were identified at locations of greatest suspected contamination (i.e. cracks, joints, etc.). Fill samples were collected from fill material located immediately below the concrete drip pad and clay samples were collected between three (3) and fifteen (15) feet bgs. Till material was observed at one (1) drip pad sample location, sample location DP-02, at a depth of approximately nine (9) feet bgs. No samples were collected below approximately nine (9) feet bgs at sample location DP-02 due to refusal.

3.4 Drip Pad Perimeter Sample Locations

Drip pad perimeter sample locations are shown of Figure 8. A total of 49 soil samples were collected from 32 drip pad perimeter locations. Drip pad perimeter samples (identified as "DPP" samples) were taken adjacent to the edge of the drip pad (identified as interior or "I" samples) and approximately ten (10) feet from the edge of the drip pad (identified as exterior or "E" samples). Fill samples (identified as surface or "S" samples) were collected at each drip pad perimeter sample location. Clay samples (identified as at depth or "D" samples) were collected at alternating interior and exterior drip pad perimeter sample locations.

3.5 Site Perimeter Sample Locations

Site perimeter sample locations are shown on Figure 9. During the initial RI, twelve (12) Site perimeter samples (identified as "SP" samples) were obtained from six (6) sample locations located between the physical perimeter of the Process Building and the perimeter of the Site. One (1) surface sample (identified as the “S” sample) was collected at each Site perimeter sample location from fill material located between grade surface and up to approximately four (4) feet bgs. One (1) at depth sample (identified as the “D” sample) was collected at each Site perimeter sample location from clay material located immediately below fill material up to approximately six (6) feet bgs.

During the supplemental sampling investigation, an additional six (6) samples were collected from six (6) sample locations located near the perimeter of the Site. One (1) composite soil sample was collected at each of the six (6) locations from soil obtained between grade surface and approximately one (1) foot bgs.

During the Supplemental RI, an additional 24 samples were collected from 14 sample locations located near the perimeter of the Site. One (1) surface sample between grade surface and approximately two (2) inches bgs and one (1) composite sample between grade surface and approximately one (1) foot bgs was collected at each sample location with exposed soil. One (1) composite sample was collected between approximately 0.5 and one (1) foot bgs at each sample location covered by asphalt pavement.

Site perimeter locations SP-01 through SP-06 were sampled during the RI, Site perimeter locations SP-07 through SP-12 were sampled during the supplemental sampling investigation, and Site perimeter locations SP-13 through SP-26 were sampled during the Supplemental RI.

3.6 Offsite Sample Locations

Offsite sample locations are shown on Figure 10. During the Supplemental RI, 32 samples were collected from 18 sample locations located to the north and to the east, and beyond the perimeter, of the Site (identified as “OSS” samples). Surface samples were collected between grade surface and approximately two (2) inches below grade surface at sample locations OSS-1 through OSS-15. An additional composite sample was collected between approximately 0.5 and one (1) foot bgs at sample locations OSS-15 through OSS-19.

3.7 Catch Basin Sample Locations

Three (3) sediment samples and five (5) surface soil samples were collected as shown on Figure 11 to investigate the migration potential of chromium and arsenic from the Site through the facilities stormwater management system. Sediment samples were collected from three (3) of the facility’s catch basins, identified as sample locations CB-01, CB-07 and CB-08 on Figure 11. Four (4) surface soil samples (CB-02 through CB-05) were collected adjacent to CB-01 and one (1) surface soil sample (CB-06) was collected adjacent to northern inlet of CB-01. The Supplemental RI Work Plan indicated that one (1) surface soil sample would be collected from the eastern inlet of CB-01; however, the eastern inlet of CB-01 was not observed during field investigations.

3.7 Groundwater Sample Locations

Piezometric measurements obtained from MW-1 through MW-4 during the RI (provided in Table 3a) range between 0.4 feet below ground surface (bgs) to no observed groundwater. One (1) groundwater sample was obtained from upgradient well MW-1, and analytical sample results are summarized in Table 3b. Insufficient levels of groundwater were observed from wells MW-2, MW-3, and MW-4, and therefore no groundwater samples were obtained from these wells. A summary of purging data is provided as Table 3c.

4.0 REMEDIAL INVESTIGATION RESULTS

4.1 Soil Investigation

Descriptions of soil and geological materials encountered during field investigations are provided in Tables 4a and 4b. Boring logs obtained during the Supplemental RI are provided as Appendix I.

Fill material was observed at sample location located within the boundaries of the Site to a depth of approximately three (3) to four (4) feet bgs during field investigations. Clay was observed below fill material at all of these sample locations. A total of 21 sample locations were probed to a depth of approximately fifteen (15) feet bgs, or refusal, to visually characterize underlying soils. Till material was observed at sample locations: DP-02, DPP-04E, DPP-01I, and SP-02 at depths between approximately nine (9) feet bgs and twelve and one-half (12.5) feet bgs. Sampling conducted during the supplemental sampling investigation and the Supplemental RI was limited to a depth of approximately one (1) foot bgs.

A total of twenty (20) samples were analyzed for all parameters identified in 6 NYCRR Part 375-6.8 and compared to their respective SCOs. Analytical results associated with full parameter sampling are presented in Table 2a. With the exception of sample DPP-08ES, samples analyzed for SVOCs, VOCs, PCBs, metals, and pesticides did not indicate the presence of contamination beyond metal contamination. The data indicate that metal contamination is limited to chromium and arsenic. Total barium was detected in sample SP-05S above the unrestricted use SCO but below the industrial use SCO. Similarly, copper was observed in samples SUMP FILL and DP-01 FILL at concentrations above the unrestricted use SCO but below the industrial use SCO.

Several polycyclic aromatic hydrocarbons (PAHs) were detected in sample DPP-08ES below unrestricted use SCOs. SVOCs: Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, and Chrysene were detected in sample DPP-08ES above the unrestricted use SCOs but below commercial-use SCOs. Sample location DPP-08ES is within fifteen (15) feet of three (3) 100 gallon propane tanks utilized by the facility for heating purposes. It is suspected that the detection of these parameters may be attributed to *de minimis* losses from delivery vehicles.

Laboratory analytical reports are provided in Appendix J. A summary of chromium and arsenic detections at drip pad sample locations is provided in Table 2b. A summary of chromium and arsenic detections at drip pad perimeter sample locations is provided in Table 2c. A summary of chromium and arsenic detections at Site perimeter sample locations is provided in Table 2d. A summary of chromium and arsenic detections at offsite sample locations is provided in Table 2e. A summary of chromium and arsenic detections at catch basin sample locations is provided in Table 2f.

Reported concentrations of total arsenic and total chromium were compared against unrestricted use and industrial use SCOs consistent with Northeast Treaters' plan to modernize its facility to continue industrial wood treatment operations at the Site and with the Town of Athens' Zoning Code.

All samples collected during the RI were analyzed for hexavalent chromium and total chromium. Soil samples which produced detections of hexavalent chromium produced detections of total chromium one (1) to two (2) orders of magnitude greater in concentration when compared to the concentration of hexavalent chromium. As a result, for the purposes of this report, detections of total chromium were compared to trivalent chromium SCOs to evaluate the magnitude and extent of chromium contamination at the Site. All other parameters were compared to their respective SCOs.

4.1.1 Sump and Drip Pad Sample Locations

A summary of chromium and arsenic detections at sump and drip pad sample locations is provided in Table 2b and Figure 7. For purpose of comparison, soil sample results from the June 23, 2014 sampling event are shown on the left-hand side of Figure 7 and soil sample results from the RI are shown on the right-hand side of Figure 7.

Sample location SUMP-01 is located adjacent to the northernmost portion of the treatment cylinder near the location of the sump. Analytical data associated with the SUMP-01 sample location indicate that arsenic detections above the sixteen (16) ppm restricted use SCO are present at a depth of approximately six (6) feet bgs. Detected concentrations of arsenic did not exceed the sixteen (16) ppm restricted use SCO in soil samples collected at or below a depth of approximately ten (10) feet bgs at the SUMP-01 sample location. This data is consistent with the results previously obtained at sample location SC-04, which is located approximately ten (10) feet to the southwest of sample location SUMP-01.

With the exception of the sample obtained from sample location SUMP-01, samples collected beneath the drip pad indicate that arsenic and chromium contamination is limited to fill material. This data is consistent with drip pad soil sample results obtained during the June 23, 2014 sampling event. Fill material was observed at the sump and drip pad sample locations to a depth of approximately three (3) feet bgs. With the exception of DP-02, clay was observed at the sump and drip pad sample locations between approximately three (3) and fifteen (15) feet bgs. Till was observed below the clay unit at sample location DP-02 at a depth of approximately nine (9) feet bgs. No samples were collected at sample location DP-02 below a depth of approximately nine (9) feet due to refusal.

4.1.2 Drip Pad Perimeter Sample and Site Perimeter Sample Locations

A summary of chromium and arsenic detections at drip pad perimeter sample locations is provided as Table 2c and Figure 8. A summary of chromium and arsenic detections at Site perimeter sample locations is provided as Table 2d and Figure 9.

Drip pad perimeter sample location DPP-09 was sampled beneath the footprint of the drip pad due to field restrictions. Geoprobe® equipment was unable to access the proposed DPP-09 sample location as access to the proposed sample location was limited by the size restraints of a standard door frame. Sample location DPP-09IS is located approximately seven (7) feet to the north of the southern boundary of the drip pad, and sample location DPP-09ES is located approximately ten (10) feet to the north of sample location DPP-09IS as shown on Figure 8.

Drip pad perimeter and Site perimeter sample data indicate that contamination at the Site is almost exclusively limited to the fill material. Only one perimeter sample, DPP07-ID, indicated a detection of total arsenic in the clay unit above the restricted use SCO of sixteen (16) ppm. As previously noted, detections of total chromium above the commercial use SCO of 1,500 ppm were not observed at any sample locations.

Sample data associated with Site perimeter sample locations SP-04 and SP-05 indicate that the fill material located on the southernmost portion of the Site is near or below the unrestricted use SCO designated for total chromium and total arsenic. Clay and fill sample data associated with Site perimeter sample locations SP-01, SP-02, SP-03 and SP-06 suggests that concentrations of total arsenic decrease with increasing distance from the drip pad.

4.1.3 Offsite Sample Locations

A summary of chromium and arsenic detections at offsite sample locations is provided as Table 2e and Figure 10.

Offsite soil samples were collected at 18 locations east and north of the Site in the adjacent mixed deciduous/coniferous forest area and analyzed for arsenic and chromium. Samples were collected from 0-2 inches at all locations and from 6-12 inches at 14 of the locations (OSS-5 through OSS-19).

Five (5) samples (OSS-9 thru OSS-13) were collected approximately 30 feet to the east of the Site. The data from the surface samples (0-2 inches) indicate that four (4) of the five (5) samples exhibited arsenic concentrations (range 14 ppm to 35 ppm) slightly above unrestricted use SCO. The arsenic concentration in all five (5) of these samples collected from 6-12 inches was below unrestricted use SCO. All chromium concentrations met the unrestricted use SCOs.

Four (4) pairs of samples (OSS-1/OSS-5, OSS-2/OSS-6, OSS-3/OSS-7 and OSS-4/OSS-8) were collected north of the Site with the first sample in each pair collected approximately 10 feet north of the Site and the second set collected approximately 40 feet north of the Site. At each location 40 feet north of the Site samples were collected from 0-2 inches and 6-12 inches.

Arsenic concentrations in all four (4) samples collected ten (10) feet north of the Site (range 27 ppm to 50 ppm) were above unrestricted use SCOs. Chromium concentrations in two (2) of the samples collected 10 feet north of the Site (range 31 ppm to 46 ppm) were slightly higher than the unrestricted use SCO.

All but one (1) of the samples collected approximately 40 feet north of the Site met the unrestricted use SCO for chromium (range 21 ppm to 31 ppm). The one (1) exceedance (detected concentration of 31 ppm) was above the unrestricted use SCO for chromium by one (1) ppm. The arsenic concentrations in the four (4) samples collected approximately 40 feet North off the Site were consistently less than the concentrations in the samples collected ten (10) feet north of the Site. Two (2) of the four (4) samples collected from 6-12 inches were above the unrestricted use SCO but met the industrial use SCO for arsenic.

The arsenic and chromium data from the samples collected 10 feet and 40 feet north of the Site indicate that concentrations rapidly decrease with increasing distance from the Site. This is substantiated by arsenic and chromium results collected from five (5) samples (OSS-15 to OSS-19) collected east and north of the Site between approximately 280 feet and 350 feet beyond the Site boundary. Samples were collected from 0-2 inches and 6-12 inches at all five (5) locations and all arsenic and chromium concentrations were less than the respective unrestricted use SCOs.

Detected concentrations of arsenic at sample locations between approximately 280 feet and 350 feet beyond the perimeter of the Site ranged between 7.1 ppm to 12 ppm. Detected concentrations of chromium at sample locations approximately 300 feet beyond the perimeter of the Site ranged between 20 to 29 ppm. Accordingly samples obtained from offsite samples OSS-15, OSS-16, OSS-17, OSS-18 and OSS-19 all met unrestricted use SCOs for chromium and arsenic. These sample data suggest that Site-related contamination is bound to the north and east by the aforementioned sample locations.

4.1.4 Catch Basin and Stormwater Sampling

A summary of chromium and arsenic detections at offsite sample locations is provided as Table 2f and Figure 11.

Sediment and surface samples collected from CB-1, the stormwater catch basin located near the northwestern corner of the Site, indicate the presence of arsenic above unrestricted use SCOs at this location. Although CB-1 was filled with sediment and soil and no stormwater flow was observed in this catch basin, stormwater flow was observed in the receiving catch basins which are identified as CB-7 and CB-8 on Figure 11. Sediment samples collected from CB-7 and CB-8 indicate the presence of arsenic and chromium above unrestricted use SCOs.

The facility's stormwater system conveys stormwater to a detention pond located at the westernmost portion of the Northeast Treaters property. The facility's stormwater management system is regulated by a NYSDEC State Pollutant Discharge Elimination System (SPDES) Multi-Sector General Permit (permit ID number NYR00B991). The SPDES program is designed to eliminate the pollution of New York waters and to maintain the highest quality of water possible. Compliance with the SPDES program is consistent with:

- Protection of public health;
- Public enjoyment of resources;
- Protection and propagation of fish and wildlife; and
- Industrial development of the State.

Stormwater monitoring data collected under the SPDES permit is summarized in Table 3d. These data demonstrate that concentrations of chromium and arsenic in effluent samples collected from the facility's detention pond are well below the SPDES benchmark monitoring standards.

4.2 Groundwater Investigation

Perched groundwater is occasionally present in the fill material immediately above the native clay. During ground intrusive investigations perched water was encountered at some locations, but not all. Information gained during the site investigation indicates that the perched groundwater does not migrate, but mostly dissipates through evapotranspiration. Groundwater was not encountered in the underlying clay during ground intrusive investigations. Groundwater exists in the bedrock beneath the Site, and water levels recorded during the installation of facility water wells indicate piezometric levels within the boundaries of the Site are between ten (10) and 19.33 feet below grade. The regional groundwater flow direction is anticipated to be west to southwest, based on interpretation of topographic maps.

Water samples collected on October 31, 1995 from the facility's original plant well (provided as Table 1b) indicated that concentrations of chromium, copper and arsenic meet respective NYSDEC Class GA water quality standards.

Monitoring wells MW-1 through MW-4 were installed at the Site on April 15, 2015. Of the four (4) monitoring wells, only MW-1 had a sufficient volume of water for sampling. One (1) sample of perched water was collected from MW-1 on April 15, 2015. The sample was analyzed for total arsenic, chromium and hexavalent chromium and dissolved arsenic, chromium and hexavalent chromium. A summary of the analytical results is provided as Table 3b. The data indicate that concentrations of total metals and dissolved metals in the perched water sample are below NYSDEC Class GA water quality standards.

As documented in Table 3a, water measurements were again recorded on April 20, April 30 and May 5, 2015 in wells MW-1 through MW-4 and each well was purged on May 4, 2015 to evaluate recharge to the wells. Data from the purging effort is documented in Table 3c. MW-1 was observed to have sufficient recharge for sample collection on May 4, 2015; however, no sample was collected from MW-1 following purging because a sample was previously collected on April 15, 2015. Upgradient well MW-2 was observed to have collected water since it was installed on April 15, 2015. MW-2 was observed to have insufficient water for sample collection following purging.

Well MW-3 was observed to have collected approximately 2.15 feet of perched water since it was installed on April 15, 2014. MW-3 was purged and monitored for over one (1) hour and purged for a second time after approximately 1.33 feet of perched water recharged to the monitoring well. Following the second purge, MW-3 was monitored for approximately one (1) hour and was unable to recharge a sufficient volume of water (0.49 feet) for sample collection. Well MW-4 was observed to have collected approximately 0.43 feet of water since it was installed on April 15, 2015. Following the initial purge, MW-4 was monitored for approximately 0.5 hour, at which time, only 0.02 feet of perched water recharged to the well. Due to the lack of perched water in wells MW-3 and MW-4, no water samples could be collected as described in the Supplemental RI Work Plan dated April 30, 2015.

Groundwater data indicate that Site contaminants have not impacted the perched groundwater in fill material at well MW-1 and that perched water occurs sporadically or is absent in the fill. Field observations and data obtained during investigations conducted at the Site suggest that metal contamination detected in onsite fill material does not pose a risk of impacting deeper sources of groundwater due to the depth of groundwater, the very low permeability of the natural soil beneath impacted fill, and the relative immobility of metals in the subsurface environment.

5.0 DATA USABILITY

Analytical data obtained during the RI and the subsequent supplemental sampling investigation were validated to demonstrate the usability of the data. Data Usability Summary Reports (DUSRs) produced by Alpha Geoscience are provided in Appendix K.

The DUSRs indicated that there were some data that were flagged as rejected. All data that were not flagged as rejected are considered usable, and data associated with quantitative uncertainty were flagged as estimated. Flags and qualifiers associated with the DUSR are incorporated in data summary tables 2a through 2f.

5.1 Analytical Data Variability

Uncertainty for soil arsenic analytical data occurs as the result of the inherent uncertainties of the analytical method and the composition of the soil. For instance, the calibration verification recoveries need to be within 10% of the actual value, the laboratory control sample must be within 30%, and the matrix spike must be within 25%. Valid and acceptable analytical data may have an uncertainty of plus or minus 25% because of these inherent analytical uncertainties. The uncertainty of analytical data can increase when factoring in the effects of the heterogeneity of soil samples.

Due to analytical data variability, a detected arsenic concentration in soil equivalent to the unrestricted use SCO of 13 ppm has a range of error of 3.25 ppm (i.e., 9.75 ppm to 16.25 ppm). Similarly, a detected arsenic value of 16 ppm has a range of error of 4 ppm such that the actual value may be between 12 and 20 ppm.

6.0 NATURE AND EXTENT OF CONTAMINATION

6.1 Primary Contaminants of Concern (COC)

Based upon a review of the documented history and investigations conducted at the Northeast Treaters facility, chromium and arsenic were identified in onsite soils as the contaminants of concern (COCs).

Consistent with DER-10, the initial RI investigation included sampling for all parameters identified in 6 NYCRR Part 375-6.8. Full parameter sample analytical results are summarized in Table 2a.

With the following exceptions, the primary contaminants identified above unrestricted use soil cleanup objectives (SCOs) set forth at 6 NYCRR §375-6.8 were arsenic and chromium, consistent with the past use of CCA at the Site. As previously noted, several polycyclic aromatic hydrocarbons (PAHs) were detected at one (1) sample location, DPP-08ES, below unrestricted use SCOs. SVOCs: Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, and Chrysene were detected in sample DPP-08ES above unrestricted use SCOs but below commercial use SCOs. Sample location DPP-08ES is within 15 feet of three (3) 100 gallon propane tanks utilized by the facility for heating purposes. It is suspected that the detection of these parameters may be attributed to *de minimis* losses from delivery vehicles. The detection of these parameters will be addressed by the remedial strategy implemented to remedy chromium and arsenic contamination at the Site as this sample also produced detections of total chromium and total arsenic above unrestricted use SCOs.

Full parameter samples also indicate the presence of barium, copper, manganese, nickel, and zinc above unrestricted use SCOs at the Site in addition to arsenic and chromium. These metals are naturally occurring metals commonly found in the environment. Of these metals, only chromium and arsenic were identified as contaminants of potential concern based on their detection frequency, concentration and the history of the Site. In particular, available information about the Site indicates that arsenic and chromium are most likely to be found at the Site given the past use of CCA in wood treatment operations. Moreover, the detection of these metals will be addressed by the remedial strategy implemented to remedy chromium and arsenic.

6.2 Surface and Subsurface Soils

The composition of fill material and underlying soils was observed to be relatively uniform across the Site. Fill material was observed at a depth of approximately three (3) feet bgs under the footprint of the drip pad and four (4) feet bgs at nearly all other sample locations. Clay was observed below fill material at all sample locations. Till material was observed below clay at sample locations: DP-02, DPP-04E, DPP-01I, and SP-02 at depths between approximately nine (9) and twelve and one-half (12.5) feet bgs. The till is primarily comprised of a low permeability mixture of silt and clay.

With the exception of samples collected near the sump (i.e. sample locations SUMP-01 and DPP-07), sample data indicate that contamination of total chromium and total arsenic at the Site is limited to fill material. Elevated concentrations of arsenic were observed in clay sample DP-03C collected at a depth of approximately fourteen (14) to fifteen (15) feet bgs. This detection may be considered anomalous as elevated concentrations of arsenic were not observed between approximately three (3) to eleven (11) feet bgs at sample location DP-03. Further, elevated concentrations of arsenic were not observed between ten (10) and fifteen (15) feet bgs at the sump sample location, where elevated arsenic concentrations generally were detected at a greater depth than other sampling locations.

Analytical data associated with the SUMP-01 sample location indicate elevated concentrations of total arsenic are present at a depth of approximately six (6) feet bgs and within the clay. Elevated concentrations of arsenic were not observed at or below a depth of approximately ten (10) feet bgs at the SUMP-01 sample location and this depth is within the clay unit.

Soil sample analytical data indicate that Site-related contamination is bound onsite to the west and the south by Site perimeter locations SP-04, SP-05, SP-11, SP-12, SP-22, SP-23, SP-24, SP-25 and SP-26. Similarly, soil sample analytical data indicate that Site-related contamination is bound to the north and east by the aforementioned sample locations offsite samples OSS-15, OSS-16, OSS-17, OSS-18 and OSS-19. Northeast Treaters reserves the right to further delineate impacts in offsite areas. Sample data suggests that concentrations of total arsenic decrease with increasing distance from the drip pad.

Total arsenic and chromium concentrations were detected above the unrestricted use SCOs at samples collected at the northwestern corner of the Site. A storm sewer drop inlet is located near the northeast corner of the Site and ultimately discharges to a detention pond located on the western portion of the Northeast Treaters' property. Soils to the west of the stormwater inlet are covered by approximately six (6) inches of asphalt pavement. Soils to the north, east, and south of the stormwater drop inlet will be addressed by the selected remedy.

6.3 Groundwater

Groundwater data indicate that Site contaminants have not impacted the perched groundwater in fill material at well MW-1 and that perched water occurs sporadically or is absent in the fill. No, or insufficient groundwater was present in downgradient wells MW-3 and MW-4 for sampling during the RI. Pavement over much of the Site limits or eliminates recharge to the fill and accounts for the minimal water in downgradient wells. Field observations and data obtained during investigations conducted at the Site suggest that metal contamination detected in onsite fill material does not pose a risk of impacting deeper sources of groundwater due to the depth of groundwater, the very low permeability of the natural soil beneath impacted fill, and the relative immobility of metals in the subsurface environment. Water samples collected on October 31, 1995 from the facility's original plant well (provided as Table 1b) indicated that concentrations of chromium, copper and arsenic meet respective NYSDEC Class GA water quality standards. Well water sample analytical data reported by Arch Wood Protection Analytical Services (see Appendix L) indicate that concentrations of chromium, copper and arsenic were not detected in the Site's water wells.

6.3.1 Onsite Wells

Five (5) groundwater wells are located on the Northeast Treaters property. The original facility well was installed by an unknown contractor prior to 1995 and reportedly abandoned sometime prior to 2007. The dates when the original facility well was installed and abandoned is not known at this time. NYSDEC well #G1806 was installed by Hanson Well Drilling & Pump Co., Inc. in 2004. NYSDEC well #'s G2542, G2547, and G2560 were installed by L.H. Heimburge Drilling & Pump in 2007. The latter four (4) wells are utilized by the facility as a water supply and process water. Bottled water is used by the facility for drinking and other potable water purposes.

The original facility well and NYSDEC well #'s G2542 and G2547 are located on the western portion of the Northeast Treaters property. NYSDEC well #'s G1806 and G2560 are located on the eastern portion of the Northeast Treaters property and within the boundaries of the Site. The locations of these wells are shown on Figure 6. A well information summary for the four (4) wells installed in 2004 and 2007 is provided below and copies of the Water Well Completion Reports for these wells are provided as Appendix D. The NYSDEC does not have a Well Completion Report for the original facility well as it was installed sometime prior to the start of the NYSDEC well program in 2000.

6.3.2 Offsite Wells

NYSDEC well #G2463 is the located approximately 1,100 feet to the southeast of the Site and is approximately 259 feet deep. NYSDEC well #G1755 is located approximately 1,500 feet to the east of the Site and is approximately 103 feet deep. NYSDEC well #G1282 is located approximately 2,000 feet to the east of the Site and is approximately 500 feet deep.

6.4 Soil Vapor Intrusion

Based upon the documented history, previous investigations conducted at the Site, and analytical results obtained during the RI, no risk of soil vapor intrusion is associated with the Site because no VOCs were detected in onsite soils. Furthermore, the Site does not have a documented history of storing or using chlorinated VOCs.

7.0 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

A complete exposure pathway has the following five (5) elements:

- A contaminant source;
- A contaminant release and transport mechanism;
- A point of exposure;
- A route of exposure; and
- A receptor population.

7.1 Contaminant Source and Impacted Media

Based upon a review of the documented history and previous investigations conducted at the Northeast Treaters facility, COCs detected in onsite fill material originate from the historic use of CCA solution to pressure treat wood product in the facility's Process Building.

As documented by CAPT LOIS, all solution is managed within the Process Building's closed loop recycling system. No wastewater is discharged from the treatment process. Wood product is stacked on the drip pad for 72 hours after treatment, and during this time, the wood "bleeds off" excess solution onto the concrete drip pad. The wood is then moved outside to the Product Storage Area where it remains until transported offsite. No dripping occurs during storage.

The Phase I Site Assessment also notes a spill of approximately three (3) pounds of arsenic pentoxide occurred on May 2, 1990. The approximate spill area is located adjacent to and east of the treatment cylinder, between the Treating Building and the Fixation Building, and is identified on Figure 3.

Analytical data indicates that these accounts are credible because the highest concentrations of chromium and arsenic were detected in the area of the treatment cylinder, the solution recycling sumps, and beneath the drip pad.

With the exception of samples collected in the vicinity of the facility's treatment cylinder (i.e. sample locations SUMP-01, C-2, C-3, C-6, C-10, C-12, C-14 and DPP-07), chromium and arsenic contamination within the boundaries of the Site is limited almost entirely to fill material. With the exception of DPP-07, chromium and arsenic concentrations met unrestricted use SCOs in all clay samples obtained below onsite fill material and beyond the perimeter of the drip pad.

Historic analytical data associated with the C-6 sample location, located at the location of the northern sump, indicate the presence of total arsenic above unrestricted use SCOs at a depth of approximately 13.5 feet bgs and within fill material. Concentrations of arsenic did not exceed unrestricted use SCOs in soil samples collected at or below a depth of approximately 14 feet bgs at any sample location.

Samples collected beyond the perimeter of the Site indicate that offsite soil impacts to the north and east of the Site are almost exclusively limited to no more than 0.5 feet bgs. Analytical data indicates that soils to the south and west of the Site have not been impacted by Site activity.

Groundwater analytical data indicate that Site contaminants have not impacted groundwater.

7.2 Release and Transport Mechanisms

Metals (i.e., chromium and arsenic) have a high affinity to fine grained soil and typically adhere to the soil and become immobile in the environment. Due to the presence of fine grained, low permeability native soils, metal contamination detected in onsite fill material is not mobile and has not had an impact on groundwater.

Currently exposed impacted surface soils to the north and east of the Site have a potential to migrate offsite by wind-blown dust and/or by snow management where impacted fill material is exposed. The presence of arsenic above the unrestricted use SCO at offsite sample locations is believed to be due to the migration of wind-blown dust from the prior unpaved portion of the Site. In addition, it is suspected that arsenic may be concentrated at the northern perimeter locations as a result of past snow plowing activities at unpaved portions of the Site.

7.3 Exposure Analysis

The human health risk associated with onsite COCs (i.e. chromium and arsenic) depends upon the potential for a person to be exposed to soil or groundwater containing these metals. Exposure can only occur when a mechanism, or exposure pathway, exists. Potential exposure pathways exist through ingestion, inhalation or dermal contact with impacted surface soil or dust by onsite workers, visitors or trespassers. Potential exposure pathways are summarized in Table 5, and are further discussed below.

Five (5) water supply wells are present on the Northeast Treaters property. Analytical data suggest that groundwater has not been impacted and Site geology indicates that the potential for groundwater contamination is negligible. Bottled water is used by the facility for drinking and other potable water purposes. Moreover, a summary of groundwater analytical results for groundwater samples collected during the Supplemental RI is provided as Table 3b. The data indicate that concentrations of total arsenic and chromium and dissolved arsenic and chromium are below NYSDEC Class GA water quality standards.

Residential dwellings and day care facilities are not permitted on the Site by the Town of Athens' Zoning Code. However, analytical data indicate that chromium and arsenic are present offsite on the adjacent property located to the east of the Northeast Treaters facility. The eastern adjacent property is currently zoned rural residential and consists of 24-acres with a residence. The residence is located in the southeast corner of the parcel, at the furthest point from the Site. Most of the property, including the portion adjoining the Site, is covered by forest, significantly limiting access to surface and subsurface soils. Moreover, offsite samples reported in Table 2e and Figure 10 show that arsenic and chromium levels are below the unrestricted SCOs approximately 300 feet from Site and more than 800 feet from the residence. Under these circumstances, the potential for exposure to those residing in the house on the adjoining property is negligible.

Although Northeast Treaters believes the risk associated with exposure to soils in the offsite area immediately adjacent to the northeastern perimeter of the Site is negligible, the company is currently in the process of purchasing the eastern adjacent property. Acquiring the property will give Northeaster Treaters complete control over this Site and the opportunity to expand its storage yard. This control will allow Northeast Treaters to restrict access to the offsite areas of impact and facilitate implementation of remedial measures, including the installation of engineering controls and the placement of an environmental easement over the small portion of land located offsite that shows arsenic levels above the unrestricted SCOs.

Onsite workers conducting excavations are potentially exposed to soil containing Site-related contaminants above unrestricted SCOs if they contact the impacted fill material below the paved surface. For these reasons, onsite fill and offsite surface soil located on the eastern adjacent property is considered in the screening and evaluation of remedial alternatives, and the preferred remedial measure will eliminate exposure to the impacted onsite fill and offsite surface soils by onsite workers, visitors and trespassers.

8.0 FISH AND WILDLIFE IMPACT ANALYSIS

A Fish and Wildlife Resources Impact Analysis (FWRIA) was conducted at the Site by Deleware Engineering, D.P.C. on May 11, 2015. The results of the FWRIA are provided as Appendix M. The FWRIA concludes that the Site has not had any significant impact on fish and wildlife resources.

9.0 CONCLUSIONS

The composition of fill material and underlying soils was observed to be relatively uniform across the Site. Fill material was observed to be at a depth of approximately three (3) feet bgs under the footprint of the drip pad and approximately four (4) feet bgs at nearly all other sample locations. Glaciolacustrine clay was observed below fill material at all sample locations. Glacial till was observed below native clay at four (4) sample locations at depths between approximately nine (9) and twelve and one-half (12.5) feet bgs. The till is primarily comprised of a low permeability mixture of silt and clay.

The only COCs are total chromium and total arsenic. No SVOCs, VOCs, PCBs, pesticides and metals (beyond total chromium and total arsenic) were identified as COCs. SVOCs Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, and Chrysene were detected in fill material near the propane tanks located at the Site above unrestricted use SCOs but below commercial-use SCOs. The reported concentrations of SVOCs is considered *de minimis* based on the low reported concentrations and limited detection of SVOC parameters. It is suspected that the detection of these parameters may be attributed to *de minimis* losses from delivery vehicles.

With the exception of samples collected near the recycling sumps, total chromium and total arsenic contamination within the boundaries of the Site is limited almost entirely to fill material. Site-related contamination is bound by the southern and western boundary of the Site. Detections of arsenic and chromium were above unrestricted use SCOs obtained to the north and east of the Site. The arsenic and chromium data from the offsite samples collected 10 feet and 40 feet north of the Site indicate that concentrations rapidly decrease with increasing distance from the Site.

Data associated with Site perimeter sample locations indicate that concentrations of total arsenic decrease with increasing distance from the drip pad. Analytical data associated with sample locations SP-04, SP-

05, SP-08, SP-09, SP-10, SP-11, and SP-12 indicate that the contamination is not present beyond the perimeter of the Site or at the southernmost portion of the Site. Total arsenic concentrations were detected above restricted use SCO at Site perimeter sample location SP-07, located at the northwestern corner of the Site. Total chromium concentrations were detected above the unrestricted use SCO but below the restricted-residential use SCO at sample location SP-07. A storm sewer drop inlet is located within ten (10) feet to the west of sample location SP-07. The storm sewer ultimately discharges to a detention pond located on the western portion of the Northeast Treaters' property.

With respect to the sump, analytical data associated with the SUMP-01 sample location indicate elevated concentrations of total arsenic at a depth of approximately six (6) feet bgs within the clay near the location of the sump. Detected concentrations of arsenic did not exceed the sixteen (16) ppm restricted use SCO in soil samples collected at or below a depth of approximately ten (10) feet bgs at the SUMP-01 sample location.

Field observations and data obtained during previous investigations and the RI conducted at the Site suggest that metal contamination detected in onsite fill material does not pose a risk of impacting groundwater, due to the depth of groundwater, the very low permeability of the natural soil beneath impacted fill, the relative immobility of metals in the subsurface environment and the pressure of an upward hydraulic gradient between the bedrock and the unconsolidated overburden.

Based on these findings, it is recommended that remedial measures focus on addressing the arsenic contamination of onsite fill material and offsite surface soils. Soil sample analytical data indicate that Site-related contamination is bound onsite to the west and the south by Site perimeter locations SP-04, SP-05, SP-11, SP-12, SP-22, SP-23, SP-24, SP-25 and SP-26. Similarly, soil sample analytical data indicate that Site-related contamination is bound to the north and east by the aforementioned sample locations offsite samples OSS-15, OSS-16, OSS-17, OSS-18 and OSS-19. Northeast Treaters may to further delineate impacts in offsite areas if warranted for remedial design.

Given the consistency of the fill material and its depth (3 to 4 feet bgs), the consistency of the clay layer, and the absence of any groundwater impact, the remediation alternatives should focus on preventing human exposure to the contaminated fill and offsite surface soil. Consistent with this recommendation, a Remedial Work Plan is being prepared by STERLING on behalf of Northeast Treaters to evaluate and formulate remedial alternatives to address the presence of arsenic in onsite fill material as part of the planned program to update the facility. The tasks required to complete the subsequent development of the Site are summarized in Appendix N.

TABLES

Table 1a: Summary of Historical Soil Analytical Results
Northeast Treaters of New York, LLC (Formerly Atlantic Wood Industries, Inc.)
796 Schoharie Turnpike, Town of Athens, New York

			Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Chromium, Hexavalent	Copper, Total Recoverable	Arsenic, TCLP	Chromium, TCLP	Copper, TCLP
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/L	mg/L
			Soil Cleanup Objectives (Unrestricted)	13	30	1	50	---	---	---
			Soil Cleanup Objectives (Commercial)	16	1,500	400	270	---	---	---
			Soil Cleanup Objectives (Industrial)	16	6,800	800	10,000	---	---	---
Sample ID	**Sample Depth Interval**	**Sample Matrix**	**Date Sampled**							
C-1	14.5 - 15.5' bgs	Fill	11/12/1998-11/13/1998	5.40	22.3	< 2.50	---	---	---	---
C-1	15.5 - 16.0' bgs	Clay	11/12/1998-11/13/1998	8.60	34.2	< 2.80	---	---	---	---
C-2	4.5 - 5.0' bgs	Fill	11/12/1998-11/13/1998	192	229	17.6	---	---	---	---
C-2	5.0 - 5.5' bgs	Clay	11/12/1998-11/13/1998	28.6	79.1	< 2.60	---	---	---	---
C-3	4.25 - 4.5' bgs	Fill	11/12/1998-11/13/1998	662	580	21.6	---	---	---	---
C-3	4.5 - 5.25' bgs	Clay	11/12/1998-11/13/1998	22.1	47.0	< 2.70	---	---	---	---
C-4	6.25 - 6.5' bgs	Fill	11/12/1998-11/13/1998	246	155	10.0	---	---	---	---
C-4	7.0 - 7.5' bgs	Clay	11/12/1998-11/13/1998	6.20	40.5	3.40	---	---	---	---
C-5	4.5 - 5.5' bgs	Fill	11/12/1998-11/13/1998	7.50	39.9	< 2.40	---	---	---	---
C-6	13.5 - 14.0' bgs	Fill	11/12/1998-11/13/1998	16.0	41.9	< 2.40	---	---	---	---
C-6	14.0 - 14.5' bgs	Clay	11/12/1998-11/13/1998	8.50	425.5	< 2.70	---	---	---	---
C-7	6.5 - 7.0' bgs	Fill	11/12/1998-11/13/1998	70.9	46.5	< 2.20	---	---	---	---
C-7	7.0 - 7.5' bgs	Clay	11/12/1998-11/13/1998	10.6	41.8	< 2.60	---	---	---	---
C-B	3.5 - 4.0' bgs	Clay	11/12/1998-11/13/1998	6.60	29.0	< 2.50	---	---	---	---
C-8	6.0 - 6.5' bgs	Fill	11/12/1998-11/13/1998	25.2	99.0	3.50	---	---	---	---
C-8	6.5 - 7.0' bgs	Clay	11/12/1998-11/13/1998	9.50	36.4	< 2.70	---	---	---	---
C-9	7.0 - 7.5' bgs	Fill	11/12/1998-11/13/1998	50.9	29.8	< 2.10	---	---	---	---
C-9	7.5 - 8.0' bgs	Clay	11/12/1998-11/13/1998	6.70	36.9	< 2.60	---	---	---	---
C-10	7.0 - 7.5' bgs	Fill	11/12/1998-11/13/1998	404	312	42.0	---	---	---	---
C-10	7.5 - 8.0' bgs	Clay	11/12/1998-11/13/1998	21.3	348	4.30	---	---	---	---
C-11	2.5 - 3.0' bgs	Fill	11/12/1998-11/13/1998	74.1	21.4	< 2.10	---	---	---	---
C-11	3.0 - 3.5' bgs	Clay	11/12/1998-11/13/1998	10.8	42.8	< 2.50	---	---	---	---
C-12	2.0 - 2.5' bgs	Fill	11/12/1998-11/13/1998	9.20	730	< 2.10	---	---	---	---
C-12	2.5 - 3.0' bgs	Clay	11/12/1998-11/13/1998	41.7	108	< 2.50	---	---	---	---
C-13	1.5 - 2.0' bgs	Fill	11/12/1998-11/13/1998	71.7	84.7	3.80	---	---	---	---
C-13	2.0 - 2.5' bgs	Clay	11/12/1998-11/13/1998	6.90	32.8	< 2.50	---	---	---	---
C-14	1.5 - 2.0' bgs	Fill	11/12/1998-11/13/1998	911	120	30.5	---	---	---	---
C-14	2.0 - 2.5' bgs	Clay	11/12/1998-11/13/1998	23.8	48.8	< 2.60	---	---	---	---
C-15	2.5 - 3.0' bgs	Fill	11/12/1998-11/13/1998	75.0	28.3	3.40	---	---	---	---
C-15	3.0 - 3.5' bgs	Clay	11/12/1998-11/13/1998	8.50	40.8	< 2.50	---	---	---	---
BK-1	5.0 - 6.0' bgs	Clay	6/17/1997	< 2.85	24.0	< 4.98	---	---	---	---
B-1	5.5 - 8.5' bgs	Clay	6/17/1997	< 2.87	25.5	< 5.16	---	---	---	---
B-2	5.5 - 6.0' bgs	Clay	6/17/1997	< 2.87	28.6	< 5.47	---	---	---	---
B-3	5.2 - 5.8' bgs	Clay	6/17/1997	< 2.90	25.9	< 5.23	---	---	---	---
B-4	5.5 - 6.9' bgs	Clay	6/17/1997	< 2.88	29.0	< 5.37	---	---	---	---
B-5	6.0 - 7.5' bgs	Fill	6/17/1997	< 2.82	23.8	< 5.26	---	---	---	---
B-6	5.0 - 6.0' bgs	Clay	6/17/1997	< 2.95	32.7	< 5.18	---	---	---	---
B-7	5.0 - 8.0' bgs	Clay	6/17/1997	< 2.95	27.5	< 5.24	---	---	---	---
B-8	5.0 - 6.0' bgs	Clay	6/17/1997	< 2.86	42.3	< 4.90	---	---	---	---
B-9	5.0 - 6.0' bgs	Clay	6/17/1997	< 3.25	24.5	< 5.27	---	---	---	---
BSS-1	6.0 - 12.0" bgs	---	10/10/1995	4.40	33.8	---	33.8	< 0.03	< 0.01	< 0.01
BSS-2	6.0 - 12.0" bgs	---	10/10/1995	4.90	32.1	---	32.1	< 0.03	< 0.01	0.011
SS-1	6.0 - 12.0" bgs	---	10/10/1995	11.1	15.6	---	25.6	< 0.03	< 0.01	< 0.01
SS-2	12.0 - 18.0" bgs	---	10/10/1995	42.7	50.0	---	42.7	< 0.03	< 0.01	< 0.01
SS-3	14.0 - 20.0" bgs	---	10/10/1995	5.50	27.3	---	32.5	< 0.03	< 0.01	< 0.01
SS-4	16.0 - 22.0" bgs	---	10/10/1995	5.30	31.3	---	26.3	< 0.03	< 0.01	0.011
SS-5	15.0 - 21.0" bgs	---	10/10/1995	5.20	29.1	---	27.8	< 0.03	< 0.01	0.014
SS-6	13.0 - 19.0" bgs	---	10/10/1995	4.30	26.8	---	25.6	< 0.03	< 0.01	< 0.01
SS-7	15.0 - 21.0" bgs	---	10/10/1995	3.80	29.5	---	19.2	< 0.03	< 0.01	< 0.01
SS-8	15.0 - 21.0" bgs	---	10/10/1995	2.40	29.3	---	29.3	< 0.03	< 0.01	0.021
SS-9	19.0 - 25.0" bgs	---	10/10/1995	3.90	32.9	---	29.1	< 0.03	< 0.01	0.015
SS-10	15.0 - 21.0" bgs	---	10/10/1995	4.40	27.8	---	30.4	< 0.03	< 0.01	0.014
SS-A (DUP SS-9)	19.0 - 25.0" bgs	---	10/10/1995	2.40	34.6	---	30.8	< 0.03	< 0.01	< 0.01
P-1	3.0 - 5.0' bgs	Clay	10/30/1995	< 0.63	21.2	---	22.5	< 0.03	< 0.01	< 0.01
P-2	3.0 - 5.0' bgs	Clay	10/30/1995	10.6	28.6	---	28.6	< 0.03	< 0.01	0.012
SS-11	12.0" bgs	---	11/16/1995	---	---	---	---	---	---	---
SS-12	---	---	11/16/1995	128	105	---	34.0	< 0.03	0.028	0.010
SS-13	---	---	11/16/1995	10.3	18.9	---	15.8	< 0.03	< 0.01	0.011
SS-14	---	---	11/16/1995	7.70	25.3	---	20.0	< 0.03	< 0.01	0.016
SS-15	9.5 - 10.0' bgs	---	11/16/1995	8.20	25.0	---	27.6	< 0.03	< 0.01	< 0.01
SS-16	0.0 - 14.0" bgs	---	11/16/1995	48.4	38.9	---	31.6	< 0.03	< 0.01	0.014
SS-17	0.0 - 16.0" bgs	---	11/16/1995	18.9	20.0	---	22.1	< 0.03	< 0.01	0.012
SS-18	0.0 - 12.0" bgs	---	11/16/1995	22.6	31.0	---	17.9	< 0.03	< 0.01	0.014
SS-19	0.0 - 7.0" bgs	---	11/16/1995	6.30	32.4	---	33.8	< 0.03	< 0.01	< 0.01
SS-20	0.0 - 13.0" bgs	---	11/16/1995	16.2	32.4	---	23.0	< 0.03	< 0.01	< 0.01
SS-21	0.0 - 7.0" bgs	---	11/16/1995	9.20	30.6	---	18.1	< 0.03	< 0.01	< 0.01
SS-23	2.8' bgs	---	11/16/1995	5.70	29.9	---	22.1	< 0.03	< 0.01	0.011
SS-24	18.0" bgs	---	11/16/1995	6.50	30.8	---	32.1	< 0.03	< 0.01	< 0.01
SS-25	Surface	---	11/16/1995	---	---	---	---	---	---	---

Note:
--- = Not Applicable
< = Constituent not detected; value shown is the detection limit.
Values highlighted in yellow indicate exceedance of Unrestricted Use Soil Cleanup Objectives
Values highlighted in blue indicate exceedance of Commercial Use Soil Cleanup Objectives.
Values highlighted in gray indicate exceedance of Industrial Use Soil Cleanup Objectives.

Table 1b: Summary of Groundwater Analytical Results (Original Plant Well)
Northeast Treaters of New York, LLC (Formerly Atlantic Wood Industries, Inc.)
796 Schoharie Turnpike, Town of Athens, New York

		Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Copper, Total Recoverable	Arsenic, Dissolved	Chromium, Dissolved	Copper, Dissolved
		Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		NYSDEC Class GA Groundwater Standards	0.025	0.050	0.200	0.025	0.050	0.200
Sample ID	**Sample Matrix**	**Date Sampled**						
AW-1	Water	10/31/1995	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Table 2a: Analytical Results for Full Parameter Sampling
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York
November 18-20, 2014

			Sample ID	SP01S	SP02S	SP03S	SP04S	SP05S	SP05D	SP06S	SP06D	DPP02ES	DPP05ES	DPP08ES	DPP10ES	DPP13ES	DPP16ES	SUMP FILL	SUMP Clay	DP01 FILL	DP01 Clay	DP03 FILL	DP03 Clay
			Sample Matrix	Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Soil
			Date Sampled	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/19/2014	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014
	Clay Cleanup Objectives																						
Semivolatiles (µg/kg)	**Unrestricted**	**Commercial**	**Industrial**																				
Acenaphthene	20,000	500,000	1,000,000	14 U	14 U	13 U	14 U	14 U	17 U	19 U	13 U	14 U	14 U	14 U	16 U	16 U	14 U	17 U	17 U	14 U	16 U	17 U	18 U
Acenaphthylene	100,000	500,000	1,000,000	16 U	16 U	15 U	16 U	16 U	20 U	22 U	16 U	16 U	16 U	16 U	18 U	18 U	16 U	19 U	19 U	17 U	19 U	20 U	21 U
Anthracene	100,000	500,000	1,000,000	15 U	15 U	14 U	15 U	15 U	18 U	20 U	15 U	15 U	15 U	71 J	17 U	17 U	15 U	18 U	18 U	16 U	18 U	19 U	20 U
Benzo[a]anthracene	1,000	5,600	11,000	14 U	14 U	13 U	14 U	14 U	17 U	19 U	13 U	14 U	14 U	1700	16 U	16 U	14 U	17 U	17 U	14 U	16 U	17 U	18 U
Benzo[a]pyrene	1,000	1,000	1,100	13 U	13 U	12 U	13 U	13 U	16 U	17 U	12 U	13 U	13 U	790	15 U	15 U	13 U	15 U	15 U	13 U	15 U	16 U	17 U
Benzo[b]fluoranthene	1,000	5,600	11,000	25 U	25 U	24 U	25 U	25 U	30 U	33 U	24 U	25 U	25 U	1800	28 U	28 U	25 U	30 U	29 U	25 U	29 U	31 U	32 U
Benzo[g,h,i]perylene	100,000	500,000	1,000,000	14 U	14 U	13 U	14 U	14 U	17 U	19 U	13 U	14 U	14 U	420	16 U	16 U	14 U	17 U	17 U	14 U	16 U	17 U	18 U
Benzo[k]fluoranthene	800	56,000	110,000	32 U	32 U	31 U	32 U	32 U	39 U	43 U	31 U	32 U	32 U	1500	36 U	37 U	33 U	39 U	38 U	33 U	38 U	40 U	42 U
Chrysene	1,000	56,000	110,000	19 U	19 U	18 U	19 U	19 U	24 U	26 U	19 U	19 U	19 U	1800	22 U	22 U	20 U	23 U	23 U	20 U	23 U	24 U	25 U
Dibenz(a,h)anthracene	330	560	1,100	12 U	12 U	11 U	12 U	12 U	14 U	16 U	11 U	12 U	12 U	140 J	13 U	13 U	12 U	14 U	14 U	12 U	14 U	15 U	15 U
Fluoranthene	100,000	500,000	1,000,000	13 U	13 U	12 U	40 J	13 U	16 U	17 U	12 U	13 U	53 J	2600	15 U	15 U	13 U	15 U	15 U	13 U	15 U	16 U	17 U
Fluorene	30,000	500,000	1,000,000	16 U	16 U	15 U	16 U	16 U	20 U	22 U	16 U	16 U	16 U	16 U	18 U	18 U	16 U	19 U	19 U	17 U	19 U	20 U	21 U
Indeno[1,2,3-cd]pyrene	500	5,600	11,000	15 U	15 U	14 U	15 U	15 U	18 U	20 U	15 U	15 U	15 U	440	17 U	17 U	15 U	18 U	18 U	16 U	18 U	19 U	20 U
m & p - Cresol	330	500,000	1,000,000	79 U	79 U	76 U	79 U	79 U	97 U	110 U	77 U	79 U	80 U	80 U	89 U	90 U	80 U	95 U	94 U	82 U	93 U	99 U	100 U
Naphthalene	12,000	500,000	1,000,000	16 U	16 U	15 U	16 U	16 U	20 U	22 U	16 U	16 U	16 U	16 U	18 U	18 U	16 U	19 U	19 U	17 U	19 U	20 U	21 U
o-Cresol	330	500,000	1,000,000	43 U	43 U	41 U	43 U	43 U	52 U	58 U	41 U	43 U	43 U	43 U	48 U	49 U	43 U	51 U	51 U	44 U	51 U	54 U	56 U
Pentachlorophenol	800	6,700	55,000	72 U	73 U	70 U	73 U	73 U	89 U	98 U	71 U	73 U	73 U	73 U	82 U	83 U	74 U	87 U	87 U	75 U	86 U	91 U	95 U
Phenanthrene	100,000	500,000	1,000,000	13 U	13 U	12 U	13 U	13 U	16 U	17 U	12 U	13 U	13 U	340 J	15 U	15 U	13 U	15 U	15 U	13 U	15 U	16 U	17 U
Phenol	330	500,000	1,000,000	43 U	43 U	41 U	43 U	43 U	52 U	58 U	41 U	43 U	43 U	43 U	48 U	49 U	43 U	51 U	51 U	44 U	51 U	54 U	56 U
Pyrene	100,000	500,000	1,000,000	15 U	15 U	14 U	15 U	15 U	18 U	20 U	15 U	15 U	49 J	2500	17 U	17 U	15 U	18 U	18 U	16 U	18 U	19 U	20 U

			Sample ID	SP01S	SP02S	SP03S	SP04S	SP05S	SP05D	SP06S	SP06D	DPP02ES	DPP05ES	DPP08ES	DPP10ES	DPP13ES	DPP16ES	SUMP FILL	SUMP Clay	DP01 FILL	DP01 Clay	DP03 FILL	DP03 Clay
			Sample Matrix	Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Soil
			Date Sampled	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/19/2014	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014
	Clay Cleanup Objectives																						
Volatiles (µg/kg)	**Unrestricted**	**Commercial**	**Industrial**																				
1,1,1-Trichloroethane	680	500,000	1,000,000	0.25 U * E	0.35 U	0.35 U	0.39 U	0.27 U	16 U	0.43 U	0.25 U	0.29 U	0.39 U	0.35 U	0.36 U	0.27 U	0.29 U	0.37 U	0.33 U	0.29 U	0.32 U	0.37 U	0.35 U
1,1-Dichloroethane	270	240,000	480,000	0.36 U * E	0.50 U	0.50 U	0.57 U	0.39 U	16 U	0.63 U	0.36 U	0.42 U	0.56 U	0.51 U	0.52 U	0.38 U	0.42 U	0.53 U	0.48 U	0.42 U	0.46 U	0.53 U	0.51 U
1,1-Dichloroethene	330	500,000	1,000,000	0.22 U * E	0.31 U	0.31 U	0.36 U	0.24 U	17 U	0.39 U	0.23 U	0.26 U	0.35 U	0.32 U	0.32 U	0.24 U	0.26 U	0.33 U	0.30 U	0.26 U	0.29 U	0.33 U	0.32 U
1,2-Dichlorobenzene	1,100	500,000	1,000,000	0.10 U * E	0.15 U	0.15 U * E	0.17 U * E	0.11 U * E	16 U	0.18 U	0.10 U	0.12 U	0.16 U * E	0.15 U	0.15 U * E	0.11 U * E	0.12 U	0.15 U	0.14 U	0.12 U	0.13 U	0.15 U	0.15 U
1,2-Dichloroethane	20	30,000	60,000	0.69 U * E	0.98 U	0.97 U	1.1 U	0.75 U	13 U	1.2 U	0.70 U	0.82 U	1.1 U	0.99 U	1.0 U	0.74 U	0.82 U	1.0 U	0.93 U	0.81 U	0.90 U	1.0 U	0.99 U
cis-1,2-Dichloroethene	250	500,000	1,000,000	0.34 U * E	0.48 U	0.48 U	0.55 U	0.37 U	14 U	0.60 U	0.35 U	0.41 U	0.54 U	0.49 U	0.49 U	0.37 U	0.40 U	0.51 U	0.46 U	0.40 U	0.44 U	0.51 U	0.49 U
trans-1,2-Dichloroethene	190	500,000	1,000,000	0.066 U * E	0.093 U	0.093 U	0.11 U	0.071 U	16 U	0.12 U	0.067 U	0.078 U	0.10 U	0.094 U	0.095 U	0.071 U	0.078 U	0.098 U	0.088 U	0.078 U	0.086 U	0.098 U	0.095 U
1,3-Dichlorobenzene	2,400	280,000	560,000	0.088 U * E	0.12 U	0.12 U * E	0.14 U * E	0.095 U * E	15 U	0.15 U	0.089 U	0.10 U	0.14 U * E	0.12 U	0.13 U * E	0.094 U * E	0.10 U	0.13 U	0.12 U	0.10 U	0.11 U	0.13 U	0.13 U
1,4-Dichlorobenzene	1,800	130,000	250,000	0.30 U * E	0.43 U	0.42 U * E	0.48 U * E	0.33 U * E	15 U	0.53 U	0.31 U	0.36 U	0.48 U * E	0.43 U	0.44 U * E	0.32 U * E	0.36 U	0.45 U	0.40 U	0.36 U	0.39 U	0.45 U	0.43 U
1,4-Dioxane	100	130,000	250,000	11 U * E	16 U	16 U	18 U	12 U	880 U	19 U	11 U	13 U	18 U	16 U	16 U	12 U	13 U	17 U	15 U	13 U	14 U	16 U	16 U
Acetone	50	500,000	1,000,000	6.5 B * ND E	6.3 B ND	7.6	7.0	8.5	140 J B ND	5.7 U	5.4 B	4.7 B ND	5.9 J	8.3	7.4 B	3.6 J B	14 B ND	12 B	18 B	15 B	17 B	23 B	20 B ND
Benzene	60	44,000	89,000	0.34 U * E	0.48 U	0.48 U	0.55 U	0.37 U	17 U	0.60 U	0.35 U	0.41 U	0.87 J	0.49 U	0.49 U	0.37 U	0.40 U	0.60 J	0.46 U	0.40 U	0.44 U	0.51 U	0.49 U
n-Butylbenzene	12,000	500,000	1,000,000	0.21 U * E	0.29 U	1.9 J * E	0.33 U * E	0.22 U * E	15 U	0.36 U	0.21 U	0.25 U	0.33 U * E	0.29 U	0.30 U * E	0.22 U * E	0.24 U	0.31 U	0.28 U	0.24 U	0.27 U	0.31 U	0.30 U
Carbon tetrachloride	760	22,000	44,000	0.043 U * E	0.061 U	0.060 U	0.069 U	0.046 U	12 U	0.075 U	0.044 U	0.051 U	0.068 U	0.061 U	0.062 U	0.046 U	0.051 U	0.064 U	0.057 U	0.051 U	0.056 U	0.064 U	0.062 U
Chlorobenzene	1,100	500,000	1,000,000	0.088 U * E	0.12 U	0.12 U * E	0.14 U	0.095 U	16 U	0.15 U	0.089 U	0.10 U	0.14 U	0.12 U	0.13 U	0.094 U * E	0.10 U	0.13 U	0.12 U	0.10 U	0.11 U	0.13 U	0.13 U
Chloroform	370	350,000	700,000	0.35 U * E	0.49 U	0.49 U	0.56 U	0.38 U	15 U	0.61 U	0.35 U	0.41 U	0.55 U	0.50 U	0.51 U	0.38 U	0.41 U	0.52 U	0.47 U	0.41 U	0.45 U	0.52 U	0.50 U
Ethylbenzene	1,000	390,000	780,000	0.054 U * E	0.076 U	0.076 U * E	0.087 U	0.058 U	16 U	0.095 U	0.055 U	0.064 U	0.085 U	0.077 U	0.078 U	0.058 U * E	0.064 U	1.8 J	0.072 U	41	0.070 U	2.2 J	0.078 U
Hexachlorobenzene	330	6,000	12,000	49 U E	49 U	47 U	49 U	49 U	60 U	67 U	48 U	49 U	50 U	49 U	56 U	56 U	50 U	59 U	59 U	51 U	58 U	62 U	65 U
Methyl Ethyl Ketone	120	500,000	1,000,000	1.8 U * E	2.5 U	2.5 U	2.8 U	1.9 U	68 U	3.1 U	1.8 U	2.1 U	2.8 U	2.5 U	2.5 U	1.9 U	2.5 J	2.6 U	5.8	5.4	3.3 J	4.2 J	5.9
Methyl tert-butyl ether	930	500,000	1,000,000	0.27 U * E	0.38 U	0.38 U	0.43 U	0.29 U	14 U	0.47 U	0.27 U	0.32 U	0.43 U	0.39 U	0.39 U	0.29 U	0.32 U	0.40 U	0.36 U	0.32 U	0.35 U	0.40 U	0.39 U
Methylene Chloride	50	500,000	1,000,000	0.80 J B * ND E	0.63 J B ND	0.79 J B ND	0.76 J B ND	0.48 U	21 U	1.4 J B ND	0.45 U	0.55 J B ND	0.70 U	0.65 J B ND	0.90 J B ND	0.49 J B ND	0.52 U	0.66 U	0.60 U	0.77 J B	0.58 U	0.87 J B ND	0.71 J B ND
N-Propylbenzene	3,900	500,000	1,000,000	0.25 U * E	0.35 U	0.35 U * E	0.39 U * E	0.27 U * E	16 U	0.43 U	0.25 U	0.29 U	0.39 U * E	0.35 U	0.36 U * E	0.27 U * E	0.29 U	0.37 U	0.33 U	0.33 J	0.32 U	0.37 U	0.35 U
sec-Butylbenzene	11,000	500,000	1,000,000	0.088 U * E	0.12 U	1.8 J * E	0.14 U * E	0.095 U * E	15 U	0.15 U	0.089 U	0.10 U	0.14 U * E	0.12 U	0.13 U * E	0.094 U * E	0.10 U	0.13 U	0.12 U	0.10 U	0.11 U	0.13 U	0.13 U
tert-Butylbenzene	5,900	500,000	1,000,000	0.20 U * E	0.28 U	0.28 U * E	0.32 U * E	0.21 U * E	14 U	0.35 U	0.20 U	0.24 U	0.31 U * E	0.28 U	0.29 U * E	0.21 U * E	0.23 U	0.29 U	0.27 U	0.23 U	0.26 U	0.29 U	0.29 U
Tetrachloroethene	1,300	150,000	300,000	0.23 U * E	0.33 U	0.32 U * E	0.37 U	0.25 U	16 U	0.40 U	0.23 U	0.27 U	0.36 U	0.33 U	0.33 U	0.25 U * E	0.27 U	0.34 U	0.31 U	0.27 U	0.30 U	0.34 U	0.33 U
Toluene	700	500,000	1,000,000	0.30 J * E	0.21 U	1.2 J * E	0.24 U	0.16 U	16 U	0.26 U	0.15 U	0.18 U	0.89 J	0.22 U	0.70 J	1.1 J * E	0.18 U	3.0 J	0.20 U	1.5 J	0.20 U	0.92 J	0.25 J
Trichloroethene	470	200,000	400,000	0.45 U * E	0.64 U	0.64 U	0.73 U	0.49 U	13 U	0.79 U	0.46 U	0.54 U	0.72 U	0.65 U	0.66 U	0.49 U	0.53 U	0.67 U	0.61 U	0.53 U	0.59 U	0.67 U	0.65 U
1,2,4-Trimethylbenzene	3,600	190,000	380,000	0.096 U * E	0.13 U	2.6 J * E	0.15 U * E	0.10 U * E	14 U	0.17 U	0.097 U	0.11 U	0.15 U * E	0.14 U	0.14 U * E	0.10 U * E	0.17 J	0.24 J	0.13 U	0.61 J	0.12 U	0.36 J	0.14 U
1,3,5-Trimethylbenzene	8,400	190,000	380,000	0.18 U * E	0.25 U	0.25 U * E	0.28 U * E	0.19 U * E	16 U	0.31 U	0.18 U	0.21 U	0.28 U * E	0.25 U	0.25 U * E	0.19 U * E	0.21 U	0.26 U	0.23 U	0.30 J	0.23 U	0.26 U	0.25 U
Vinyl chloride	20	13,000	27,000	0.53 U * E	0.74 U	0.74 U	0.84 U	0.57 U	16 U *	0.92 U	0.53 U	0.62 U	0.83 U	0.75 U	0.76 U	0.56 U	0.62 U	0.78 U	0.70 U	0.62 U	0.68 U	0.78 U	0.75 U
Xylenes, Total	260	500,000	1,000,000	0.042 U* E	0.059 U	0.059 U * E	0.067 U	0.046 U	17 U	0.074 U	0.043 U	0.050 U	0.067 U	0.060 U	0.061 U	0.045 U * E	0.050 U	13	0.056 U	270	0.60 J	12	0.060 U

Notes:
Values highlighted in yellow indicate exceedance of Unrestricted Use Clay Cleanup Objective.
Values highlighted in blue indicate exceedance of Commercial Use Clay Cleanup Objectives.
Values highlighted in gray indicate exceedance of Industrial Use Clay Cleanup Objectives.

Lab Qualifiers:
U = Not detected above the laboratory method detection limit shown.
J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.
B = Compound was found in the blank sample.
* = Laboratory Control Sample (LCS) or Laboratory Control Sample Duplicate (LCSD) exceeds the control limits.

Data Validation Qualifiers:
ND = Not Detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank.
E = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method .
R = Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.

Table 2a: Analytical Results for Full Parameter Sampling
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York
November 18-20, 2014

Pesticides (µg/kg)	Clay Cleanup Objectives: Unrestricted	Commercial	Industrial	SP01S	SP02S	SP03S	SP04S	SP05S	SP05D	SP06S	SP06D	DPP02ES	DPP05ES	DPP08ES	DPP10ES	DPP13ES	DPP16ES	SUMP FILL	SUMP Clay	DP01 FILL	DP01 Clay	DP03 FILL	DP03 Clay
Sample Matrix				Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Soil
Date Sampled				11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/19/2014	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014
Silvex (2,4,5-TP)	3,800	500,000	1,000,000	6.3 U	6.4 U	6.3 U	6.2 U	6.3 U	7.7 U	8.3 U	6.3 U	6.4 U	6.4 U	6.4 U	7.1 U	7.1 U	6.4 U	7.7 U	7.6 U	6.5 U	7.4 U	7.9 U	8.1 U
4,4'-DDE	3.3	62,000	120,000	36 U	3.8 U	3.7 U	3.6 U	0.36 U	0.44 U	25 U	0.36 U	19 U	0.37 U	0.36 U	42 U	20 U	19 U	0.45 U	0.44 U	0.37 U	0.42 U	0.76 J E	0.48 U
4,4'-DDT	3.3	47,000	94,000	41 U	4.2 U	4.1 U	4.0 U	0.41 U	0.50 U	28 U	0.40 U	21 U	0.41 U	0.41 U	47 U	23 U	21 U	2.1 E	0.50 U	0.41 U	0.47 U	0.52 U	0.53 U
4,4'-DDD	3.3	92,000	180,000	34 U	3.5 U	3.4 U	3.3 U	0.34 U	0.41 U	23 U	0.33 U	17 U	0.34 U	0.34 U	39 U	19 U	17 U	0.41 U	0.41 U	0.34 U	0.39 U	0.43 U	0.44 U
Aldrin	5.0	680	1,400	43 U	4.4 U	4.3 U	4.2 U	0.43 U	0.52 U	29 U	0.42 U	22 U	0.44 U	0.43 U	49 U	24 U	22 U	0.53 U	0.52 U	0.44 U	0.50 U	0.54 U	0.56 U
alpha-BHC	20	3,400	6,800	31 U	3.2 U	4.9 J B ND	3.1 U	1.5 J B ND	0.84 J B ND	21 U	1.2 J B ND	16 U	3.1 B ND	2.6 B ND	36 U	17 U	16 U	1.5 J B ND	1.2 J B ND	0.51 J	0.88 J	1.4 J B ND	1.3 J B ND
beta-BHC	36	3,000	14,000	31 U	3.2 U	3.1 U	3.1 U	0.31 U	0.38 U	21 U	0.31 U	16 U	1.8 R	1.9 R	36 U	17 U	16 U	0.38 U	0.38 U	0.32 U	0.36 U	0.40 U	2.7
alpha-Chlordane	94	24,000	47,000	86 U	9.0 U	8.7 U	8.5 U	0.86 U	1.1 U	59 U	0.86 U	44 U	0.88 U	0.86 U	99 U	48 U	44 U	1.1 U	1.1 U	0.88 U	1.0 U	1.1 U	1.1 U
delta-BHC	40	500,000	1,000,000	32 U	3.3 U	3.2 U	3.2 U	0.43 J	0.39 U	22 U	0.32 U	17 U	0.49 J JN	0.65 J R	37 U	18 U	17 U	0.40 U	0.39 U	0.33 U	0.38 U	0.41 U	0.42 U
Dibenzofuran	7,000	350,000	1,000,000	17 U	17 U	16 U	17 U	17 U	21 U	23 U	17 U	17 U	17 U	17 U	19 U	20 U	17 U	21 U	20 U	18 U	20 U	21 U	22 U
Dieldrin	5.0	1,400	2,800	42 U	4.3 U	4.2 U	4.1 U	0.42 U	0.51 U	28 U	0.41 U	21 U	0.43 U	0.42 U	**48**	23 U	21 U	0.51 U	0.51 U	0.43 U	0.49 U	0.53 U	0.54 U
Endosulfan I	2,400	200,000	920,000	33 U	3.5 U	3.3 U	3.3 U	0.33 U	0.41 U	23 U	0.33 U	17 U	0.34 U	0.33 U	38 U	19 U	17 U	0.41 U	0.41 U	0.34 U	0.39 U	0.42 U	0.44 U
Endosulfan II	2,400	200,000	920,000	31 U	3.2 U	3.1 U	3.1 U	0.31 U	0.38 U	21 U	0.31 U	16 U	0.32 U	0.31 U	36 U	17 U	16 U	0.38 U	0.38 U	0.32 U	0.36 U	0.40 U	0.41 U
Endosulfan sulfate	2,400	200,000	920,000	32 U	3.4 U	3.2 U	3.2 U	0.32 U	0.40 U	22 U	0.32 U	17 U	0.33 U	0.32 U	37 U	18 U	17 U	0.40 U	0.40 U	0.33 U	0.38 U	0.41 U	0.42 U
Endrin	14	89,000	410,000	34 U	3.6 U	3.4 U	3.4 U	0.34 U	0.42 U	23 U	0.34 U	18 U	0.35 U	0.34 U	40 U	19 U	18 U	0.42 U	0.42 U	0.35 U	0.40 U	0.44 U	0.45 U
Heptachlor	42	15,000	29,000	38 U	3.9 U	3.8 U	3.7 U	0.38 U	0.46 U	25 U	0.37 U	19 U	0.38 U	0.38 U	43 U	21 U	19 U	0.46 U	0.46 U	0.38 U	0.44 U	0.48 U	0.49 U
gamma-BHC (Lindane)	100	9,200	23,000	32 U	3.3 U	3.2 U	3.1 U	0.32 U	0.39 U	22 U	0.32 U	16 U	0.46 J	0.32 U	37 U	18 U	16 U	0.39 U	0.39 U	0.33 U	0.37 U	0.40 U	0.42 U

Metals (mg/kg)	Clay Cleanup Objectives: Unrestricted	Commercial	Industrial	SP01S	SP02S	SP03S	SP04S	SP05S	SP05D	SP06S	SP06D	DPP02ES	DPP05ES	DPP08ES	DPP10ES	DPP13ES	DPP16ES	SUMP FILL	SUMP Clay	DP01 FILL	DP01 Clay	DP03 FILL	DP03 Clay
Sample Media				Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Soil
Date Sampled				11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/19/2014	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014
Arsenic, Total Recoverable	13	16	16	18.7 E	19.1 E	27.0 E	10.5 E	13.1 E	7.7 E	18.8 E	6.5 E	76.4 E	40.4 E	46.3 E	17.7 E	28.9 E	46.5 E	333 E	74.3 E	641 E	14.5 E	401 E	8.7 E
Barium, Total Recoverable	350	400	10,000	103 E	89.1 E	78.8 E	90.8 E	107 E	488 E	75.9 E	126 E	64.5 E	37.5 E	64.0 E	83.6 E	71.8 E	81.0 E	84.5 E	157 E	65.7 E	211 E	325 E	224 E
Beryllium, Total Recoverable	7.2	590	2,700	0.35	0.48	0.56	0.57	0.52	1.7	0.55	1.1	0.61	0.52	0.59	0.46	0.66	0.49	0.69	1.4	0.59	1.3	0.51	1.5
Cadmium, Total Recoverable	2.5	9.3	60	0.44	0.51	0.77	0.56	0.67	0.76	0.63	0.59	1.3	0.85	0.97	0.56	0.70	0.84	4.3	1.6	2.5	0.051 J	6.0	0.75
Chromium, hexavalent	1.0	400	800	0.70 J	0.29 U	0.29 U	0.28 U	0.28 U	0.35 U	1.2 E	0.29 U	0.38 J	0.65 J	1.1	0.33 U	0.32 U	0.82 J	5.2	0.35 U	2.0	0.34 U	0.86 J	0.37 U
Chromium, trivalent	30	1,500	6,800	9.6	17.4	26.8	16.8	13.7	30.7	25.4	23.5	62.1	36.4	39.4	20.6	32.9	40.9	161	169	614	35.9	97.8	31.8
Chromium, Total Recoverable	-	-	-	10.3 E	17.4 E	26.8 E	16.8 E	13.7 E	30.7 E	26.6	23.5	62.4 E	37.1 E	40.5 E	20.6	32.9	41.7 E	166 E	169 E	616 E	35.9 E	98.6 E	31.8 E
Copper, Total Recoverable	50	270	10,000	17.2 E	47.9 E	45.0 E	23.6 E	33.1 E	36.9 E	27.2 E	26.8 E	78.1 E	80.6 E	82.5 E	26.3 E	32.1 E	36.5 E	424 E	98.3 E	358 E	35.6 E	225 E	34.0 E
Cyanide, Total	27	27	10,000	0.48 U E	0.52 U E	0.51 U E	0.49 U E	3.0 E	0.63 U E	0.66 U E	0.49 U E	0.52 U	0.51 U	0.50 U	0.58 U	0.55 U	0.51 U	2.1 E	0.61 U	0.52 U E	0.60 U	0.61 U E	0.64 U
Lead, Total Recoverable	63	1,000	3,900	8.8 B E	12.1 B E	17.3 B E	15.4 B E	26.7 B E	18.2 B E	12.6	15.6	15.8 B E	16.6 B E	18.4 B E	13.0	16.2	13.4 B E	16.0	17.5	17.7	18.5	24.3	20.8
Manganese, Total Recoverable	1,600	10,000	10,000	187 B E	322 B E	454 B E	455 B E	1900 B E	294 B E	408 E	334 E	282 B E	226 B E	166 B E	399 E	150 E	193 B E	850 E	1080 E	405 B E	700 B E	5470 B E	774 B E
Mercury, Total Recoverable	0.18	2.8	5.7	0.025	0.023	0.027	0.016 J	0.025	0.046	0.017 J	0.019 J	0.023	0.031	0.028	0.024	0.039	0.024	0.030	0.029	0.023	0.029	0.023 J	0.028
Nickel, Total Recoverable	30	310	10,000	12.8 E	19.2 E	27.8 E	28.0 E	27.7 E	43.5 E	23.6	33.9	**31.3 E**	27.9 E	30.9 E	21.9	28.8	22.5 E	31.7	48.5	33.9	42.2	25.9	43.6
Selenium, Total Recoverable	3.9	1,500	6,800	0.41 U	0.45 U	0.46 U	0.66 J B	0.40 U	1.0 J B	0.57 U	0.40 U	0.44 U	0.42 U	0.64 J B	0.53 U	0.83 J	0.39 U	1.4 J	0.70 J	0.64 J	0.50 U	0.55 U	1.2 J
Silver, Total Recoverable	2.0	1,500	6,800	0.21 U	0.22 U	0.23 U	0.21 U	0.20 U	0.27 U	0.29 U	0.20 U	0.22 U	0.21 U	0.23 U	0.27 U	0.26 U	0.20 U	0.29 U	0.26 U	0.21 U	0.25 U	0.28 U	0.30 U
Zinc, Total Recoverable	109	10,000	10,000	26.4 B E	51.6 B E	66.0 B E	72.9 B E	65.8 B E	87.5 B E	54.9 B E	66.4 B E	149 B E	86.2 B E	71.7 B E	60.9 B E	66.8 B E	54.6 E	103 B E	82.1 B E	87.1 B E	81.5 B E	76.0 B E	93.6 B E

PCBs (mg/kg)	Clay Cleanup Objectives: Unrestricted	Commercial	Industrial	SP01S	SP02S	SP03S	SP04S	SP05S	SP05D	SP06S	SP06D	DPP02ES	DPP05ES	DPP08ES	DPP10ES	DPP13ES	DPP16ES	SUMP FILL	SUMP Clay	DP01 FILL	DP01 Clay	DP03 FILL	DP03 Clay
Sample Media				Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Soil	Fill	Soil	Fill	Soil
Date Sampled				11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/18/2014	11/19/2014	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014
Polychlorinated biphenyls, Total	0.1	1.0	25	0.11 U	0.11 U	0.11 U	0.099 U	0.11 U	0.15 U	0.14 U	0.12 U	0.10 U	0.11 U	0.11 U	0.12 U	0.11 U	0.12 U	0.12 U	0.14 U	0.10 U	0.12 U	0.12 U	0.15 U

Notes:
Values highlighted in yellow indicate exceedance of Unrestricted Use Clay Cleanup Objective.
Values highlighted in blue indicate exceedance of Commercial Use Clay Cleanup Objectives.
Values highlighted in gray indicate exceedance of Industrial Use Clay Cleanup Objectives.

Lab Qualifiers:
U = Not detected above the laboratory method detection limit shown.
J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.
B = Compound was found in the blank sample.
* = Laboratory Control Sample (LCS) or Laboratory Control Sample Duplicate (LCSD) exceeds the control limits.

Data Validation Qualifiers:
ND = Not Detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank.
E = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method .
R = Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.

Table 2b: Summary of Chromium and Arsenic Detections at Drip Pad Sample Locations
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York
November 19-20, 2014

			Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Chromium, hexavalent
			Units	mg/kg	mg/kg	mg/kg
			Soil Cleanup Objectives (Unrestricted)	13	30	1
			Soil Cleanup Objectives (Commercial)	16	1,500	400
			Soil Cleanup Objectives (Industrial)	16	6,800	800
Sample ID	**Sample Depth Interval**	**Sample Matrix**	**Date Sampled**			
SUMP Fill	1 - 3' bgs	Fill	11/19/2014	333	166	5.2
SUMP Clay	3 - 4' bgs	Soil	11/19/2014	74.3	169	0.35 U
SUMP A	5 - 6' bgs	Soil	11/19/2014	34.7	50.2	0.37 U
SUMP B	10 - 11' bgs	Soil	11/19/2014	6.4	26	0.37 U
SUMP C	14 - 15' bgs	Soil	11/19/2014	9.3	22.2	0.29 U
DP01 FILL	1 - 3' bgs	Fill	11/20/2014	641	616	2
DP01 CLAY	3 - 4' bgs	Soil	11/20/2014	14.5	35.9	0.34 U
DP01A	5 - 6' bgs	Soil	11/20/2014	12.6	30	0.33 U
DP01B	10 - 11' bgs	Soil	11/20/2014	5.3	21	0.34 U
DP01C	14 - 15' bgs	Soil	11/20/2014	7.9	25.4	0.38 U
DP02A	1 - 3' bgs	Fill	11/20/2014	1360	1260	9.4
DP02B	4 - 5' bgs	Soil	11/20/2014	6.3	31.6	0.37 U
DP02C	8 - 9' bgs	Soil	11/20/2014	7.9	24.5	3.5
DP03 FILL	1 - 3' bgs	Fill	11/19/2014	401	98.6	0.86 J
DP03 CLAY	3 - 4' bgs	Soil	11/19/2014	8.7	31.8	0.37 U
DP03A	5 - 6' bgs	Soil	11/19/2014	8.6	28.3	0.37
DP03B	10 - 11' bgs	Soil	11/19/2014	13.3	25.2	0.41 J
DP03C	14 - 15' bgs	Soil	11/19/2014	20.5	30.1	0.38 J
DP04A	1 - 3' bgs	Fill	11/20/2014	91.8	37.8	1.5
DP04B	3 - 4' bgs	Soil	11/20/2014	6.8	29.7	0.34 U
DP04C	5 - 6' bgs	Soil	11/20/2014	5.2	29.2	0.34 U
DP04D	10 - 11' bgs	Soil	11/20/2014	5.9	27.6	0.34 U
DP04E	14 - 15' bgs	Soil	11/20/2014	11	30.1	0.39 U

Notes:

Values highlighted in yellow indicate exceedance of Unrestricted Use Soil Cleanup Objectives.
Values highlighted in blue indicate exceedance of Commercial Use Soil Cleanup Objectives.
Values highlighted in gray indicate exceedance of Industrial Use Soil Cleanup Objectives.

Lab Qualifiers:
U = Not detected above the laboratory method detection limit shown.
J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.

Data Validation Qualifier:
E = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.

Table 2c: Summary of Chromium and Arsenic Detections at DPP Sample Locations
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York
November 17-20, 2014

			Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Chromium, Hexavalent
			Units	mg/kg	mg/kg	mg/kg
			Soil Cleanup Objectives (Unrestricted)	13	30	1
			Soil Cleanup Objectives (Commercial)	16	1,500	400
			Soil Cleanup Objectives (Industrial)	16	6,800	800
Sample ID	**Sample Depth Interval**	**Soil Matrix**	**Date Sampled**			
DPP01IS	0 - 1' bgs	Fill	11/17/2014	27.7	12.9	0.28 U
DPP01ID	3 - 5' bgs	Soil	11/17/2014	7.4	22.4	0.45 J
DPP01ES	0 - 1' bgs	Fill	11/17/2014	16.5	14.5	0.30 U
DPP02IS	0 - 1' bgs	Fill	11/17/2014	127	67.9	1.6
DPP02ES	0 - 2' bgs	Fill	11/18/2014	76.4	62.4	0.38 J
DPP02ED	3 - 4' bgs	Soil	11/18/2014	8.4	23.8	0.35 U
DPP03IS	0 - 1' bgs	Fill	11/17/2014	103	64.7	3.3
DPP03ID	3 - 5' bgs	Soil	11/17/2014	5.1	28.6	0.36 U
DPP03ES	0 - 1' bgs	Fill	11/17/2014	83.8	54.3	0.93
DPP04IS	0 - 1' bgs	Fill	11/17/2014	43.6	36.6	4.2
DPP04ES	0 - 1' bgs	Fill	11/17/2014	35.3	28.5	2.1
DPP04ED	3 - 5' bgs	Soil	11/17/2014	9.0	22.4	0.34 U
DPP05IS	0 - 1' bgs	Fill	11/17/2014	66.3	33.6	1.8
DPP05ID	3 - 5' bgs	Soil	11/17/2014	7.8	26.3	0.68 J
DPP05ES	0 - 3' bgs	Fill	11/18/2014	40.4	37.1	0.65 J
DPP06IS	0 - 1' bgs	Fill	11/17/2014	47.9	27.3	0.6 J
DPP06ES	0 - 1' bgs	Fill	11/17/2014	78.8	57.3	0.29 U
DPP06ED	3 - 5' bgs	Soil	11/17/2014	9.7	26.2	0.38 J
DPP07IS	0 - 1' bgs	Fill	11/17/2014	206	91.7	4.8
DPP07ID	4 - 7' bgs	Soil	11/17/2014	35.7	47.3	0.48 J
DPP07ES	0 - 2' bgs	Fill	11/17/2014	23.8	18.2	0.29 U
DPP08IS	0 - 1' bgs	Fill	11/17/2014	46.4	38.6	0.30 U
DPP08ES	0 - 2' bgs	Fill	11/18/2014	46.3	40.5	1.1
DPP08ED	4 - 5' bgs	Soil	11/18/2014	8.2	27	0.35 U

Notes:

Values highlighted in yellow indicate exceedance of Unrestricted Use Soil Cleanup Objectives.
Values highlighted in blue indicate exceedance of Commercial Use Soil Cleanup Objectives.
Values highlighted in gray indicate exceedance of Industrial Use Soil Cleanup Objectives.

Lab Qualifiers:
U = Not detected above the laboratory method detection limit shown.
J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an

Data Validation Qualifier:
E = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.

Table 2c: Summary of Chromium and Arsenic Detections at DPP Sample Locations
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York
November 17-20, 2014

			Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Chromium, Hexavalent
			Units	mg/kg	mg/kg	mg/kg
			Soil Cleanup Objectives (Unrestricted)	13	30	1
			Soil Cleanup Objectives (Commercial)	16	1,500	400
			Soil Cleanup Objectives (Industrial)	16	6,800	800
Sample ID	**Sample Depth Interval**	**Soil Matrix**	**Date Sampled**			
DPP09IS	1 - 3' bgs	Fill	11/20/2014	72.4	17.8	0.29 U
DPP09ID	4 - 5' bgs	Soil	11/20/2014	10.4	30.1	0.35 U
DPP09ES	1 - 3' bgs	Fill	11/20/2014	86.1	96.7	3.1
DPP09ED	4 - 5' bgs	Soil	11/20/2014	12.6	30.1	0.59 J
DPP10IS	1 - 3' bgs	Fill	11/19/2014	9.3	15.5	0.32 U
DPP10ED	4 - 5' bgs	Soil	11/19/2014	6.4	22.5	0.62 U
DPP10ES	1 - 3' bgs	Fill	11/19/2014	17.7	20.6	0.33 U
DPP11IS	1 - 2' bgs	Fill	11/18/2014	34.6	34.5	1.9
DPP11ID	4 - 5' bgs	Soil	11/18/2014	11.3 E	27 E	0.46 J
DPP11ES	1 - 2' bgs	Fill	11/19/2014	35.8	34.3	2.5
DPP12IS	1 - 3' bgs	Fill	11/18/2014	30.4	31.8	1.1
DPP12ES	1 - 3' bgs	Fill	11/18/2014	62.4	50.1	2.5
DPP12ED	4 - 5' bgs	Soil	11/18/2014	11.1	27.5	0.37 U
DPP13IS	1 - 3' bgs	Fill	11/19/2014	24.6	28.4	0.90 J
DPP13ID	4 - 5' bgs	Soil	11/19/2014	9.1	25.1	0.33 U
DPP13ES	1 - 3' bgs	Fill	11/19/2014	28.9	32.9	0.32 U
DPP14IS	1 - 2' bgs	Fill	11/17/2014	24	23.4	1.7
DPP14ES	3 - 5' bgs	Fill	11/17/2014	52.9	34.6	0.33 J
DPP14ED	4 - 5' bgs	Soil	11/17/2014	7.0	30.3	0.35 U
DPP15IS	1 - 2' bgs	Fill	11/17/2014	104	77.2	1.6
DPP15ID	3 - 5' bgs	Soil	11/17/2014	6.7	30.6	2.0
DPP15ES	1 - 2' bgs	Fill	11/17/2014	7.9	17.9	0.32 J
DPP16IS	1 - 2' bgs	Fill	11/17/2014	35.8	37.3	0.82 J
DPP16ES	0 - 2' bgs	Fill	11/18/2014	46.5	41.7	0.82 J
DPP16ED	3 - 4' bgs	Soil	11/18/2014	7.4	26.6	0.36 U

Notes:

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Values highlighted in gray indicate exceedance of Industrial Use Soil Cleanup Objectives.

Lab Qualifiers:

U = Not detected above the laboratory method detection limit shown.

J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an

Data Validation Qualifier:

E = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.

Table 2d: Summary of Chromium and Arsenic Detections at Site Permiter Sample Locations
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York

			Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Chromium, Hexavalent
			Units	mg/kg	mg/kg	mg/kg
			Soil Cleanup Objectives (Unrestricted)	13	30	1
			Soil Cleanup Objectives (Commercial)	16	1,500	400
			Soil Cleanup Objectives (Industrial)	16	6,800	800
Sample ID	**Sample Depth Interval**	**Sample Matrix**	**Date Sampled**			
SP01S	1 - 4' bgs	Fill	11/18/2014	18.7	10.3	0.70 J
SP01D	4 - 5' bgs	Soil	11/18/2014	6.2	23.8	0.36 U
SP02S	0 - 2' bgs	Fill	11/18/2014	19.1	17.4	0.29 U
SP02D	3 - 4' bgs	Soil	11/18/2014	3.8	32.7	0.37 U
SP03S	0 - 2' bgs	Fill	11/18/2014	27	26.8	0.29 U
SP03D	3 - 4' bgs	Soil	11/18/2014	6.7	23.6	0.36 U
SP04S	0 - 2' bgs	Fill	11/18/2014	10.5	16.8	0.28 U
SP04D	4 - 5' bgs	Soil	11/18/2014	8.9	30	0.35 U
SP05S	0 - 2' bgs	Fill	11/18/2014	13.1	13.7	0.28 U
SP05D	4 - 6' bgs	Soil	11/18/2014	7.7	30.7	0.35 U
SP06S	1 - 4' bgs	Fill	11/19/2014	18.8	26.6	1.2
SP06D	4 - 5' bgs	Soil	11/19/2014	6.5	23.5	0.29 U
SP07	0 - 1' bgs	Fill/Soil	01/22/2015	44.4	51.4 E	0.35 U
SP08	0 - 0.5' bgs	Fill/Soil	01/22/2015	9.7	32.5 E	0.36 U
SP09	0 - 1' bgs	Soil	01/22/2015	8.3	21.8 E	0.35 U
SP10	0 - 1' bgs	Soil	01/22/2015	6.1	0.28 U	0.35 U
SP11	0.5 - 1' bgs	Fill	01/22/2015	8.8	7.3 E	0.28 U
SP12	0.5 - 1' bgs	Fill	01/22/2015	9.0	7.6 E	0.28 U

Notes:

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Values highlighted in gray indicate exceedance of Industrial Use Soil Cleanup Objectives.

Lab Qualifiers:
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J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.

Data Validation Qualifier:
E = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.

Table 2d: Summary of Chromium and Arsenic Detections at Site Permiter Sample Locations
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York

			Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Chromium, Hexavalent
			Units	mg/kg	mg/kg	mg/kg
			Soil Cleanup Objectives (Unrestricted)	13	30	1
			Soil Cleanup Objectives (Commercial)	16	1,500	400
			Soil Cleanup Objectives (Industrial)	16	6,800	800
Sample ID	**Sample Depth Interval**	**Sample Matrix**	**Date Sampled**			
SP-13	0 - 1'	Soil	4/15/2015	24	28	0.2 U R
SP-13S	0 - 2"	Soil	4/15/2015	29	35	0.19 U R
SP-14	0 - 1'	Soil	4/15/2015	17	29	0.21 U R
SP-14S	0 - 2"	Soil	4/15/2015	18	29	0.21 U R
SP-15	0 - 1'	Soil	4/15/2015	16	27	0.22 U R
SP-15S	0 - 2"	Soil	4/15/2015	19	22	0.25 U R
SP-16	0 - 1'	Soil	4/15/2015	14	26 E	0.22 U
SP-16S	0 - 2"	Soil	4/15/2015	8.3	21 E	0.22 U
SP-17	0 - 1'	Soil	4/15/2015	20	22 E	0.2 U
SP-17S	0 - 2"	Soil	4/20/2015	13	17 E	0.2 U
SP-18	0 - 1'	Soil	4/15/2015	16	28 E	0.21 U
SP-18S	0 - 2"	Soil	4/15/2015	19	20 E	0.21 U
SP-19	0 - 1'	Soil	4/15/2015	13	23 E	0.21 U
SP-19S	0 - 2"	Soil	4/15/2015	19	25 E	0.2 U
SP-20	0 - 1'	Soil	4/15/2015	6.8	20 E	0.23 U
SP-20S	0 - 2"	Soil	4/15/2015	20	21 E	0.18 U
SP-21	0 - 1'	Fill	4/15/2015	15	17 E	0.17 U E
SP-21S	0 - 2"	Fill	4/15/2015	9.4	9.7 E	0.16 U E
SP-22	0.5 - 1'	Fill	4/15/2015	13	11 E	0.17 U E
SP-23	0.5 - 1'	Fill	4/15/2015	9.9	23 E	0.17 U E
SP-24	0.5 - 1'	Fill	4/15/2015	12	8.1 E	0.17 U E
SP-25	0.5 - 1'	Fill	4/15/2015	9	26 E	0.17 U E
SP-26	0.5 - 1'	Soil	4/15/2015	12	29	0.23 U E
SP-26S	0 - 2"	Fill/Soil	4/20/2015	13	27	0.22 U E

Notes:

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Values highlighted in gray indicate exceedance of Industrial Use Soil Cleanup Objectives.

Lab Qualifiers:

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J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.

Data Validation Qualifier:

E = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.

R = Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.

Table 2e: Summary of Chromium and Arsenic Detections at Offsite Sample Locations
Northeast Treaters of New York, LLC
796 Schoharie Turnpike, Town of Athens, New York
April 15, 2015

			Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Chromium, Hexavalent
			Units	mg/kg	mg/kg	mg/kg
			Soil Cleanup Objectives (Unrestricted)	13	30	1
			Soil Cleanup Objectives (Commercial)	16	1,500	400
			Soil Cleanup Objectives (Industrial)	16	6,800	800
Sample ID	**Sample Depth Interval**	**Sample Matrix**	**Date Sampled**			
OSS-1	0 - 2"	Soil	4/15/2015	46	46 E	0.24 U E
OSS-2	0 - 2"	Soil	4/15/2015	50	45 E	0.25 U E
OSS-3	0 - 2"	Soil	4/15/2015	34	39 E	0.51 U E
OSS-4	0 - 2"	Soil	4/15/2015	27	31	0.28 U R
OSS-5	.5 - 1'	Soil	4/20/2015	16	27	0.23 U E
OSS-5S	0 - 2"	Soil	4/20/2015	17	28	0.25 U E
OSS-6	.5 - 1'	Soil	4/20/2015	16	22	0.22 U E
OSS-6S	0 - 2"	Soil	4/20/2015	23	27	0.24 U E
OSS-7	.5 - 1'	Soil	4/20/2015	9.5	21	0.23 U E
OSS-7S	0 - 2"	Soil	4/20/2015	24	31	0.94 J
OSS-8	.5 - 1'	Soil	4/20/2015	11	25	0.24 U E
OSS-8S	0 - 2"	Soil	4/20/2015	17	26	0.31 U E
OSS-9	.5 - 1'	Soil	4/20/2015	12	21	0.21 U
OSS-9S	0 - 2"	Soil	4/20/2015	35	35	0.22 U E
OSS-10	.5 - 1'	Soil	4/20/2015	7.7	15	0.22 U E
OSS-10S	0 - 2"	Soil	4/20/2015	14	19	0.25 U E
OSS-11	.5 - 1'	Soil	4/20/2015	9.1	21	0.24 U E
OSS-11S	0 - 2"	Soil	4/20/2015	11	22	0.25 U E
OSS-12	.5 - 1'	Soil	4/20/2015	11	22	0.22 U E
OSS-12S	0 - 2"	Soil	4/20/2015	20	28	0.26 U E
OSS-13	.5 - 1'	Soil	4/20/2015	9.3	20	0.35 J
OSS-13S	0 - 2"	Soil	4/20/2015	19	30	0.32 U E
OSS-15	.5 - 1'	Soil	4/20/2015	8.5	23	0.23 U
OSS-15S	0 - 2"	Soil	4/20/2015	11	24	0.3 U
OSS-16	.5 - 1'	Soil	4/20/2015	12	29	0.28 U
OSS-16S	0 - 2"	Soil	4/20/2015	12	26	0.35 U
OSS-17	.5 - 1'	Soil	4/20/2015	7.7	24	0.23 U
OSS-17S	0 - 2"	Soil	4/20/2015	7.4	20	0.32 U
OSS-18	.5 - 1'	Soil	4/20/2015	7.2	26	0.24 U
OSS-18S	0 - 2"	Soil	4/20/2015	7.7	21	0.24 U
OSS-19	.5 - 1'	Soil	4/20/2015	7.1	20	0.23 U
OSS-19S	0 - 2"	Soil	4/20/2015	9.2	21	0.27 U E

Notes:

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Values highlighted in gray indicate exceedance of Industrial Use Soil Cleanup Objectives.

Lab Qualifiers:
U = Not detected above the laboratory method detection limit shown.
J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.

Data Validation Qualifier:
E = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.

R = Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.

Table 2f: Summary of Chromium and Arsenic Detections at Catch Basin Locations
Northeast Treaters of New York, LLC
796 Schoharie Turnpike, Town of Athens, New York
April 15 & 20, 2015

			Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Chromium, Hexavalent
			Units	mg/kg	mg/kg	mg/kg
			Soil Cleanup Objectives (Unrestricted)	13	30	1
			Soil Cleanup Objectives (Commercial)	16	1,500	400
			Soil Cleanup Objectives (Industrial)	16	6,800	800
Sample ID	**Sample Depth Interval**	**Sample Matrix**	**Date Sampled**			
CB-01	0 - 2"	Sediment	4/15/2015	28	30 E	0.25 U E
CB-02	0 - 2"	Soil	4/15/2015	35	43 E	0.21 J E
CB-03	0 - 2"	Soil	4/15/2015	40	36 E	0.2 U E
CB-04	0 - 2"	Soil	4/15/2015	24	41	0.21 U E
CB-05	0 - 2"	Soil	4/15/2015	27	28	0.2 U E
CB-06	0 - 2"	Soil	4/15/2015	26	33	0.22 U E
CB-07	0 - 2"	Sediment	4/15/2015	36	35	0.34 J
CB-08	0 - 2"	Sediment	4/20/2015	39	87	0.33 J E

Notes:

Values highlighted in yellow indicate exceedance of Unrestricted Use Soil Cleanup Objectives.

Values highlighted in blue indicate exceedance of Commercial Use Soil Cleanup Objectives.

Values highlighted in gray indicate exceedance of Industrial Use Soil Cleanup Objectives.

Lab Qualifiers:

U = Not detected above the laboratory method detection limit shown.

J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.

Data Validation Qualifier:

E = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.

R = Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confimr the result.

Table 2g: Soil Sample Results - Total Recoverable Metals
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York
June 23, 2014

			Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable
			Units	mg/kg	mg/kg
			Soil Cleanup Objectives (Unrestricted)	13	30
			Soil Cleanup Objectives (Commercial)	16	1,500
			Soil Cleanup Objectives (Industrial)	16	6,800
Sample ID	**Sample Depth Interval**	**Sample Matrix**	**Date Sampled**		
S-1A	1.0 - 2.0' bgs	Fill	6/23/2014	1430	1060
S-1B	2.0 - 3.0' bgs	Fill	6/23/2014	95.3	316
S-1C	3.0 - 4.0' bgs	Soil	6/23/2014	6.7	20.6
S-1D	4.0 - 5.0' bgs	Soil	6/23/2014	17.1	37.3
S-1E	5.0 - 6.0' bgs	Soil	6/23/2014	9.2	25.6
S-2A	1.0 - 2.0' bgs	Fill	6/23/2014	26.0	11.7
S-2B	2.0 - 3.0' bgs	Fill	6/23/2014	10.1	20.8
S-2C	3.0 - 4.0' bgs	Soil	6/23/2014	8.0	17.3
S-2D	4.0 - 5.0' bgs	Soil	6/23/2014	7.2	17.3
S-2E	5.0 - 6.0' bgs	Soil	6/23/2014	8.4	16.7
S-3A	1.0 - 2.0' bgs	Fill	6/23/2014	56.8	76.5
S-3B	2.0 - 3.0' bgs	Fill	6/23/2014	7.5	24.9
S-3C	3.0 - 4.0' bgs	Soil	6/23/2014	9.0	29.8
S-3D	4.0 - 5.0' bgs	Soil	6/23/2014	6.7	19.9
S-3E	5.0 - 6.0' bgs	Soil	6/23/2014	7.0	22.9
S-4A	1.0 - 2.0' bgs	Fill	6/23/2014	78.0	55.0
S-4B	2.0 - 3.0' bgs	Fill	6/23/2014	39.7	66.8
S-4C	3.0 - 4.0' bgs	Soil	6/23/2014	53.2	46.2
S-4D	4.0 - 5.0' bgs	Soil	6/23/2014	64.1	40.7
S-4E	5.0 - 6.0' bgs	Soil	6/23/2014	52.6	47.3

Notes:
Values highlighted in yellow indicate exceedance of Unrestricted Use Soil Cleanup Objective.
Values highlighted in blue indicate exceedance of Commercial Use Soil Cleanup Objectives.
Values highlighted in gray indicate exceedance of Industrial Use Soil Cleanup Objectives.

Table 2h: Drip Pad Concrete Sample Results - Total Recoverable Metals
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York
June 23, 2014

		Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable
		Units	mg/kg	mg/kg
Sample ID	**Sample Matrix**	**Sample Depth Interval**		
C-1A	Concrete	0 - 3" bgs	7.6	262
C-1B	Concrete	3 - 6" bgs	740	1610
C-1C	Concrete	6 - 9" bgs	1290	726
C-2A	Concrete	0 - 3" bgs	7.4	20.0
C-2B	Concrete	3 - 6" bgs	8.6	15.5
C-2C	Concrete	6 - 9" bgs	6.7	13.1
C-3A	Concrete	0 - 3" bgs	9.1	257
C-3B	Concrete	3 - 6" bgs	48.7	61.0
C-3C	Concrete	6 - 9" bgs	88.5	96.0
C-4A	Concrete	0 - 3" bgs	8.5	299
C-4B	Concrete	3 - 6" bgs	198	111
C-4C	Concrete	6 - 9" bgs	448	237

Table 2i: Soil Sample Results - TCLP Metals
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York
June 23, 2014

		Parameter	Arsenic (mg/L)	Chromium (mg/L)
		Determination Level	50	6
Sample ID	Sample Matrix	Sample Depth Interval		
S-1A	Fill	1.0 - 2.0' bgs	0.85 B	0.054 J B
S-1B	Fill	2.0 - 3.0' bgs	0.059 J B	0.080 J B
S-1C	Soil	3.0 - 4.0' bgs	0.0077 J B	0.0084 J B
S-1D	Soil	4.0 - 5.0' bgs	0.019 J B	0.0073 J B
S-1E	Soil	5.0 - 6.0' bgs	0.010 J B	0.0069 J B
S-2A	Fill	1.0 - 2.0' bgs	0.011 J B	0.0068 J B
S-2B	Fill	2.0 - 3.0' bgs	0.0078 J B	0.0072 J B
S-2C	Soil	3.0 - 4.0' bgs	0.0094 J B	0.0067 J B
S-2D	Soil	4.0 - 5.0' bgs	0.0075 J B	0.014 J B
S-2E	Soil	5.0 - 6.0' bgs	0.0068 J B	0.0064 J B
S-3A	Fill	1.0 - 2.0' bgs	0.011 J B	0.018 J B
S-3B	Fill	2.0 - 3.0' bgs	0.0047 J B	0.0074 J B
S-3C	Soil	3.0 - 4.0' bgs	0.0062 J B	0.0066 J B
S-3D	Soil	4.0 - 5.0' bgs	0.0083 J B	0.0074 J B
S-3E	Soil	5.0 - 6.0' bgs	0.0095 J B	0.0086 J B
S-4A	Fill	1.0 - 2.0' bgs	0.016 J B	0.0077 J B
S-4B	Fill	2.0 - 3.0' bgs	0.25 J B	0.032 J B
S-4C	Soil	3.0 - 4.0' bgs	0.17 J B	0.010 J B
S-4D	Soil	4.0 - 5.0' bgs	0.21 J B	0.013 J B
S-4E	Soil	5.0 - 6.0' bgs	0.27 J B	0.015 J B

Bold indicates Contained-in Determination Level exceedance.

B - Compound was found in the blank and sample.

J - Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 2j: Concrete Sample Results - TCLP Metals
Northeast Treaters of New York, LLC
796 Schoharie Turnpike,Town of Athens, New York
June 23, 2014

		Parameter	**Arsenic (mg/L)**		**Chromium (mg/L)**	
		Debris Rule / Universal Treatment Standard	5		0.6	
Sample ID	**Sample Matrix**	**Sample Depth Interval**				
C-1A	Concrete	0 - 3" bgs	0.0062	J B	**5.7**	B
C-1B	Concrete	3 - 6" bgs	0.015	J B	**5.3**	B
C-1C	Concrete	6 - 9" bgs	0.034	J B	**0.83**	B
C-2A	Concrete	0 - 3" bgs	0.0054	J B	0.14	J B
C-2B	Concrete	3 - 6" bgs	0.0069	J B	0.058	J B
C-2C	Concrete	6 - 9" bgs	0.0073	J	0.077	J B
C-3A	Concrete	0 - 3" bgs	0.0058	J B	**4.3**	B
C-3B	Concrete	3 - 6" bgs	0.0060	J B	0.25	J B
C-3C	Concrete	6 - 9" bgs	0.013	J B	**0.88**	B
C-4A	Concrete	0 - 3" bgs	0.0063	J B	**6.9**	B
C-4B	Concrete	3 - 6" bgs	0.013	J B	0.073	J B
C-4C	Concrete	6 - 9" bgs	0.037	J B	0.12	J B

Bold indicates Debris Rule exceedance.

B - Compound was found in the blank and sample.

J - Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 3a: Summary of Monitoring Well Locations and Groundwater Depths
Northeast Treaters of New York, LLC
796 Schoharie Turnpike, Town of Athens, New York

Well Characteristics	Monitoring Wells			
	MW-1	**MW-2**	**MW-3**	**MW-4**
Longitude	W073.838163	W073.838214	W073.838801	W073.838707
Latitude	N042.286563	N042.286030	N042.286307	N042.286666
Well Depth (ft)	6.50 (top of metal casing)	9.97 (top of stick-up)	6.00 (top of metal casing)	5.57 (top of metal casing)
Screened Interval (ft)	1.0-6.0	3.0-8.0	1.0-6.0	1.0-6.0
Screened Media	Fill/Clay	Clay	Fill/Clay	Fill/Clay
Depth to Groundwater (4/15/2015) (ft)	0.5	---	---	---
Depth to Groundwater (4/20/2015) (ft)	0.4	9.62	---	---
Depth to Groundwater (4/30/2015) (ft)	0.61	2.96	4.10	---
Depth to Groundwater (5/4/2015) (ft)	1.30	3.32	3.44	5.14

Notes:
--- = No water present at time of measurement.

Table 3b: Summary of Chromium and Arsenic at Groundwater Well Locations
Northeast Treaters of New York, LLC
796 Schoharie Turnpike, Town of Athens, New York

		Analyte	Arsenic, Total Recoverable	Chromium, Total Recoverable	Arsenic, Dissolved	Chromium, Dissolved
		Units	mg/L	mg/L	mg/L	mg/L
		NYSDEC Class GA Groundwater Standards	0.025	0.050	0.025	0.050
Sample ID	**Sample Matrix**	**Date Sampled**				
MW - 1	Water	4/15/2015	0.0051 E	0.0113 E	0.00036	0.00078

Notes:
Data Validation Qualifier:
E = Analyte is present. Reported values may be associated with a higher level of uncertainty than is normally expected with the analyical method.

Table 3c: Summary of Monitoring Well Depth to Water Recharge Measurements
Northeast Treaters of New York, LLC
796 Schoharie Turnpike, Town of Athens, New York
May 4, 2015

Time	Amount Purged (gal)	Water level Measurements (ft)				Comments
		MW-1	MW-2	MW-3	MW-4	
11:10 AM	---	1.30	---	---	---	Before Purge
11:17 AM	---	---	3.32	---	---	Before Purge
11:22 AM	---	---	---	---	5.14	Before Purge
11:27 AM	---	---	---	3.44	---	Before Purge
11:35 AM - 11:41 AM	0.5	6.62	---	---	---	Purged Dry
11:45 AM - 11:51 AM	0.5	---	9.82	---	---	Purged Dry
12:00 PM - 12:05 PM	0.25	---	---	5.59	---	Purged Dry
12:07 PM - 12:12 PM	0.125	---	---	---	5.52	Purged Dry
12:25 PM	---	3.50	---	---	---	After Purge
12:28 PM	---	---	7.91	---	---	After Purge
12:39 PM	---	---	---	4.68	---	After Purge
12:46 PM	---	---	---	---	5.50	After Purge
1:15 PM	---	---	---	4.26	---	Before Second Purge
1:15 PM - 1:18 PM	0.1	---	---	5.59	---	Purged Dry
1:30 PM	---	---	---	5.00	---	After Second Purge
1:45 PM	---	---	---	5.10	---	After Second Purge
2:00 PM	---	---	---	5.10	---	After Second Purge
2:15 PM	---	---	---	5.10	---	After Second Purge

Notes:

- All water level measurements on May 4, 2015 were measured from the top of the PVC casing measuring reference point to the water surface.

--- = Not applicable or not measured.

Table 3d: Summary of Arsenic and Chromium Analytical Results at SPDES Outfall Location
Northeast Treaters of New York, LLC
796 Schoharie Turnpike, Athens, New York

		Analyte	Arsenic	Chromium
		Units	ug/l	mg/L
		NYSDEC Stormwater Standards Associated with Industrial Activity	150	1.8
Sample ID	**Sample Matrix**	**Date Sampled**		
Grab	Water	6/25/2014	8.0	< 0.005
Grab	Water	1/19/2015	< 5.0	0.0070

Table 4a: Summary of Stratigraphy and Soil Sampling
Northeast Treaters of New York, LLC
796 Schoharie Turnpike, Athens, New York

Boring ID	Boring Depth (ft.)	Stratigraphic Unit	Top of Unit (ft.)	Bottom of Unit (ft.)	Sample ID	Sample Depths (ft.)
DPP01I	15	Fill	0	3	DPP01IS	0-1
		Glaciolacustrine Clay	3	11.5	DPP01ID	3-5
		Glacial Till (Refusal)	11.5	---	---	---
DPP01E	4	Fill	0	4	DPP01ES	0-1
DPP02I	4	Fill	0	4	DPP02IS	0-1
DPP02E	4	Fill	0	3	DPP02ES	0-2
		Glaciolacustrine Clay	3	4	DPP02ED	3-4
DPP03I	12.5	Fill	0	3	DPP03IS	0-1
		Glaciolacustrine Clay	3	12.5	DPP03ID	3-5
		Glacial Till (Refusal)	12.5	---	---	---
DPP03E	4	Fill	0	4	DPP03ES	0-1
DPP04I	4	Fill	0	4	DPP04IS	0-1
DPP04E	12.5	FIll	0	3	DPP04ES	0-1
		Glaciolacustrine Clay	3	12.5	DPP04ED	3-5
		Glacial Till (Refusal)	12.5	---	---	---
DPP05I	15	FIll	0	3	DPP05IS	1-2
		Glaciolacustrine Clay	3	15	DPP05ID	3-5
DPP05E	4	Fill	0	4	DPP05ES	0-3
DPP06I	4	Fill	0	4	DPP06IS	0-1
DPP06E	15	Fill	0	3	DPP06ES	0-1
		Glaciolacustrine Clay	3	15	DPP06ED	3-5
DPP07I	15	Fill	0	4	DPP07IS	0-1
		Glaciolacustrine Clay	4	15	DPP07ID	4-8
DPP07E	4	FIll	0	4	DPP07ES	0-2
DPP08I	4	Fill	0	4	DPP08IS	0-1
DPP08E	15	Fill	0	4	DPP08ES	0-2
		Glaciolacustrine Clay	4	15	DPP08ED	4-5
DPP09I	15	Fill w/ Concrete Cover	0	4	DPP09IS	1-3
		Glaciolacustrine Clay	4	15	DPP09ID	4-5
DPP09E	15	Fill w/ Concrete Cover	0	4	DPP09ES	1-3
		Glaciolacustrine Clay	4	15	DPP09ED	4-5
DPP10I	4	Fill w/ Asphalt Cover	0	4	DPP10IS	1-3
DPP10E	15	Fill w/ Asphalt Cover	0	4	DPP10ES	1-3
		Glaciolacustrine Clay	4	15	DPP10ED	4-5
DPP11I	5	Fill w/ Asphalt Cover	0	4	DPP11IS	1-2
		Glaciolacustrine Clay	4	8	DPP11ID	4-5
DPP11E	4	Fill w/ Asphalt Cover	0	5	DPP11ES	1-2
DPP12I	4	Fill w/ Asphalt Cover	0	4	DPP12IS	1-3
DPP12E	5	Fill w/ Asphalt Cover	0	4	DPP12ES	1-3
		Glaciolacustrine Clay	4	8	DPP12ED	4-5
DPP13I	5	Fill w/ Asphalt Cover	0	4	DPP13IS	1-3
		Glaciolacustrine Clay	4	8	DPP13ID	4-5
DPP13E	4	Fill w/ Asphalt Cover	0	4	DPP13ES	1-3
DPP14I	4	Fill w/ Asphalt Cover	0	4	DPP14IS	1-2
DPP14E	5	Fill w/ Asphalt Cover	1	3	DPP14ES	1-2
		Glaciolacustrine Clay	3	5	DPP14ED	3-5
DPP15I	5	Fill w/ Asphalt Cover	0	3	DPP15IS	1-2
		Glaciolacustrine Clay	3	5	DPP15ID	3-5
DPP15E	4	Fill w/ Asphalt Cover	0	4	DPP15ES	1-2
DPP16I	4	Fill w/ Asphalt Cover	0	4	DPP16IS	1-2
DPP16E	15	Fill w/ Asphalt Cover	0	3	DPP16ES	1-3
		Glaciolacustrine Clay	3	15	DPP16ED	3-4

Table 4a: Summary of Stratigraphy and Soil Sampling
Northeast Treaters of New York, LLC
796 Schoharie Turnpike, Athens, New York

Boring ID	Boring Depth (ft.)	Stratigraphic Unit	Top of Unit (ft.)	Bottom of Unit (ft.)	Sample ID	Sample Depths (ft.)
DP01	15	Fill w/ Concrete Cover	0	3	DP01 FILL	1-3
		Glaciolacustrine Clay	3	15	DP01 CLAY	3-4
					DP01 A	5-6
					DP01 B	10-11
					DP01 C	14-15
DP02	9	Fill w/ Concrete Cover	0	3	DP02 A	1-3
		Glaciolacustrine Clay	3	9	DP02 B	4-5
					DP02 C	8-9
		Glacial Till (Refusal)	9	---	---	---
DP03	15	Fill w/ Concrete Cover	0	3	DP03 FILL	1-3
		Glaciolacustrine Clay	3	15	DP03 CLAY	3-4
					DP03 A	5-6
					DP03 B	10-11
					DP03 C	14-15
DP04	15	Fill w/ Concrete Cover	0	3	DP04 A	1-3
		Glaciolacustrine Clay	3	15	DP04 B	4-5
					DP04 C	8-9
					DP04 D	11-12
					DP04 E	14-15
SP01	15	Fill	0	4	SP01S	1-4
		Glaciolacustrine Clay	4	15	SP01D	4-5
SP02	10	Fill	0	3	SP02S	1-2
		Glaciolacustrine Clay	3	9.5	SP02D	3-4
		Glacial Till (Refusal)	9.5	---	---	---
SP03	15	Fill	0	3	SP03S	0-2
		Glaciolacustrine Clay	3	15	SP03D	3-4
SP04	15	Fill	0	4	SP04S	0-2
		Glaciolacustrine Clay	4	15	SP04D	4-5
SP05	15	Fill	0	4	SP05S	0-2
		Glaciolacustrine Clay	4	15	SP05D	4-6
SP06	4	Fill	0	4	SP06S	1-4
		Glaciolacustrine Clay	4	15	SP06	4-5
SP07	4	Fill/Glaciolacustrin Clay	0	4	SP07	0-1
SP08	4	Fill/Glaciolacustrin Clay	0	4	SP08	0-0.5
SP09	4	Glaciolacustrine Clay	0	4	SP09	0-1
SP10	4	Glaciolacustrine Clay	0	4	SP10	0-1
SP11	4	Fill	0	4	SP11	0.5-1
SP12	4	Fill	0	4	SP12	0.5-1
SP20	8	Fill	0	1	SP20S	0-0.17
		Glaciolacustrine Clay	0.5	8	SP20	0-1
SP21	4	Fill	0	4	SP21S	0-0.17
					SP21	0-1
SP22	4	Fill	0	4	SP22	0.5-1
SP23	4	Fill	0	4	SP23	0.5-1
SP24	8	Fill	0.4	1.8	SP24	0.5-1
		Glaciolacustrine Clay	1.8	8	---	---
SP25	8	Fill	0	4	SP25	0.5-1
		Glaciolacustrine Clay	4	8	---	---
SUMP	15	Fill w/ Concrete Cover	0	3	SUMP FILL	1-3
		Glaciolacustrine Clay	3	15	SUMP CLAY	3-4
					SUMP A	5-6
					SUMP B	10-11
					SUMP C	14-15

--- = No Sample or Not Applicable

Table 4b: Summary of Soil Descriptions for Sampling Event on April 20, 2015
Northeast Treaters of New York LLC
796 Schoharie Turnpike, Town of Athens, New York

Sample I.D.	Depth	Description
OSS-5S	0.0" - 6.0"	Dark Brown; Organic Loam (Topsoil); Occasional Cobbles and Pebbles; Moist.
OSS-5	6.0" - 12.0"	Dar Brown Organic Loam (Topsoil) with Gray to Brown Silty Clay; Occasional Cobbles and Pebbles.
OSS-6S	0.0" - 6.0"	Dark Brown; Organic Loam (Topsoil); Loose; Moist.
OSS-6	6.0" - 12.0"	Gray to Light Brown Clay with Little Silt; Soft; Moist.
OSS-15S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Moist; Loose.
OSS-15	6.0" - 12.0"	Light Brown to Light Gray Clay with Little Silt; Mottled; Moist; Medium Stiff to Stiff.
SP-26S	0.0" - 6.0"	Gray to Light Gray Sand and Gravel with Pebbles and Cobbles; Some Gray to Brown Clay and Little Silt; Loose (Fill).
SP-26	6.0" - 12.0"	Light Gray to Light Brown Clay with Little Silt; Mottled; Stiff to Very Stiff; Dry.
OSS-9S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Occasional Cobbles; Loose; Moist.
OSS-9	6.0" - 12.0"	Light Gray to Light Brown Clay with Little Silt; Medium Stiff to Stiff; Moist; Mottled.
OSS-18S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Moist; Loose.
OSS-18	6.0" - 12.0"	Light Gray to Light Brown Clay with Little Silt; Mottled; Moist; Groundwater @ ~ 1.0'.
OSS-7S	0.0" - 6.0"	Dark Brown; Organic Loam (Topsoil); Occasional Cobbles/Pebbles; Loose; Moist; 0.0"-9.0" bgs.
OSS-7	6.0" - 12.0"	Gray to Light Brown Clay with Little Silt; Soft to Medium Stiff; Mottled; Moist.
OSS-8S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Loose; Moist; 0.0"-10.0" bgs.
OSS-8	6.0" - 12.0"	Gray to Light Brown Clay with Little Silt; Mottled; Soft to Medium Stiff; Wet; Water Table @ ~ 10.0" bgs.

Table 4b: Summary of Soil Descriptions for Sampling Event on April 20, 2015
Northeast Treaters of New York LLC
796 Schoharie Turnpike, Town of Athens, New York

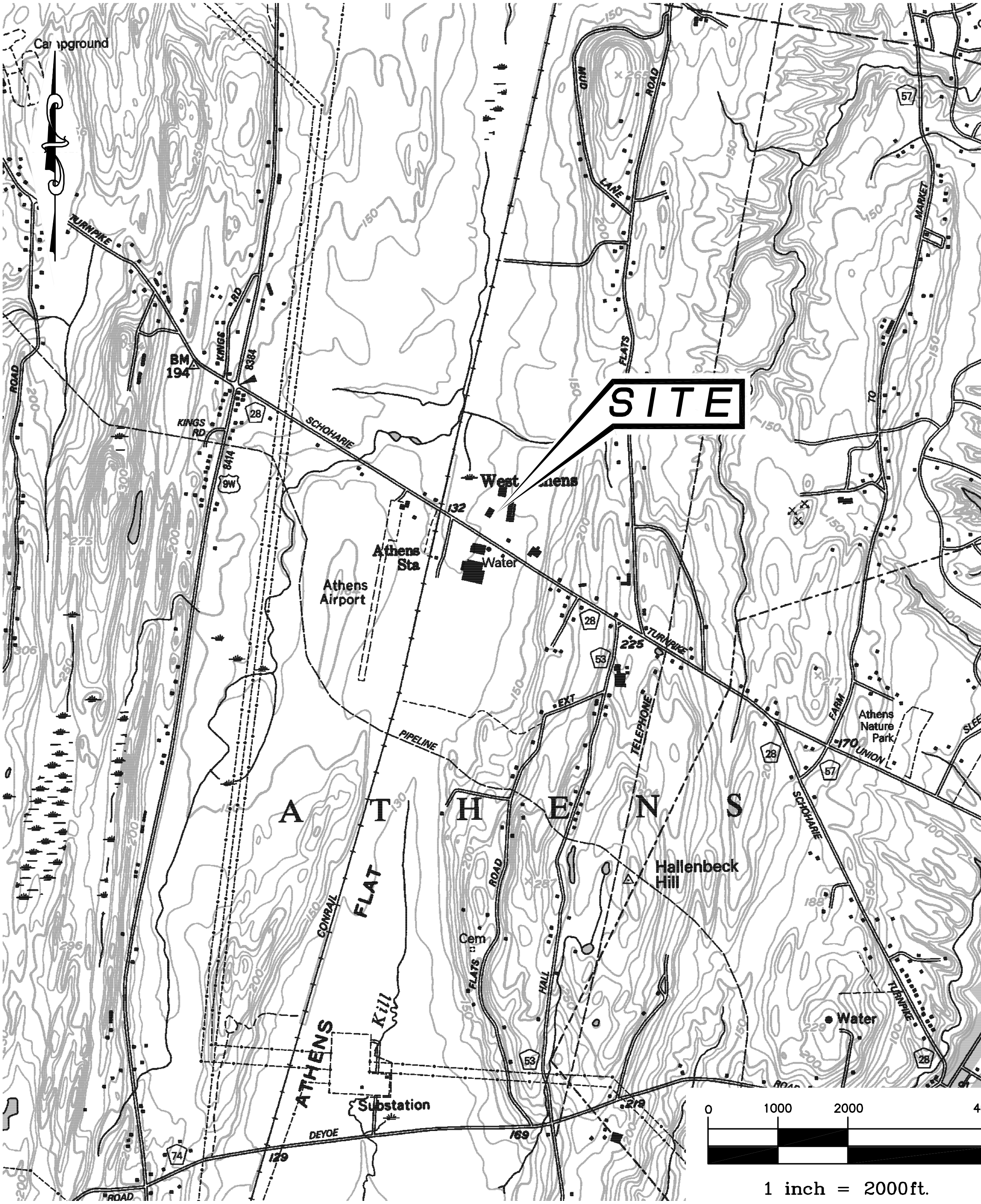
Sample I.D.	Depth	Description
OSS-17S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Loose; Moist.
OSS-17	6.0" - 12.0"	Light Gray to Light Brown Clay with Little Silt; Medium Stiff to Stiff; Moist; Mottled.
OSS-16S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Loose; Moist; 0.0"-9.0" bgs.
OSS-16	6.0" - 12.0"	Light Gray to Light Brown Clay; Medium Stiff to Stiff; Moist; Mottled.
OSS-11S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Moist; Loose.
OSS-11	6.0" - 12.0"	Light Gray to Light Brown Clay with Little Silt; Mottled; Medium Stiff to Stiff; Wet; Water Table @ 3.0" bgs.
OSS-10S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Occasional Cobbles; Moist; Loose.
OSS-10	6.0" - 12.0"	Light Gray Clay with Little Silt; Medium Stiff to Stiff; Moist; Mottled.
OSS-13S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Moist; Loose.
OSS-13	6.0" - 12.0"	Light Gray to Light Brown Clay with Little Silt; Mottled; Stiff.
OSS-19S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Moist; Loose.
OSS-19	6.0" - 12.0"	Light Gray to Light Brown Clay with Little Silt; Mottled; Medium Stiff to Stiff; Mottled.
OSS-12S	0.0" - 6.0"	Dark Brown Organic Loam (Topsoil); Moist; Loose.
OSS-12	6.0" - 12.0"	Light Gray to Light Brown Clay with Little Silt; Mottled; Medium Stiff.

Table 5

Potential Exposure Pathways
Northeast Treaters of New York, LLC
Athens, New York

Potential Receptor	Exposure Route, Contaminated Media, and Point of Exposure	Pathway Selected for Evaluation (Yes/No)	Reason for Selection or Exclusion
Offsite Residential/Offsite Workers	Ingestion, inhalation or dermal contact with offsite soils.	Yes	Surface soils contain concentrations of chromium and arsenic above unrestricted use SCOs.
Offsite Residential/Offsite Workers	Ingestion of groundwater offsite.	No	Analytical data indicate that Site related contaminants have not impacted groundwater.
Onsite Residential	Ingestion, inhalation or dermal contact with onsite soils.	No	The Town of Athens does not permit residential development and use at the Site.
Onsite Residential	Ingestion of groundwater onsite.	No	Residential development and use is not permitted at the Site. Analytical data indicate that Site related contaminants have not impacted groundwater.
Onsite workers	Ingestion, inhalation or dermal contact with onsite soils.	Yes	Surface soils contain concentrations of chromium and arsenic above unrestricted use SCOs.
Onsite workers	Ingestion of groundwater onsite	No	Analytical data indicate that Site related contaminants have not impacted groundwater. The Site currently utilizes bottled water for drinking purposes.
Trespassers / Visitors	Ingestion, inhalation or dermal contact with onsite soils.	Yes	Surface soils contain concentrations of chromium and arsenic above unrestricted use SCOs. The Site is partially fenced in a rural area and therefore the potential for trespassers is unlikely.
Trespassers / Visitors	Ingestion of groundwater onsite	No	Analytical data indicate that Site related contaminants have not impacted groundwater.

FIGURES



MAP REFERENCE: NYSDOT HUDSON NORTH QUADRANGLE, 1995.

STERLING
Sterling Environmental Engineering, P.C.
24 Wade Road ♦ Latham, New York 12110

SITE LOCATION MAP
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014–08	DATE: 5/1/15	SCALE: 1" = 2000'	DWG. NO. 2014–08022	FIGURE 1

LEGEND:

APPROXIMATE PROPERTY BOUNDARY

0 100 200 400

1 inch = 200 ft.

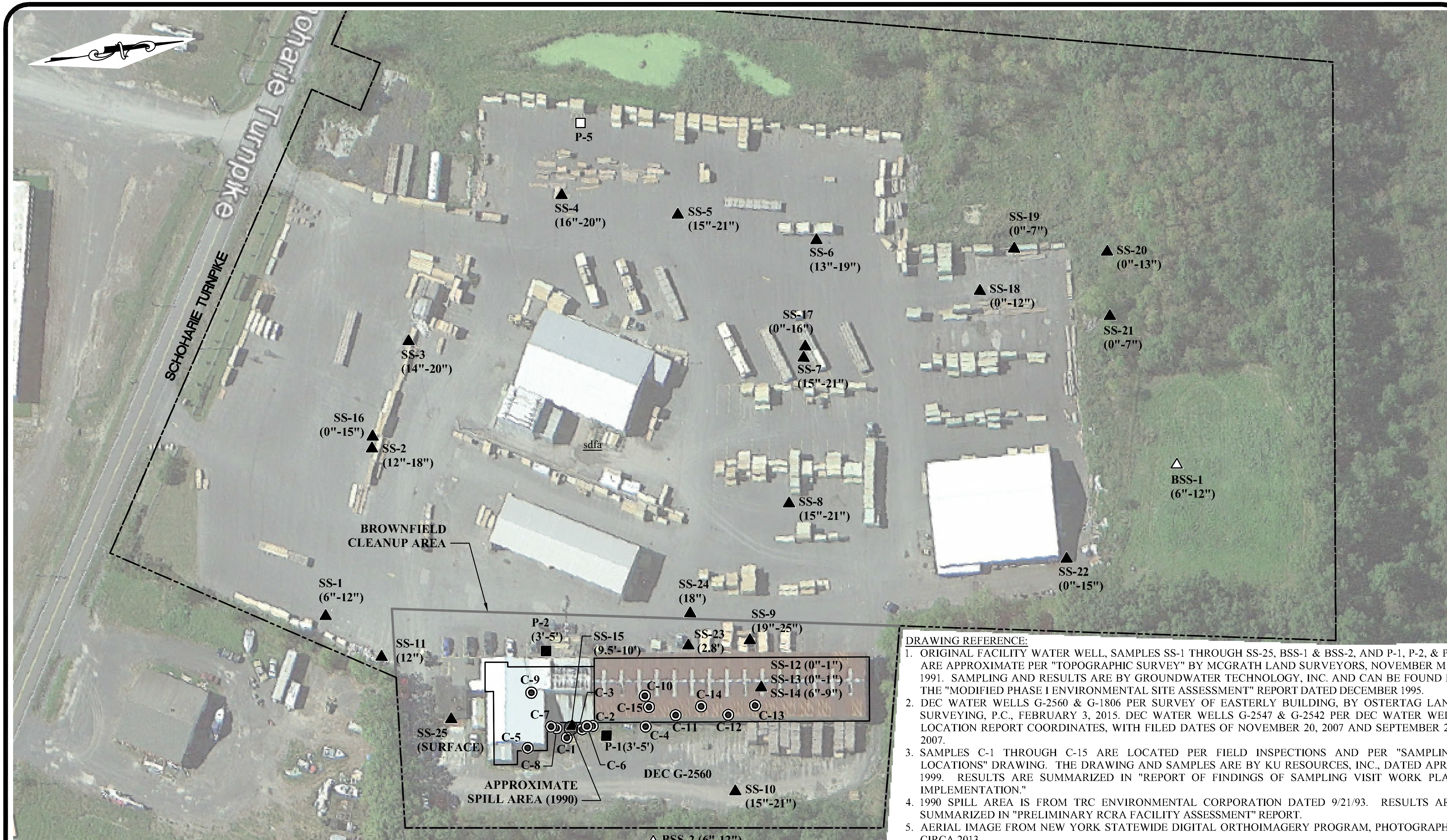
MAP REFERENCE: NEW YORK STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, PHOTOGRAPHY CIRCA 2013

STERLING
Sterling Environmental Engineering, P.C.
24 Wade Road • Latham, New York 12110

SUBJECT PROPERTY AND SITE MAP
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014-08	DATE: 5/1/15	SCALE: 1" = 200'	DWG. NO. 2014-08023	FIGURE 2



DRAWING REFERENCE:

1. ORIGINAL FACILITY WATER WELL, SAMPLES SS-1 THROUGH SS-25, BSS-1 & BSS-2, AND P-1, P-2, & P-5 ARE APPROXIMATE PER "TOPOGRAPHIC SURVEY" BY MCGRATH LAND SURVEYORS, NOVEMBER M 5, 1991. SAMPLING AND RESULTS ARE BY GROUNDWATER TECHNOLOGY, INC. AND CAN BE FOUND IN THE "MODIFIED PHASE I ENVIRONMENTAL SITE ASSESSMENT" REPORT DATED DECEMBER 1995.
2. DEC WATER WELLS G-2560 & G-1806 PER SURVEY OF EASTERLY BUILDING, BY OSTERTAG LAND SURVEYING, P.C., FEBRUARY 3, 2015. DEC WATER WELLS G-2547 & G-2542 PER DEC WATER WELL LOCATION REPORT COORDINATES, WITH FILED DATES OF NOVEMBER 20, 2007 AND SEPTEMBER 20, 2007.
3. SAMPLES C-1 THROUGH C-15 ARE LOCATED PER FIELD INSPECTIONS AND PER "SAMPLING LOCATIONS" DRAWING. THE DRAWING AND SAMPLES ARE BY KU RESOURCES, INC., DATED APRIL 1999. RESULTS ARE SUMMARIZED IN "REPORT OF FINDINGS OF SAMPLING VISIT WORK PLAN IMPLEMENTATION."
4. 1990 SPILL AREA IS FROM TRC ENVIRONMENTAL CORPORATION DATED 9/21/93. RESULTS ARE SUMMARIZED IN "PRELIMINARY RCRA FACILITY ASSESSMENT" REPORT.
5. AERIAL IMAGE FROM NEW YORK STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, PHOTOGRAPHY CIRCA 2013

LEGEND:

▲ SS-1 (6"-12")	SURFACE SOIL SAMPLE (ZONE OF SAMPLE)
△ BSS-1 (6"-12")	BACKGROUND SURFACE SOIL SAMPLE (ZONE OF SAMPLE)
■ P-1(3'-5')	GEOPROBE SOIL SAMPLING LOCATION (SOIL DESCRIPTION & ANALYTICAL DATA
□ P-5	GEOPROBE SOIL SAMPLING LOCATION (SOIL DESCRIPTION ONLY)
◎ C-1	SOIL SAMPLE LOCATIONS
— - - —	PROPERTY BOUNDARY

0 40 80 160

1 inch = 80 ft.

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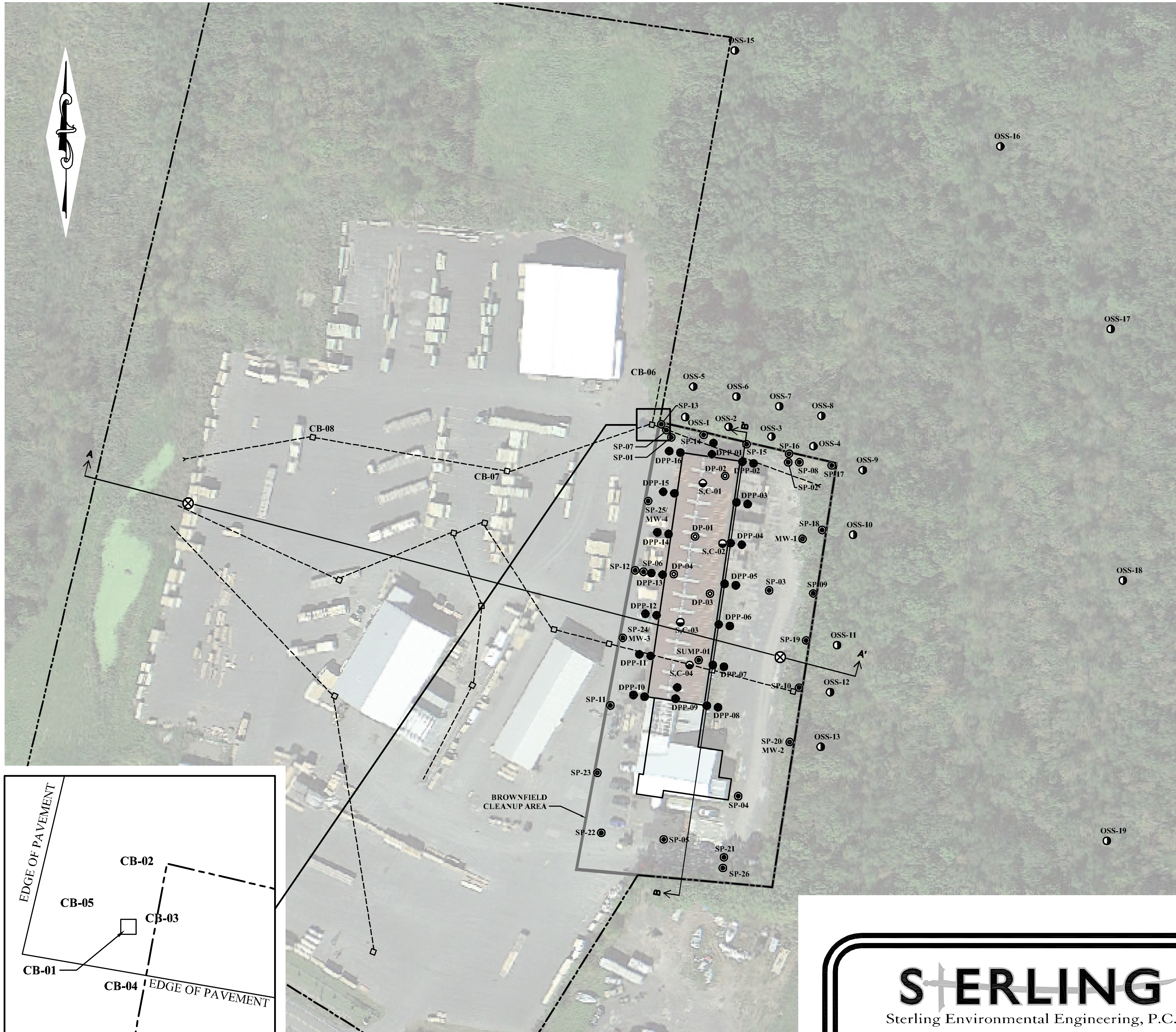
HISTORICAL SAMPLING LOCATIONS
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014-08	DATE: 5/1/15	SCALE: 1" = 60'	DWG. NO. 2014-08024	FIGURE 3



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LEGEND:

OSS-01	OFF-SITE SAMPLE LOCATIONS (OSS-01 - OSS-04 SAMPLED 4/15/2015 OSS-05 - OSS-19 SAMPLED 4/20/15)
SUMP-01	SUMP SAMPLE LOCATIONS (SAMPLED 11/17-20/2014)
DP-01	DRIP PAD SAMPLE LOCATIONS (SAMPLED 11/17-20/2014)
DPP-01	DRIP PAD PERIMETER SAMPLE LOCATIONS (SAMPLED 11/17-20/2014)
SP-01	SITE PERIMETER SAMPLE LOCATIONS (SP-01 - SP-06 SAMPLED 11/17-20/2014: SP-07 - SP-12 SAMPLED 1/22/15 SP-13 - SP-25 SAMPLED 4/15/15 SP-26 SAMPLED 4/20/15)
S,C-01	DRIP PAD SAMPLE LOCATION (SAMPLED 6/23/14)
CB	CATCH BASIN (CB-01 -CB-07 SAMPLED 4/15/15 (CB-08 SAMPLED 4/20/15)
- - - - - -	STORMWATER LINE
— - — - —	PROPERTY BOUNDARY

0 30 60 120

1 inch = 60 ft.

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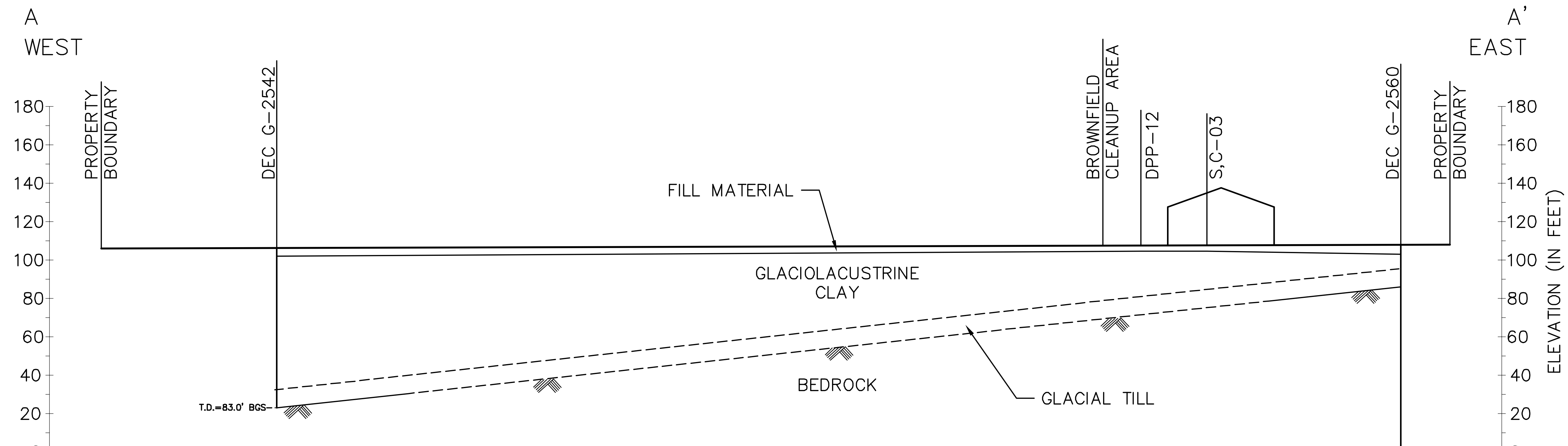
RECENT SAMPLING LOCATIONS
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

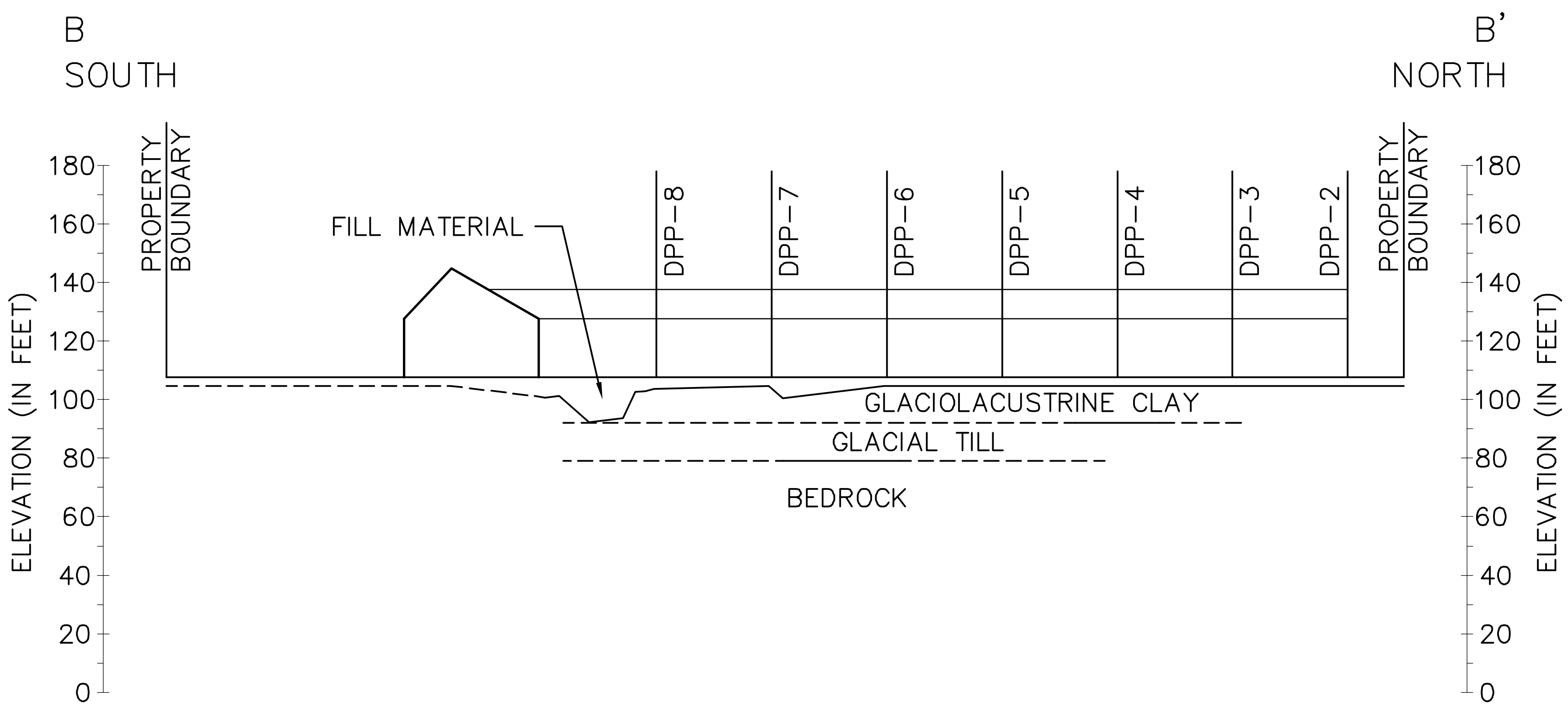
TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.:	DATE:	SCALE:	DWG. NO.	FIGURE
2014-08	5/1/15	1" = 60'	2014-08025	4



CROSS SECTION A-A'

SCALE: 1"=60'



CROSS SECTION B-B'

SCALE: 1"=60'

0 30 60 120

1 inch = 60 ft.

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CROSS SECTION
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014-08	DATE: 5/1/15	SCALE: 1" = 60'	DWG. NO. 2014-08027	FIGURE 5

LEGEND:

MW-1	MONITORING WELL LOCATION
DEC G-2560	WATER WELL LOCATIONS
— - - —	PROPERTY BOUNDARY

WELL REFERENCES:
1. DEC WELLS G-2560 AND G-1806 ARE PLACED PER SURVEY OF EASTERLY BUILDING, BY OSTERTAG LAND SURVEYING, P.C., FEBRUARY 3, 2015.
2. DEC WELLS G-2547 AND G-2542 ARE PLACED PER DEC WATER WELL LOCATION REPORT COORDINATES, WITH FILED DATES OF NOVEMBER 20, 2007 AND SEPTEMBER 20, 2007.
3. ORIGINAL FACILITY WELL IS PLACED PER TOPOGRAPHIC SURVEY BY MCGRATH LAND SURVEYORS, NOVEMBER 5, 1991.

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WELL LOCATION MAP
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014-08 | DATE: 5/1/15 | SCALE: 1" = 100' | DWG. NO. 2014-08027 | FIGURE 6

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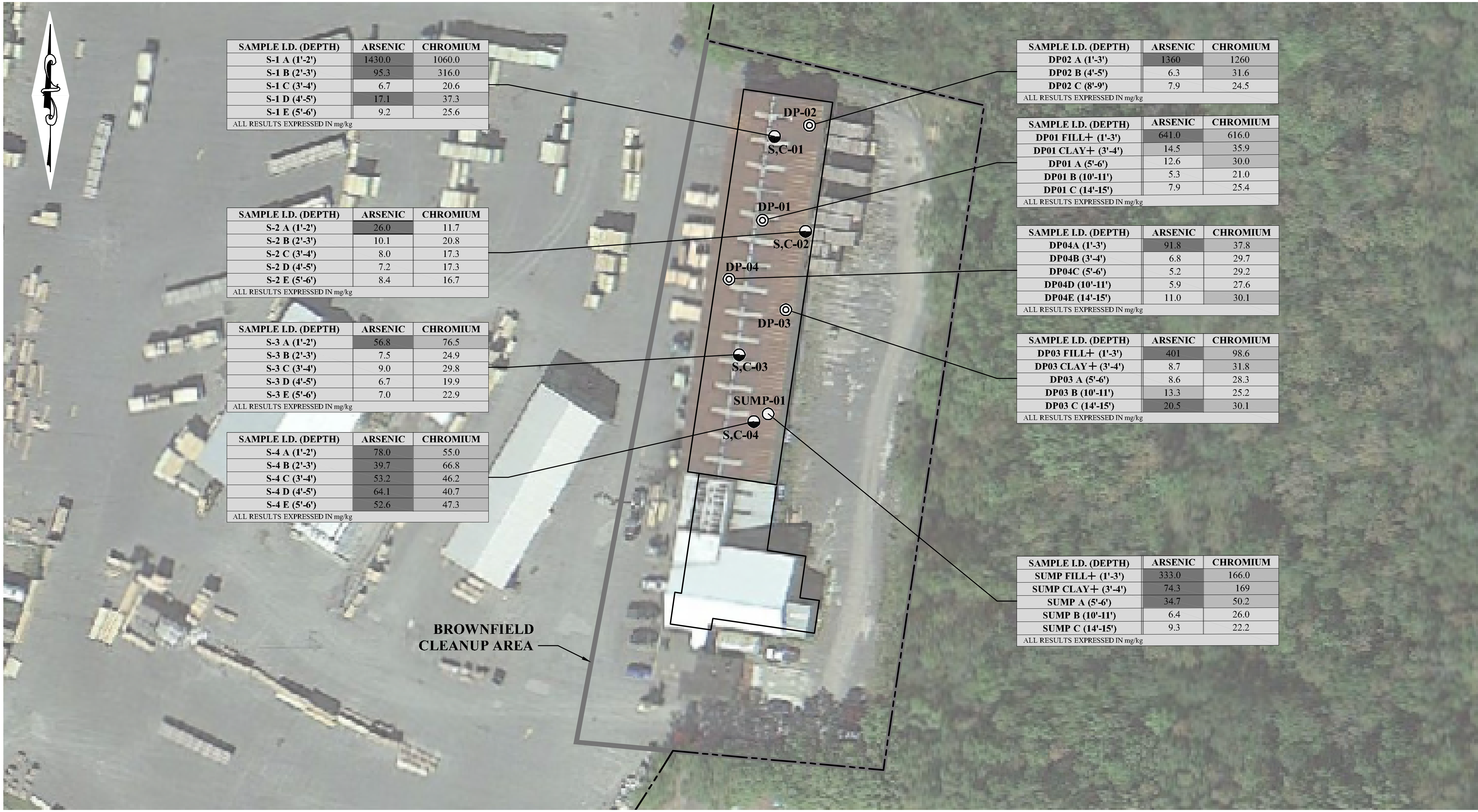

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
S-1 A (1'-2')	1430.0	1060.0
S-1 B (2'-3')	95.3	316.0
S-1 C (3'-4')	6.7	20.6
S-1 D (4'-5')	17.1	37.3
S-1 E (5'-6')	9.2	25.6

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
S-2 A (1'-2')	26.0	11.7
S-2 B (2'-3')	10.1	20.8
S-2 C (3'-4')	8.0	17.3
S-2 D (4'-5')	7.2	17.3
S-2 E (5'-6')	8.4	16.7

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
S-3 A (1'-2')	56.8	76.5
S-3 B (2'-3')	7.5	24.9
S-3 C (3'-4')	9.0	29.8
S-3 D (4'-5')	6.7	19.9
S-3 E (5'-6')	7.0	22.9

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
S-4 A (1'-2')	78.0	55.0
S-4 B (2'-3')	39.7	66.8
S-4 C (3'-4')	53.2	46.2
S-4 D (4'-5')	64.1	40.7
S-4 E (5'-6')	52.6	47.3

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DP02 A (1'-3')	1360	1260
DP02 B (4'-5')	6.3	31.6
DP02 C (8'-9')	7.9	24.5

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DP01 FILL+ (1'-3')	641.0	616.0
DP01 CLAY+ (3'-4')	14.5	35.9
DP01 A (5'-6')	12.6	30.0
DP01 B (10'-11')	5.3	21.0
DP01 C (14'-15')	7.9	25.4

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DP04A (1'-3')	91.8	37.8
DP04B (3'-4')	6.8	29.7
DP04C (5'-6')	5.2	29.2
DP04D (10'-11')	5.9	27.6
DP04E (14'-15')	11.0	30.1

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DP03 FILL+ (1'-3')	401	98.6
DP03 CLAY+ (3'-4')	8.7	31.8
DP03 A (5'-6')	8.6	28.3
DP03 B (10'-11')	13.3	25.2
DP03 C (14'-15')	20.5	30.1

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SUMP FILL+ (1'-3')	333.0	166.0
SUMP CLAY+ (3'-4')	74.3	169
SUMP A (5'-6')	34.7	50.2
SUMP B (10'-11')	6.4	26.0
SUMP C (14'-15')	9.3	22.2

ALL RESULTS EXPRESSED IN mg/kg

LEGEND:

+ Analyzed for all parameters identified in 6NYCRR PART 375-6.8

- SUMP-01 — SUMP SAMPLE LOCATION (NOVEMBER 17-20, 2014)
- DP-01 — DRIP PAD SAMPLE LOCATION (NOVEMBER 17-20, 2014)
- S,C-01 — DRIP PAD SAMPLE LOCATION (JUNE 23, 2014)
- PROPERTY BOUNDARY

0 30 60 120

1 inch = 60 ft.

ARSENIC	CHROMIUM	
13 mg/kg	30 mg/kg	- UNRESTRICTED USE
16 mg/kg	1500 mg/kg	- INDUSTRIAL USE

- SHADED VALUES INDICATE EXCEEDANCE OF RESPECTIVE SOIL CLEANUP OBJECTIVES:

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SUMMARY OF CHROMIUM AND ARSENIC DETECTIONS AT DRIP PAD SAMPLE LOCATIONS
NORTHEAST TREATERS
SCHOHARIE TURNPIKE
TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014-08	DATE: 5/1/15	SCALE: 1" = 60'	DWG. NO. 2014-08028	FIGURE 7

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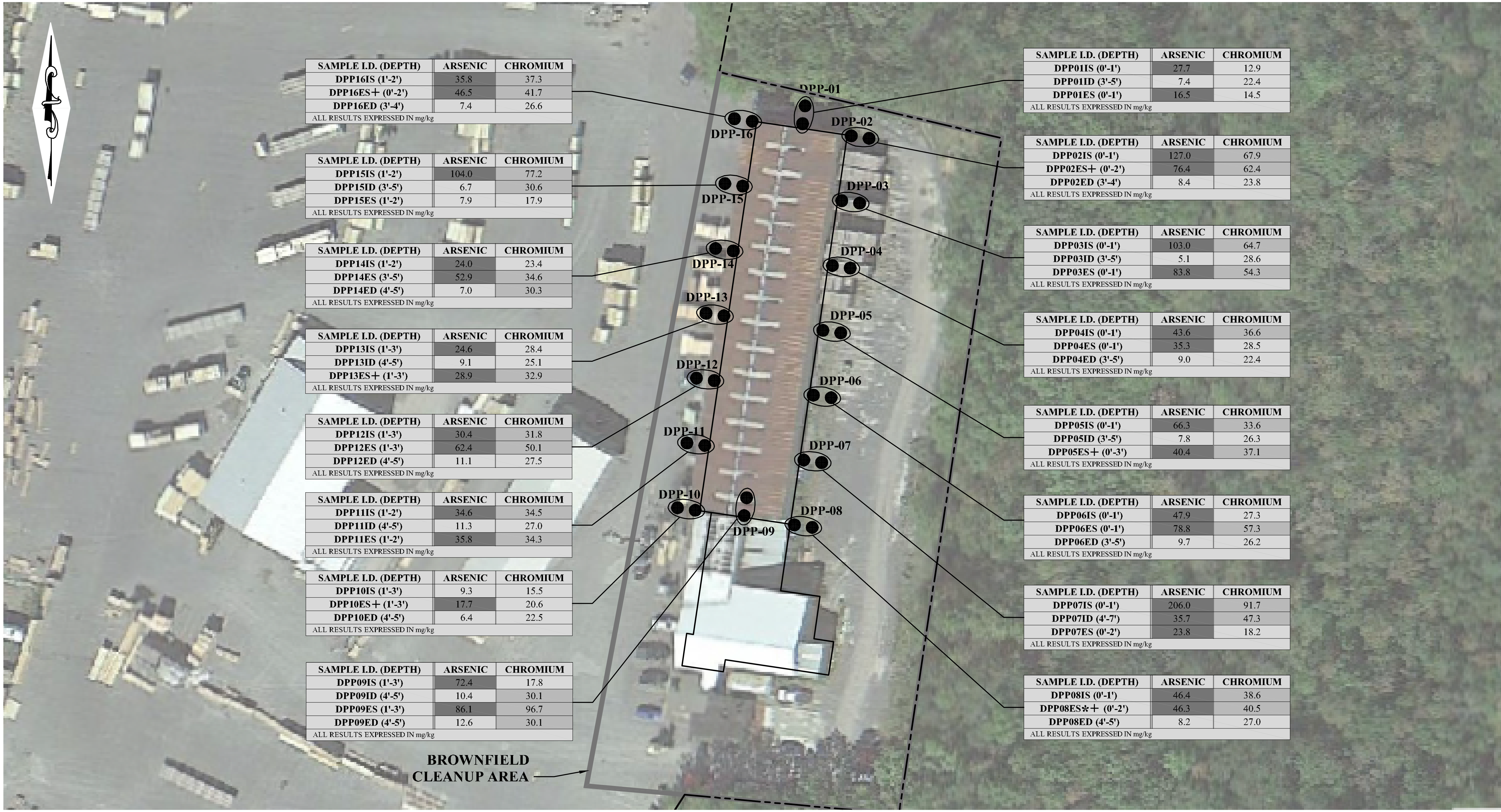

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP16IS (1'-2')	35.8	37.3
DPP16ES+ (0'-2')	46.5	41.7
DPP16ED (3'-4')	7.4	26.6
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP15IS (1'-2')	104.0	77.2
DPP15ID (3'-5')	6.7	30.6
DPP15ES (1'-2')	7.9	17.9
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP14IS (1'-2')	24.0	23.4
DPP14ES (3'-5')	52.9	34.6
DPP14ED (4'-5')	7.0	30.3
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP13IS (1'-3')	24.6	28.4
DPP13ID (4'-5')	9.1	25.1
DPP13ES+ (1'-3')	28.9	32.9
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP12IS (1'-3')	30.4	31.8
DPP12ES (1'-3')	62.4	50.1
DPP12ED (4'-5')	11.1	27.5
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP11IS (1'-2')	34.6	34.5
DPP11ID (4'-5')	11.3	27.0
DPP11ES (1'-2')	35.8	34.3
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP10IS (1'-3')	9.3	15.5
DPP10ES+ (1'-3')	17.7	20.6
DPP10ED (4'-5')	6.4	22.5
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP09IS (1'-3')	72.4	17.8
DPP09ID (4'-5')	10.4	30.1
DPP09ES (1'-3')	86.1	96.7
DPP09ED (4'-5')	12.6	30.1
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP01IS (0'-1')	27.7	12.9
DPP01ID (3'-5')	7.4	22.4
DPP01ES (0'-1')	16.5	14.5
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP02IS (0'-1')	127.0	67.9
DPP02ES+ (0'-2')	76.4	62.4
DPP02ED (3'-4')	8.4	23.8
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP03IS (0'-1')	103.0	64.7
DPP03ID (3'-5')	5.1	28.6
DPP03ES (0'-1')	83.8	54.3
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP04IS (0'-1')	43.6	36.6
DPP04ES (0'-1')	35.3	28.5
DPP04ED (3'-5')	9.0	22.4
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP05IS (0'-1')	66.3	33.6
DPP05ID (3'-5')	7.8	26.3
DPP05ES+ (0'-3')	40.4	37.1
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP06IS (0'-1')	47.9	27.3
DPP06ES (0'-1')	78.8	57.3
DPP06ED (3'-5')	9.7	26.2
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP07IS (0'-1')	206.0	91.7
DPP07ID (4'-7')	35.7	47.3
DPP07ES (0'-2')	23.8	18.2
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
DPP08IS (0'-1')	46.4	38.6
DPP08ES*+ (0'-2')	46.3	40.5
DPP08ED (4'-5')	8.2	27.0
ALL RESULTS EXPRESSED IN mg/kg		

LEGEND:

● DPP-01 DRIP PAD PERIMETER SAMPLE LOCATION (NOVEMBER 17-20, 2014)

— - - — PROPERTY BOUNDARY

* Semi-Volatile Compounds: Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, and Chrysene were detected at DPP08ES above Unrestricted-Use SCOs.

+ Analyzed for all parameters identified in 6NYCRR PART 375-6.8

0 30 60 120

1 inch = 60 ft.

ARSENIC	CHROMIUM	
13 mg/kg	30 mg/kg	- UNRESTRICTED USE
16 mg/kg	1500 mg/kg	- INDUSTRIAL USE

- SHADED VALUES INDICATE EXCEEDANCE OF RESPECTIVE SOIL CLEANUP OBJECTIVES:

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SUMMARY OF CHROMIUM AND ARSENIC DETECTIONS AT DRIP PAD PERIMETER SAMPLE LOCATIONS

NORTHEAST TREATERS

SCHOHARIE TURNPIKE

TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014-08	DATE: 5/1/15	SCALE: 1" = 60'	DWG. NO. 2014-08029	FIGURE 8

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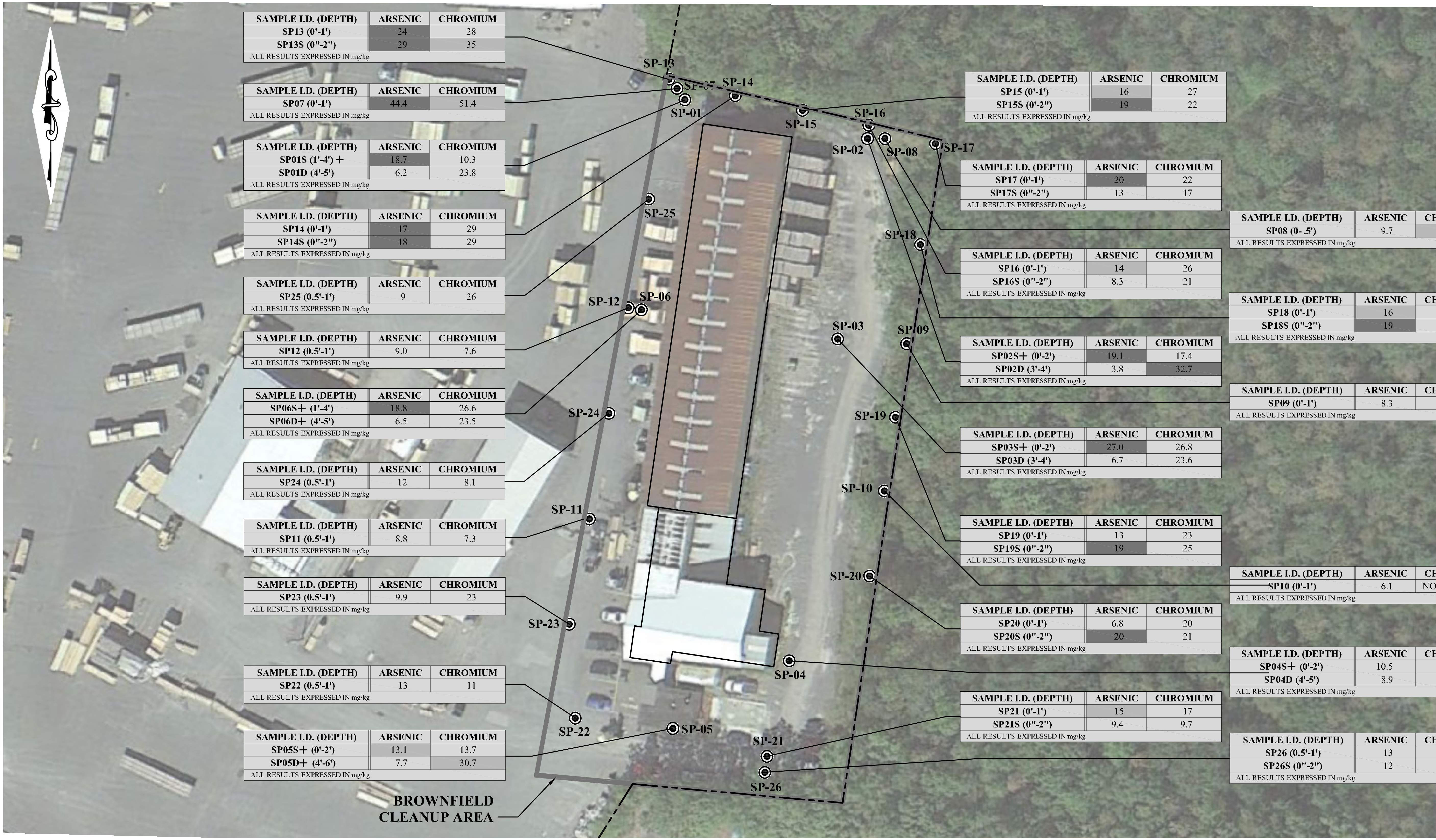

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP13 (0'-1')	24	28
SP13S (0"-2")	29	35
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP07 (0'-1')	44.4	51.4
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP01S (1'-4') +	18.7	10.3
SP01D (4'-5')	6.2	23.8
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP14 (0'-1')	17	29
SP14S (0"-2")	18	29
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP25 (0.5'-1')	9	26
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP12 (0.5'-1')	9.0	7.6
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP06S+ (1'-4')	18.8	26.6
SP06D+ (4'-5')	6.5	23.5
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP24 (0.5'-1')	12	8.1
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP11 (0.5'-1')	8.8	7.3
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP23 (0.5'-1')	9.9	23
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP22 (0.5'-1')	13	11
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP05S+ (0'-2')	13.1	13.7
SP05D+ (4'-6')	7.7	30.7
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP15 (0'-1')	16	27
SP15S (0'-2")	19	22
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP17 (0'-1')	20	22
SP17S (0"-2")	13	17
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP08 (0-.5')	9.7	32.5
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP16 (0'-1')	14	26
SP16S (0"-2")	8.3	21
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP18 (0'-1')	16	28
SP18S (0"-2")	19	20
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP02S+ (0'-2')	19.1	17.4
SP02D (3'-4')	3.8	32.7
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP09 (0'-1')	8.3	21.8
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP03S+ (0'-2')	27.0	26.8
SP03D (3'-4')	6.7	23.6
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP19 (0'-1')	13	23
SP19S (0"-2")	19	25
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP10 (0'-1')	6.1	NON-DETECT
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP20 (0'-1')	6.8	20
SP20S (0"-2")	20	21
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP04S+ (0'-2')	10.5	16.8
SP04D (4'-5')	8.9	30.0
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP21 (0'-1')	15	17
SP21S (0"-2")	9.4	9.7
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
SP26 (0.5'-1')	13	29
SP26S (0"-2")	12	27
ALL RESULTS EXPRESSED IN mg/kg		

LEGEND:

SP-01 SITE PERIMETER SAMPLE LOCATION (NOVEMBER 17-20, 2014 AND JANUARY 22, 2015)

PROPERTY BOUNDARY

0 30 60 120

1 inch = 60 ft.

+ Analyzed for all parameters identified in 6NYCRR PART 375-6.8

ARSENIC	CHROMIUM	
		- SHADED VALUES INDICATE EXCEEDANCE OF RESPECTIVE SOIL CLEANUP OBJECTIVES:
13 mg/kg	30 mg/kg	- UNRESTRICTED USE
16 mg/kg	1500 mg/kg	- INDUSTRIAL USE

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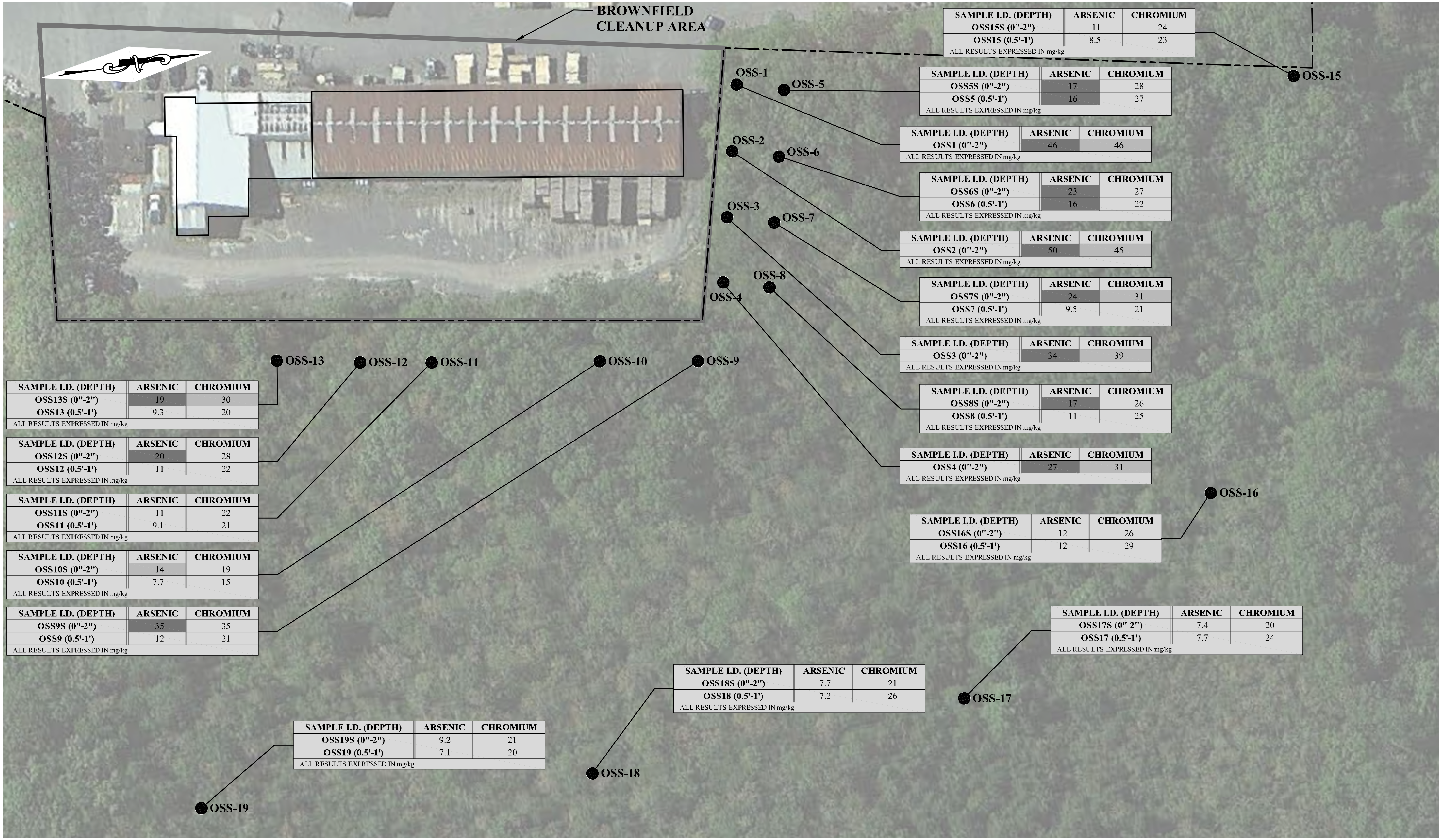
SUMMARY OF CHROMIUM AND ARSENIC DETECTIONS AT SITE PERIMETER SAMPLE LOCATIONS
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014-08 | DATE: 5/1/15 | SCALE: 1" = 60' | DWG. NO. 2014-08030 | FIGURE 9

S:\Drawings\2014-08 - Northeast Treaters of New York - Athens NY\2014-08028.SitePerimeterSummary.dwg5/8/2015 11:02 AM



SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS15S (0"-2")	11	24
OSS15 (0.5'-1')	8.5	23

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS5S (0"-2")	17	28
OSS5 (0.5'-1')	16	27

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS1 (0"-2")	46	46

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS6S (0"-2")	23	27
OSS6 (0.5'-1')	16	22

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS2 (0"-2")	50	45

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS7S (0"-2")	24	31
OSS7 (0.5'-1')	9.5	21

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS3 (0"-2")	34	39

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS8S (0"-2")	17	26
OSS8 (0.5'-1')	11	25

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS4 (0"-2")	27	31

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS13S (0"-2")	19	30
OSS13 (0.5'-1')	9.3	20

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS12S (0"-2")	20	28
OSS12 (0.5'-1')	11	22

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS11S (0"-2")	11	22
OSS11 (0.5'-1')	9.1	21

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS10S (0"-2")	14	19
OSS10 (0.5'-1')	7.7	15

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS9S (0"-2")	35	35
OSS9 (0.5'-1')	12	21

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS16S (0"-2")	12	26
OSS16 (0.5'-1')	12	29

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS17S (0"-2")	7.4	20
OSS17 (0.5'-1')	7.7	24

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS18S (0"-2")	7.7	21
OSS18 (0.5'-1')	7.2	26

ALL RESULTS EXPRESSED IN mg/kg

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS19S (0"-2")	9.2	21
OSS19 (0.5'-1')	7.1	20

ALL RESULTS EXPRESSED IN mg/kg

LEGEND:

● OSS-5 SAMPLE LOCATIONS (APRIL 15, 2015 AND APRIL 20, 2015)

— - - — PROPERTY BOUNDARY

ARSENIC	CHROMIUM	- SHADED VALUES INDICATE EXCEEDANCE OF RESPECTIVE SOIL CLEANUP OBJECTIVES:
13 mg/kg	30 mg/kg	- UNRESTRICTED USE
16 mg/kg	1500 mg/kg	- INDUSTRIAL USE

0 30 60 120

1 inch = 60 ft.

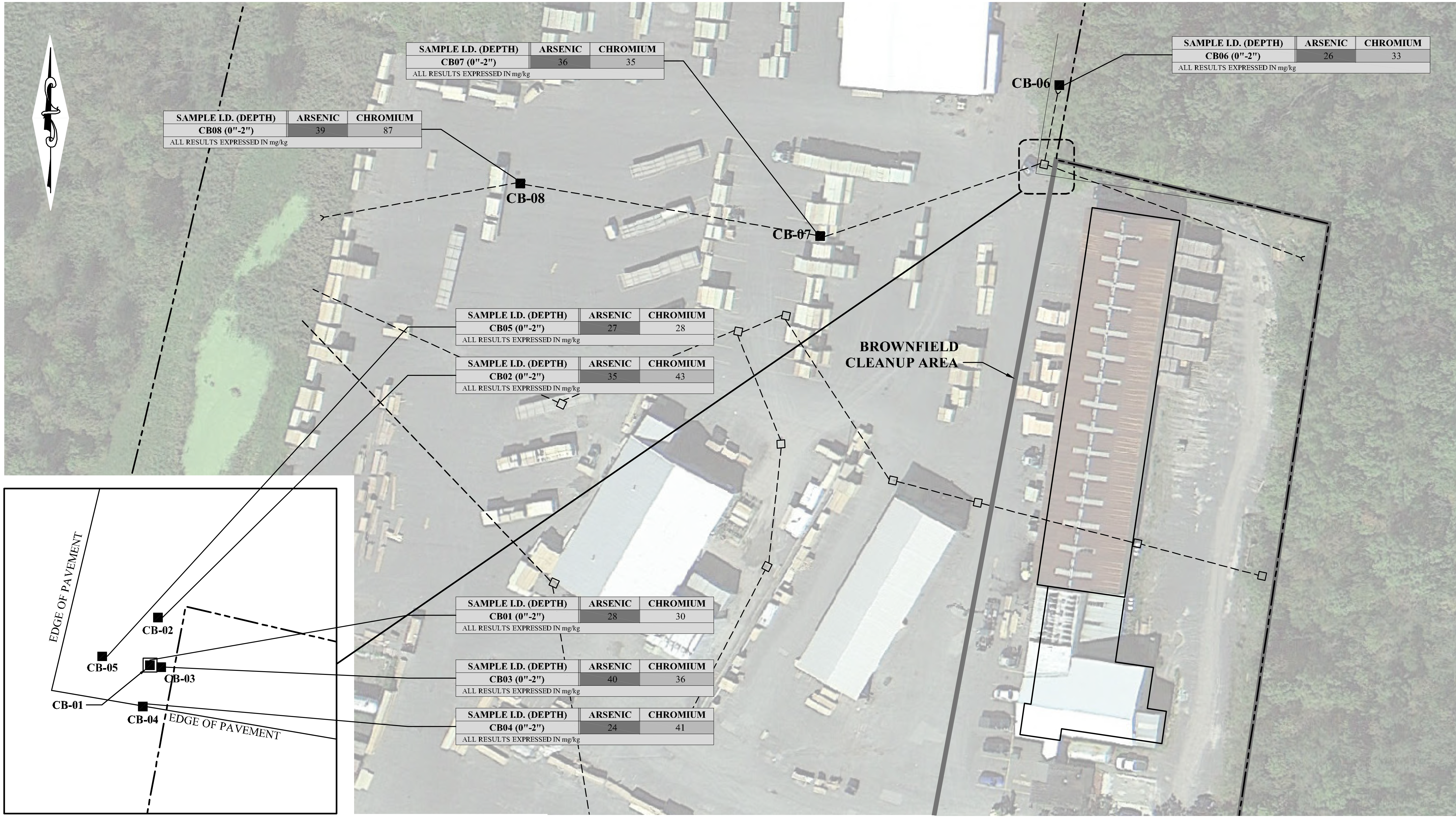
STERLING
Sterling Environmental Engineering, P.C.
24 Wade Road • Latham, New York 12110

SUMMARY OF CHROMIUM AND ARSENIC DETECTIONS AT OFF-SITE SAMPLE LOCATIONS
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014-08	DATE: 5/1/15	SCALE: 1" = 60'	DWG. NO. 2014-08031	FIGURE 10

S:\Drawings\2014-08 - Northeast Treaters of New York - Athens NY\2014-08032.OffSiteSummary.dwg5/8/2015 4:12 PM



LEGEND:

- ■ CB-01 — PROPOSED SEDIMENT AND SURFACE SAMPLE LOCATIONS
- □ CB — CATCH BASIN
- - - - - — STORMWATER LINE
- — - - — — PROPERTY BOUNDARY

ARSENIC	CHROMIUM	
13 mg/kg	30 mg/kg	- UNRESTRICTED USE
16 mg/kg	1500 mg/kg	- INDUSTRIAL USE

- SHADED VALUES INDICATE EXCEEDANCE OF RESPECTIVE SOIL CLEANUP OBJECTIVES:

0 30 60 120

1 inch = 60 ft.

STERLING
Sterling Environmental Engineering, P.C.
24 Wade Road • Latham, New York 12110

SUMMARY OF CHROMIUM AND ARSENIC DETECTIONS AT CATCH BASIN SAMPLE LOCATIONS

NORTHEAST TREATERS

SCHOHARIE TURNPIKE

TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014–08	DATE: 5/1/15	SCALE: 1" = 60'	DWG. NO. 2014–08032	FIGURE 11

S:\Drawings\2014-08 - Northeast Treaters of New York - Athens NY\2014-08031.CBSummary.dwg5/8/2015 4:13 PM

APPENDIX A

NYSDEC COMMENTS AND RESPONSE TO COMMENTS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Office of Environmental Quality, Region 4
1130 North Westcott Road, Schenectady, NY 12306-2014
P: (518) 357-2045 | F: (518) 357-2398
www.dec.ny.gov

April 3, 2015

Northeast Treaters of New York, LLC
Attn: David Reed
796 Schoharie Turnpike
Athens, NY 12015

Re: Northeast Treaters of New York, LLC
NYSDEC Brownfield Site #C420029

Dear Mr. Reed:

The New York State Departments of Health and Environmental Conservation have reviewed the draft Remedial Investigation Report dated February 27, 2015 and offers the following comments:

General: Please note that all future submittals should be in searchable Adobe pdf format and not as a scanned image.

Title Page: The title page of all remedial investigation reports submitted for approval must include the appropriate certification provided in DER-10, certifying that the report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Section 1.2: More specific information should be provided, with reference to figure(s), which provide information on the more probable specific contaminant release areas and suspected migration pathways.

Section 2.1: Please provide more specific/exact information on the zoning classification.

Section 2.4: Please add wording to the last sentence of the third paragraph which clarifies that the glacial till was not encountered in some borings which exceeded 12.5 feet below grade. Please add information on bedrock depth.

Section 2.5: Data from previous sampling events at the drip pad and the location of the arsenic pentoxide spill should be presented with sampling locations on a separate figure, and analytical results with a summary and interpretation of those results. As appropriate, figures and data from the KU Resources report included with the BCP Application, as well as the 1989 CAPT LOIS inspection report prepared by A.T. Kearney and the 1993 preliminary RCRA facility assessment prepared by TRC, should be included in the RI to ensure all relevant site information is presented and placed in context.

In paraphrasing the NYSDEC's June 13, 2000 letter, the text inaccurately reflects the NYSDEC's position on two items. The draft work plan states that NYSDEC determined that no RCRA corrective action was required. In contrast, it is our understanding that the letter acknowledges that corrective action is in fact required for the drip pad, but that the corrective action may be deferred. The letter goes on to state that "there are no other known releases from the facility at Northeast Treaters that require RCRA corrective action." Further, discussing the known contamination beneath the drip pad, the NYSDEC's June 13, 2000 letter states, "Therefore, the most prudent course of action is to address the remediation of the contaminated soils in the vicinity of the existing Drip Pad when this unit closes and the contaminated soils become accessible." This is not necessarily synonymous with "a closure program implemented at cessation of operations," as written in the work plan. Please delete or modify the language.

The final sentence of the second-to-last paragraph of this section requires modification or clarification. TCLP analysis is used to determine whether a material may be a *characteristic* hazardous waste. Material (soil) may be a hazardous waste without necessarily being a characteristic hazardous waste.

Section 4.0: The RI must compare all soil data to the Unrestricted Use SCOs.

Section 6.0: The RI must compare all soil data to the Unrestricted Use SCOs.

Section 6.3: A discussion is provided in the draft RI on why Site conditions do not pose a risk of impacting groundwater. However, no physical samples of groundwater were analyzed during the RI. We understand that previous sample results exist for a bedrock well. However, in order to meet the obligation in Part 375 to fully investigate and characterize the nature and extent of contamination on the brownfield site, an attempt should be made to confirm or refute the presence of shallow groundwater which may be impacted by the contaminated soils and, if groundwater exists, to obtain samples for laboratory analysis. In accordance with DER-10, water samples should be collected, if possible, from any suspected or confirmed source areas (e.g. sump areas) and the known or expected downgradient flow direction.

Section 6.3.1: Please provide more information regarding the statement that water levels in bedrock are "at a higher elevation than water levels in the overburden." Specifically, please provide information on how the comparative water levels in the overburden were measured.

Section 7.0: We disagree that data is sufficient to demonstrate that site-related contamination is confined within the boundaries of the site except in the vicinity of SP-07. In general, and as discussed, the distance between the "SP" samples is too great, when viewed in the context of the results of the "DPP" samples. Further, there appears to be no "clean" sample to the north (center) of the building. Further, because a conclusion is offered that data shows site-related contamination is not confined to the site boundaries in the area of SP-07, recommendations should be offered for additional contaminant delineation in this area of the site.

Tables: The key states that “Highlighted Values Indicate exceedance of Commercial and/or Industrial Use Soil Cleanup Objective.” As commercial SCOs are (always) equal to or less than industrial SCOs, this statement is equivalent to saying that the highlighted values indicate exceedance of commercial use soil cleanup objectives. As unrestricted use SCOs are the primary value to be used for comparison to site data in the RI, exceedances of the unrestricted values should also be highlighted (rather than simply bolded) so that they are easier to notice and assess. An approach which seems to work well is to utilize three different highlight colors: one for exceedances of unrestricted SCOs; another for exceedances of commercial use SCOs; and a third for exceedances of industrial SCOs.

Figures: Similar to the tables, the notes on the figures which present data state that the shaded values indicate exceedances of commercial/industrial use soil cleanup objectives. There is no such category as commercial/industrial use SCO. Depth of sample (associated with each result) should be identified on the figures. Each analyte found to exceed unrestricted use criteria should be identified on a figure.

The report is missing the following items detailed in DER-10 Section 3.14 as necessary components of an RI report: Electronic data summary (see DER-10 for components); stratigraphic cross-section of the site; top of bedrock contour or low-permeability unit map (if sufficient data exists); isopleth maps for soil sample results; the results of the Fish and Wildlife Resources Impact Analysis; and a qualitative human health exposure assessment.

It is our understanding that Northeast Treaters is developing a work plan to address the data gaps noted above as they have been (mostly) discussed previously between Northeast Treaters and the State. The pending supplemental work plan should include a schedule for submittal of the revised RI report and for the Alternatives Analysis/Remedial Work Plan.

Sincerely,

James A. Quinn
Division of Environmental Remediation
NYSDEC - Region 4

ec: B. Wenskoski, J. Deming, M. Rogers, K. Young, R. Aldrich, B. Morss, G. Christy

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Office of Environmental Quality, Region 4
1130 North Westcott Road, Schenectady, NY 12306-2014
P: (518) 357-2045 I.F: (518) 357-2398
www.dec.ny.gov

July 17, 2015

Mr. David Reed
Northeast Treaters of New York, LLC
796 Schoharie Turnpike
Athens, NY 12015

Re: DEC Comments on the draft Northeast Treaters Remedial Investigation Report

Dear Mr. Reed:

The DEC and DOH have completed their review of the draft Northeast Treaters Remedial Investigation Report, dated 5/15/2015 and submitted 5/20/15. Following are the issues and concerns that need to be addressed prior to DEC acceptance of the Remedial Investigation Report:

1. All appendixes should be paginated for quick reference.

2. Well Completion logs for MWs 1-4 and all boring logs within the BCP site should be compiled and placed in a separate appendix.

3 A subsurface stratigraphic cross-section for the BCP site should be produced. Among the information, insure that the cross-section clearly shows the sub-surface clay layer and bedrock layers.

4. There is confusion on the presentation of the Site's groundwater status. Specifically, clear delineation needs to be made regarding the BCP site's groundwater status as to; "there is not sufficient near-surface groundwater at the site for sampling" or "there is near-surface groundwater present at the BCP site, but it is not contaminated".

5. Additional investigation of catch-basin sediments is necessary to determine if site-related contamination is present in and migrating through, the storm water connection system in the southern portion of the site. This sampling can be accomplished in the remedial design/remedial action phase of the project.

Please submit the finalized Remedial Investigation Report for DEC approval by August 17, 2015.

Sincerely,

Walter Wintsch

Walter F. Wintsch, Jr.
Engineering Geologist 2
NYSDEC, Region 4

ecc: Bridget Boyd
Brad Wenskowski
Justin Deming
Greg Christy
Kevin Young
Beth Morss
Bob Cozzy
Tom Johnson
Vedran Cirkovic

WW:jh/letter.2015-07-17.Northeast Treaters of New York

NORTHEAST TREATERS OF NEW YORK, LLC
ATHENS, NEW YORK
BCP #C420029

Response to New York State Department of Environmental Conservation (NYSDEC) Letter Dated April 3, 2015 Re: Remedial Investigation Report

NYSDEC Comment 1 - General: Please note that all future submittals should be in searchable Adobe pdf format, not simply as a scanned image.

Response to NYSDEC Comment 1 – Future submittals will be submitted in searchable Adobe pdf format. However, historical reports provided as appendices on future submittals will be submitted as a scanned image.

NYSDEC Comment 2 - The title page of all remedial investigation reports submitted for approval must include the appropriate certification provided in DER-10, certifying that the report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Response to NYSDEC Comment 2 – Concur.

NYSDEC Comment 3 - Section 1.2: More specific information should be provided, with reference to figure(s), which provide information on the more probable specific contaminant release areas and suspected migration pathways.

Response to NYSDEC Comment 3 – Section 1.2 has been revised to include references to tables and figures which provide information on probable contaminant release areas and historic analytical sample results. Section 7.0 has been added to the Remedial Investigation Report to provide a discussion on probable contaminant sources and suspected migration pathways.

NYSDEC Comment 4 - Section 2.1: Please provide more specific/exact information on the zoning classification.

Response to NYSDEC Comment 4 – More specific information on the zoning classification is provided in Section 2.1. A zoning map, a summary table of permitted uses, and a summary table of lot requirements established by the Town of Athens zoning code are provided as Appendix B of the Remedial Investigation Report.

NYSDEC Comment 5 - Section 2.4: Please add wording to the last sentence of the third paragraph which clarifies that the glacial till was not encountered in some borings which exceeded 12.5 feet below grade. Please add information on bedrock depth.

Response to NYSDEC Comment 5 – Section 2.4 has been revised as requested.

NYSDEC Comment 6 - Section 2.5: Data from previous sampling events at the drip pad and the location of the arsenic pentoxide spill should be presented with sampling locations on a separate figure, and analytical results with a summary and interpretation of those results. As appropriate, figures and data from the KU Resources report included with the BCP Application, as well as the 1989 CAPT LOIS inspection report prepared by A.T. Kearney and the 1993 preliminary RCRA facility assessment prepared by TRC, should be included in the RI to ensure all relevant site information is presented and placed in context.

Response to NYSDEC Comment 6 – Analytical data collected during historic sampling events are summarized in Tables 1a and 1b, and respective sample locations are provided in Figure 3. Analytical data from sampling events conducted from 2014 through 2015 are summarized in Tables 2a through 2j, and respective sample locations are provided in Figure 4. The KU Resources Reports, the 1989 CAPT LOIS inspection report, and the 1993 preliminary RCRA facility assessment are provided as Appendices E through H of the Remedial Investigation Report.

NYSDEC Comment 7 - In paraphrasing the NYSDEC's June 13, 2000 letter, the text inaccurately reflects the NYSDEC's position on two items. The draft work plan states that NYSDEC determined that no RCRA corrective action was required. In contrast, it is our understanding that the letter acknowledges that corrective action is in fact required for the drip pad, but that the corrective action may be deferred. The letter goes on to state that "there are no other known releases from the facility at Northeast Treaters that require RCRA corrective action." Further, discussing the known contamination beneath the drip pad, the NYSDEC's June 13, 2000 letter states, "Therefore, the most prudent course of action is to address the remediation of the contaminated soils in the vicinity of the existing Drip Pad when this unit closes and the contaminated soils become accessible." This is not necessarily synonymous with "a closure program implemented at cessation of operations," as written in the work plan. Please delete or modify the language.

Response to NYSDEC Comment 7 – Comment noted. The language in Section 2.5 has been modified.

NYSDEC Comment 8 - The final sentence of the second-to-last paragraph of this section requires modification or clarification. TCLP analysis is used to determine whether a material may be a *characteristic* hazardous waste. Material (soil) may be a hazardous waste without necessarily being a characteristic hazardous waste.

Response to NYSDEC Comment 8 – Comment noted. The language in Section 2.5 has been modified.

NYSDEC Comment 9 - Section 4.0: The RI must compare all soil data to the Unrestricted Use SCOs.

Response to NYSDEC Comment 9 – Comment noted. The Remedial Investigation Report has been revised to provide a more specific comparison of all soil data to Unrestricted Use SCOs.

NYSDEC Comment 10 - Section 6.0: The RI must compare all soil data to the Unrestricted Use SCOs.

Response to NYSDEC Comment 10 – Comment noted. The Remedial Investigation Report has been revised to provide a more specific comparison of all soil data to Unrestricted Use SCOs.

NYSDEC Comment 11 Section 6.3: A discussion is provided in the draft RI on why Site conditions do not pose a risk of impacting groundwater. However, no physical samples of groundwater were analyzed during the RI. We understand that previous sample results exist for a bedrock well. However, in order to meet the obligation in Part 375 to fully investigate and characterize the nature and extent of contamination on the brownfield site, an attempt should be made to confirm or refute the presence of shallow groundwater which may be impacted by the contaminated soils and, if groundwater exists, to obtain samples for laboratory analysis. In accordance with DER-10, water samples should be collected, if possible, from any suspected or confirmed source areas (e.g. sump areas) and the known or expected downgradient flow direction.

Response to NYSDEC Comment 11 – Four (4) temporary groundwater monitoring wells (MW-1 through MW-4) were installed to investigate and characterize the nature and extent of groundwater impacts. A discussion regarding groundwater sampling has been added as Sections 3.7 and 6.3 of the Remedial Investigation Report.

NYSDEC Comment 12 - Section 6.3.1: Please provide more information regarding the statement that water levels in bedrock are "at a higher elevation than water levels in the overburden." Specifically, please provide information on how the comparative water levels in the overburden were measured.

Response to NYSDEC Comment 12 – For consistency purposes, the discussion regarding water levels in bedrock has been moved to Section 2.4 *Geology and Hydrogeology* and the language has been modified.

NYSDEC Comment 13 - Section 7.0: We disagree that data is sufficient to demonstrate that site-related contamination is confined within the boundaries of the site except in the vicinity of SP-07. In general, and as discussed, the distance between the "SP" samples is too great, when viewed in the context of the results of the "DPP" samples. Further, there appears to be no "clean" sample to the north (center) of the building. Further, because a conclusion is offered that data shows site-related contamination is not confined to the site boundaries in the area of SP-07, recommendations should be offered for additional contaminant delineation in this area of the site.

Response to NYSDEC Comment 13 – Additional sampling was conducted on April 15 and April 20, 2015 to define the extent of Site-related contaminants. The results of these investigations have been incorporated into the Remedial Investigation Report.

NYSDEC Comment 14 - Tables: The key states that "Highlighted Values Indicate exceedance of Commercial and/or Industrial Use Soil Cleanup Objective." As commercial SCOs are (always) equal to or less than industrial SCOs, this statement is equivalent to saying that the highlighted values indicate exceedance of commercial use soil cleanup objectives. As unrestricted use SCOs are the primary value to be used for comparison to site data in the RI, exceedances of the unrestricted values should also be highlighted (rather than simply bolded) so that they are easier to notice and assess. An approach which seems to work well is to utilize three different highlight colors: one for exceedances of unrestricted SCOs; another for exceedances of commercial use SCOs; and a third for exceedances of industrial SCOs.

Response to NYSDEC Comment 14 – Comment noted. Analytical data summary tables have been revised as requested.

NYSDEC Comment 15 - Figures: Similar to the tables, the notes on the figures which present data state that the shaded values indicate exceedances of commercial/industrial use soil cleanup objectives. There is no such category as commercial/industrial use SCO. Depth of sample (associated with each result) should be identified on the figures. Each analyte found to exceed unrestricted use criteria should be identified on a figure.

Response to NYSDEC Comment 15 – Comment noted. Analytical data summary figures have been revised as requested.

NYSDEC Comment 16 - The report is missing the following items detailed in DER-10 Section 3.14 as necessary components of an RI report: Electronic data summary (see DER-10 for components); stratigraphic cross-section of the site; top of bedrock contour or low-permeability unit map (if sufficient data exists); isopleth maps for soil sample results; the results of the Fish and Wildlife Resources Impact Analysis; and a qualitative human health exposure assessment.

Response to NYSDEC Comment 16 – Comment noted. Electronic data summary (Laboratory Analytical Reports and Data Usability Summary Reports) will be provided on CD and/or transmitted to the NYSDEC as a ZIP file. Analytical data collected for purposes of the Brownfield Cleanup Program has been added to the EQuIS database. A stratigraphic cross-section to the depth of bedrock is provided as Figure 5. A qualitative human health exposure assessment is provided as Section 7.0 of the Remedial Investigation Report. A Fish and Wildlife Resources Impact Analysis is provided as Appendix M.

DER-10 subsection 3.14(c)(11) states that "at a minimum, site maps should show groundwater contaminant concentrations for each sampling round. Isopleth maps for groundwater contaminant concentrations for each round of sampling and isopleth maps for soil sample results should also be provided." A map showing groundwater contaminant concentrations is not provided with the Remedial Investigation Report as no groundwater contaminants were detected during investigative sampling efforts.

DER-10 does not explicitly require isopleth maps for soil sample results. Isopleth maps for soil sample results were not provided due to analytical data variability discussed in Section 5.1 of the Remedial Investigation Report. STERLING determined that isopleth maps are not appropriate considering the areal variability of the analytical results. Instead, soil contaminant concentrations for each sampling location are shown in detection summary Figures 7 through 11. These maps adequately show the distribution and magnitude of the data and meet the same intent as isopleth maps.

NYSDEC Comment 17 - It is our understanding that Northeast Treaters is developing a work plan to address the data gaps noted above as they have been (mostly) discussed previously between Northeast Treaters and the State. The pending supplemental work plan should include a schedule for submittal of the revised RI report and for the Alternatives Analysis/Remedial Work Plan.

Response to NYSDEC Comment 17 – A conference call between the NYSDEC, New York State Department of Health (NYSDOH), and Sterling Environmental Engineering, P.C. was held on Monday, April 6, 2015 to discuss an appropriate response to NYSDEC Letter dated April 3, 2015. The agreed-upon response to the State's comments is revision to the Remedial Investigation Report, as applicable, following a Supplemental Remedial Investigation. Supplemental RI sampling was performed by

STERLING on April 15 and April 20, 2015 in accordance with the April 13, 2015 Supplemental RI Work Plan (revised April 30, 2015), and results are included in the Remedial Investigation Report.

Response to New York State Department of Environmental Conservation (NYSDEC) Letter Dated July 17, 2015 Re: Remedial Investigation Report

NYSDEC Comment 1 – All appendixes should be paginated for quick reference.

Response to NYSDEC Comment 1 – Appendices have been paginated and the table of contents has been revised to include page numbers for appendices.

NYSDEC Comment 2 – Well Completion logs for MWs 1-4 and all boring logs within the BCP site should be compiled and placed in a separate appendix.

Response to NYSDEC Comment 2 – Well Completion Logs are contained within the report as Appendix D, and boring logs are contained within the report as Appendix I.

NYSDEC Comment 3 – A subsurface stratigraphic cross-section for the BCP site should be produced. Among the information, insure that the cross-section clearly shows the sub-surface clay layer and bedrock layers.

Response to NYSDEC Comment 3 – A geological cross section is included within the report as Figure 5. Figure 5 shows the sub-surface clay layer and bedrock layers.

NYSDEC Comment 4 – There is confusion on the presentation of the Site's groundwater status. Specifically, clear delineation needs to be made regarding the BCP site's groundwater status as to; "there is not sufficient near-surface groundwater at the site for sampling" or "there is near-surface groundwater present at the BCP site, but it is not contaminated".

Response to NYSDEC Comment 4 – The first paragraph of Section 4.2 *Groundwater Investigation* has been revised to more clearly present the Site's groundwater status. Portions of Section 2.4 have also been revised to be consistent with the revisions to Section 4.2.

NYSDEC Comment 5 – Additional investigation of catch-basin sediments is necessary to determine if site-related contamination is present in and migrating through, the storm water connection system in the southern portion of the site. This sampling can be accomplished in the remedial design/remedial action phase of the project.

Response to NYSDEC Comment 5 – Additional investigation of catch-basin sediment was conducted by STERLING on July 23, 2015. The results of the investigation will be summarized in the Remedial Action Work Plan.

APPENDIX B

TOWN OF ATHENS ZONING ORDINANCE ATTACHMENTS

180 Attachment 1

Town of Athens

Table 1
Permitted Uses

KEY:
P = Permitted with no Planning Board or ZBA review
SP = Site plan approval by Planning Board required
SUP = Special use permit by Planning Board required

	District*									
Use	**Rr**	**Ru**	**Ru-1**	**MUC**	**LI-1**	**LI-2**	**Ag**	**OS**	**H**	**Ru-385**
Residential Uses										
Accessory apartment not in principal building	SUP	SUP	SUP	SP/SUP			SUP	SUP	SUP	SUP
Accessory apartment in principal building	P	P	P	SP/SUP			P	P	P	P
Customary residential accessory	P	P	P	P	P	P	P	P	P	P
Dwelling, multifamily	SP/SUP		SP/SUP						SP/SUP	
Dwelling, single-family	P	P	P	SP/SUP			P	P	P	P
Dwelling, two-family	P	P	P				P	P	P	SP/SUP
Manufactured home	P	P	P				P	P	P	P
Senior citizen housing	SP/SUP	SP/SUP	SP/SUP						SP/SUP	SP/SUP
Townhouse	SP/SUP		SP/SUP						SP/SUP	
Business Uses										
Agriculture, forestry, or other natural resource use, not including mine or excavation	P	P			P	P	P	P		P
Adult establishment					SP/SUP	SP/SUP				
Agribusiness	P	P	SP/SUP	SUP	SUP	SUP	P	P	P	P
Auto, boat, mobile home, trailer or RV sales/rental				SP/SUP	SP/SUP	SP/SUP				
Autobody or major repair shop				SP/SUP	SP/SUP	SP/SUP			SP/SUP	

	District*									
Use	**Rr**	**Ru**	**Ru-1**	**MUC**	**LI-1**	**LI-2**	**Ag**	**OS**	**H**	**Ru-385**
Bank				SP/SUP					SP/SUP	
Bed-and-breakfast inn	SP/SUP	SP/SUP	SP				SP/SUP	SP/SUP	SP/SUP	SP/SUP
Camp/campground	SP/SUP	SP/SUP						SP/SUP		
Car wash				SP/SUP	SP/SUP	SP/SUP				
Cell tower	SP/SUP	SP/SUP			SP/SUP	SP/SUP	SP/SUP	SP/SUP		SP/SUP
Customary business accessory		P	SP	P	P	P	P		P	P
Day-care home, family	P	P	P				P	P	P	P
Day care, group	SP/SUP	SP/SUP	SP	SP					SP/SUP	SP/SUP
Easting or drinking establishment				SP/SUP					SP/SUP	
Educational facility		SP	SP/SUP	SP/SUP					SP/SUP	
Equipment or material storage					SP/SUP	SP/SUP				
Excavation and mining, see § 180-41		SP/SUP					SP/SUP	SP/SUP		
Fueling station				SP/SUP	SP/SUP	SP/SUP			SP/SUP	
Golf course		SP/SUP								
Home occupation, major	SP/SUP	SP/SUP	SP	SP	SP/SUP	SP/SUP	SP/SUP	SP/SUP	SP/SUP	SP/SUP
Home occupation, low-impact	P	P	P	P	P	P	P	P	P	P
Hotel/motel			SP/SUP	SP/SUP					SP/SUP	
Horse boarding operation		P					P	P		P
Junkyard, see § 180-44					SP/SUP	SP/SUP				
Kennel			SP/SUP	SP/SUP			SP/SUP	SP/SUP		SP/SUP
Laundromat, dry cleaning, laundry pickup				SP						
Light industrial					SP	SP				
Medical clinic or office			SP	SP					SP/SUP	
Motor vehicle or scrap junkyard					SP/SUP	SP/SIP				
Nature interpretive centers	P	P	P	P	P	P	P	P	P	P
Personal service establishment			SP	SP					SP	
Professional, government, business office			SP	SP					SP/SUP	
Recreational use, indoor	SP/SUP	SP/SUP		SP/SUP				SP/SUP ***		
Recreational use, outdoor	SP/SUP	SP/SUP		SP/SUP				SP/SUP ***		
Religious facility			SP	SP					SP	
Resort		SP/SUP								

	District*									
Use	**Rr**	**Ru**	**Ru-1**	**MUC**	**LI-1**	**LI-2**	**Ag**	**OS**	**H**	**Ru-385**
		(1)								
Retail sales			SP	SP	SP/SUP	SP/SUP			SP	
Riding stable	SUP	P					P	P		P
Roadside stand	P	P	SP	P			P	P	P	P
Sign	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP
Sit-down eating or drinking establishment			SP	SP					SP	
Storage or deposition of soil, waste material, see § 180-41					SP/SUP	SP/SUP				
Swimming pool	P	P	P	P	P	P	P	P	P	P
Trailer rental/sales				SP/SUP	SP/SUP	SP/SUP				
Warehouse					SP/SUP	SP/SUP				
Water recreation	SP/SUP	SP/SUP					SP/SUP	SP/SUP		SP/SUP
Water storage facility	SP/SUP	SP/SUP		SP/SUP	SP/SUP	SP/SUP	SP/SUP	SP/SUP	SP/SUP	SP/SUP
Wind energy conversion system	SP/SUP	SP/SUP			SP/SUP	SP/SUP	SP/SUP	SP/SUP		SP/SUP

NOTES:

(1) Resorts in the Ru District allowed only as per § 180-59 (Planned Unit Development)

* Allowed uses for any of the Watershed Overlay Districts shall be the same as the base district, except where noted in § 180-30.

*** Recreation use allowed only as defined as passive recreation

180 Attachment 2

Town of Athens

Table 2
Density and Dimensions

Use	Utility Class	Residential Density (number of acres or square feet per dwelling required)*	Lot Area Required Per Nonresidential Use	Minimum Lot Width (feet)	Minimum Front Yard Setback (feet)	Maximum Front Yard Setback (feet)	Minimum Lot Depth (feet)	Minimum Each Side Yard (feet)	Minimum Rear Yard (feet)	Maximum Building Height (feet)	Maximum Percent Parcel Coverage (all lots)
Rr	Class 1	15,100 square feet	20,000 square feet	100	25	N/A	100	15	25	35	30
	Class 2	30,000 square feet	20,000 square feet	125	25	N/A	100	40	25	35	30
	Class 3	65,000 square feet	1 acre	150	25	N/A	100	40	25	35	30
Ru	Class 1	1 DU per 3 acres	20,000 square feet	100	50	N/A	120	30	50	35	30
	Class 2	1 DU per 3 acres	20,000 square feet	100	50	N/A	120	30	50	35	30
	Class 3	1 DU per 3 acres	1 acre	100	50	N/A	120	30	50	35	30
Ru-1	Any class	1 DU per 1 acre	1 acre	75	25	N/A	100	30	50	35	30
MUC	Class 3	130,000 square feet**	1 acre	200	40	N/A	150	25	50	35	60
LI-1	Any class	No residential uses allowed	2 acres	50	100	N/A	200	50	50	45	50
LI-2	Any class	No residential uses allowed	2 acres	50	100	N/A	200	50	50	45	50
Ag	Class 3	1 DU per 10 acres	1 acre	200	75	N/A	150	50	50	35	25
OS	Class 3	1 DU per 5 acres	1 acre	250	75	N/A	175	50	50	35	25

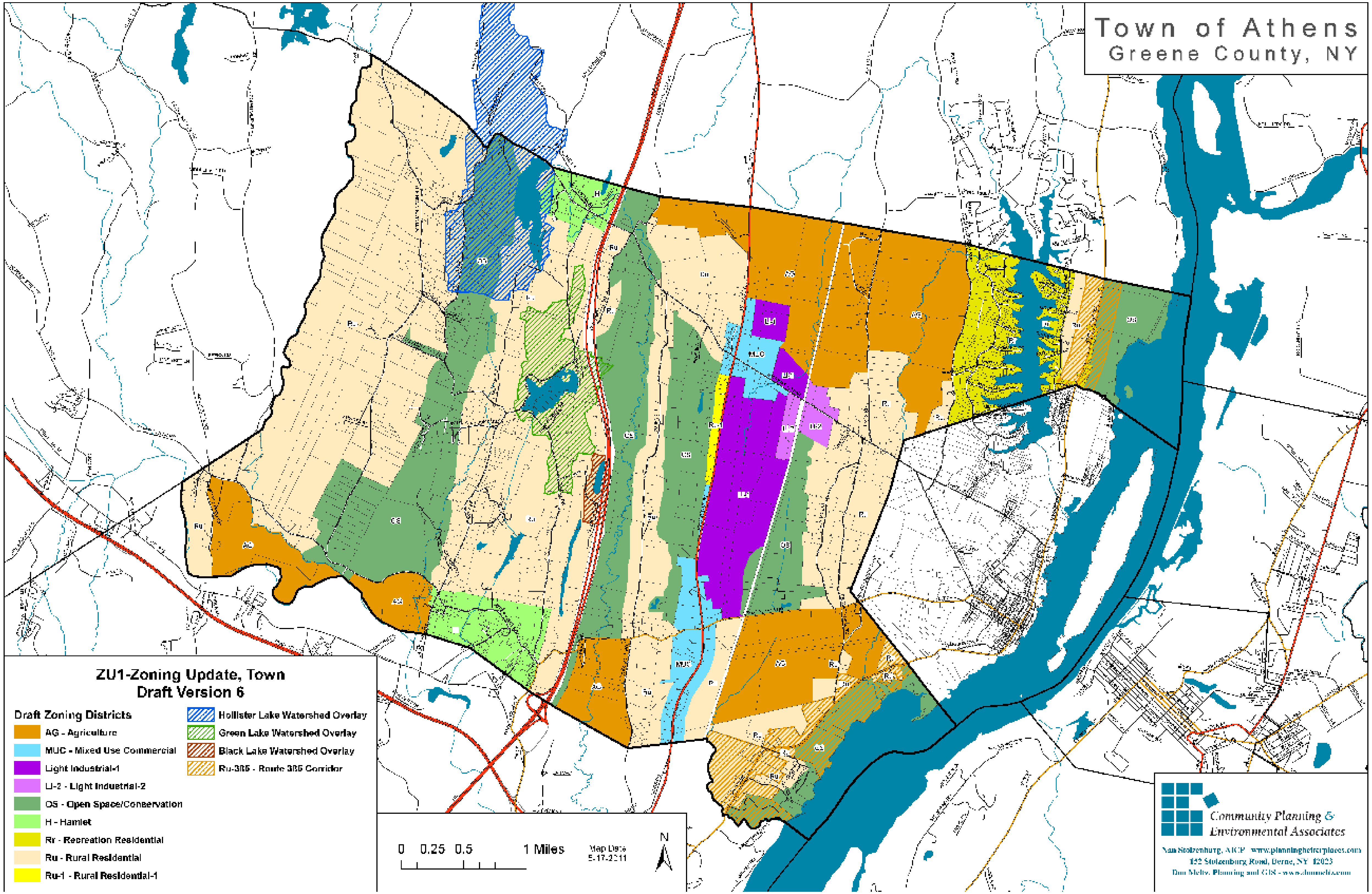
Use	Utility Class	Residential Density (number of acres or square feet per dwelling required)*	Lot Area Required Per Nonresidential Use	Minimum Lot Width (feet)	Minimum Front Yard Setback (feet)	Maximum Front Yard Setback (feet)	Minimum Lot Depth (feet)	Minimum Each Side Yard (feet)	Minimum Rear Yard (feet)	Maximum Building Height (feet)	Maximum Percent Parcel Coverage (all lots)
H	Class 1	10,000 square feet	20,000 square feet	80	25	35	80	20	25	25	40
	Class 2	20,000 square feet	20,000 square feet	80	25	35	80	20	25	25	40
	Class 3	31,500 square feet	1 acre	80	25	35	80	20	25	25	40
Ru-385	Class 1	1 DU per 3 acres	20,000 square feet	100	75	N/A	100	50	50	35	30
	Class 2	1 DU per 3 acres	20,000 square feet	100	75	N/A	100	50	50	35	30
	Class 3	1 DU per 3 acres	1 acre	100	75	N/A	100	50	50	35	30
HLW	Class 3	1 DU per 5 acres	2 acres	200	75	N/A	120	50	50	35	15
GLW	Class 3	1 DU per 5 acres	2 acres	200	75	N/A	120	50	50	35	15
BLW	Class 3	1 DU per 5 acres	2 acres	200	75	N/A	120	50	50	35	15

NOTES:

* Unless the Planning Board allows for application of an average lot size as per § 180-12C, this shall be the minimum lot size.

** Residential uses are allowed as per Table 2, but not encouraged in the Highway Commercial District.

Class 1 = Public utility provided, water and sewer
Class 2 = Either public water or sewer
Class 3 = On-lot water and sewage disposal
N/A = Not applicable


Town of Athens
Greene County, NY
ZU1-Zoning Update, Town
Draft Version 6
Draft Zoning Districts
AG - Agriculture
MUC - Mixed Use Commercial
Light Industrial-1
LI-2 - Light Industrial-2
OS - Open Space/Conservation
H - Hamlet
Rr - Recreation Residential
Ru - Rural Residential
Ru-1 - Rural Residential-1
Hollister Lake Watershed Overlay
Green Lake Watershed Overlay
Black Lake Watershed Overlay
Ru-385 - Route 385 Corridor
0 0.25 0.5 1 Miles
N
Community Planning & Environmental Associates

APPENDIX C

CUSTOM SOIL SURVEY REPORT FOR GREENE COUNTY, NEW YORK

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Greene County, New York

796 Schoharie Turnpike, Town of Athens, New York

September 26, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map

Map Scale: 1:8,620 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 100, 200, 400, 600

Feet: 0, 400, 800, 1600, 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, New York
Survey Area Data: Version 12, Dec 16, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2010—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Greene County, New York (NY039)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Co	Covington and Madalin soils	127.5	34.1%
KrA	Kingsbury and Rhinebeck soils, 0 to 3 percent slopes	131.6	35.2%
KrB	Kingsbury and Rhinebeck soils, 3 to 8 percent slopes	28.0	7.5%
NrC	Nassau channery silt loam, rolling, very rocky	6.6	1.8%
VdB	Valois-Nassau complex, undulating	37.2	10.0%
VdD	Valois-Nassau complex, hilly	37.5	10.0%
W	Water	3.6	1.0%
Wa	Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded	1.4	0.4%
Totals for Area of Interest		**373.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Greene County, New York

Co—Covington and Madalin soils

Map Unit Setting

National map unit symbol: 9sg1
Elevation: 50 to 1,000 feet
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Covington and similar soils: 45 percent
Madalin and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Covington

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous clayey glaciolacustrine deposits or glaciomarine deposits

Typical profile

H1 - 0 to 7 inches: silty clay
H2 - 7 to 28 inches: clay
H3 - 28 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D

Description of Madalin

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile
H1 - 0 to 9 inches: silt loam
H2 - 9 to 30 inches: silty clay
H3 - 30 to 60 inches: silty clay

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D

Minor Components

Rhinebeck
Percent of map unit: 5 percent

Vergennes
Percent of map unit: 5 percent
Landform: Depressions

Canandaigua
Percent of map unit: 5 percent
Landform: Depressions

Hudson
Percent of map unit: 5 percent
Landform: Depressions

Kingsbury
Percent of map unit: 5 percent

KrA—Kingsbury and Rhinebeck soils, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 9sgx
Elevation: 80 to 1,000 feet

Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Kingsbury and similar soils: 40 percent
Rhinebeck and similar soils: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kingsbury

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous, clayey glaciomarine deposits or glaciolacustrine deposits

Typical profile

H1 - 0 to 7 inches: clay loam
H2 - 7 to 14 inches: silty clay loam
H3 - 14 to 36 inches: clay
H4 - 36 to 70 inches: stratified silty clay loam to silt loam to very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 7 inches: silt loam

H2 - 7 to 19 inches: silty clay loam
H3 - 19 to 32 inches: silty clay
H4 - 32 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D

Minor Components

Hudson

Percent of map unit: 5 percent

Shaker

Percent of map unit: 5 percent
Landform: Depressions

Covington

Percent of map unit: 5 percent
Landform: Depressions

Madalin

Percent of map unit: 5 percent
Landform: Depressions

Elmridge

Percent of map unit: 5 percent

Vergennes

Percent of map unit: 5 percent

KrB—Kingsbury and Rhinebeck soils, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9sgy
Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Kingsbury and similar soils: 45 percent
Rhinebeck and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kingsbury

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous, clayey glaciomarine deposits or glaciolacustrine deposits

Typical profile

H1 - 0 to 7 inches: clay loam
H2 - 7 to 14 inches: silty clay loam
H3 - 14 to 36 inches: clay
H4 - 36 to 70 inches: stratified silty clay loam to silt loam to very fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 19 inches: silty clay loam
H3 - 19 to 32 inches: silty clay
H4 - 32 to 60 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D

Minor Components

Elmridge

Percent of map unit: 5 percent

Covington

Percent of map unit: 5 percent
Landform: Depressions

Hudson

Percent of map unit: 5 percent

Madalin

Percent of map unit: 5 percent
Landform: Depressions

Vergennes

Percent of map unit: 5 percent

NrC—Nassau channery silt loam, rolling, very rocky

Map Unit Setting

National map unit symbol: 9sj6
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Nassau and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassau

Setting

Landform: Benches, till plains, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 4 inches: channery silt loam
H2 - 4 to 19 inches: extremely channery silt loam
H3 - 19 to 23 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D

Minor Components

Rock outcrop

Percent of map unit: 10 percent

Lordstown

Percent of map unit: 5 percent

Arnot

Percent of map unit: 5 percent

Tuller

Percent of map unit: 5 percent

Oquaga

Percent of map unit: 5 percent

VdB—Valois-Nassau complex, undulating

Map Unit Setting

National map unit symbol: 9skq
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Valois and similar soils: 50 percent
Nassau and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Valois

Setting

Landform: Lateral moraines, end moraines, valley sides
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from sandstone, siltstone, and shale

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 34 inches: gravelly loam
H3 - 34 to 60 inches: gravelly silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Available water storage in profile: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Description of Nassau

Setting

Landform: Benches, till plains, ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 4 inches: channery silt loam
H2 - 4 to 19 inches: extremely channery silt loam
H3 - 19 to 23 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: D

Minor Components

Chenango

Percent of map unit: 5 percent

Manlius

Percent of map unit: 5 percent

Mardin

Percent of map unit: 5 percent

Wellsboro

Percent of map unit: 5 percent

VdD—Valois-Nassau complex, hilly

Map Unit Setting

National map unit symbol: 9skr
Elevation: 600 to 1,800 feet

Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Nassau and similar soils: 40 percent
Valois and similar soils: 40 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Valois

Setting

Landform: Lateral moraines, end moraines, valley sides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from sandstone, siltstone, and shale

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 34 inches: gravelly loam
H3 - 34 to 60 inches: gravelly silt loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Available water storage in profile: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B

Description of Nassau

Setting

Landform: Benches, till plains, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 4 inches: channery silt loam
H2 - 4 to 19 inches: extremely channery silt loam

H3 - 19 to 23 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D

Minor Components

Mardin

Percent of map unit: 5 percent

Rock outcrop

Percent of map unit: 5 percent

Lordstown

Percent of map unit: 5 percent

Chenango

Percent of map unit: 5 percent

W—Water

Map Unit Setting

National map unit symbol: 9sl3
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Wa—Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2srgt
Elevation: 160 to 1,970 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Wayland and similar soils: 60 percent
Wayland, very poorly drained, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wayland

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

Ap - 0 to 9 inches: silt loam
Bg - 9 to 21 inches: silt loam
Cg1 - 21 to 28 inches: silt loam
Cg2 - 28 to 47 inches: silt loam
Cg3 - 47 to 54 inches: silt loam
Cg4 - 54 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very high (about 13.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D

Description of Wayland, Very Poorly Drained

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 9 inches: mucky silt loam
Bg - 9 to 21 inches: silt loam
Cg1 - 21 to 28 inches: silt loam
Cg2 - 28 to 47 inches: silt loam
Cg3 - 47 to 54 inches: silt loam
Cg4 - 54 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very high (about 13.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D

Minor Components

Holderton

Percent of map unit: 10 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook."

ABC soil

A soil having an A, a B, and a C horizon.

Ablation till

Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil

A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil

The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil

Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone

A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan

A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium

Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl

A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM)

The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions

Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon

A subsoil horizon characterized by an accumulation of illuvial clay.

Arroyo

The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

Aspect

The direction toward which a slope faces. Also called slope aspect.

Association, soil

A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity)

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low: 0 to 3
Low: 3 to 6
Moderate: 6 to 9
High: 9 to 12
Very high: More than 12

Backslope

The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp

A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland

A landscape that is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes and narrow interfluves. Badlands develop on surfaces that have little or no vegetative cover overlying unconsolidated or poorly cemented materials (clays, silts, or sandstones) with, in some cases, soluble minerals, such as gypsum or halite.

Bajada

A broad, gently inclined alluvial piedmont slope extending from the base of a mountain range out into a basin and formed by the lateral coalescence of a series of alluvial fans. Typically, it has a broadly undulating transverse profile, parallel to the mountain front, resulting from the convexities of component fans. The term is generally restricted to constructional slopes of intermontane basins.

Basal area

The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation

The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology)

A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding plane

A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system

A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock

The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography

A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace

A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum

Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout (map symbol)

A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed. The adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Borrow pit (map symbol)

An open excavation from which soil and underlying material have been removed, usually for construction purposes.

Bottom land

An informal term loosely applied to various portions of a flood plain.

Boulders

Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks

A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height

An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management

Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte

An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments; commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks.

Cable yarding

A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil

A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche

A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR)

The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy

The leafy crown of trees or shrubs. (See Crown.)

Canyon

A long, deep, narrow valley with high, precipitous walls in an area of high local relief.

Capillary water

Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena

A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation

An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity

The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps

See Terracettes.

Cement rock

Shaly limestone used in the manufacture of cement.

Channery soil material

Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment

Control of unwanted vegetation through the use of chemicals.

Chiseling

Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque

A steep-walled, semicircular or crescent-shaped, half-bowl-like recess or hollow, commonly situated at the head of a glaciated mountain valley or high on the side of a mountain. It was produced by the erosive activity of a mountain glacier. It commonly contains a small round lake (tarn).

Clay

As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions

See Redoximorphic features.

Clay film

A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clay spot (map symbol)

A spot where the surface texture is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser.

Claypan

A dense, compact subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. The layer restricts the downward movement of water through the soil. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community

The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil

Sand or loamy sand.

Cobble (or cobblestone)

A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material

Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility)

See Linear extensibility.

Colluvium

Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope

Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil

A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions

See Redoximorphic features.

Conglomerate

A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system

Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage

A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil

Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping

Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section

The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat)

A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology)

A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations)

Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop

A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management

Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system

Growing crops according to a planned system of rotation and management practices.

Cross-slope farming

Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown

The upper part of a tree or shrub, including the living branches and their foliage.

Cryoturbate

A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

Cuesta

An asymmetric ridge capped by resistant rock layers of slight or moderate dip (commonly less than 15 percent slopes); a type of homocline produced by differential erosion of interbedded resistant and weak rocks. A cuesta has a long, gentle slope on one side (dip slope) that roughly parallels the inclined beds; on the other side, it has a relatively short and steep or clifflike slope (scarp) that cuts through the tilted rocks.

Culmination of the mean annual increment (CMAI)

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave

The walls of excavations tend to cave in or slough.

Decreasers

The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing

Postponing grazing or resting grazing land for a prescribed period.

Delta

A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer

A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression, closed (map symbol)

A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage.

Depth, soil

Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement

A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments mantling a desert surface. It forms where wind action and sheetwash have removed all smaller particles or where rock fragments have migrated upward through sediments to the surface. It typically protects the finer grained underlying material from further erosion.

Diatomaceous earth

A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope

A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace)

A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming

A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural)

Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface

Runoff, or surface flow of water, from an area.

Drainageway

A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw

A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Drift

A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Drumlin

A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

Duff

A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune

A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill

See Mine spoil.

Ecological site

An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation

The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation

A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit

Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream

A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation

A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion

The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (accelerated)

Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion (geologic)

Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion pavement

A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface

A land surface shaped by the action of erosion, especially by running water.

Escarpment

A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Escarpment, bedrock (map symbol)

A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.

Escarpment, nonbedrock (map symbol)

A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.

Esker

A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Extrusive rock

Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth’s surface.

Fallow

Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown.

The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan remnant

A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fertility, soil

The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat)

The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity

The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope

A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil

Sandy clay, silty clay, or clay.

Firebreak

An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom

An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material

Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone

A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain

The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms

A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay

A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step

An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial

Of or pertaining to rivers or streams; produced by stream or river action.

Foothills

A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope

The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb

Any herbaceous plant not a grass or a sedge.

Forest cover

All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type

A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan

A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil

The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai

Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glaciofluvial deposits

Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits

Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.

Gleyed soil

Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping

Growing crops in strips that grade toward a protected waterway.

Grassed waterway

A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel

Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravel pit (map symbol)

An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel.

Gravelly soil material

Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Gravelly spot (map symbol)

A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments.

Green manure crop (agronomy)

A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water

Water filling all the unblocked pores of the material below the water table.

Gully (map symbol)

A small, steep-sided channel caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage whereas a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock

Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim

Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan

A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology)

A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat)

Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops

Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill

A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope

A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil

A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon: An organic layer of fresh and decaying plant residue.

L horizon: A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon: The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon: The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon: The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon: The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon: Soft, consolidated bedrock beneath the soil.

R layer: Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

M layer: A root-limiting subsoil layer consisting of nearly continuous, horizontally oriented, human-manufactured materials.

W layer: A layer of water within or beneath the soil.

Humus

The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups

Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock

Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation

The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil

A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers

Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration

The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity

The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate

The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate

The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Very low: Less than 0.2
Low: 0.2 to 0.4
Moderately low: 0.4 to 0.75
Moderate: 0.75 to 1.25
Moderately high: 1.25 to 1.75
High: 1.75 to 2.5
Very high: More than 2.5

Interfluve

A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology)

A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream

A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders

On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions

See Redoximorphic features.

Irrigation

Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin: Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border: Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding: Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation: Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle): Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow: Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler: Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation: Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding: Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame

A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography)

A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll

A small, low, rounded hill rising above adjacent landforms.

Ksat

See Saturated hydraulic conductivity.

Lacustrine deposit

Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain

A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace

A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landfill (map symbol)

An area of accumulated waste products of human habitation, either above or below natural ground level.

Landslide

A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones

Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Lava flow (map symbol)

A solidified, commonly lobate body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure.

Leaching

The removal of soluble material from soil or other material by percolating water.

Levee (map symbol)

An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.

Linear extensibility

Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit

The moisture content at which the soil passes from a plastic to a liquid state.

Loam

Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess

Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength

The soil is not strong enough to support loads.

Low-residue crops

Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl

An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Marsh or swamp (map symbol)

A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Not used in map units where the named soils are poorly drained or very poorly drained.

Mass movement

A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses

See Redoximorphic features.

Meander belt

The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar

A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll

One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment

Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil

Very fine sandy loam, loam, silt loam, or silt.

Mesa

A broad, nearly flat topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.

Metamorphic rock

Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth’s crust. Nearly all such rocks are crystalline.

Mine or quarry (map symbol)

An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines.

Mine spoil

An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil

Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage

Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area

A kind of map unit that has little or no natural soil and supports little or no vegetation.

Miscellaneous water (map symbol)

Small, constructed bodies of water that are used for industrial, sanitary, or mining applications and that contain water most of the year.

Moderately coarse textured soil

Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil

Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon

A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine

In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

Morphology, soil

The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil

Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain

A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck

Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat

See Hemic soil material.

Mudstone

A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation

A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon

A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil

A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules

See Redoximorphic features.

Nose slope (geomorphology)

A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant

Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter

Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low: Less than 0.5 percent
Low: 0.5 to 1.0 percent
Moderately low: 1.0 to 2.0 percent
Moderate: 2.0 to 4.0 percent
High: 4.0 to 8.0 percent
Very high: More than 8.0 percent

Outwash

Stratified and sorted sediments (chiefly sand and gravel) removed or "washed out" from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain

An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace

An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan

A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material

The unconsolidated organic and mineral material in which soil forms.

Peat

Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped

An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment

A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon

The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation

The movement of water through the soil.

Perennial water (map symbol)

Small, natural or constructed lakes, ponds, or pits that contain water most of the year.

Permafrost

Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.

pH value

A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil

A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping

Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting

Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit

The moisture content at which a soil changes from semisolid to plastic.

Plasticity index

The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology)

A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa

The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Plinthite

The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan

A compacted layer formed in the soil directly below the plowed layer.

Ponding

Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded

Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings

See Redoximorphic features.

Potential native plant community

See Climax plant community.

Potential rooting depth (effective rooting depth)

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning

Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil

The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil

A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use

Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland

Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil

A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid: Less than 3.5
Extremely acid: 3.5 to 4.4
Very strongly acid: 4.5 to 5.0
Strongly acid: 5.1 to 5.5
Moderately acid: 5.6 to 6.0
Slightly acid: 6.1 to 6.5
Neutral: 6.6 to 7.3
Slightly alkaline: 7.4 to 7.8
Moderately alkaline: 7.9 to 8.4
Strongly alkaline: 8.5 to 9.0
Very strongly alkaline: 9.1 and higher

Red beds

Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations

See Redoximorphic features.

Redoximorphic depletions

See Redoximorphic features.

Redoximorphic features

Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix

See Redoximorphic features.

Regolith

All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief

The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material)

Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill

A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser

The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut

A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments

Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop (map symbol)

An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where "Rock outcrop" is a named component of the map unit.

Root zone

The part of the soil that can be penetrated by plant roots.

Runoff

The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil

A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Saline spot (map symbol)

An area where the surface layer has an electrical conductivity of 8 mmhos/cm more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm or less.

Sand

As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone

Sedimentary rock containing dominantly sand-sized particles.

Sandy spot (map symbol)

A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer.

Sapric soil material (muck)

The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat)

The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are:

Very high: 100 or more micrometers per second (14.17 or more inches per hour)

High: 10 to 100 micrometers per second (1.417 to 14.17 inches per hour)

Moderately high: 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour)

Moderately low: 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour)

Low: 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour)

Very low: Less than 0.01 micrometer per second (less than 0.001417 inch per hour).

To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation

Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification

The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock

A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum

A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil

A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Severely eroded spot (map symbol)

An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name.

Shale

Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion

The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Short, steep slope (map symbol)

A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.

Shoulder

The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell

The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune

A small, streamlined dune that forms around brush and clump vegetation.

Side slope (geomorphology)

A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica

A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio

The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt

As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone

An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils

Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole (map symbol)

A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index

A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic)

Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slide or slip (map symbol)

A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces.

Slope

The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope alluvium

Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill

The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement

Restricted downward movement of water through the soil. See Saturated hydraulic conductivity.

Sodic (alkali) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodic spot (map symbol)

An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less.

Sodicity

The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to Ca^{++} + Mg^{++}. The degrees of sodicity and their respective ratios are:

Slight: Less than 13:1

Moderate: 13-30:1

Strong: More than 30:1

Sodium adsorption ratio (SAR)

A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock

Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil

A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates

Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand: 2.0 to 1.0
Coarse sand: 1.0 to 0.5
Medium sand: 0.5 to 0.25
Fine sand: 0.25 to 0.10
Very fine sand: 0.10 to 0.05
Silt: 0.05 to 0.002
Clay: Less than 0.002

Solum

The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Spoil area (map symbol)

A pile of earthy materials, either smoothed or uneven, resulting from human activity.

Stone line

In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones

Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony

Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony spot (map symbol)

A spot where 0.01 to 0.1 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones.

Strath terrace

A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace

One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping

Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil

The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are:

Platy: Flat and laminated
Prismatic: Vertically elongated and having flat tops
Columnar: Vertically elongated and having rounded tops
Angular blocky: Having faces that intersect at sharp angles (planes)
Subangular blocky: Having subrounded and planar faces (no sharp angles)
Granular: Small structural units with curved or very irregular faces

Structureless soil horizons are defined as follows:

Single grained: Entirely noncoherent (each grain by itself), as in loose sand
Massive: Occurring as a coherent mass

Stubble mulch

Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil

Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling

Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum

The part of the soil below the solum.

Subsurface layer

Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow

The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit

The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer

The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil

The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus

Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts

Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine

An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation)

An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology)

A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes

Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil

The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer

Otherwise suitable soil material that is too thin for the specified use.

Till

Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain

An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil

The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope

The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil

The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements

Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread

The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Tuff

A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

Upland

An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill

The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Variegation

Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve

A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Very stony spot (map symbol)

A spot where 0.1 to 3.0 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surface of the surrounding soil is covered by less than 0.01 percent stones.

Water bars

Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering

All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded

Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wet spot (map symbol)

A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit.

Wilting point (or permanent wilting point)

The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow

The uprooting and tipping over of trees by the wind.

APPENDIX D

WELL COMPLETION LOGS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) County Greene

(2) Town Athens

(3) DEC Well Number G 1806

WELL COMPLETION REPORT

(4) OWNER
Northeast Treaters of NY, LLC

(5) ADDRESS
796 Schoharie Turnpike, Athens, NY 12015

(6) LOCATION OF WELL (See Instructions On Reverse)
Show Lat/Long if available and method used: 796 Schoharie Turnpike, Athens, NY
☒ GPS ☐ DEC Website ☐ Map Interpolation N 42° 17.341' W073° 50.153'

(7) DEPTH OF WELL BELOW LAND SURFACE (Feet) 802 feet

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (Feet) 19'4" DATE MEASURED 8/24/04

CASINGS

(9) DIAMETER
6" Steel casing in. | in. | in. | in.

(10) LENGTH
60 ft. | ft. | ft. | in.

(11) GROUT TYPE / SEALING
Bentonite grout & drive shoe

(12) GROUT / SEALING INTERVAL (Feet) FROM 60' TO 20'

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER
in. | in. | in. | in.

(16) LENGTH
ft. | ft. | ft. | in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE
8/24/04

(19) DURATION OF TEST
4 hours

(20) LIFT METHOD
☒ Pump ☐ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM)
2 GPM

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)
19' 4"

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)
300 feet

(24) RECOVERY (Time in hours/minutes)
4 hours

(25) Was the water produced during test discharged away from immediate area? Yes X No ___

PUMP INSTALLATION

(26) PUMP INSTALLED? YES X NO ___

(27) DATE
8/20/04

(28) PUMP INSTALLER
Hanson Well Drilling & Pump Co., Inc.

(29) TYPE
submersible

(30) MAKE
Gould

(31) MODEL
5GS20412

(32) MAXIMUM CAPACITY (GPM)
9 GPM

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)
760'

(34) METHOD OF DRILLING
☒ Rotary ☐ Cable Tool ☐ Other ______

(35) USE OF WATER (see instructions for choices)
Domestic

(36) DATE DRILLING WORK STARTED
8/18/04

(37) DATE DRILLING WORK COMPLETED
8/19/04

(38) DATE REPORT FILED
8/26/04

(39) DRILLER & COMPANY
Brian R. Wilcox
Hanson Well Drilling & Pump Co., Inc.

(40) DEC REGISTRATION NO.
10005

LOG *

Ground Surface EL. 1716 ft. above sea level

Top Of Casing is located +2' ft.above (+) or below (-) ground surface

TOP OF WELL

Depth	Material
0' to 20'	Clay
20' to 55'	Gravel
55' to 460'	Gray shale
460' to 802'	Black & gray Shale

802 Feet
BOTTOM OF HOLE

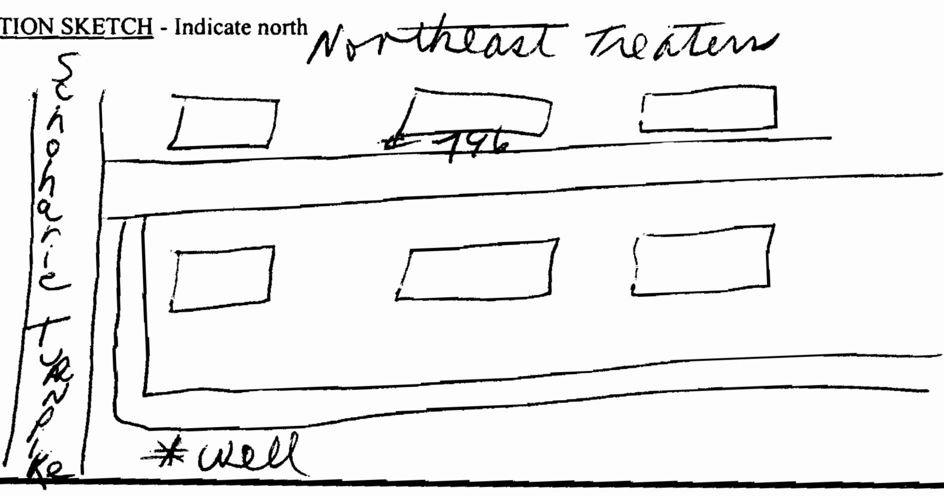
* Show log of geologic materials encountered with depth below ground surface, water bearing beds and water levels in each; casings; screens; pump; additional pumping tests and other matters of interest, e.g., water quality (sulphur, salt, methane). Describe repair work. Attach separate sheet if necessary.

See further instructions titled "Instructions for New York State Well Completion Report".

NYSDEC COPY

4

LOCATION SKETCH - Indicate north



A-88

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) COUNTY Greene

(2) TOWN Athens

Well #1

(3) DEC Well Number G2542

WATER WELL COMPLETION REPORT

(4) OWNER: Northeast Treaters Of N.Y. L.C.C

(5) ADDRESS: 696 Schoharie Turnpike Athens, N.Y.

(6) LOCATION OF WELL (See Instructions On Reverse) Show Lat/Long if available and method used: 42' 17.20N, 073' 50.42W

☒ GPS ☐ Map Interpolation

(7) DEPTH OF WELL BELOW LAND SURFACE (feet): 83

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet): 2 DATE MEASURED 8-14-07

CASINGS

(9) DIAMETER: 6 in.

(10) LENGTH: 80' 6"

(11) GROUT TYPE / SEALING: Bentionite

(12) GROUT / SEALING INTERVAL (feet) FROM 20 TO 5

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER in. in. in. in.

(16) LENGTH ft. ft. ft. in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE 8-15-07

(19) DURATION OF TEST 6 hrs.

(20) LIFT METHOD ☒ Pump ☐ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM) 15+

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing) 2

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing) 7.6

(24) RECOVERY (Time in hours/minutes) overnite

(25) Was the water produced during the test discharged away from immediate area? Yes ___ No X

PUMP INSTALLATION

(26) PUMP INSTALLED? YES ___ NO ___

(27) DATE

(28) PUMP INSTALLER

(29) TYPE

(30) MAKE

(31) MODEL

(32) MAXIMUM CAPACITY (GPM)

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)

(34) METHOD OF DRILLING ☐ Rotary ☒ Cable Tool ☐ Other ___

(35) USE OF WATER (See instructions for choices) Domestic

(36) DATE DRILLING WORK STARTED 8-12-07

(37) DATE DRILLING WORK COMPLETED 8-14-07

(38) DATE REPORT FILED 9-20-07

(39) REGISTERED COMPANY L.H. Heimburge

(40) DEC REGISTRATION NO. NYRD 10186

(41) CERTIFIED DRILLER (Print name) L.H. Heimburge

(42) CERTIFIED DRILLER SIGNATURE L.H. Heimburge

* Show log of geologic materials encountered with depth below ground surface, water bearing beds and water levels in each; casings; screens; pump; additional pumping tests and other matters of interest, e.g., water quality (sulphur, salt, methane). Describe repair work. Attach separate sheet if necessary.

LOG *

Ground Surface EL. 106 ft. above sea level

Top Of Casing is located 1+ ft. above (+) or below (-) ground surface

TOP OF WELL

Material		Depth
fill		4
black clay		10
brown sticky clay		20
light gray clay		45
dark gray clay soft		60
tough light gray clay		76
H20 large sandstone slab broken quartz & shale layers shale gravel		83
bedrock	???	83

BOTTOM OF HOLE

NYSDEC COPY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) COUNTY Greene

(2) TOWN Athens

(3) DEC Well Number G 2547

WATER WELL COMPLETION REPORT

(4) OWNER Northeast Treaters Of N.Y. L.L.C.

(5) ADDRESS 696 Schoharie Turnpike Athens N.Y.

(6) LOCATION OF WELL (See Instructions On Reverse) Show Lat/Long if available and method used: 43' 17.23N, 073' 50.41W

☒ GPS ☐ Map Interpolation

(7) DEPTH OF WELL BELOW LAND SURFACE (feet) 210

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet) 4 DATE MEASURED 8-31-07

CASINGS

(9) DIAMETER in. | 6 in. | in. | in.

(10) LENGTH ft. | 86 ft. | ft. | in.

(11) GROUT TYPE / SEALING Bentionite & clay

(12) GROUT / SEALING INTERVAL (feet) FROM 30 TO 5

SCREENS

(13) MAKE & MATERIAL -

(14) OPENINGS

(15) DIAMETER in. | in. | in. | in.

(16) LENGTH ft. | ft. | ft. | in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE 9-4-07

(19) DURATION OF TEST 8

(20) LIFT METHOD ☒ Pump ☐ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM) 20

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing) 4

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)

(24) RECOVERY (Time in hours/minutes) overnite

(25) Was the water produced during the test discharged away from immediate area? Yes X No ___

PUMP INSTALLATION

(26) PUMP INSTALLED? YES X NO ___

(27) DATE 10-07-05

(28) PUMP INSTALLER L.Heimburge

(29) TYPE submersible

(30) MAKE goulds

(31) MODEL 10GS05

(32) MAXIMUM CAPACITY (GPM) 20

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet) 60

(34) METHOD OF DRILLING ☐ Rotary ☒ Cable Tool ☐ Other ___

(35) USE OF WATER (See instructions for choices) Industrial

(36) DATE DRILLING WORK STARTED 8-20-07

(37) DATE DRILLING WORK COMPLETED 8-31-07

(38) DATE REPORT FILED 11-20-07

(39) REGISTERED COMPANY L.H. Heimburge Wesll Drilling

(40) DEC REGISTRATION NO. NYRD 10186

(41) CERTIFIED DRILLER (Print name) L.H. Heimburge

(42) CERTIFIED DRILLER SIGNATURE * L.H. Heimburge

* By signing this document I hereby affirm that: (1) I am certified to supervise water well drilling activities as defined by Environmental Conservation Law §15-1502; (2) this water well was constructed in accordance with water well standards promulgated by the New York State Department of Health; (3) under the penalty of perjury the information provided in this Well Completion Report is true, accurate and complete, and I understand that any false statement made herein is punishable as a class A Misdemeanor under Penal Law §210.45.

(43) LOG

Ground Surface EL. 101 ft. above sea level

Top Of Casing is located ___ ft. above (+) or below (-) ground surface

TOP OF WELL

Material	Depth
fill	5
brown sticky clay	20
tough light gray clay	30
soft dark gray clay	50
tough sticky dark gray clay	
large angular shale gravel w/ fine coarse gravel w/ clay streaks	84
fractured bedrock sandstone & shale w/ quartz layers (NORMANSKILL FORMATION)	210

BOTTOM OF HOLE

NYSDEC COPY

A-90

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) COUNTY Greene

(2) TOWN Athens

(3) DEC Well Number G 2560

WATER WELL COMPLETION REPORT

(4) OWNER
Northeast Treaters Of N.Y. L.L.C.

(5) ADDRESS
696 Schoharie Turnpike, Athens, N.Y.

(6) LOCATION OF WELL (See Instructions On Reverse)
Show Lat/Long if available and method used:
☒ GPS ☐ Map Interpolation 42° 17.18 N, 073° 50.30 W

(7) DEPTH OF WELL BELOW LAND SURFACE (feet) 265

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet) 8 DATE MEASURED 9-20-07

CASINGS

(9) DIAMETER in. | 6 in. | in. | in.

(10) LENGTH ft. | 26 ft. | ft. | in.

(11) GROUT TYPE / SEALING Bentionite

(12) GROUT / SEALING INTERVAL (feet) FROM 4 TO 22

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER in. | in. | in. | in.

(16) LENGTH ft. | ft. | ft. | in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE 9-20-07

(19) DURATION OF TEST 2 hrs.

(20) LIFT METHOD ☐ Pump ☐ Air Lift ☒ Bail

(21) STABILIZED DISCHARGE (GPM) 2-3 g.p.m.

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing) 10

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing) 260

(24) RECOVERY (Time in hours/minutes) overnite

(25) Was the water produced during the test discharged away from immediate area? Yes X No

PUMP INSTALLATION

(26) PUMP INSTALLED? YES X NO

(27) DATE oct. 2007

(28) PUMP INSTALLER L.Heimburge

(29) TYPE Submersible

(30) MAKE Goulds

(31) MODEL 7GSo5412L

(32) MAXIMUM CAPACITY (GPM) 9 g.p.m.

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet) 255

(34) METHOD OF DRILLING ☐ Rotary ☒ Cable Tool ☐ Other

(35) USE OF WATER (See instructions for choices) Industrial

(36) DATE DRILLING WORK STARTED 9-5-07

(37) DATE DRILLING WORK COMPLETED 9-20-07

(38) DATE REPORT FILED 11-20-07

(39) REGISTERED COMPANY L.H.Heimburge Well Drilling

(40) DEC REGISTRATION NO. NYRD 10186

(41) CERTIFIED DRILLER (Print name) L.H.Heimburge

(42) CERTIFIED DRILLER SIGNATURE * L.H.Heimburge

* By signing this document I hereby affirm that: (1) I am certified to supervise water well drilling activities as defined by Environmental Conservation Law §15-1502; (2) this water well was constructed in accordance with water well standards promulgated by the New York State Department of Health; (3) under the penalty of perjury the information provided in this Well Completion Report is true, accurate and complete, and I understand that any false statement made herein is punishable as a class A Misdemeanor under Penal Law §210.45.

(43) LOG

Ground Surface EL. 108 ft. above sea level

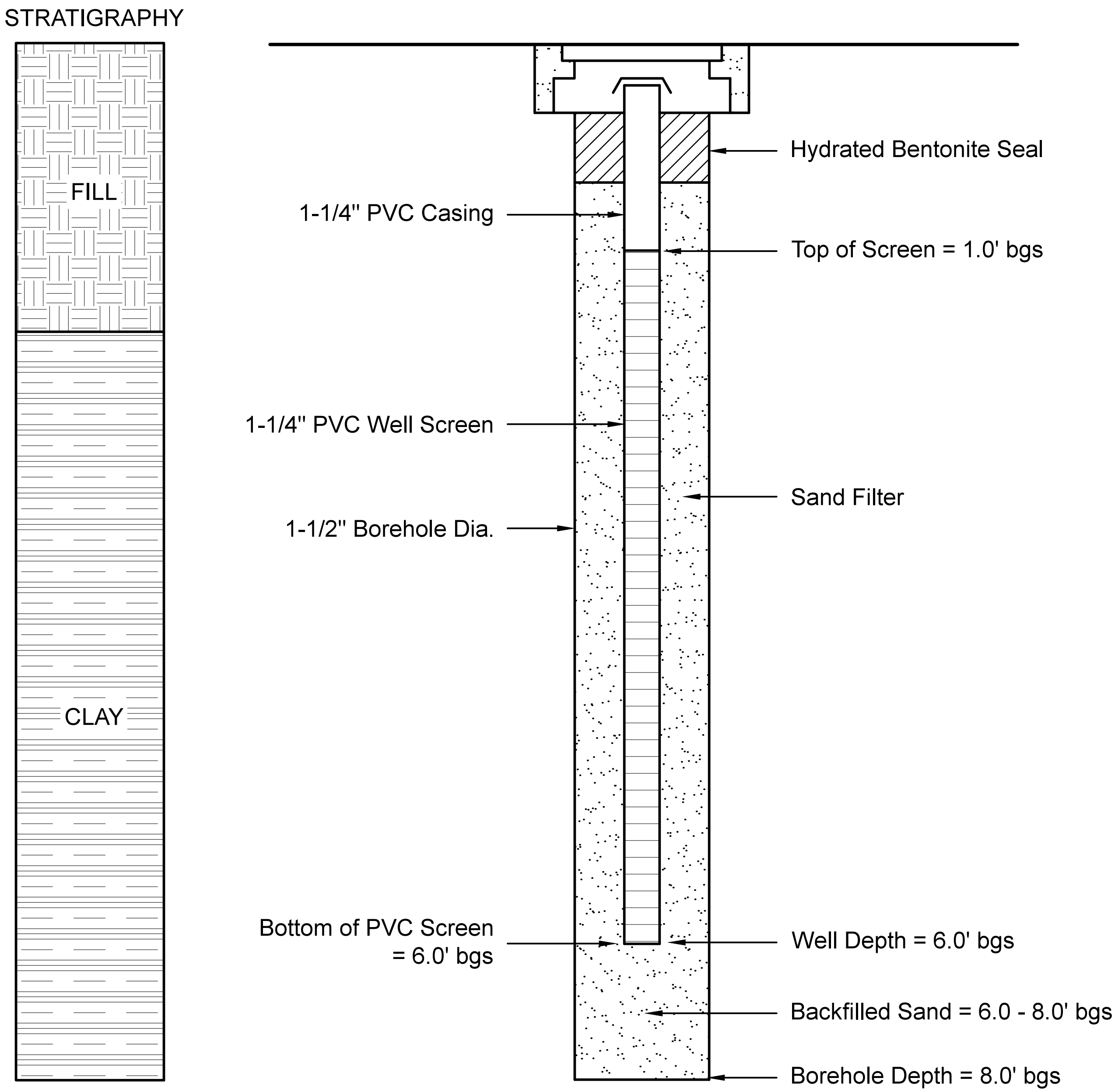
Top Of Casing is located 3 ft. above (+) or below (-) ground surface

TOP OF WELL

Material	Depth
FILL	5
BROWN CLAY	12
GRAY CLAY	19
BROKEN SHALE COBBLES & HARDPAN	22
BEDROCK SANDSTONE & SHALE	35
	85
90 fractured shale & quartz	
150 fractured shale & quartz	
160	265

BOTTOM OF HOLE

NYSDEC COPY



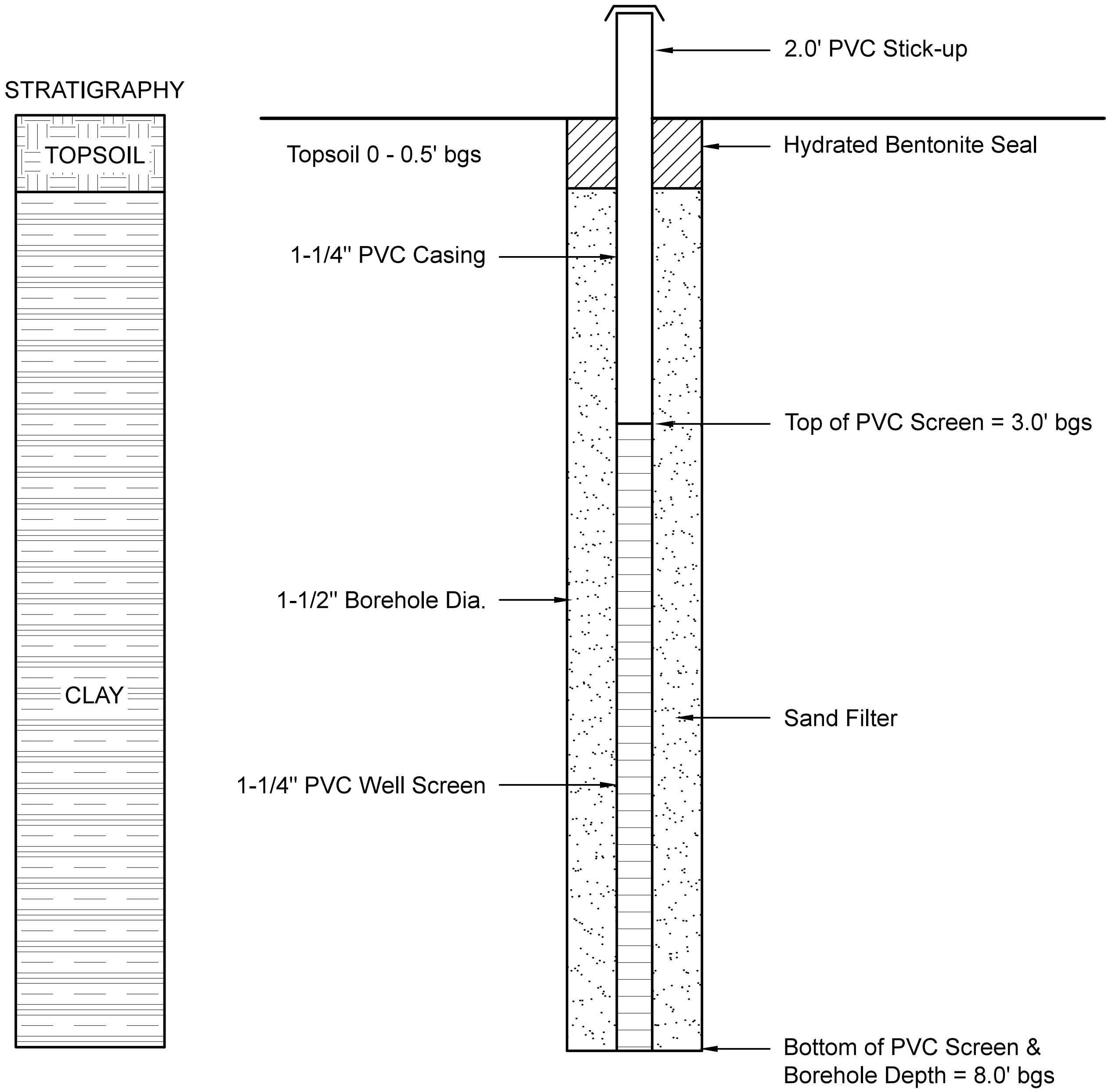
LEGEND

Fill (0.0 - 2.0')	Brown to gray sand and gravel; Medium coarse to coarse; Occasional pebbles and cobbles; Loose; Dry
Glaciolacustrine Clay (2.0 – 8.0')	Dark gray to gray brown clay; Some silt; Mottled (brown); Stiff to medium stiff; Dry

STERLING
Sterling Environmental Engineering, P.C.
24 Wade Road · Latham, New York 12110

WELL CONSTRUCTION DIAGRAM
MW–1
NORTHEAST TREATERS
SCHOHARIE TURNPIKE
TOWN OF ATHENS GREEN CO., N.Y.

PROJ. No.: 2014–08 | DATE: 7/30/15 | SCALE: NONE | DWG. NO. 2014–08027 | FIGURE 1



LEGEND

Organic Loam
(0.0 – 0.5')

Glaciolacustrine Clay (0.5 – 8.0')	Dark gray to gray clay; Some silt; Mottled (brown); Medium stiff to stiff; Dry

STERLING

Sterling Environmental Engineering, P.C.

24 Wade Road · Latham, New York 12110

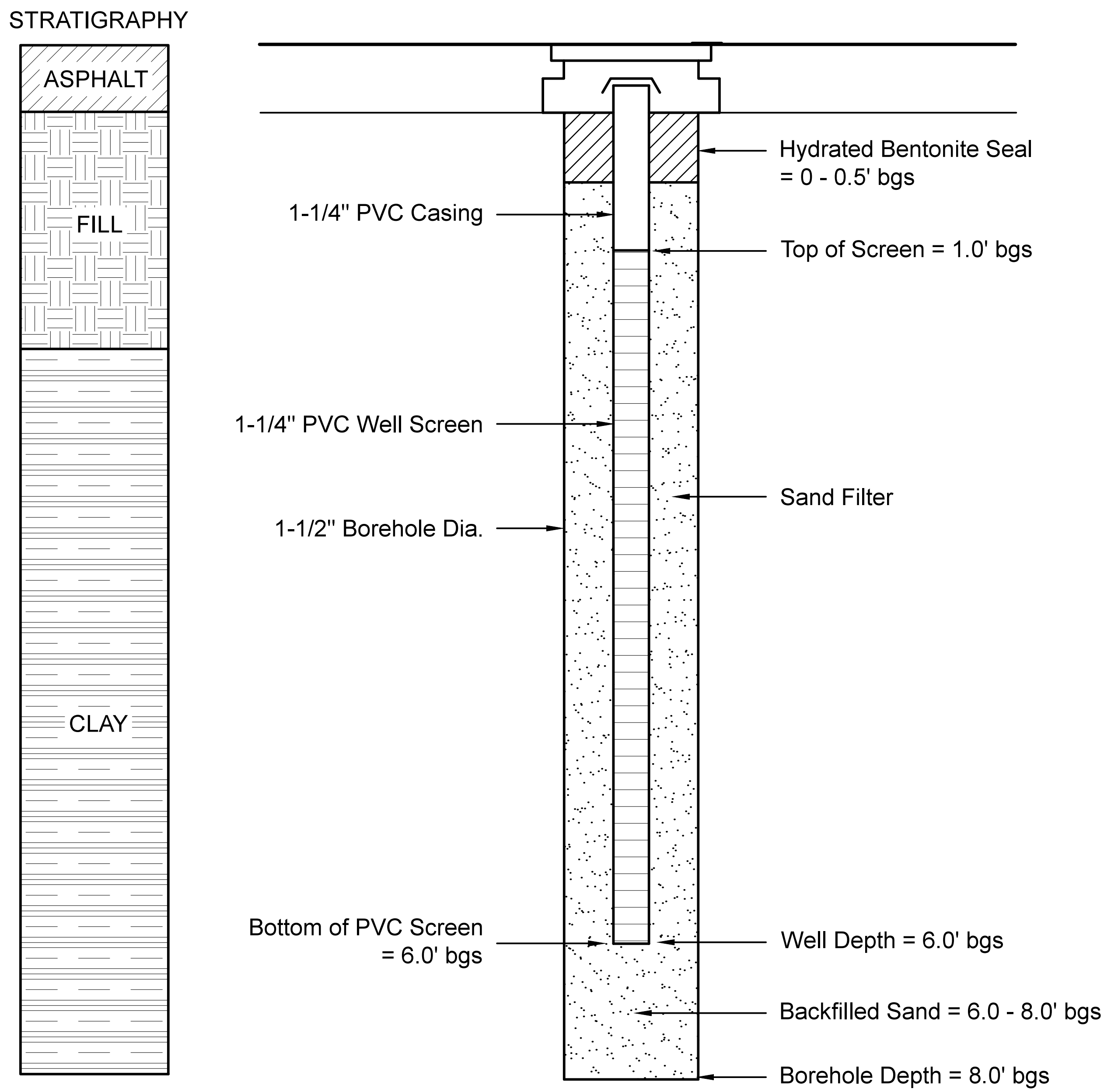
WELL CONSTRUCTION DIAGRAM
MW–2

NORTHEAST TREATERS

SCHOHARIE TURNPIKE

TOWN OF ATHENS — GREEN CO., N.Y.

PROJ. No.: 2014–08	DATE: 7/30/15	SCALE: NONE	DWG. NO. 2014–08027	FIGURE 2



LEGEND

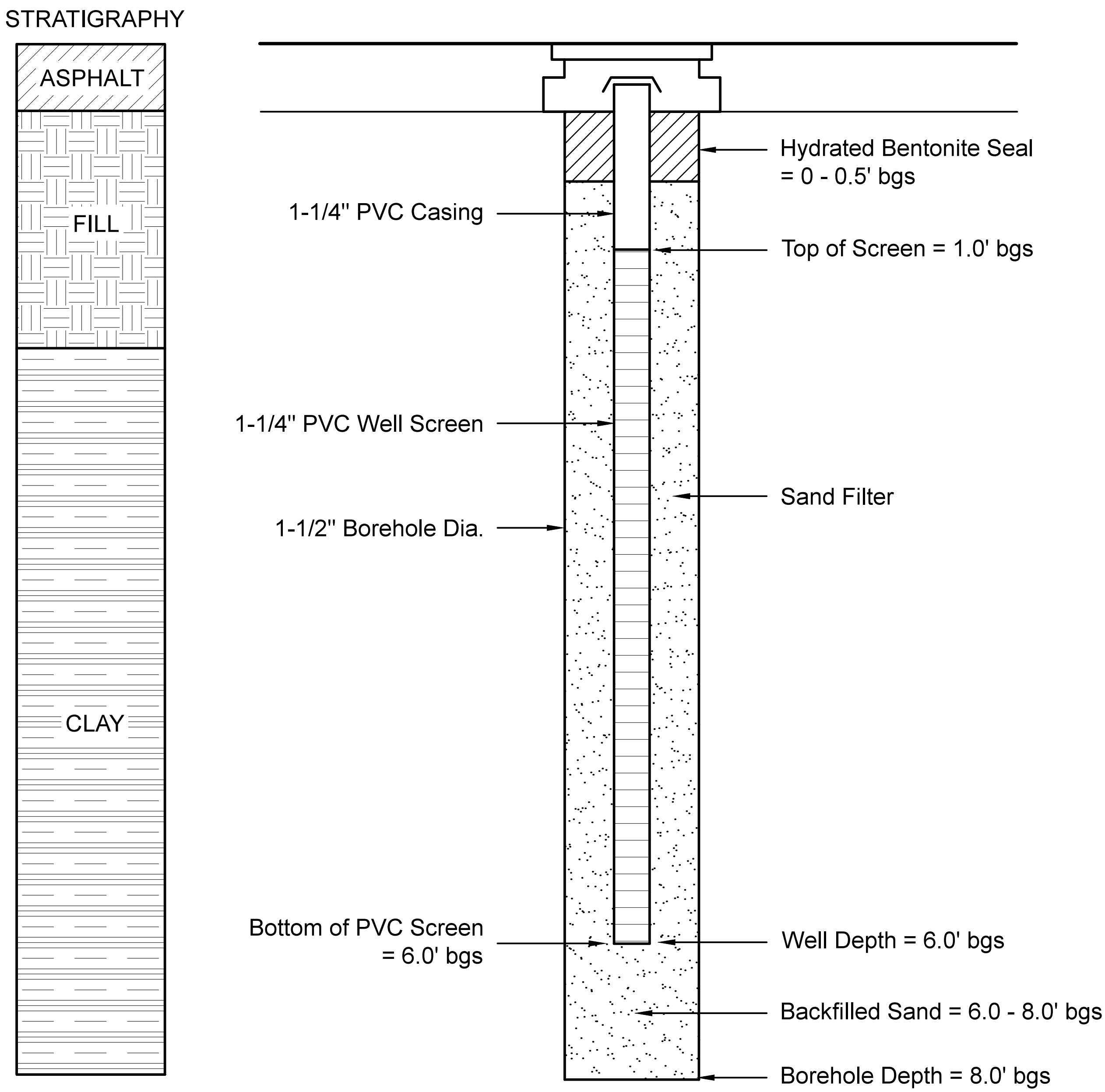
Asphalt (0.0 – 05')

Fill (0.5 – 1.8')	Brown to gray sand and gravel; Medium coarse to coarse; Occasional cobbles and pebbles; Loose; Dry
Glaciolacustrine Clay (1.8 – 8.0')	Dark gray to gray brown clay; Some silt; Mottled (brown); Medium stiff to stiff; Dry

STERLING
Sterling Environmental Engineering, P.C.
24 Wade Road · Latham, New York 12110

WELL CONSTRUCTION DIAGRAM
MW–3
NORTHEAST TREATERS
SCHOHARIE TURNPIKE
TOWN OF ATHENS GREEN CO., N.Y.

PROJ. No.: 2014–08	DATE: 7/30/15	SCALE: NONE	DWG. NO. 2014–08027	FIGURE 3



LEGEND

Asphalt (0.0 – 0.1’)

Fill (0.1 – 2.0’)	Brown to gray sand and gravel; Medium coarse to coarse; Occasional pebbles and cobbles; Loose; Dry
Glaciolacustrine Clay (2.0 – 8.0’)	Dark gray to gray brown clay; Some silt; Mottled (brown); Medium stiff to stiff; Dry

Sterling Environmental Engineering, P.C.
24 Wade Road · Latham, New York 12110

WELL CONSTRUCTION DIAGRAM
MW–4
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

TOWN OF ATHENS | GREEN CO., N.Y.

PROJ. No.: 2014–08	DATE: 7/30/15	SCALE: NONE	DWG. NO. 2014–08027	FIGURE 4

APPENDIX E

**CORRECTIVE ACTION PRIOR TO
LOSS OF INTERIM STATUS INSPECTION FINAL REPORT**

Looks like they are Protest Filer or closed prior to HSWA! 14

March 31, 1989

Mr. Ben Singh
Hazardous Waste Compliance Branch
U.S. Environmental Protection Agency Region II
26 Federal Plaza
New York City, New York 10278

Unit of Concern is not Regulated (not SWMU)

Reference: EPA Contract 68-01-7038; Work Assignment No. R02-01-64; Atlantic Wood Industries, Inc.; EPA I.D. No. NYD095240610; CAPT LOIS Inspection Reports

Dear Mr. Singh:

Enclosed please find the Corrective Action Prior to Loss of Interim Status (CAPT LOIS) inspection report for the above referenced facility. The CAPT LOIS inspection consisted of a file review and a site visit. The objective of the inspection was to identify the solid waste management units (SWMU) and other areas of concern (AOC) at the facility and determine the need for corrective action.

The Atlantic Wood Industries, Inc. facility is located on Schoharie Turnpike Road, West Athens, Green County, New York. The facility lies on an 11 acre site about one quarter mile east of NYS Highway 9W. Atlantic Wood is primarily engaged in treating architectural and dimensional lumber with a preservative solution of chromate-copper-arsenate (CCA). The preservative treatment process carries the industry trade name of "wolmanized", a system patented by the Koppers Company. Atlantic Wood is licensed by the Koppers Company for the treatment process.

A treatment tube is used to inject the CCA solution into the wood. After the the wood is treated, a vacuum is created in the tube so that excess solution can be extracted from the wood. Excess solution drains into the CCA Solution Recycle Sump (SWMU 3) below the north end of the Treatment Tube in the fixation building and is piped back to the south compartment of the sump in the Treating Building. The solution is then used to dilute the CCA concentrate for other batches. All solution is managed within this closed loop recycling system. No wastewater is discharged from the treatment processes. The wood is stacked in the Fixation Building for approximately 72 hours after treatment. During this time, the wood "bleeds off" excess solution onto the concrete floor. The amount of solution that drips from the wood is small and is absorbed by the dust and soil particulates on the concrete floor. The wood is then moved outside to the Product Storage Area where it will remain until transported off-site by rail to wholesale facilities. No drippping occurs during storage.

Hazardous wastes are generated from cleaning activities in the Fixation Building and are of a dry, solid nature. The particulates swept from the floor fail the E.P. Toxicity test for both arsenic (D004) and chromium (D007). This material is collected and put in 55 gallon drums. The drumsare stored on the Hazardous Waste Accumulation Pad (SWMU 1). The floor is swept two or three times per week.

Between seven and fifteen-55 gallon drums, three to six tons, of hazardous waste are generated per year at the Atlantic Wood facility. All wastes are transported off-site within 180 days. All hazardous wastes generated at the facility are transported by Koppers Company to the Koppers main facility in Conley, Georgia and subsequentlty transferred to the Chemical Waste Management Landfill in Emelle, Alabama for disposal.

Atlantic Wood submitted a RCRA Part A permit application to EPA for a hazardous waste container storage area in November 1980. In October 1983, Atlantic Wood requested to withdraw from Interim Status and be reclassified as only a Small Quantity Generator. A closure plan was submitted by Atlantic Wood for the hazardous waste storage area in September 1984. NYSDEC approved the closure plan in March 1985 and informed Atlantic Wood that an official formal request was required in writing for withdrawing the Part A application. This request was submitted to EPA in June 1985. As of March 1, 1985 NYSDEC classifies the facility as a generator, but no final confirmation of status reclassification has been issued by the EPA.

During the file review and site visit, DPRA identified three solid waste management units (SWMUs) at the Atlantic Wood facility: the Hazardous Waste Accumulation Pad (SWMU 1), the Waste Oil Accumulation Area (SWMU 2), and the CCA Solution Recycle Sump (SWMU 3). The Hazardous Waste Accumulation Pad is the only regulated unit at the facility; the unit is regulated under Interim Status.

The waste management practices at the Atlantic Wood facility were very good. Recommendations for each SWMU are provided below;

o The Hazardous Waste Accumulation is contained in a fully enclosed structure. The two drums being stored at the unit during the site visit were labelled, covered and in good condition. Any releases from the drums stored at the unit would be contained by the underlying CCA Solution Recycle Sump (SWMU 3). The unit has an approved RCRA closure plan. No further action is recommended.

o The Waste Oil Accumulation Area is contained in a fully enclosed structure with a concrete floor. All drums were covered and in good condition. No further action is recommended.

o The bottom of the CCA Solution Recycle Sump could not be inspected during the site visit since it contained CCA solution. DPRA recommends that the sump be inspected for integrity. Should the inspection reveals cracks or other deterioration, soil sampling is recommeded. The soil sampling should include arsenic and chromium.

Please call the undersigned if you have any questions.

Sincerely,

Jim Levin

Jim Levin
Technical Director

enc.

cc: M. Emile, U.S. Enviromental Protection Agency
J. Moran, New York State Department of Environmental Conservation
C. Saunders, A.T. Kearney
J. Grieve, A. T. Kearney
W. Rohrer, DPRA Incorporated
Steve Muse, A.T. Kearney

FINAL REPORT

CORRECTIVE ACTION PRIOR TO LOSS OF INTERIM STATUS INSPECTION ATLANTIC WOOD INDUSTRIES, INC. WEST ATHENS, NEW YORK EPA I.D. No. NYD095240610

Prepared for:

U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, New York, 10278

Prepared by:

A.T. Kearney, Inc.
225 Reinekers Lane
Alexandria, Virginia 22314

and

DPRA Incorporated
245 East 6th Street, Suite 813
St. Paul, Minnesota 55101

EPA Contract No. 68-01-7038
Work Assignment No. R02-01-64

March 1989

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ATLANTIC WOOD INDUSTRIES, INC.
WEST ATHENS, NEW YORK

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APPENDICES

A PHOTOGRAPHS TAKEN DURING THE SITE VISIT

B SITE INSPECTION FIELD NOTES

LIST OF FIGURES

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1.0 INTRODUCTION

A.T. Kearney, Incorporated (ATK) received Work Assignment No. R02-01-64 from the U.S. EPA, under Contract No. 68-01-7038, to conduct corrective action prior to loss of interim status (CAPT LOIS) inspections in the State of New York. ATK has directed DPRA Incorporated (DPRA) to provide the necessary assistance under this work assignment.

A CAPT LOIS inspection is similar to a RCRA Facility Assessment (RFA). A CAPT LOIS inspection consists of (1) a file review, analogous to a preliminary review, and (2) a site visit, analogous to a visual site inspection. For this reason, a CAPT LOIS inspection sometimes is referred to as a "limited RFA."

DPRA conducted a CAPT LOIS inspection at the Atlantic Wood Industries, Inc. facility on Schoharie Turnpike Road in West Athens, New York. As the first phase of the inspection, DPRA conducted a file review at the offices of the U.S. EPA Region II and the New York State Department of Environmental Conservation (NYSDEC). As the second phase of the inspection, DPRA conducted a site visit at the Atlantic Wood facility on March 1, 1989. DPRA conducted the site visit to verify the information in the file materials, identify any new solid waste management units (SWMUs) and other areas of concern, and observe any evidence of releases from the SWMUs. Based on the results of the site visit, DPRA has prepared and submitted this report to the U.S. EPA to reflect the actual conditions at the Atlantic Wood facility. This report describes the facility and discusses the findings of the file review and site visit.

Pertinent information regarding the facility is presented below:

Facility Name:	Atlantic Wood Industries, Inc.
U.S. EPA ID No.	NYD095240610
Address:	Schoharie Turnpike Road West Athens, New York
Facility Contact:	Richard Hales - Plant Manager Jeffrey Smigel - Director of Environmental Affairs (Corporate)
Telephone:	(518) 945-2660

2.0 FACILITY DESCRIPTION

The Atlantic Wood Industries, Inc. facility is located on Schoharie Turnpike Road, West Athens, Green County, New York (see Figure 1). The facility is located on an 11 acre site about one quarter mile east of NYS Highway 9W. The facility consists of four buildings, the Lumber Stacking Building, the Fixation Building, the Treating Building (office on second floor) and the Maintenance Building. Atlantic Wood bought the site in 1978 and began operation in 1979. A wood preserving operation occupied the site for one year (1977-1978). A sawmill facility operated at the site previous to 1977. Atlantic Wood is primarily engaged in treating architectural and dimensional lumber with a preservative solution of chromate-copper-arsenate (CCA). The preservative treatment process carries the industry trade name of "wolmanized", a system patented by the Koppers Company. Atlantic Wood is licensed by the Koppers Company for the treatment process.

A treatment tube is used to inject the CCA solution into the wood. The Treatment Tube is an 80 feet by 6 feet diameter pressurized vessel. Wood is wheeled into the tube on small rail carts. The tube is then closed and filled with the appropriate concentration of the CCA solution. Solution concentrations range from 0.4 pounds to 2.5 pounds of CCA per square foot of wood. The higher concentrations are used for treating wood for marine uses. After the the wood is treated, a vacuum is created in the tube so that excess solution can be extracted from the wood. Excess solution drains into the CCA Solution Recycle Sump (SWMU 3) below the north end of the Treatment Tube in the fixation building and is piped back to the south compartment of the sump in the Treating Building. The solution is then used to dilute the CCA concentrate for other batches. All solution is managed within this closed loop recycling system. No wastewater is discharged from the treatment processes.

The wood is stacked in the Fixation Building for approximately 72 hours after treatment. During this time, the wood "bleeds off" excess solution onto the concrete floor. The amount of solution that drips from the wood is small and is absorbed by the dust and soil particulates on the concrete floor. The wood is then moved outside to the Product Storage Area where it will remain until transported off-site by rail to wholesale facilities. No drippping occurs during storage.

Hazardous wastes are generated from cleaning activities in the Fixation Building and are of a dry, solid nature. The particulates swept from the floor fail the E.P. Toxicity test for both arsenic

(D004) and chromium (D007). This material is collected and put in 55 gallon drums. The drums are stored on the Hazardous Waste Accumulation Pad (SWMU 1). The floor is swept two or three times per week.

The recycled CCA solution passes through a small bag filter before entering the recycle/storage tank in the southwest corner of the Treating Building. The filter is located on top of the tank on the return line from the CCA Solution Recycle Sump (SWMU 3). It removes particulate matter that may have been flushed into the CCA Solution Recycle Sump during washdown or swept from the Treatment Tube. The filter bags are allowed to dry on top of the mixing tank before being put into the same 55 gallon drums with the waste swept from the Fixation Building floor. The filters are not reused.

Between seven and fifteen-55 gallon drums, three to six tons, of hazardous waste are generated per year at the Atlantic Wood facility. All wastes are transported off-site within 180 days. The facility is actually permitted to store the waste for up to 270 days since it is a Small Quantity Generator and must transport the waste greater than 200 miles. Inspection reports indicate one to three drums of hazardous waste are stored on-site at any given time. All hazardous wastes generated at the facility are transported by Koppers Company to the Koppers main facility in Conley, Georgia and subsequentlty transferred to the Chemical Waste Management Landfill in Emelle, Alabama for disposal. Large amounts of wastes are produced when the product storage and mixing tanks are cleaned. This is done on an as needed basis. The last cleaning occurred in 1985. Approximately 48 tons of D004 waste was generated in that year (Ref. 10).

The facility also operates a Waste Oil Accumulation Area (SWMU 2) in the maintenance building. The waste oil generated from forklift maintenance activities is stored in 55 gallon drums and transported off-site for recycling.

Atlantic Wood submitted a Notification of Hazardous Activity on July 1980 (Ref. 1) and a RCRA Part A permit application to EPA for a hazardous waste container storage area in November 1980 for the storage of D004 and D007 wastes (Ref. 2). In October 1983, Atlantic Wood requested to withdraw from Interim Status and to be reclassified as only a Small Quantity Generator since the facility did not intend to store hazardous waste for more than ninety days (Ref. 3). A closure plan was submitted by Atlantic Wood for the hazardous waste storage area in September 1984 (Ref. 7). NYSDEC approved the closure plan in March 1985 and informed Atlantic Wood that an official, formal request was required in writing for withdrawing the Part A application (Ref. 8). This request was submitted to EPA in June 1985 (Ref. 9). As of March 1, 1985 NYSDEC classifies the facility as a Generator, but no final confirmation of status reclassification has been issued by the EPA.

3.0 SOLID WASTE MANAGEMENT UNITS

During the file review and site visit, DPRA identified three solid waste management units (SWMUs) at the Atlantic Wood Industries facility: a Hazardous Waste Accumulation Pad (SWMU 1), a Waste Oil Accumulation Area (SWMU 2), and the CCA Solution Recycle Sump (SWMU 3). Figure 2 shows the locations of these SWMUs.

During the site visit, DPRA personnel took photographs of each SWMU. Copies of the photographs are included in Appendix A.

The following sections describe each SWMU, discusss the status of each unit, identify types of wastes handled by the units, discuss Atlantic Wood's waste management procedures for each unit. describe known and suspected releases from the units, and discuss remedial actions (if any) taken in response to releases from the units.

3.1 HAZARDOUS WASTE ACCUMULATION PAD
(Photographs 1.1 and 1.2)

Description:

The Hazardous Waste Accumulation Pad is a 5 feet by 5 feet steel grate located above the CCA solution collection sump on the south end of the Treatment Tube in the Treating Building. The unit is used to store 55 gallon drums of arsenic and chromium contaminated particulate debris. The contaminated debris is classified as a hazardous waste. The pad is regulated under Interim Status and has operated since 1978. The pad is supported by steel legs that are anchored in the bottom of the south compartment of the 8 feet by 8 feet concrete CCA Solution Recycle Sump (SWMU 3). The unit contained two drums at the time of the inspection but has a capacity to hold four drums.

Status:

This unit is active and is regulated under interim status.

Waste Type:

The hazardous waste contained in the drums is arsenic (D004) and chromium (D007) contaminated particulate matter. Both drums had hazardous waste labels, were covered and in good condition. Three to six tons are generated annually. A 1983 waste analysis for

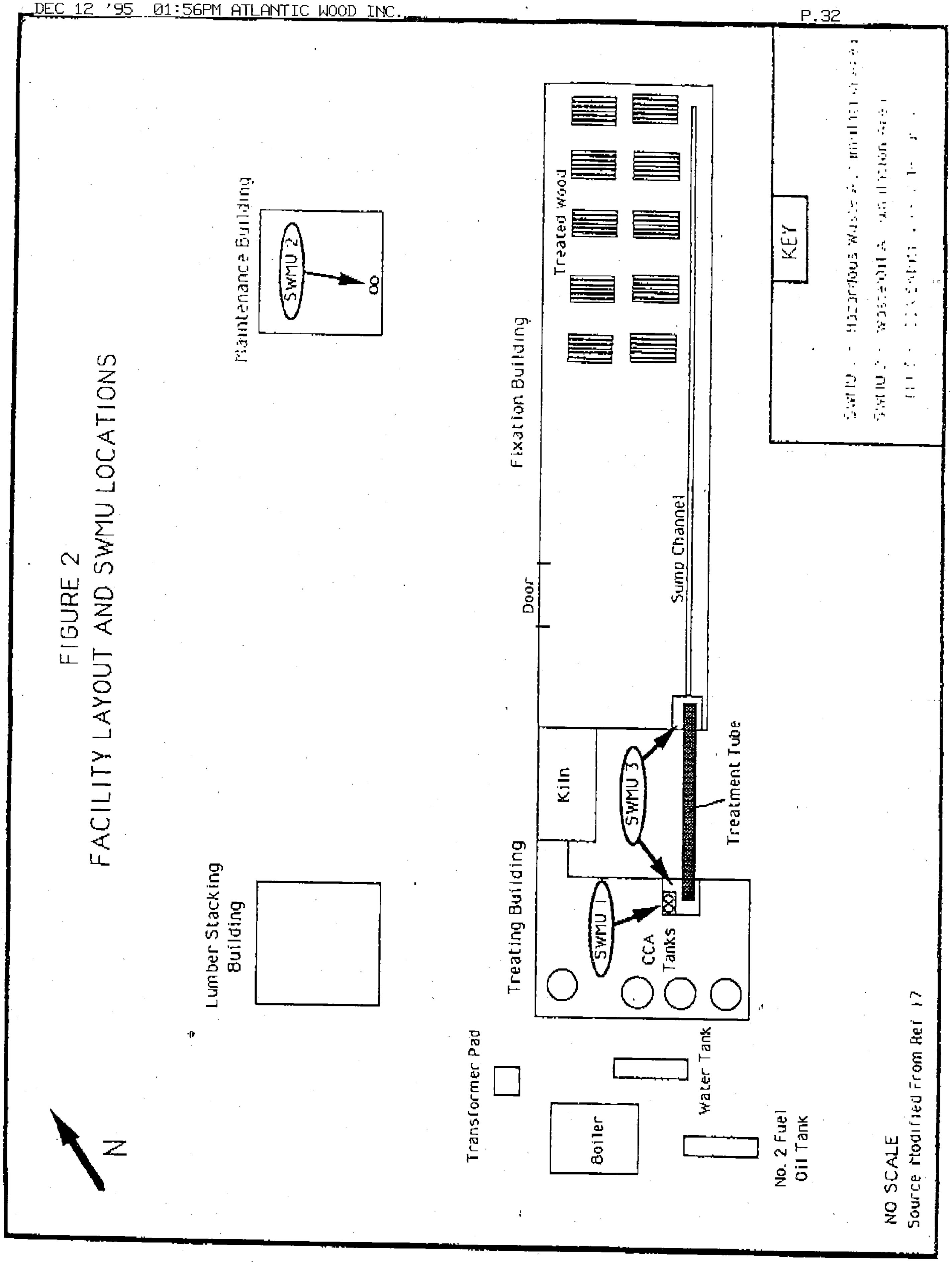

FIGURE 2
FACILITY LAYOUT AND SWMU LOCATIONS

ignitability, corrosivity, reactivity and metals revealed concentrations of arsenic at 67 ppm and chromium (hexavalent) at 27 ppm. These were the only parameters that exceeded the RCRA E.P. Toxicity standards.

Waste Management:

The drums contain dry particulate debris swept from the Fixation Building floor. The Fixation Building was built in 1984 to aid in the chemical fixation process during colder months. The concrete slab in the building has existed since Atlantic Wood began operations at the site in 1979. The drums also contain the spent filters used to remove suspended particulates from solution in the the recycle line that conveys the solution back to the CCA mixing tanks. The hazardous waste is stored for no longer than 180 days even though the facility, as a Small Quantity Generator with a transport distance of greater than 200 miles, is permitted to store wastes for up to 270 days. The hazardous wastes are transported by the Koppers Company to the Koppers main facility in Conley, Georgia. The material is then transported to the Chemical Waste Management Landfill in Emelle, Alabama for disposal.

Known and Suspected Releases:

No releases were noted in file material or observed during the site visit. The Hazardous Waste Accumulation Pad is contained in a fully enclosed structure and is in good condition. All drums stored at the unit were covered and in good condition.

3.2 WASTE OIL ACCUMULATION AREA
(Photograph 2.1)

Description:

The Waste Oil Accumulation Area consists of an area used to store 55 gallon drums that contain waste oil generated from forklift maintenance. The area is located along the eastern wall of the Maintenance Building. The building is a wooden structure with a concrete floor. At the time of the inspection, two drums were being stored. This unit is not regulated.

Status:

This unit is active and is not regulated.

Waste Type:

The drums contain waste oil generated during regular forklift maintenance. Approximately two drums are generated per year.

Waste Management:

Oil is drained into the drums using funnels. The oil is tranported off-site for recycling.

Known and Suspected Releases:

No releases were noted in file material or observed during the site visit. The Waste Oil Accumulation Area is contained in a fully enclosed structure and is in good condition. All drums stored in the area were situated on a concrete floor, covered and in good condition.

3.3 CCA SOLUTION RECYCLE SUMP
(Photograph 3.1)

Description:

The CCA Solution Recycle Sump consists of two sump compartments located on either side of the Treatment Tube (north and south ends). The north end is located in the Fixation Building; the south end is in the Treating Building. Both sumps are in-grade and constructed of concrete and are approximately 8 feet by 8 feet and 3 feet deep. The sumps are used to collect excess CCA solution released from the tube after treament. The solution flows by gravity by a pipe from the north compartment of the sump to the south compartment of the sump (see Figure 2). All solution is recycled back into the system. The solution is pumped to the CCA solution recycle/storage tank. The unit has been in operation since 1979.

Status:

This unit is active and is not regulated.

Waste Type:

Both sump compartments manage the CCA solution. The solution also contains particulate debris from process area wash-down.

Waste Management:

The CCA solution is drained from the Treatment Tube after the preservative injection process has been completed. The solution collects in the north compartment of the sump and is piped back to the south compartment. The solution is then pumped to the recycle/storage tank in the southwest corner of the Treating Building for remixing and reuse.

Known and Suspected Releases:

No releases were noted in file material or and no evidence of overflow was observed during the site visit. The unit is contained in a fully enclosed structure. The integrity of the sump could not be determined since the unit is in-grade.

4.0 SUMMARY AND CONCLUSIONS

Atlantic Wood submitted a Notification of Hazardous Activity on July 1980 (Ref. 1) and a RCRA Part A permit application to EPA for a hazardous waste container storage area in November 1980 for the storage of D004 and D007 wastes (Ref. 2). In October 1983, Atlantic Wood requested to withdraw from Interim Status and to be reclassified as only a Small Quantity Generator since the facility did not intend to store hazardous waste for more than ninety days (Ref. 3). A closure plan was submitted by Atlantic Wood for the hazardous waste storage area in September 1984 (Ref. 7). NYSDEC approved the closure plan in March 1985 and informed Atlantic Wood that an official, formal request was required in writing for withdrawing the Part A application (Ref. 8). This request was submitted to EPA in June 1985 (Ref. 9). As of March 1, 1985 NYSDEC classifies the facility as a Generator, but no final confirmation of status reclassification has been issued by the EPA.

During the file review and site visit, DPRA identified three solid waste management units (SWMUs) at the Atlantic Wood facility: the Hazardous Waste Accumulation Pad (SWMU 1), the Waste Oil Accumulation Area (SWMU 2), and the CCA Solution Recycle Sump (SWMU 3). The Hazardous Waste Accumulation Pad is the only regulated unit at the facility; the unit is regulated under Interim Status.

The waste management practices at the Atlantic Wood facility were very good. Recommendations for each SWMU are provided below;

o The Hazardous Waste Accumulation is contained in a fully enclosed structure. The two drums being stored at the unit during the site visit were labelled, covered and in good condition. Any releases from the drums stored at the unit would be contained by the underlying CCA Solution Recycle Sump (SWMU 3). The unit has an approved RCRA closure plan. No further action is recommended.

o The Waste Oil Accumulation Area is contained in a fully enclosed structure with a concrete floor. All drums were covered and in good condition. No further action is recommended.

o The CCA The bottom of the CCA Solution Recycle Sump could not be inspected during the site visit since it contained CCA solution. DPRA recommends that the sump be inspected for integrity. Should the inspection reveals cracks or other deterioration, soil sampling is recommeded. The soil sampling should include arsenic and chromium.

There were no releases noted in available file material or observed during the site visit.

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7) Kerr, C.N., Atlanic Wood Industries, Inc., letter to John Middlekoop, NYSDEC with submittal of closure plan and cost estimates, September 18, 1984.

8) Baker, Richard, EPA, letter to C.N. Kerr indicating approval of closure plan and requesting offical reclassification request, March 1, 1985.

9) Haldeman, Bruce, Atlantic Wood Industries, Inc., letter to Richard Baker, EPA with formal request for RCRA Part A permit application withdrawl, June 4, 1984.

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15) U.S. Geological Survey, 1953, Topographic Map of the Hudson North, New York Quadrangle, photorevised, 1980.

16) Carruth, Joe and Dave Gustafson, DPRA, Field Notes and Photolog from site visit, March 1, 1989.

17) Smigel, Jeffrey, Enviromental Engineer, Atlantic Wood, Map of West Athens Facility, August. 1988.

APPENDIX F

PRELIMINARY RCRA FACILITY ASSESSMENT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION II
290 BROADWAY
NEW YORK, NEW YORK 10007-1866

- 5 1996

FEB 0 1 1996

Mr. Thomas F. Stark
Associate Principal
GZA GeoEnvironmental, Inc.
27 Naek Road
Vernon, Connecticut 06066

Dear Mr. Stark:

The United States Environmental Protection Agency (EPA), is responding to your December 15, 1995 request for information regarding the Atlantic Wood Industries, Inc. site in Athens, New York (EPA I.D. NYD095240610).

The enclosed RCRA Facility Assessment (RFA) report identifies five Areas of Concern (AOC) at the above site. One major information gap identified in the RFA report is that data supporting a clean closure of the May 2, 1990 spill area (AOC #5), was not found in the available files.

In response to your inquiry about the Voluntary Stabilization Program, the New York State Department of Environmental Conservation (NYSDEC) Corrective Action Program has been fully authorized by the USEPA. Therefore, all corrective action activities including any voluntary stabilization efforts would be directly managed by NYSDEC.

The USEPA Headquarter's memorandum, dated July 29, 1994, that you attached to your request, refers to the RCRIS Corrective Action Environmental Indicator Event Codes CA725 and CA750. The codes are used to report actual accomplishments of cleanup activities at sites undergoing Corrective Action. These codes are used when all contaminated media pathways have been evaluated and documentation is available to show that human exposures have been controlled where necessary and when all groundwater releases at the facility have been controlled. This does not appear to be the situation at the Atlantic Wood Industries site.

Very truly yours,

James Reidy

James Reidy, P.E.
Chief, N.Y. Corrective Action Section

Enclosure

cc: E. Dassatti, NYSDEC w/o encl.

Printed on Recycled Paper

PRELIMINARY
RCRA FACILITY ASSESSMENT
ATLANTIC WOOD INDUSTRIES
VILLAGE OF ATHENS, NEW YORK
Work Assignment: R02040
(Ref. No.: 1-635-393)

Prepared for:
U.S. Environmental Protection Agency

Contract: 68-W9-0003

TRC

TRC Environmental Corporation

PRELIMINARY
RCRA FACILITY ASSESSMENT
ATLANTIC WOOD INDUSTRIES
VILLAGE OF ATHENS, NEW YORK

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Air and Waste Management Division
26 Federal Plaza
New York, New York 10278

Work Assignment No.:	R02040
EPA Region:	II
EPA Site/Facility I.D. No.:	NYD095240610
Contract No.:	68-W9-0003 (TES-6)
TRC Document No.:	NY-R40.R16
TRC Project No.:	1-635-393-3-2000-0
TRC Project Manager:	Michael F. Clark P.E.
Telephone No.:	(212) 349-4616
Subcontractor:	N/A
Subcontractor No.:	N/A
Subcontractor Project Manager:	N/A
Telephone No.:	N/A
EPA Work Assignment Manager:	John G. Nevins
Telephone No.:	(212) 264-9578
Date Prepared:	November 9, 1993

TRC ENVIRONMENTAL CORPORATION
291 Broadway, Suite 1206
New York, New York 10007
(212) 349-4616

TRC

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1.0 INTRODUCTION

TRC Environmental Corporation (TRC - formerly Alliance Technologies Corporation) was requested by the U.S. Environmental Protection Agency (EPA) under EPA Contract No. 68-W9-0003 (TES-6), Work Assignment No. R02040, to perform a Preliminary RCRA Facility Assessment (RFA) of the Atlantic Wood Industries (AWI), Village of Athens, Green County, New York (EPA I.D. No. NYD095240610). Tasks were performed in accordance with the Preliminary RFA Scope of Work provided by EPA on June 8, 1993, and TRC's Work Plan, dated July 14, 1993.

The purpose of the Preliminary RFA is to identify, gather information on, and evaluate the potential for releases to the environment from areas of concern (AOCs), including solid waste management units (SWMUs), hazardous waste management units (HWMUs), and areas where releases may have occurred in the past. In addition, the Preliminary RFA will provide information for EPA use in the ranking of this facility using the National Corrective Action Prioritization System (NCAPS).

Background information for this Preliminary RFA Report was obtained through file searches conducted at the New York State Department of Environmental Conservation (NYSDEC), Albany, New York, Bureau of Hazardous Waste Facility Compliance, Bureau of Wastewater Facilities Design, and the Bureau of Air Application, Review and Permitting. TRC conducted a Visual Site Inspection (VSI) on October 25, 1993.

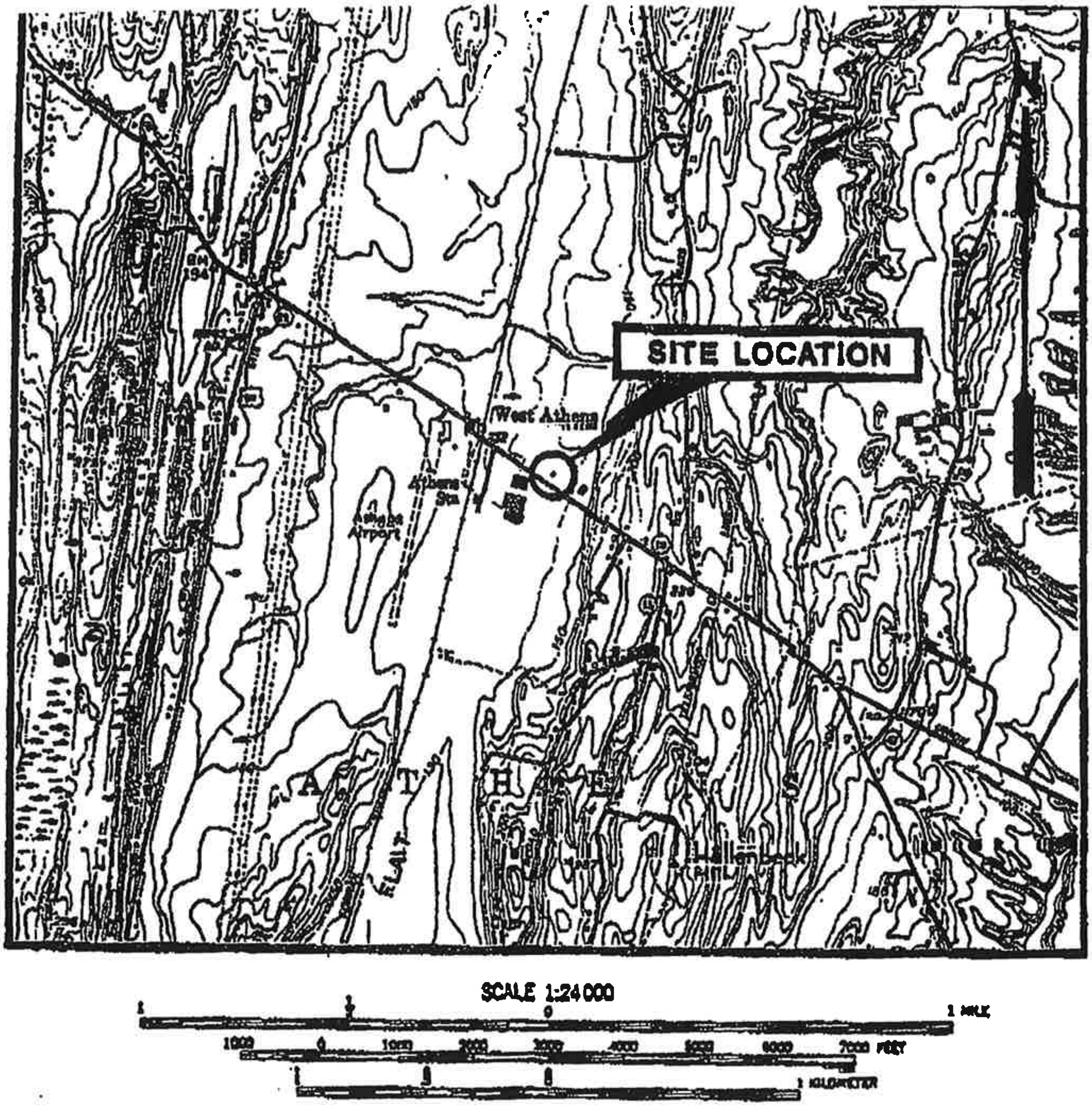
2.0 FACILITY DESCRIPTION

AWI is located on Schoharie Turnpike Road in the Village of Athens, Green County, New York. Figure 1, the Site Location Map, identifies the location of the facility on the USGS map. Four buildings are located on the 11 acre property including the Lumber Stacking Building, the Fixation Building, the Treating Building, and the Maintenance Building (A.T. Kearney, Inc., 1989).

The Lumber Stacking Building is located in the center of the AWI property. The dimensions of this building are approximately 120 feet by 60 feet. The building has a concrete floor and houses a lumber stacking machine (TRC, 1993a).

The Fixation Building is located near the eastern end of the property. This building has a concrete floor and the dimensions are approximately 150 feet by 50 feet. The treated lumber is stored in this building for 72 hours following treatment (TRC, 1993a).

The Treating Building is attached to the Fixation Building by a kiln. The Treating Building is approximately 50 feet by 50 feet. The building is a two story structure containing three 18,000 gallon working tanks and one 3,000 gallon tank containing a chromate-copper-arsenate (CCA) solution located on the ground floor. All four of the tanks are constructed of steel. The working tanks contain a 2 percent solution of CCA



QUADRANGLE LOCATION

SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP
QUADRANGLE, HUDSON NORTH, N.Y.

TRC Environmental Corporation
18 Worlds Fair Drive
Somerset, N.J. 08873

ATLANTIC WOOD INDUSTRIES, INC.
SCHOHARIE TURNPIKE ROAD
WEST ATHENS, N.Y.

SITE LOCATION MAP

Date: 9-7-93	Proj.# 1-635-393	Fig. 1

WORK ASSIGNMENT NO. R02040

which is pumped to the treatment vessel for the treatment of the lumber. The second floor of this building is used for office space (TRC, 1993a).

The Maintenance Building is located on the northern end of the property. This building is approximately 100 feet by 60 feet, and has a concrete floor. Approximately one quarter of the building is used for forklift maintenance. The remaining portion of the building is used for general storage. Two 55-gallon drums located along the eastern wall are used to collect waste oil (TRC, 1993).The AWI property is located in a rural setting and is zoned by the Village of Athens as light manufacturing. A machine shop is located south of the property and a beverage distributor is located to the east. A wooded area lies to the north of AWI and a wetland lies to the west (TRC, 1993a).

The AWI property line is fenced with a gate along Schoharie Turnpike Road. A gravel area, centrally located to the buildings, is used for lumber storage, parking, and loading/unloading trucks. Surface water from this area flows west towards the wetland area (TRC, 1993a).

The Corrective Action Prior to Loss of Interim Status (CAPT LOIS) inspection report prepared by A.T. Kearney, Inc. in 1989 identified three SWMUs: a Hazardous Waste Storage Accumulation Pad (SWMU #1), a Waste Oil Accumulation Area (SWMU #2), and the Chromate-Copper-Arsenate (CCA) Solution Recycling Sumps (SWMU #3) (A.T. Kearney, Inc., 1989). During TRCs VSI, these SWMUs and additional AOCs were observed and are discussed in the following paragraphs as AOCs. The relative location of the AOCs and facility layout are illustrated in Figure 2, the Site Plan. Table 1, the AOC Summary, presents a summary of the AOCs.

AOC #1, the Hazardous Waste Storage Accumulation Pad, is located in the Treating Building. AOC #1 consists of a 5 foot by 5 foot grate located above the CCA solution collection sump at the southern end of the Treatment Tube. This AOC is regulated under Interim Status and has been in operation since 1978. The Hazardous Waste Storage Accumulation Pad has the capacity to store four drums (A.T. Kearney, Inc., 1989). This AOC is a HWMU.

Three to six tons of hazardous waste are generated annually. The drums contain dry particulate debris swept from the Fixation Building floor and spent filters used to remove suspended particulates from solution in the recycle line that conveys the solution back to the CCA mixing tanks (A.T. Kearney, Inc., 1989).

The hazardous waste is stored for no longer than 180 days, although the facility is a Small Quantity Generator and is permitted to store waste up to 270 days (A.T. Kearney, Inc., 1989).

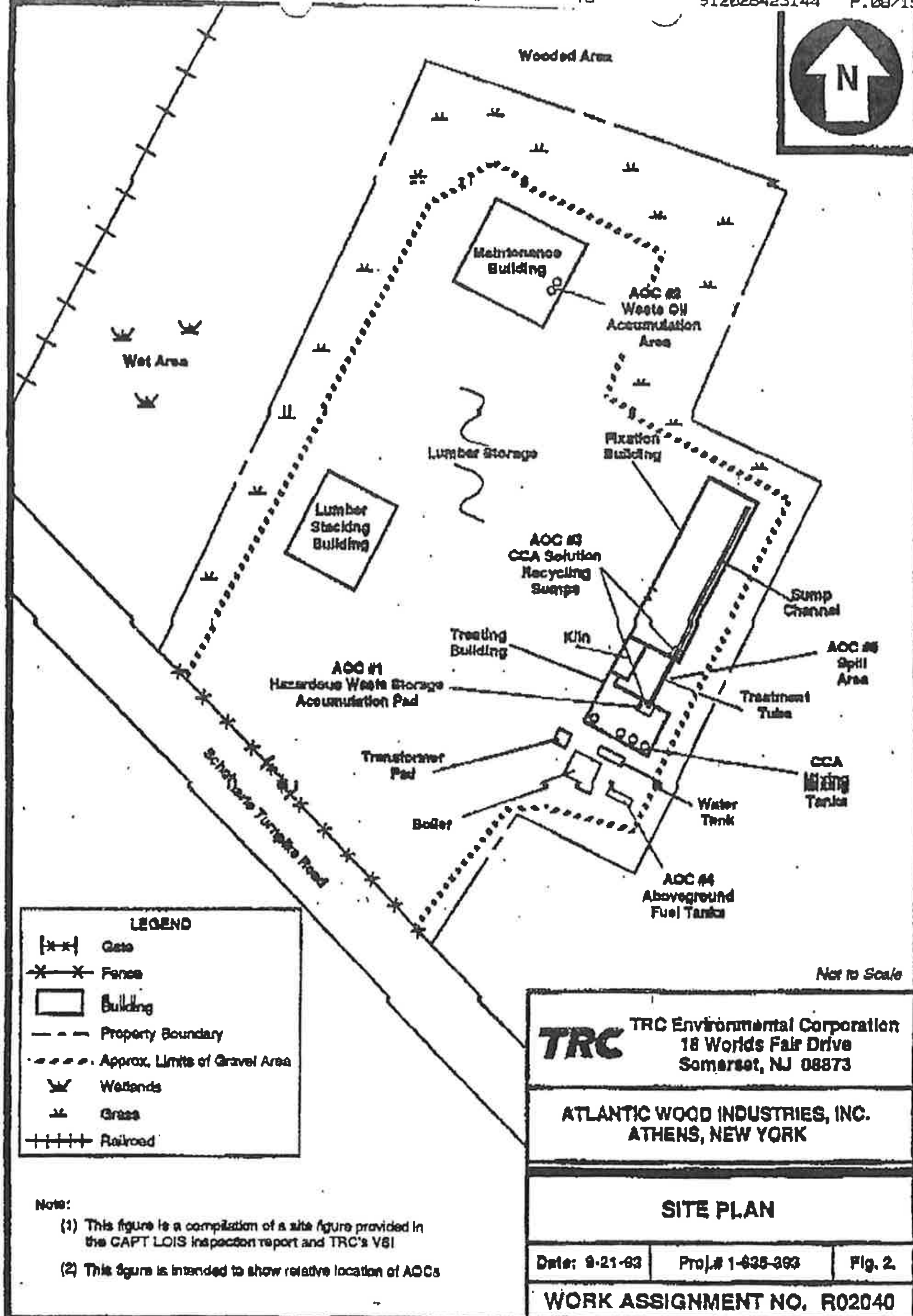

N
Wooded Area
Wet Area
Maintenance Building
AOC #2 Waste Oil Accumulation Area
Lumber Storage
Fixation Building
Lumber Stacking Building
AOC #3 CCA Solution Recycling Sumps
Sump Channel
Treating Building
Kiln
AOC #5 Spill Area
AOC #1 Hazardous Waste Storage Accumulation Pad
Treatment Tube
Transformer Pad
CCA Mixing Tanks
Boiler
Water Tank
AOC #4 Aboveground Fuel Tanks
Schoharie Turnpike Road
LEGEND
Gate
Fence
Building
Property Boundary
Approx. Limits of Gravel Area
Wetlands
Grass
Railroad
Not to Scale
TRC
TRC Environmental Corporation
18 Worlds Fair Drive
Somerset, NJ 08873
ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NEW YORK
SITE PLAN
Date: 9-21-93
Proj.# 1-635-393
Fig. 2.
WORK ASSIGNMENT NO. R02040
Note:
(1) This figure is a compilation of a site figure provided in the CAPT LOIS inspection report and TRC's VSI
(2) This figure is intended to show relative location of AOCs

TABLE 1. AOC SUMMARY

AOC	AOC Description	Activity Dates	Release Potential	References	Medium/ Compounds Detected	Off-Site Migration Potential
AOC #1 Hazardous Waste Storage Accumulation Pad (HWMU)	This 5'x5' grate is suspended over the CCA solution collection sump in the Treating Building and has a capacity for storage of 4 drums of hazardous waste.	1978 - Active	Low potential.	A.T. Kearney, Inc., 1989 TRC, 1993a	None.	Low potential.
AOC #2 Waste Oil Accumulation Area (SWMU)	Waste oil generated from forklift maintenance is stored in 55-gallon drums on the concrete floor of the Maintenance Building.	Unknown - Active	Low potential.	A.T. Kearney, Inc., 1989 TRC, 1993a	None.	Low potential.
AOC #3 CCA Solution Recycling Sumps	One sump is located at each end of the Treatment Tube to collect excess CCA from the treatment process. These sumps are connected and recycle the CCA solution.	1979 - Active	Low potential.	A.T. Kearney, Inc., 1989 TRC, 1993a	None.	Low potential.
AOC #4 Aboveground Fuel Tanks	This AOC contains 1 18,000 gallon #2 fuel oil tank with a concrete pad and 4-foot high concrete secondary containment and 3-small tanks containing kerosene, diesel fuel, and unleaded gasoline.	Unknown - Active	Low potential.	TRC, 1993a	None.	Low potential.
AOC #5 Spill Area	A spill of CCA occurred between the Fixation Building and Treatment Building; 40 yd^3 of soil was removed. NYSDEC certified closed.	1990 - 1990 Spill occurred on May 2, 1990	High potential.	TRC, 1993a	Soil/CCA solution	Low potential.

AOC #2, the Waste Oil Accumulation Area, is located along the eastern wall of the Maintenance Building. The Maintenance Building is constructed of wood and has a concrete floor. Fifty-five-gallon drums containing waste oil generated from forklift maintenance are stored in AOC #2. Approximately 2 drums are generated per year. It is not known when the AOC start-up date was, but the AOC is currently active (A.T. Kearney, Inc., 1989; TRC, 1993a). This AOC is a SWMU.

AOC #3, CCA Solution Recycling Sumps, consists of two sump compartments located on either side of the Treatment Tube. The northern end is located in the Fixation Building, and the southern end is located in the Treating Building. Both sumps are constructed of concrete and are approximately 8 feet by 8 feet and 3 feet deep. The sumps are used to collect excess CCA solution released from the treatment tube. The solution flows via gravity through a pipe from the northern end to the southern end, and is recycled back into the system. The solution is pumped to the CCA solution recycle/storage tank. This operation began in 1979 and is currently active (A. T. Kearney, Inc., 1989; TRC, 1993a).

AOC #4, Aboveground Fuel Tanks, consists of an 18,000 gallon #2 fuel oil tank, and three small (less than 1,000 gallons each) tanks that contain diesel, kerosene and unleaded gasoline. All of these tanks are adjacent to each other (TRC, 1993a).

All of the tanks are situated on concrete pads. A four foot high secondary containment wall surrounds the #2 fuel oil tank. The installation dates of these tanks are unknown. They are presently in use (TRC, 1993a).

AOC #5, Spill Area, is located between the Treating Building and the Fixation Building. A valve on the treatment tank was left open and CCA solution was released onto the ground on May 2, 1990. At the time of the spill there was no secondary containment under this portion of the treatment tube. Remediation included excavating approximately 40 cubic yards of soil. Rinse water from the soil did not reveal any residual contamination. There was no evidence in the file review of soil samples being collected. Sampling data was not available to TRC; however, a letter from the NYSDEC stating that this area is closed was provided by AWI at the time of the VSI. After the spill and remediation, a concrete pad was installed to contain any future leaks (TRC, 1993a).

3.0 FACILITY ACTIVITY/HISTORY

AWI has occupied this site since 1978 and began operations in 1979. Previously, a wood preserving operation occupied the site for one year (1977-1978) and a sawmill facility operated on the site prior to 1977 (A.T. Kearney, Inc., 1989).

AWI primarily treats architectural and dimensional wood products with a preservative solution of CCA. This treatment, known in the industry as "wolmanized," is patented by the Koppers Company, who has licensed AWI to use this treatment process (A.T. Kearney, Inc., 1989).

The treatment process is a closed loop recycling system. No wastewater is discharged from this system. Wood is placed in a 80 feet long and 6 feet in diameter "treatment tube," and then between 0.4 pounds to 2.5 pounds of CCA per square foot of wood is injected into the tube. After the wood is treated, the solution is removed from the tube via a vacuum process and put into the CCA Solution Recycle Sump (AOC #3) and then piped to the south compartment of the sump in the Treating Building. This solution is then used to dilute the CCA concentration for other batches (A.T. Kearney, Inc., 1989).

The treated wood is stacked in the Fixation Building for 72 hours, where excess CCA solution is allowed to "bleed off" onto the concrete floor. The amount of solution actually dripping onto the floor is small and is absorbed by the dust and soil particles on the concrete floor. The particles on the concrete floor are swept up 2 to 3 times per week and put in 55 gallon drums. This material fails the EP Toxicity test for both arsenic (D004) and chromium (D007). The 55-gallon drums are stored on the Hazardous Waste Accumulation Pad (AOC #1) (A.T. Kearney, Inc., 1989).

The treated wood is then transferred outside to the storage area where it is stored until it is transported off site by rail to wholesale facilities. No dripping occurs at this stage (A.T. Kearney, Inc., 1989).

The recycled CCA solution passes through a small bag filter before entering the recycle/storage tank in the southwest corner of the Treating Building. The filter removes particulate matter that may have been flushed into the recycling system during washdown or swept from the "treatment tube." The filter bags are dried and then disposed of in 55-gallon drums. The filters are not reused (A.T. Kearney, Inc., 1989).

The facility generates between 7 to 15 55-gallon drums (3 to 6 tons) of hazardous waste per year. The drums are removed off-site within 180 days, although the facility is a Small Quantity Generator and is permitted to store waste up to 270 days. Past inspections indicate 1 to 3 drums of hazardous waste are stored on site at any given time (A.T. Kearney, Inc., 1989).

On May 2, 1990 a valve on the treatment cylinder was left open and CCA solution leaked onto the ground. This occurred in the area between the Fixation Building and the Treating Building. Approximately 40 cubic yards of soil was removed. AWI officials notified the National Response Center and the NYSDEC. The rinsate from the soil was tested and this area was deemed closed by the NYSDEC. After this release a concrete spill channel was constructed to provide secondary containment for future potential leaks. The spill channel is sloped toward the CCA recycling sumps (TRC, 1993a).

The 55-gallon drums of particulate swept up off the Fixation Building Floor (considered hazardous waste) is transported off site by the Koppers Company to their main facility in Conley, Georgia and subsequently transported to the Chemical Waste Management Landfill in Emelle, Alabama for disposal (A.T. Kearney, Inc., 1989).

The storage area tanks used for mixing the CCA solution are cleaned out on an "as-needed" basis and typically produce a large amount of waste. The last cleaning occurred prior to TRC's VSI and produced six barrels of D004 waste (A.T. Kearney, Inc., 1989; TRC, 1993a).

The Maintenance Building has a Waste Oil Accumulation Area (AOC #2). The waste oil primarily is generated from forklift maintenance activities and is stored in 55-gallon drums. The drums are transported off site for recycling (A.T. Kearney, Inc., 1989).

4.0 ENVIRONMENTAL SETTING

Surface water runoff from the AWI property flows over land toward the west to the wetland area. The nearest surface water body is Murderer's Creek located approximately two miles northeast of the AWI property (TRC, 1993a).

AWI only discharges sanitary waste to the municipal sewer. Information regarding the introduction of a sewer line from the AWI property to the municipal sewer was not available. The lumber treatment process is a closed-loop system. All hazardous wastes generated by the facility are containerized, not discharged to the sewer, and shipped off site by a licensed hauler (TRC, 1993a,b).

There are no known private drinking water wells in the vicinity of the AWI. Potable water distribution is supplied by the Village of Athens whose source is Hollister Lake (TRC, 1993b).

The topography within one mile of the AWI property is flat. Bordering the property to the west is an area with flora suggestive of a wetland (i.e. cattails, etc.) although this has not been confirmed with a National Wetland Inventory map (TRC, 1993a).

5.0 PRELIMINARY EVALUATION

Preliminary information for this interim evaluation is provided in Table 1. The data provided include the following: AOC description, start-up date/closure dates, release potential references, medium/compounds detected and off-site migration potential.

AOC #1, the Hazardous Waste Storage Accumulation Pad, is active and evidence of any historical waste releases were not found. The waste stored is this area is in a solid form.

AOC #2, the Waste Oil Accumulation Area located in the Maintenance Building, is a non-regulated unit. Approximately two drums of waste oil per year is sent off site for recycling.

AOC #3, the CCA Solution Recycling Sumps, is currently active. This area has not had any documentation of a historical release. This AOC is concrete lined and appeared in good condition during TRC's VSI.

AOC #4, the Aboveground Fuel Tanks, was observed during TRC's VSI. One aboveground tank has secondary containment. All the tanks were located on concrete pads. They all appeared to be in good condition and the potential for release is low.

AOC #5, the Spill Area, has been remediated and considered closed by NYSDEC. However, no data supporting a clean closure was found in the available files.

In addition, some data gaps were noted during the preliminary file review. Specifically, the following information is necessary for further evaluation of the facility.

- Detailed analytical results from the May 1990 release.

- Water supply within the vicinity of the AWI property.

- A site plan showing subsurface features such as storm water/sanitary sewer lines and underground utilities.

6.0 SUMMARY

AWI is located on Schoharie Turnpike Road in the Village of Athens, New York. AWI has treated dimensional and architectural lumber with a CCA solution since 1978. Five areas of concern were noted during TRC's VSI.

AOC #1, the Hazardous Waste Storage Accumulation Pad, is located in the Treating Building and is a 5 foot by 5 foot grate suspended over the CCA collection sump. The start-up date of this area was 1978 and it is still active. There is a low potential for a release from this AOC.

AOC #2, the Waste Oil Accumulation Area, is located in the Maintenance Building where waste oil is accumulated in 55-gallon drums until it is sent off site for recycling. The start-up date of this area is unknown and it is currently active. There is a low potential for release in this area.

AOC #3, the CCA Solution Recycling Sumps, is located in both the Fixation Building and the Treating Building. These sumps are approximately 8 feet by 8 feet by 3 feet deep and are concrete lined. The start-up date of the sumps is 1978 and they are currently active. There is a low potential for release.

AOC #4, the Aboveground Fuel Tanks, is located south of the Treating Building. The tanks consists of an 18,000-gallon #2 fuel oil tank and three smaller tanks containing diesel, kerosene, and unleaded gasoline. All tanks are on a concrete pad and the #2 fuel oil tank is surrounded by a four foot high concrete wall to provide secondary containment.

AOC #5, the Spill Area, occurred between the Fixation Building and the Treating Building. A valve was left open on May 2, 1990 and CCA solution was released onto the ground. Approximately 40 cubic yards of soil was removed. The NYSDEC certified this area closed.

REFERENCES

A.T. Kearney, Inc., 1989, Corrective Action Prior to Loss of Interim Status (CAPT LOIS) Report dated March 31, 1989.

TRC, 1993a, Logbook of Visual Site Inspection, David Brouillet, Civil Engineer, TRC Environmental Corporation, October 25, 1993.

TRC, 1993b. Telecon between TRC and Village of Athens Clerk. November 4, 1993.

APPENDIX A

RCRA FACILITY ASSESSMENT (RFA) REVIEW CHECKLIST

RFA COMPONENT 1: PRELIMINARY REVIEW (PR)

A. General Manufacturing process description: ✓ P ___ NP ✓ A ___ NA

Comments:

B. General Facility waste generation description: ✓ P ___ NP ✓ A ___ NA

Comments:

C. Environmental/hydrogeologic setting description: ___ P ✓ NP ___ A ✓ NA

Comments:

D. SWMU identification list: ✓ P ___ NP ✓ A ___ NA

Comments:

E. Was the SWMU subset of RCRA regulated units denoted? ✓ Y ___ N ✓ A ___ NA

Comments:

F. Were other AOC's (e.g. spills, leaks) listed? ___ Y ✓ N ✓ A ___ NA

Comments:

G. Were potential off-site exposure pathways identified? (e.g. drinking water wells, irrigated farmland, swamps) ___ Y ✓ N ___ A ✓ NA

Comments: THE SURROUNDING AREAS NEED TO BE EVALUATED TO IDENTIFY possible off site exposure pathways.

d. Surface water: ___CR ___SR ✓PoR ___NR

i. Is documentation provided? ___Y ✓N

ii. Does the documentation provide acceptable support for the determination (CR, SR, PoR, NR)? ___Y ___N

Comments: This Potential for Release to Surface Water Cannot Be Evaluated due to lack of Environmental Setting Information.

e. Subsurface gas: ___CR ___SR ___PoR ___NR

i. Is documentation provided? ___Y ___N

ii. Does the documentation provide acceptable support for the determination (CR, SR, PoR, NR)? ___Y ___N

Comments: ______________________________

5. Conclusions/Recommendations:

a. ___ No conclusion or recommendation provided.

✓ Recommend no further action.

___ Recommend a sampling visit.

i. Was sampling performed as part of this RFA? __Y __N

ii. Will the sampling be conducted in a RFI? __Y __N

___ Recommend interim measures.

___ Recommend a RFI.

Comments: ______________________________

b. Is the recommendation acceptable? ✓Y ___N

Comments: While the potential for a release exists there have not been any observations documented indicating that a release has ~~occur~~ occurred

J. Does the RFA summary report integrate the findings of the PR, VSI, and SV? X Y ___

Comments:

K. Any additional / miscellaneous comments on the RFA:

A SPILL OCCURRED (AOC #5) NEAR THE TREATMENT TUBE WHICH HAD NOT BEEN IDENTIFIED IN THE ORIGINAL FILE REVIEW.

C. List AOCs identified in the RFA:

# 1	HAZARDOUS WASTE STORAGE ACCUMULATION PAD	# 4	ABOVEGROUND FUEL TANKS
# 2	WASTE OIL ACCUMULATION AREA	# 5	SPILL AREA
# 3	CCA SOLUTION RECYCLING SUMPS	#	

D. List AOCs known by reviewer but not included in the RFA:

NONE

E. List SWMUs / AOCs which must be reevaluated due to inaccuracies in the PR, VSI, or SV:

6. Were the results of the VSI integrated with the PR to provide consistency, to complete any data gaps, and to provide the best recommendations? ✓Y __N

Comments: ______________________________

D. Other comments on the VSI: two additional AOC were noted during the VSI. A spill occured in May of 1990 - Approximately 40 cubic yards of soil was excavated. the NYSDEC certified this area closed. Currently there is a concrete pad on this area.

5. SWMU # ___ or AOC # Z Waste Oil Accumulation Area

a. Documentation of field observations in logbook: ~~P~~ __NP __A __NA

i. Visual evidence of unit characteristics (integrity, location): _✓P __NP __A __NA

Comments: One 55-gallon drum is used to store waste oil from forklift maintenance.

ii. Visual evidence of waste characteristics (e.g. labels): ___P ___NP _x_ Not applicable

Comments: This is not a RCRA regulated waste, when enough waste oil is collected, it is sent offsite for recycling.

iii. Visual evidence of pollutant migration pathways (e.g. erosion, run-off): _x_P __NP

Comments: There did not appear to be any evidence of a release based on TRC's VSI

iv. Visual evidence of release (e.g. discolored soils, dead vegetation): __P __NP _x_Not applicable

Comments:

v. Visual evidence of exposure potential (e.g. swamp, drinking water wells): __P __NP _x_Not applicable

Comments:

b. Documentation of SWMU / AOC characteristics and potential migration pathways by photography? __Y _x_N

Comments:

RFA Component 2: Visual Site Inspection (VSI)

A. General description of VSI activities: x P __NP __A __NA

Comments: ______

B. Site safety plan including the monioring of vapor emissions (respirators, chemically resistant clothing, etc.): x P __NP __A __NA

Comments: ______

C. Facility inspection:

1. Was each SWMU noted in the PR examined? X Y __N

Comments: All SWMUs identified in A CAPT LOIS Report were examined. Additionally there were two AOC's identified by TRC's VSI.

2. Was each AOC noted in the PR examined? X Y __N

Comments: The CAPT Lois Report identified SWMUs; however TRC identified two additional AOC's.

3. Was the entire facility traversed in order to identify additional AOCs identify additinal SWMUs, complete data gaps from the PR, etc.? X Y __N __A __NA

Comments: ______

a. Were additional SWMUs and/or AOCs noted ? ✓ Y __N

Comments: Two additional AOCs were noted, namely a spill area and Above ground fuel tanks.

4. Did the VSI include an inspection beyond the facility boundary? ✓ Y __N

Comments: ______

d. Surface water: ___CR ___SR ✓PoR ___NR

i. Is documentation provided? ___Y ✓N

ii. Does the documentation provide acceptable support for the determination (CR, SR, PoR, NR)? ___Y ___N

Comments: THE POTENTIAL FOR A RELEASE TO SURFACE WATER CANNOT BE EVALUATED DUE TO LACK OF "ENVIRONMENTAL SETTING" INFORMATION.

e. Subsurface gas: ___CR ___SR ___PoR ___NR

i. Is documentation provided? ___Y ___N

ii. Does the documentation provide acceptable support for the determination (CR, SR, PoR, NR)? ___Y ___N

Comments:

5. Conclusions/Recommendations:

a. ✓ No conclusion or recommendation provided.

___ Recommend no further action.

___ Recommend a sampling visit.

i. Was sampling performed as part of this RFA? __Y __N

ii. Will the sampling be conducted in a RFI? __Y __N

___ Recommend interim measures.

___ Recommend a RFI.

Comments: IT WAS RECOMMENDED THAT THE SUMP BE INSPECTED FOR INTEGRITY AND IF CRACKS/DETERIORATION ARE OBSERVED SOIL SAMPLING SHOULD BE CONDUCTED FOR ARSENIC AND CHROMIUM.

b. Is the recommendation acceptable? ✓Y ___N

Comments:

d. Surface water: ___CR ___SR ✓ PoR ___NR

i. Is documentation provided? ___Y ✓ N

ii. Does the documentation provide acceptable support for the determination (CR, SR, PoR, NR)? ___Y ___N

Comments: The Potential for a Release to SURFACE WATER CANNOT BE EVALUATED DUE to LACK of "ENVIRONMENTAL SETTING" INFORMATION.

e. Subsurface gas: ___CR ___SR ___PoR ___NR

i. Is documentation provided? ___Y ___N

ii. Does the documentation provide acceptable support for the determination (CR, SR, PoR, NR)? ___Y ___N

Comments:

5. Conclusions/Recommendations:

a. ___ No conclusion or recommendation provided.

✓ Recommend no further action.

___ Recommend a sampling visit.

i. Was sampling performed as part of this RFA? __Y __N

ii. Will the sampling be conducted in a RFI? __Y __N

___ Recommend interim measures.

___ Recommend a RFI.

Comments:

b. Is the recommendation acceptable? ✓ Y ___N

Comments: While the potential for a release exists there have been no observations documented INDICATING THAT A RELEASE HAS OCCURRED.

APPENDIX B

CLOSURE DOCUMENT

Atlantic wood industries
INCORPORATED
PRESSURE TREATED FOREST PRODUCTS P.O. BOX 1608, SAVANNAH, GEORGIA 31498
PHONE (912) 964-1234

August 6, 1985

Mr. John L. Middelkoop, P.E.
NYS Dept. of Environmental
Conservation
Bureau of Hazardous Waste
Technology
Permits Section
50 Wolf Road, Room 401
Albany, NY 12233-0001

Dear Mr. Middelkoop:

Re: Reclassification of NYD095240610

This is in regard to the reclassification of our plant from a storage facility to that of generator only.

Attached is the closure certificate from Mr. Hugh J. Quigley, P.E.

If you require any further information, please let me know.

Yours truly,

ATLANTIC WOOD INDUSTRIES, INC.

C. N. Kerr

C. N. Kerr
Chief Engineer

CNK:shw

Attachment

xc: A. G. Labrot
B. Haldeman

RECEIVED

AUG 14 1985

HAZARDOUS WASTE TECHNOLOGY
DIVISION OF SOLID AND
HAZARDOUS WASTE

APPENDIX G

MODIFIED PHASE I ENVIRONMENTAL SITE ASSESSMENT AND COMPLIANCE AUDIT

MODIFIED PHASE I
ENVIRONMENTAL SITE ASSESSMENT
AND COMPLIANCE AUDIT
ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NEW YORK

GROUNDWATER TECHNOLOGY ®

GROUNDWATER TECHNOLOGY ®

Groundwater Technology, Inc.
600 Clubhouse Drive, Floor 2, Moon Township, PA 15108 USA
Tel: (412) 299-0933 Fax: (412) 299-0461

MODIFIED PHASE I ENVIRONMENTAL SITE ASSESSMENT AND COMPLIANCE AUDIT ATLANTIC WOOD INDUSTRIES, INC. ATHENS, NEW YORK

GTI Project 040030484-01

December 1995

Prepared for:
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Compliance Audit

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1.0 INTRODUCTION

Groundwater Technology, Inc.(GTI) was requested by Gilberg & Kurent, Attorneys for Atlantic Wood Industries, Inc. (AWII) to perform a Modified Phase I Environmental Site Assessment and Compliance Audit of AWII's facility located in Athens, New York for a prospective buyer, Northeast Treaters, Inc.

1.1 Purpose

The purpose was to identify, to the extent feasible, recognized environmental conditions in connection with the property pursuant to the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

As defined by ASTM, recognized environmental conditions are the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into ground, groundwater, or surface water of the property. The term is not intended to include *de minimus* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

The ASTM standard requires a 50-year title review or other documentation indicating the prior use of the property. Because the history of the site is documented elsewhere, this task was not performed. Also, soil sampling is not required under the ASTM standard, but was performed to evaluate site soil quality.

1.2 Special Terms and Conditions

This project has been performed in accordance with GTI's General Terms and Conditions, on behalf of Gilbert & Kurent for AWII.

1.3 Limitations and Exceptions

Findings presented are based upon: (1) visual review of accessible areas of the property and surrounding grounds, (2) interviews with available personnel familiar with the subject property, and (3) review of available public information and plant files.

1.4 Limiting Conditions and Methodology Used

The information gathered and the findings included herein are based upon the following activities:

- Information obtained from the review of records at the AWII corporate headquarters on August 10, 1994.
- Interviews with personnel familiar with the site on August 10, 1994 and October 9 and 10, 1995.
- A review of available maps, photos, and public records.
- A review of environmental records at the site on October 10, 1995.
- A site walk-over and soil sampling by David King of GTI on October 9 and 10, 1995.
- Geoprobe soil sampling on October 30, 1995.
- Additional sampling activities on November 16, 1995. Representatives during the sampling activities were AWII, GTI, Northeast Treaters, Inc. and GZA GeoEnvironmental, Inc. (GZA), Northeast Treaters, Inc.'s environmental consultant.
- A review of state and federal databases.

2.0 SITE DESCRIPTION

2.1 Location

The Athens plant is situated on approximately 13 acres of land in Greene County, New York. Approximately eight acres are currently being utilized by the wood treating operation. The other five acres are undeveloped. A site topographic map (Figure 1) shows the location of various buildings and process areas.

2.2 Site Vicinity and Characteristics

The facility, which is located in a mostly rural area, is bounded by agriculture land to the north; a distributor/maintenance garage and wooded land to the east; County Route 28 to the south; and Central Hudson Electric and Gas Company property to the west.

2.3 Site Geological Characteristics

The predominant soils in the vicinity consist of dark brown to dark gray clay and silty clay. According to historical data the clay exists consistently to the bedrock surface. The bedrock in the vicinity of the site is shale and is estimated to exist at depths ranging from 60 feet to 100 feet.

2.4 Surface Water

The nearest surface water is Murderers Creek, which is located approximately 1.6 miles north of the site.

Surface runoff from the facility is towards the west through an underground storm culvert and a ditch that passes the east side of the maintenance building and then east through the undeveloped land on the north portion of the property. Both of these stormwater outfalls run through a New York designated wetlands area which appears to be located approximately 100 feet from the property and then under the Conrail tracks which border the west side of the property. Stormwater then flows north to Murderers Creek.

2.5 Wetlands Area

There is a NYSDEC-designated wetland which appears to be located approximately 100 feet from the west side of the property. There also are two small areas (approximately 0.2 acres) on the facility that are wet and are vegetated with tall grasses (*Fragmites sp.*) and cattails. One area is located where the stormwater culvert discharges on the west side of the property. The other area is located near the plant well. NYSDEC has the discretion to require Wetlands Mitigation Permits for activities that impact wetlands smaller than 12.4 acres. For larger areas, permits are required for any activity such as draining, dredging, excavating, filling; erecting any structure, road, or other obstruction within 100 feet of a wetland border.

2.6 Structures, Roads and Other Improvements

There is a compacted gravel driveway that provides access to the property from County Route 28. The driveway spreads out shortly after the facility entrance and leads to the untreated and treated wood storage yards that surround the various buildings. Structures include a large metal building, which contains the office; process tanks; treating cylinder; dry kiln and drip pad; a concrete block boiler building; a metal building housing dry wood storage, the maintenance shop and plant vehicles; a metal building where the wood stacking machine is located; a metal roofed shed covering the 18,000 gallon diesel fuel tank; and other small fuel tanks The areas surrounding the structures are mostly compacted gravel and stone approximately 6 to 30 inches thick. Photo documentation is provided in Appendix B.

Electrical service is provided by Central Hudson Gas & Electric Corporation, public water is supplied by the village of Athens; and sewage is provided by an on-site septic system. There is one on-site well which is used for process water.

2.7 Current Use Information

The facility was built in the mid-1970s by Koppers Company, Inc. (Koppers) for Cross, Austin, and Ireland Lumber Company to produce chromated copper arsenate (CCA) cross ties for the New York subways. In 1978, the plant was purchased by AWII.

The plant operates as a dimensional lumber CCA treating facility. Most lumber enters the facility by railcar, and after processing, is shipped to commercial buyers by truck.

The process area consists of one steam kiln, one fuel oil-fired boiler for steam, one 18,000-gallon No. 2 fuel oil tank, three 18,000-gallon CCA work tanks, one 2,500-gallon water tank, one 4,500-gallon CCA concentrate pad, and one 6 ft. diameter x 80 ft. long treatment cylinder with an associated concrete drip pad. Also, located at the plant are one 275-gallon No. 2 heating oil tank; one 550-gallon diesel tank, one 300-gallon gasoline tank, and one 300-gallon kerosene tank.

In a typical operation, dimensional lumber is dried in the on-site steam kiln until the desired moisture content is obtained, or kiln dry lumber is purchased. The lumber is then placed on trams, pressure treated in the cylinder, removed to the covered drip pad until dripping ceases (minimum of 72 hours), and stored in a designated storage area until shipment. The drip pad, process tanks and cylinder are located inside a heated building to prevent precipitation from entering these areas. Drippage from opening the cylinder door and from treated wood onto the drip pad is routed to the door sump and then returned to the process. Process water (primarily seal water from the vacuum pump) is collected in the large concrete sump area at the back of the cylinder and returned to the process.

Chemicals are stored in drum storage areas (maintenance building or boiler building). CCA concentrate and treating solutions are stored in aboveground tanks inside the large metal building. The regular work force consists of 12 employees, four salaried and eight hourly.

3.0 RECORDS REVIEW

Pertinent, available environmental database information was obtained from Environmental Data Resources (EDR). The data was reviewed for occurrences on or near the site that may have had adverse environmental impacts on the property. Information contained in the report is summarized below. A copy of the complete EDR report is included as Appendix C.

The AWII facility was identified on five databases. There are two entries for the Athens AWII plant on the aboveground storage tank (AST) database. There is no information provided to indicate that there have been environmental concerns associated with the ASTs.

The site is also listed on the Resource Conservation and Recovery Information System (RCRIS) - Large Quantity Generator (LQG) database; the Facility Index System (FINDS) database; the Toxic Chemical Release Inventory System (TRIS) database; and the Corrective Action Report (CORRACTS) database. The RCRIS LQG entry indicates only that the facility is a large quantity generator of hazardous waste. The FINDS database contains facility information as well as "pointers" to other sources that contain more detail. This entry appears to be because of the listing of the site on other databases. The TRIS database identifies facilities which report under SARA Title III, Section 313 (Form R). AWII submits Form R reports annually. The CORRACTS database identifies hazardous waste handlers with Resource Conservation and Recovery Act (RCRA) corrective action activity. The entry indicates that a RCRA Facility Assessment (RFA) has been completed. AWII has not been contacted subsequent to the completion of the RFA. Check this out!

The AWII facility was not identified on any of the following environmental databases for the search radius indicated:

NPL:	National Priority List (1-mile radius)
Delisted NPL	Former NPL Sites (Target property)
NPL Liens	Superfund Liens (Target property)
RCRIS-TSD	RCRIS Treatment, Storage and Disposal Facilities (1-mile radius)
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability (Superfund) Information System (0.5-mile radius)
CERC-NFRAP	Superfund No Further Remediation Actin Required (Target property)
NY Hazardous Waste	Inactive Hazardous Waste Disposal Sites in New York (1-mile radius)
State LF	Solid Waste Disposal Facilities and Landfills (0.5-mile radius)
LUST	Leaking Underground Storage Tanks (0.5-mile radius)
UST	Registered Underground Storage Tanks (0.25-mile radius)
RAATS	RCRA Administrative Action Tracking System (Target property)
RCRIS - SQG	RCRIS Small Quantity Generators (0.25-mile radius)
HMIRS	Hazardous Materials Information Reporting System (Target property)
PADS	PCB Activity Database System (Target property)
ERNS	Emergency Response Notification System (Target property)
TSCA	Toxic Substances Control Act (Target property)
MLTS	Material Licensing Tracking System (Target property)
NY Spills	Hazardous Materials Spills in New York (Target property)
RODS:	Records of Decision (Target property)
CONSENT	CERCLA Consent Decrees (Target property)

Due to inadequate address information, the location of some facilities cannot be determined. If such facilities may be within a search radius, it is listed in the EDR report Executive Summary as sites not mapped and within the report on the Orphan Summary. A total of 41 sites are listed. None of the listed sites is located within a designated search radius for the database listed. There is no indication that any of these sites has had an adverse environmental impact on the AWII facility.

The EDR report also contains a topographic map showing the contours of the property and surrounding area. Identified on the map are the nearest public drinking water well and nearby federal and state groundwater wells.

Page 3 of the report provides additional geological information, groundwater flow information, well location and depth information, and area radon information. Pages A1 through A6 provide additional public drinking water well and federal and state groundwater well information.

An August 19, 1994, VISTA Environmental Information, Inc., Facility Risk Profile report was reviewed. The report contains site specific information from the search of 18 federal and 14 state environmental databases. In addition to general information contained in the EDR report, the VISTA report provides the following information:

- A total of eight aboveground storage tanks have been registered. Four are process-related tanks and the other four contain kerosene, unleaded gas, diesel fuel, and fuel oil.

- AWII is identified as a transporter of hazardous waste. According to AWII, this information is incorrect. AWII has never transported hazardous waste.

- On May 2, 1990, the facility reported a spill of approximately three pounds of arsenic pentoxide to the soil. This spill cleanup was conducted under the oversight of NYSDEC. A letter from NYSDEC, dated August 21, 1990, stated that AWII had completed the cleanup. A copy of this letter and related correspondence is included in Appendix D.

- The facility is in compliance with RCRA, has had no violations, and has had no EPA or state enforcement activities.

The spill incident is discussed in Section 4.10 of this report. A copy of the VISTA report is in Appendix C.

The review of database information did not reveal any indication of significant adverse environmental impacts to the property.

4.0 INFORMATION FROM SITE RECONNAISSANCE AND INTERVIEWS

4.1 Hazardous Substances in Connection with Identified Uses

Hazardous substances used at the facility include CCA solutions, #2 fuel oil, gasoline, kerosene, propane, lubricating oils, hydraulic fluids, antifreeze, boiler chemicals, and other chemicals. A complete list is included in Appendix E.

4.2 Hazardous Substance Containers

There are three drum storage areas at the facility. Drums of lubricating oils, hydraulic fluids, antifreeze and waste motor oil are stored in the maintenance building. Boiler chemicals are stored in the boiler house and hazardous waste is stored in the process storage tank building. Drums observed in these areas were found to be labeled, except for four waste oil drums, and not leaking. No hazardous waste drums were on-site during the walk-over on October 9 and 10, 1995.

4.3 Storage Tanks

4.3.1 Aboveground Storage Tanks (ASTs)

All ASTs have some type of secondary containment. The cylinder and four CCA process tanks are located in the large metal building. It appears that any spillage in this area would be contained in the building and flow on the concrete floor to the large sump behind the cylinder. The large #2 fuel oil tank is contained by a concrete dike and floor. The small diesel, gasoline and kerosene tanks, located adjacent to the large No. 2 fuel oil tank, are all contained by individual steel boxes. The small No. 2 heating oil tank, also contained by a steel box, is located in the boiler building. The water tank did not have secondary containment but only stores well water. This is an 18,000-gallon horizontal tank. All tanks were painted and appeared sound.

There was some minor visual staining on the concrete floor near the process tank area and near the southern wall of the building. During the November 16 sampling activities, the southern outside wall of the building housing the CCA process tanks was visually inspected by GTI and GZA. No visual staining was noted on the outside wall and, therefore, at the direction of GZA no soil sampling was performed in this area.

Tanks present at the facility include:

Tank	Contents	Approx. Capacity (Gallons)
3 Work Tanks	CCA solution	18,000/each
1 Concentrate Tank	CCA solution	4,500
1 Make-up Water Tank	makeup water	2,500
1 Fuel Oil Tank	No. 2 fuel oil	18,000
1 Heating Oil Tank	No. 2 heating oil	275
1 Gasoline Tank	unleaded gasoline	300
1 Kerosene Tank	kerosene	300
1 Diesel Tank	diesel fuel	550
1 Water Tank	water	18,000

Tank capacities were provided by AWII.

The small diesel, gasoline and kerosene tanks referenced above were previously located approximately 100 feet southwest of their current location. One soil sample was collected in this previous location. See Section 4.7 for further discussion.

4.3.2 Underground Storage Tanks (USTs)

Currently, there are no USTs being used on-site. Historically, one UST was used to store CCA process water until 1982 or 1983. In 1985, this tank was emptied and cleaned, filled with sand, and remains on-site. According to AWII, this tank was in good condition and did not show evidence of leaks at closure. The approximate location of this UST is shown on Figure 1. There are no UST installations planned and there have reportedly been no environmental issues or concerns associated with the sand-filled UST. This information was obtained from interviews with AWII personnel.

One soil sample was taken near the closed-in-place UST. See Section 4.7 for further discussion.

4.4 Indications of PCBs

There are two on-site transformers owned by Central Hudson Gas and Electric Corporation (Hudson). A letter from Hudson dated October 19, 1989, stated that the transformers did not contain PCBs. No signs of leakage from the transformers were noted during the walk-over. According to AWII, there is no PCB-containing equipment on-site. The transformer locations are shown on Figure 1.

4.5 Indications of Solid Waste Disposal

4.5.1 Hazardous Waste

Hazardous wastes generated include F035, D004, and D007. F035 is defined as "Wastewater (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium..." D004 and D007 are hazardous wastes exhibiting the toxicity characteristic for the heavy metals of arsenic and chromium, respectively.

The CCA process generates approximately one to two drums of hazardous waste per month. These drums are stored in the process tank building until they can be shipped to an approved off-site disposal facility. The waste is shipped within the accumulation times specified in 40 CFR 262.34; therefore, the facility is not classified as a treatment, storage, or disposal facility. No hazardous waste drums were on-site during the site walk-over on October 9 and 10, 1995.

4.5.2 Waste Motor Oil

Waste oil is generated by normal maintenance of equipment and is stored in 55-gallon drums. The current waste oil contractor, Maincare, located in Albany, New York, collects the waste oil for recycling. During the site walk-over, four drums of waste oil were stored in the maintenance building. These drums were not labeled. AWII has indicated that since the site visit in October, these drums have been labeled and picked up by the waste oil contractor.

4.5.3 Sewage

Nonhazardous rinse water, sink drains, and sanitary wastewater discharge to the on-site septic tank.

4.5.4 Wood Sawdust

A small pile of untreated wood sawdust located just north east of the maintenance building was noted during the site walk-over.

4.5.5 Scrap Metal, Steel Banding and Wood

Two piles of scrap steel banding and wood were observed in an undeveloped portion of the facility property, west of the maintenance building. Also in this area were a pile of duct pipe, large control panels, scrap metal and wood. The scrap piles were removed during the week of November 6, 1995, and transported off-site to a local landfill or scrap metal recycler. See Figure 1 for approximate location of former scrap piles.

Four soil samples were taken in the area discussed above and the analytical results are presented in Section 4.7.

4.5.6 Unused Treating Cylinder

A treating cylinder which had been moved to the facility from another location was located on the east side of the office and CCA process building at the time of GTI's initial site visit. According to AWII, this cylinder had never been a part of the CCA process. It was originally brought to the site with the intent to use it as a second treating cylinder, but was never installed. Since the site visit on October 10, 1995, AWII has cut up the cylinder and sold it to a scrap metal recycler. A small section of the back end of the cylinder was saved and shipped to AWII's Hainesport, New Jersey facility.

4.5.7 Boiler Stack

Visually stained soil was observed at the base of the boiler stack during the October 10 site walk-over. The staining appeared to be caused by soot washing out of a drain at the base of the stack, intended to prevent the buildup of condensation/precipitation in the stack elbow. On November 16, 1995, one sample was collected from the stained soil for analysis. See Section 4.7 for further discussion.

4.6 Cylinder Charging and Drip Pad Area

There is one CCA treating cylinder (6 feet in diameter and 80 feet in length) located inside the large metal building. The concrete floor under the cylinder drains to a large concrete sump area located at the rear of the cylinder. The drip pad is believed to have been constructed in 1976 and it was expanded in 1981 and again in 1984. The drip pad in front of the cylinder is 52 feet by 197 feet and is 40 feet by 38.5 feet on the west side of the cylinder. All joints and non-bridgeable cracks in the concrete have been cleaned and sealed. The concrete drip pad is coated with an epoxy-based, penetrating sealer. Both the joint sealer and the penetrating sealer have been demonstrated compatible with CCA treating solutions. The drip pad is located inside the large heated metal building. A professional engineer's report (Appendix F) dated November 21, 1995, certifies that the drip pad meets the design requirements of 40 CFR 265.443(a) through (f). The drip pad was clean and did not have an accumulation of drippage during the site walk-over.

On November 16, 1995, a section of the concrete pad was removed where representative cracks were observed in the pad, to allow inspection of the slab and sampling of the underlying soils. The results are discussed in Section 4.7.

4.7 Soil Sampling

The purpose of the soil sampling program was to identify the presence (if any) of chemical constituents associated with facility operations and evaluate soil and groundwater quality at the facility.

4.7.1 Surface Soil Sampling

The surface soil sampling occurred on October 10, 1995. A total of ten surface soil samples (SS-1 through SS-10) and two background surface soil samples (BSS-1 and BSS-2) were collected. All of the surface soil samples were collected below the compacted gravel fill material (the first six inches of soil encountered) in the treated and untreated wood storage yard. The gravel fill material ranges in thickness from approximately 6 inches to 30 inches. See boring logs presented in Appendix G for examples of the compacted gravel fill zone encountered at the site.

A backhoe was used to scrape away the gravel fill to allow for sampling of the native surficial soils. Three soil samples (SS-1, SS-2, and SS-3) were collected with a stainless steel hand auger. The hand auger was decontaminated between each sampling location. The remaining seven soil samples (SS-4 through SS-10) were collected with trowels. A new laboratory-cleaned trowel was used at each location to collect the soil sample. The soil samples were analyzed for arsenic, total chromium, and copper analyses (both total and TCLP). An equipment blank was collected from the stainless steel hand auger. Sampling locations and sample collection intervals are shown on Figure 1.

Additional soil samples were collected from backhoe pits or surface soils at the facility on November 16, 1995. Sampling locations were selected and sampling was overseen by Mr. Lee Rhea of GZA. One test pit sample (SS-11) was collected from the top of the clay in the area where the fuel ASTs were originally located and one surface soil sample (SS-25) from an area where soot was apparently washed by precipitation from the boiler stack; both of these samples were submitted for total petroleum hydrocarbons (TPH) analysis.

The remaining November 16, 1995 samples were submitted for arsenic/total chromium/copper analyses (both total and TCLP). Test pit samples were collected from the top of the clay in two locations immediately west of the fixation building (SS-23 and SS-24), and from the clay unit at a depth of approximately 9.5 to 10 feet adjacent to the closed-in-place UST (SS-15). Composite samples were collected from the upper clay to the ground surface in two areas of the storage yard (SS-16 and SS-17, immediately adjacent to SS-2 and SS-7, respectively) and from four locations in the former scrap steel banding piles area (SS-18, SS-19, SS-20 and SS-21). One additional composite sample (SS-22) was collected immediately adjacent to the northeast corner of the maintenance shop; this sample was not submitted for analysis at the direction of GZA. Sample collection intervals for the November 16, 1995 sampling event are also shown on Figure 1.

4.7.2 Geoprobe Soil Sampling

The Geoprobe sampling occurred on October 30, 1995. The original objective was to install 6 to 8 piezometers at various locations across the plant and collect groundwater samples from each location. Soil samples were collected with the Geoprobe prior to installation of a piezometer to classify the underlying soils. During the sampling of P-2 and P-5 it was determined that a dense, olive-brown silty clay existed below the gravel fill to a depth of 13 feet and 16 feet, respectively. Below the olive-brown silty clay a dark blue-gray silty clay was consistently present to the termination depth of 30-feet (P-2) and 24-feet (P-5). A soil sample was also collected from 20 to 22 feet at P-1 to verify the existence of the dark blue silty clay. The blue gray silty clay at each of the three locations was soft and moist, but did not produce any appreciable amount of water. See Appendix G for borings logs of P-1, P-2 and P-5.

Two one-inch piezometers were installed at the P-2 and P-5 locations to verify the lack of groundwater present in the blue gray clay. The piezometers were installed to an approximate depth of 18 feet below ground surface. Due to the soft nature of the clay, it was not feasible to install the piezometers any deeper without the use of hollow-stem augers. The piezometers were allowed to stand overnight. The piezometers were checked in the morning of October 31, 1995. Some water had accumulated in the piezometers overnight, but the total volume recovered amounted to less than 160 mL when purged. This volume was insufficient to analyze for the parameters of interest. Moreover, standard operating procedures for groundwater monitoring generally requires purging and disposal of a minimum of three to five well volumes prior to collection of groundwater for laboratory analysis. Additional attempts were made to recover water from P-2, but after the initial purge, groundwater did not recover in the piezometer.

Due to the absence of appreciable groundwater present in the clay, the initial plan to install a network of piezometers was abandoned. The focus of the investigation returned to the surficial soils. Two soil samples were collected from 3 to 5 feet at P-1 and P-2, to further characterize the subsurface soils near the process area. The soil samples were collected with the Geoprobe, using new acetate sleeves inside of the Geoprobe sampling apparatus. The soil samples were analyzed for the same parameters as the surface soil samples collected on October 10th. An equipment blank (EB-1) was collected from a new acetate sleeve. Sampling locations and sample collection intervals are shown on Figure 1.

Conversation with Local Well Driller

On October 31, 1995, the on-site hydrogeologist for GTI had a conversation regarding local geology with the owner of Stewarts Drilling Company (Stewarts). Stewarts was the drilling contractor that reamed the existing plant water supply well from its initial depth of 200 feet to 300 feet in bedrock. The following are several important points that were acquired from the conversation.

- The blue-gray clay is consistently present to the top of the shale bedrock, with the exception of occasional thin gravel lenses occurring at the clay-shale interface.
- The bedrock in the vicinity of Athens is dipping towards the west, with an approximate depth ranging from 60 feet to 100 feet.
- To have any potential to product groundwater, gravel lens would have to be present above the shale, and a well would have to be screened across the gravel lens.

The above points support the determination that further attempts to collect groundwater samples from overburden materials would likely be unsuccessful. Furthermore, the silty clay overburden does not appear to act as a water-bearing unit in this area.

4.7.3 Sampling Beneath the Drip Pad

On November 16, 1995, a section of the concrete drip pad, approximately 30 by 50 inches in dimension, was cut and lifted from the surrounding drip pad to allow inspection of the pad cross-section and inspection/sampling of the soils beneath the pad. The location was selected by Mr. David Reed of Northeast Treaters, Inc., and was in an area where several (previously chased and caulked) cracks intersected. The concrete was cut using a water-cooled rotary concrete saw, and the cut section was lifted out using bolts/anchors and a chain. The concrete was inspected in and around the areas of the cracks, and photographs were taken. The soil materials immediately beneath the concrete consisted of compacted bank-run type shale. Photographs of the removed slab are included in Appendix B.

Traces of the cracks were noted on the soil surface upon removal of the concrete; it appeared that these traces may have been due to preferential movement of water containing concrete fines from the cooling of the concrete saw blade. Three soil samples were collected from beneath the removed section of concrete. Sample SS-12 was collected from the soil surface along the predominant crack trace, in approximately the center of the removed slab. Sample SS-13 was collected from the soil surface in the southeastern corner of the removed slab, away from cracks/crack traces. Sample SS-14 was collected from a depth of 6 to 9 inches beneath the soil surface, in the same area (along a crack trace) as SS-12. These three samples were submitted for arsenic/total chromium/copper analyses (both total and TCLP).

4.7.4 Summary of Sampling Results

A total of twenty-three surface soil samples (SS-1 through SS-11 and SS-16 through SS-25), two background surface soil samples (BSS-1, BSS-2), and three subsurface soil samples (P-1, P-2 and SS-15), and three samples (SS-12, SS-13 and SS-14) collected beneath the drip pad were submitted for analysis. All soil samples, except SS-11 and SS-25, were analyzed for the following parameters:

- Total Arsenic (Method 7060)
- Total Chromium (Method 6010)
- Total Copper (Method 6010)
- TCLP Arsenic (Method 6010)
- TCLP Chromium (Method 6010)
- TCLP Copper (Method 6010)

Samples SS-11 and SS-25 were analyzed for total petroleum hydrocarbons (gasoline, diesel and kerosene) only. Complete laboratory data packages are presented in Appendix H.

Analytical results for soil samples are summarized in Table 1. To provide an understanding of the significance of the constituent concentrations observed, Table 1 also presents the applicable recommended NYSDEC cleanup objectives associated with the detected constituents. These values are presented in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) for determining soil cleanup objectives (November 16, 1992). The recommended NYSDEC cleanup objectives are not regulatory standards or criteria or reporting requirements. However, they represent the most conservative values that are protective of human health or of groundwater quality. For arsenic, chromium and copper, the values represent background concentrations. However, they fail to account for site-specific conditions. The TAGM allows for the use of site-specific background concentrations in place of the values presented in the table. TAGM also provides guidance for developing levels protective of human health.

In addition to the recommended NYSDEC cleanup objective, baseline concentrations of arsenic, chromium, and copper for New York soils as published in "Elements in North American Soils" (Dragun, J., 1991), are provided in the table. In instances where these background concentrations are greater than the NYSDEC objectives, they provide a more appropriate basis of comparison for determining if a site is impacted.

Analytical results for the two background surface soil samples (BSS-1 and BSS-2) showed arsenic concentrations below the non site-specific NYSDEC cleanup objectives; however, the copper and chromium objectives were above in both samples (see Table 1). Although the non site-specific NYSDEC cleanup objectives for these constituents were exceeded in some samples, the concentrations were within the ranges of baseline concentrations for New York soils as published in Dragun (1991). In evaluating the soil data, the greater of the site-specific background or the

NYSDEC objective should appropriately be used. For arsenic, the NYSDEC objective should be the basis and for chromium and copper, the site-specific background should be the basis.

Analytical results for the remaining soil samples showed exceedances of the non site-specific NYSDEC arsenic objectives by samples collected from several locations (see Table 1). However, individual sample exceedances of the non site-specific NYSDEC cleanup objective do not necessarily suggest an impact of concern. Statistical comparisons to appropriate concentrations (objective or background) can be used to determine whether impact is statistically significant, and should, therefore, be evaluated in greater detail.

In accordance with the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) addressing soil cleanup objectives, soil data were statistically compared to site-background concentrations. A one-sided t-test for independent samples was conducted for arsenic, chromium and copper concentrations. All soil data, surface, subsurface and samples below the drip pad, were pooled together to determine if the mean concentration was significantly greater than the mean background concentration. The results of the test indicate that the mean metals concentrations are not significantly greater than the site-specific background concentrations (Table 2).

The TCLP analytical results for soil samples are also summarized in Table 1. TCLP analysis is designed to determine the mobility of both organic and inorganic analytes in liquids and solids and determine if the soil should be classified as a "characteristic hazardous waste." The Environmental Protection Agency's TCLP regulatory levels for arsenic and chromium are both 5.0 mg/L. Copper does not have a TCLP regulatory level. All arsenic and chromium TCLP analysis for the soil samples were below the analytical detection limits (0.03 mg/L and 0.01 mg/L). Copper TCLP analysis for soil samples were below or near the analytical detection limit (0.01 mg/L). These results indicate the inorganic constituents detected in facility soils are relatively immobile in the environment.

The removed portion of the drip pad and underlying soils were inspected for evidence of chemical migration through the cracks prior to chasing/caulking. Based on past experience, this inspection focused on the presence of any green staining on the concrete or soils. Penetration of any green staining into the drip pad surface was evaluated by examining the cross-section at the saw cuts; very little penetration (approximately 1/4 inch) was noted. Green staining was noted in some, but not all, of the cross-sections of the cracks; this staining, where present, extended a maximum of two inches into the cracks from the drip pad surface. No green staining was noted to extend through the entire drip pad thickness, either in cracked cross-sections or where a portion of the removed slab was broken away at the crack lines. Faint crack traces were noted at the soil surface; these are believed to have been caused by the water containing concrete fines from the water-cooled saw blade. No green staining was noted on the gravel materials beneath the drip pad.

While arsenic, total chromium and copper were detected in the sample (SS-12), directly beneath the observed cracks in the removed section of the drip pad, sample SS-13 (away from the cracks) and sample SS-14 (6 to 9 inches below the cracks) show significantly lower levels. This indicates that if, prior to sealing the cracks, any CCA chemical actually moved through the cracks to the underlying soils, it remained localized and did not migrate appreciably either laterally or vertically.

Analytical results presented in Table 1 for samples SS-11 and SS-25 show that gasoline, diesel and kerosene were not detected in samples collected from the previous gasoline, diesel and kerosene tank location, nor in the stained soil observed at the base of the boiler stack.

4.8 Plant Well Water Sampling

The plant water supply well is known to be approximately 300 feet deep, with open hole construction in bedrock. The well is used to supply process water for the plant. A groundwater sample from the plant well was collected on October 31, 1995, and labeled AWEIGH-1. Prior to sampling, the well was allowed to purge for 90 minutes at an approximate flow rate of 1.3 gallons per minute. The well was sampled for the following parameters: total arsenic, total chromium, total copper, dissolved arsenic, dissolved chromium, and dissolved copper.

The analytical results for AWEIGH-1 are presented in Table 3. Each of the total and dissolved values for arsenic, chromium, and copper were below detection limits. The detection limits for arsenic, chromium and copper are 0.01 mg/L, 0.01 mg/L, and 0.01 mg/L, respectively. In comparison, the values presented in the NYSDEC groundwater cleanup standards for arsenic, chromium, and copper are 0.025 mg/L, 0.05 mg/L, and 0.2 mg/L, respectively. Complete laboratory data package is included in Appendix I.

4.9 Surface Water Monitoring Data

The facility was issued SPDES General Permit Number GP-93-05, Storm Water Discharge Associated with Industrial Activity, by the New York State Department of Environmental Conservation (NYSDEC). The effective date of the permit was August 1, 1993 and the expiration date is August 1, 1998. Monitoring and sampling of the stormwater discharge is required. Four sampling events (December 11, 1992; November 1, 1994; June 26, 1995; and July 26, 1995) have occurred for the permitted outfall. The analytical results are included in Appendix A.

The current stormwater permit does not have discharge limits. Stormwater data indicates that total arsenic ranged from 0.18 to 0.90 mg/L, chromium from 0.097 to 0.82 mg/L and copper from less than 0.025 to 0.67 mg/L. The upper range for these total metals were from a sample taken on June 21, 1995, after a substantial rainfall and a long drought period, which resulted in the collection of a sediment-laden sample. These conditions may have contributed to the levels of total arsenic, chromium and copper obtained from this sampling event. The average dissolved concentrations for arsenic, chromium and copper in the December 1994 samples (duplicate) were 0.155 mg/L, 0.235 mg/L and less than 0.025 mg/L, respectively. Oil and grease results ranged from less than 5.0 mg/L to 22 mg/L.

4.10 Other Conditions

On May 2, 1990, a small spill of CCA solution from the cylinder occurred onto the surficial soils. According to AWII, the impacted soils were removed and transport offsite to an approved landfill. The spill was reported to NYSDEC. NYSDEC provided oversight for the cleanup. A letter dated August 21, 1995 from NYSDEC states that based on soil sampling results, AWII could discontinue remedial activities. The area under the cylinder now has a concrete floor. Soil data collected at sample location P-1 and P-2, which is near the spill area, indicate concentrations of arsenic, chromium and copper to be in the range of background concentrations.

5.0 FINDING AND CONCLUSIONS

A Modified Phase I Environmental Site of the AWII facility located in Athens, New York was performed in conformance with the scope and limitations of ASTM Practice E 1527, except that a 50-year title search was not performed. This assessment has revealed no evidence of recognized environmental conditions in connection with the property. However, at the request of Gilberg & Kurent, a number of soil samples were collected at the facility and analyzed for constituents which were considered to be good indicators of releases attributed to the operations of the facility. The NYSDEC TAGM (November 16, 1992) was used to assist in the evaluation of the analytical results. The TAGM allows the use of site-specific background concentrations in place of the "generic" cleanup objectives presented in the TAGM. For the inorganic constituents examined (arsenic, total chromium and copper), a statistical evaluation of the results were performed. This evaluation indicated that, even though some individual samples exhibited constituent concentration(s) which were higher than their respective non site-specific NYSDEC cleanup objective, when all site sample data is pooled (even including the data obtained from soils beneath the drip pad), the mean constituent concentrations are not significantly higher than the site-specific background.

The low to non-detectable concentration of arsenic, chromium and copper in the TCLP analyses indicate that these constituents are relatively immobile in the environment.

Analytical results associated with samples collected from the previous gasoline, diesel and kerosene tank location and the stained soil observed at the base of the boiler stack, showed that gasoline, diesel and kerosene were not detected in the samples.

In the opinion of Groundwater Technology, based upon our extensive knowledge of environmental conditions at wood preservation facilities, the results of the analyses performed should not be considered to be of environmental concern, nor are they indicative of conditions that would be expected to trigger either CERCLA or RCRA enforcement measures, or environmental agency reporting requirements.

COMPLIANCE AUDIT

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1.0 INTRODUCTION

On August 10, 1994, Groundwater Technology, Inc. (GTI) (formerly Chester Environmental) performed a compliance audit of corporate environmental records for the Atlantic Wood Industries, Inc. (AWII) wood treating facility located in Athens, New York. This review was done at AWII's corporate headquarters in Port Wentworth, Georgia. In conjunction with a Phase I Modified Environmental Site Assessment requested by Gilberg & Kurent, Attorneys at Law, a follow-up compliance audit was performed at the facility on October 10, 1995.

2.0 COMPLIANCE AUDIT

The information gathered and the findings included herein are based upon the following activities:

- The information obtained from the review of records at the AWII corporate headquarters on August 10, 1994;
- Interviews with personnel familiar with the site on August 10, 1994 and October 10, 1995.
- A review of environmental records at the site on October 10, 1995; and
- A site walk-over by David King of GTI on October 9 and 10, 1995.

The objective of the compliance audit was to review AWII's records to determine environmental compliance with federal, state and local regulations. A compliance audit checklist is included in Appendix J.

2.1 Summary of Findings

2.1.1 Clean Air Act Issues

Potential emission sources include the boiler, tanks, vents, kiln and cylinder. Currently, no air permits are required for these sources. There have been no odor complaints or other air issues to date uncovered by GTI's review or reported by AWII personnel. The Clean Air Act Amendments (CAAA) promulgated in 1990, require sweeping changes in the regulation of air emissions. Under these regulations, each facility must determine if the plant is a "major source", "synthetic minor source", or an "area source." To determine if the facility requires an air permit, an emissions inventory should be performed for these sources.

2.1.2 Clean Water Act

Drinking water is supplied by the Village of Athens. There is one on-site well which is used to supply process water. The well does not require a permit. Sanitary discharge is to a septic system.

The facility was issued SPDES General Permit Number GP-93-05, Storm Water Discharge Associated with Industrial Activity, by the New York State Department of Environmental Conservation. The effective date of the permit was August 1, 1993 and the expiration date is August 1, 1998. A facility Storm Water Pollution Prevention Plan has been prepared and certified by a Professional Engineer (P.E.). Monitoring and sampling of the stormwater discharge is required by the SPDES permit. Stormwater samples have been collected in December 1992, November 1994, June 1995, and July 1995. The permit does not currently have any constituent discharge limits.

The facility has not received any water related notices of violation nor does it have any surface water or groundwater problems based on a review of records and interviews with AWII personnel.

2.1.3 Aboveground Storage Tanks

Secondary containment is provided for the CCA process area tanks, the treatment cylinder, and the 18,000-gallon No. 2 fuel oil tank. The secondary containment consists of concrete walls and floor. The small diesel fuel (550 gallons), gasoline (300 gallons), kerosene (300 gallon) and No. 2 heating oil (275 gallons) tanks have secondary containment consisting of metal boxes. All tanks (diesel, gasoline, kerosene, and CCA) require I.D. numbers and must be registered with the State of New York. AWII has I.D. numbers and a registration certificate for all of these tanks.

The facility has a spill prevention plan on file. The plan was revised in August 1994 and is included in the facility's Contingency Plan. There have been no reportable spills since May 1990. This is based on interviews with plant personnel and the database search included in Appendix C.

2.1.4 Underground Storage Tanks

Currently, there are no underground storage tanks (USTs) being used on-site. Historically, one UST was used. This tank has been emptied and cleaned, filled with sand, and remains on-site. There are no UST installations planned and there have reportedly been no environmental issues or concerns associated with the sand-filled UST. This information was obtained from interviews with AWII personnel.

2.1.5 Solid Waste

Waste oil is generated and is stored in 55-gallon drums. The plant has a local waste oil contractor, Maincare, located in Albany, New York. Nonhazardous solid waste is collected on-site and transported by Waste Management, Inc., to its landfill. The storage yard consists of a 12 to 30-inch compacted rock-base material which was brought on-site. Some scrap steel banding, duct pipe and large central panels had been placed in piles on the northwest portion of the property. This material has been removed and transported off-site for disposal, according to AWII. No other fill material has been used on-site and no solid waste has been burned on-site. This information was obtained from interviews with AWII personnel.

2.1.6 Hazardous Waste

General - Hazardous wastes generated include F035, D004, and D007. F035 is defined as "Wastewater (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol." D004 and D007 are hazardous wastes exhibiting the toxicity characteristic of the heavy metals of arsenic and chromium, respectively.

The facility is classified as a large quantity generator, i.e., it generates at least 1,000 kilograms (2,200 pounds) of hazardous waste per month. Waste is shipped within accumulation times specified in 40 CFR 262.34; therefore, the plant is not classified as a treatment, storage, or disposal (TSD) facility. The total amount of hazardous waste generated in 1994 was 16,560 pounds. This data is based on the annual generator report. The amount of hazardous waste generated monthly is normally below the 2,200 pounds per month limit. The NYSDEC views the facility as a small quantity generator, according to AWII. However, AWII complies with the RCRA requirements for a large quantity generator to ensure compliance in instances where the monthly limit is exceeded.

Hazardous waste manifests, the hazardous waste contingency plan, and annual reporting records were complete and accurate. However, during the compliance audit on October 10, 1995, it was discovered that the 1992 Annual Generator Report was not submitted. AWII indicated that in 1992, they did not generate more than 2,200 pounds of hazardous waste per month and thus, the New York Department of Environmental Conservation did not require an annual report. Storage area inspection records, and training records were complete and up to date. No hazardous waste drums were in storage during the site walk-over.

RCRA Subpart W Requirements - The state of New York has not adopted the RCRA Subpart W requirement for drip pads. However, AWII has upgraded the existing concrete drip pad to meet these requirements. The professional engineer's certification for the upgrade is included in Appendix F.

Documentation of weekly inspections of the drip pad were started in April of 1995.

3.0 SARA TITLE III

SARA Title III requirements include providing employees access to Material Safety Data Sheets (MSDSs) for all hazardous substances used on-site; submitting annual Tier II reports for chemicals on-site in quantities exceeding defined thresholds; and submitting Form R reports for chemicals manufactured, processed, or otherwise used in annual amounts exceeding established thresholds. MSDSs are made available to facility employees and are easily accessible. Tier II reports and Form R reports were reviewed and no discrepancies were found.

4.0 PCBs/ASBESTOS

There are two on-site transformers owned by Central Hudson Gas and Electric Corporation (Hudson). A letter from Hudson dated October 19, 1989, stated that the transformers do not contain PCBs. According to AWII, there is no PCB-containing equipment on-site and none was discovered during the site walk-over.

AWII has made a search for asbestos-containing material at the facility and none has been found to date.

5.0 SOLVENTS

Solvents are not used at the Athens plant. This has been AWII's policy since 1985. No solvent material was discovered during the site walk-over.

6.0 SUMMARY

In general, housekeeping and records were found to be in good order. A review of corporate and site records indicated the facility is complying with applicable environmental requirements.

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NEW YORK

LOCATION DEPTH DATE COLLECTED WORK ORDER	NYSDEC Soil Cleanup Objective (mg/Kg)	UNITS	BASELINE SOIL CONCENTRATION (mg/Kg) range	mean	BSS-1 6-12" 10/10/95 9510283	BSS-2 6-12" 10/10/95 9510283	SS-1 6-12" 10/10/95 9510283	SS-2 12-18" 10/10/95 9510283	SS-3 14-20" 10/10/95 9510283	SS-4 16-22" 10/10/95 9510283	SS-5 15-21" 10/10/95 9510283
PARAMETER											
Total Percent Solids		wt%			77	78	90	96	77	80	79
pH		Units			8.9	8.4	7.8	8.9	8.8	8.8	8.2
TOTAL METALS											
Arsenic	7.5	ppm	1.5-16	7.0	4.4	4.9	11.1	42.7	5.5	5.3	5.2
Chromium	10	ppm	7.0-100	34	33.8	32.1	15.6	50.0	27.3	31.3	29.1
Copper	25	ppm	3.0-70	22	33.8	32.1	25.6	42.7	32.5	26.3	27.8
TCLP METALS											
Arsenic		mg/L			<.03	<.03	<.03	<.03	<.03	<.03	<.03
Chromium		mg/L			<.01	<.01	<.01	<.01	<.01	<.01	<.01
Copper		mg/L			<.01	0.011	<.01	<.01	<.01	0.011	0.014

NOTES:

- **The NYSDEC Recommended Soil Cleanup Objectives that represent the most stringent value for protection of human health and protection of groundwater/drinking water standards. The NYSDEC TAGM allows for application of site-specific characteristics that may result in less stringent cleanup objectives. The recommended NYSDEC cleanup objectives are not regulatory standards or criteria or reporting requirements.**
- **NYSDEC Recommended Soil Cleanup Objectives published in New York State Department of Conservation (NYSDEC) Hazardous Waste Remediation Division Technical and Administrative Guidance Memorandum (TAGM); Determination of Soil Cleanup Objectives and Cleanup Levels", HWR-92-4046, 16 Nov. 1992.**
- **Baseline Soil Concentrations published in "Elements in North American Soils", James Dragun and Andrew Chiasson, Hazardous Materials Control Resources Institute, 1991.**
- **Results listed on dry weight basis.**

TABLE 1 (Continued)
SUMMARY OF SOIL ANALYTICAL RESULTS
ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NEW YORK

LOCATION DEPTH DATE COLLECTED WORK ORDER	NYSDEC Soil Cleanup Objective (mg/Kg)	UNITS	BASELINE SOIL CONCENTRATION (mg/Kg) range	mean	SS-6 13-19" 10/10/95 9510283	SS-7 15-21" 10/10/95 9510283	SS-8 15-21" 10/10/95 9510283	SS-9 19-25" 10/10/95 9510283	SS-10 15-21" 10/10/95 9510283	SS-A (Dup SS-9) 19-25" 10/10/95 9510283	P-1 3-5' 10/30/95 9511002	P-2 3-5' 10/30/95 9511002
PARAMETER												
Total Percent Solids		wt%			82	78	82	79	79	78	80	77
pH		Units			8.5	7.9	7.7	7.7	8.3	8.3	9.2	8.2
TOTAL METALS												
Arsenic	7.5	ppm	1.5-16	7.0	4.3	3.8	2.4	3.9	4.4	2.4	<0.63	10.6
Chromium	10	ppm	7.0-100	34	26.8	29.5	29.3	32.9	27.8	34.6	21.2	28.6
Copper	25	ppm	3.0-70	22	25.6	19.2	29.3	29.1	30.4	30.8	22.5	28.6
TCLP METALS												
Arsenic		mg/L			<.03	<.03	<.03	<.03	<.03	<.03	<.03	<.03
Chromium		mg/L			<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
Copper		mg/L			<.01	<.01	0.021	0.015	0.014	<.01	<.01	0.012

NOTES:

- The NYSDEC Recommended Soil Cleanup Objectives that represent the most stringent value for protection of human health and protection of groundwater/drinking water standards. The NYSDEC TAGM allows for application of site-specific characteristics that may result in less stringent cleanup objectives. The recommended NYSDEC cleanup objectives are not regulatory standards or criteria or reporting requirements.
- NYSDEC Recommended Soil Cleanup Objectives published in New York State Department of Conservation (NYSDEC) Hazardous Waste Remediation Division Technical and Administrative Guidance Memorandum (TAGM); Determination of Soil Cleanup Objectives and Cleanup Levels", HWR-92-4046, 16 Nov. 1992.
- Baseline Soil Concentrations published in "Elements in North American Soils", James Dragun and Andrew Chiasson, Hazardous Materials Control Resources Institute, 1991.
- Results listed on dry weight basis.

TABLE 1 (Continued)
SUMMARY OF SOIL ANALYTICAL RESULTS
ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NEW YORK

LOCATION	NYSDEC Soil		BASELINE		SS-11	SS-12	SS-13	SS-14	SS-15	SS-16	SS-17
DEPTH	Cleanup		SOIL		12"				9.5-10'	0-14"	0-16"
DATE COLLECTED	Objective		CONCENTRATIO		11/16/95	11/16/95	11/16/95	11/16/95	11/16/95	11/16/95	11/16/95
WORK ORDER	(mg/Kg)	UNITS	(mg/Kg)		9511178	9511178	9511178	9511178	9511178	9511178	9511178
PARAMETER			range	mean							
Total Percent Solids		wt%			NA	94	95	95	76	95	95
pH		Units			NA	8.4	8.1	8.0	7.8	7.8	8.0
TOTAL METALS											
Arsenic	7.5	ppm	1.5-16	7.0	NA	128	10.3	7.7	8.2	48.4	18.9
Chromium	10	ppm	7.0-100	34	NA	105	18.9	25.3	25	38.9	20
Copper	25	ppm	3.0-70	22	NA	34	15.8	20	27.6	31.6	22.1
TCLP METALS											
Arsenic		mg/L			NA	<.03	<.03	<.03	<.03	<.03	<.03
Chromium		mg/L			NA	0.028	<.01	<.01	<.01	<.01	<.01
Copper		mg/L			NA	0.010	0.011	0.016	<.01	0.014	0.012
TOTAL PETROLEUM HYDROCARBONS											
Volatiles		mg/Kg			<13	NA	NA	NA	NA	NA	NA
Semivolatiles		mg/Kg			<13	NA	NA	NA	NA	NA	NA

NOTES:

- The NYSDEC Recommended Soil Cleanup Objectives that represent the most stringent value for protection of human health and protection of groundwater/drinking water standards. The NYSDEC TAGM allows for application of site-specific characteristics that may result in less stringent cleanup objectives. The recommended NYSDEC cleanup objectives are not regulatory standards or criteria or reporting requirements.
- NYSDEC Recommended Soil Cleanup Objectives published in New York State Department of Conservation (NYSDEC) Hazardous Waste Remediation Division Technical and Administrative Guidance Memorandum (TAGM); Determination of Soil Cleanup Objectives and Cleanup Levels", HWR-92-4046, 16 Nov. 1992.
- Baseline Soil Concentrations published in "Elements in North American Soils", James Dragun and Andrew Chiasson, Hazardous Materials Control Resources Institute, 1991.
- Results listed on dry weight basis.

TABLE 1 (Continued)
SUMMARY OF SOIL ANALYTICAL RESULTS
ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NEW YORK

LOCATION DEPTH DATE COLLECTED WORK ORDER	NYSDEC Soil Cleanup Objective (mg/Kg)	UNITS	BASELINE SOIL CONCENTRATIO (mg/Kg) range	mean	SS-18 0-12" 11/16/95 9511178	SS-19 0-7" 11/16/95 9511178	SS-20 0-13" 11/16/95 9511178	SS-21 0-7" 11/16/95 9511178	SS-23 2.8' 11/16/95 9511178	SS-24 18" 11/16/95 9511178	SS-25 Surface 11/16/95 9511178
PARAMETER											
Total Percent Solids		wt%			84	71	74	72	77	78	NA
pH		Units			6.1	6.0	5.9	5.8	6.5	6.4	NA
TOTAL METALS											
Arsenic	7.5	ppm	1.5-16	7.0	22.6	6.3	16.2	9.2	5.7	6.5	NA
Chromium	10	ppm	7.0-100	34	31.0	32.4	32.4	30.6	29.9	30.8	NA
Copper	25	ppm	3.0-70	22	17.9	33.8	23	18.1	22.1	32.1	NA
TCLP METALS											
Arsenic		mg/L			<.03	<.03	<.03	<.03	<.03	<.03	NA
Chromium		mg/L			<.01	<.01	<.01	<.01	<.01	<.01	NA
Copper		mg/L			0.014	<.01	<.01	<.01	0.011	<.01	NA
TOTAL PETROLEUM HYDROCARBONS											
Volatiles		mg/Kg			NA	NA	NA	NA	NA	NA	<12
Semivolatiles		mg/Kg			NA	NA	NA	NA	NA	NA	<12

NOTES:

- The NYSDEC Recommended Soil Cleanup Objectives that represent the most stringent value for protection of human health and protection of groundwater/drinking water standards. The NYSDEC TAGM allows for application of site-specific characteristics that may result in less stringent cleanup objectives. The recommended NYSDEC cleanup objectives are not regulatory standards or criteria or reporting requirements.
- NYSDEC Recommended Soil Cleanup Objectives published in New York State Department of Conservation (NYSDEC) Hazardous Waste Remediation Division Technical and Administrative Guidance Memorandum (TAGM); Determination of Soil Cleanup Objectives and Cleanup Levels", HWR-92-4046, 16 Nov. 1992.
- Baseline Soil Concentrations published in "Elements in North American Soils", James Dragun and Andrew Chiasson, Hazardous Materials Control Resources Institute, 1991.
- Results listed on dry weight basis.

TABLE 2
Statistical Evaluation of Soil Data

Comparison of Soil Metals Concentrations to Site Background

	Background	Site	t	Significance
Arsenic	4.6 (0.4)	16.1 (26.6)	0.60	NS
Chromium	33.0 (1.2)	32.1 (16.9)	-0.07	NS
Copper	33.0 (1.2)	26.6 (6.3)	-1.39	NS

Values represent mean (standard deviation)

t-statistic compared to t (0.95, 23) = 1.714 concentrations are greater than background if t-statistic is greater than t (0.95, 23)

NS - Not Significant

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NEW YORK

LOCATION DATE COLLECTED WORK ORDER	NYSDEC GROUNDWATER CLEANUP STANDARDS (mg/L)	UNITS	AW-1 10/31/95 9511002
PARAMETER			
TOTAL METALS			
Arsenic	0.025	mg/L	<.01
Chromium	0.05	mg/L	<.01
Copper	0.20	mg/L	<.01
DISSOLVED METALS			
Arsenic	0.025	mg/L	<.01
Chromium	0.05	mg/L	<.01
Copper	0.20	mg/L	<.01

NOTES:

NYSDEC Groundwater Cleanup Standards published in "New York State Department of Conservation (NYSDEC) Hazardous Waste Remediation Division Technical and Administrative Guidance memorandum; Determination of Soil Cleanup Objectives and Cleanup Levels", HWR-92-4046, 16 Nov. 1992.

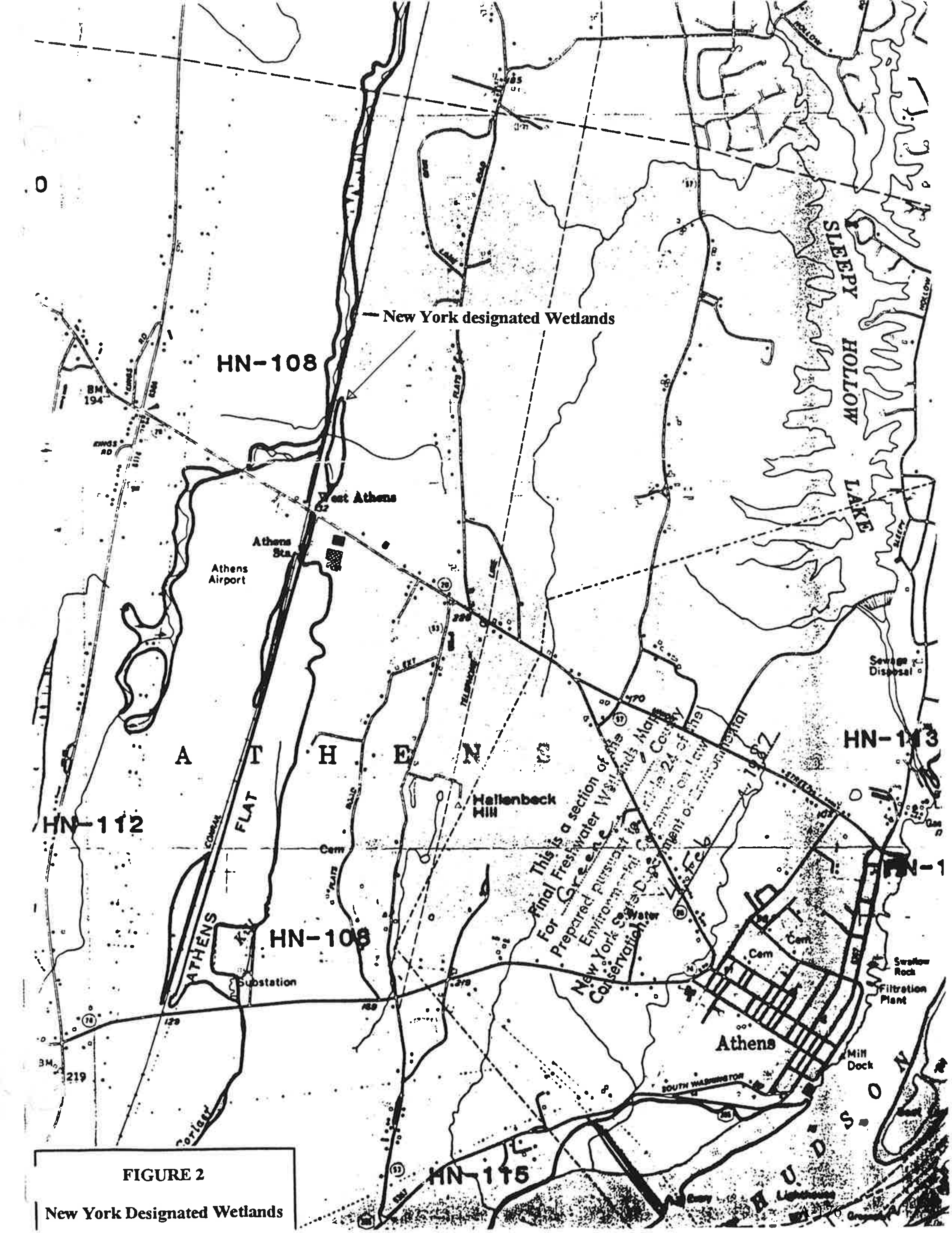


FIGURE 2

New York Designated Wetlands

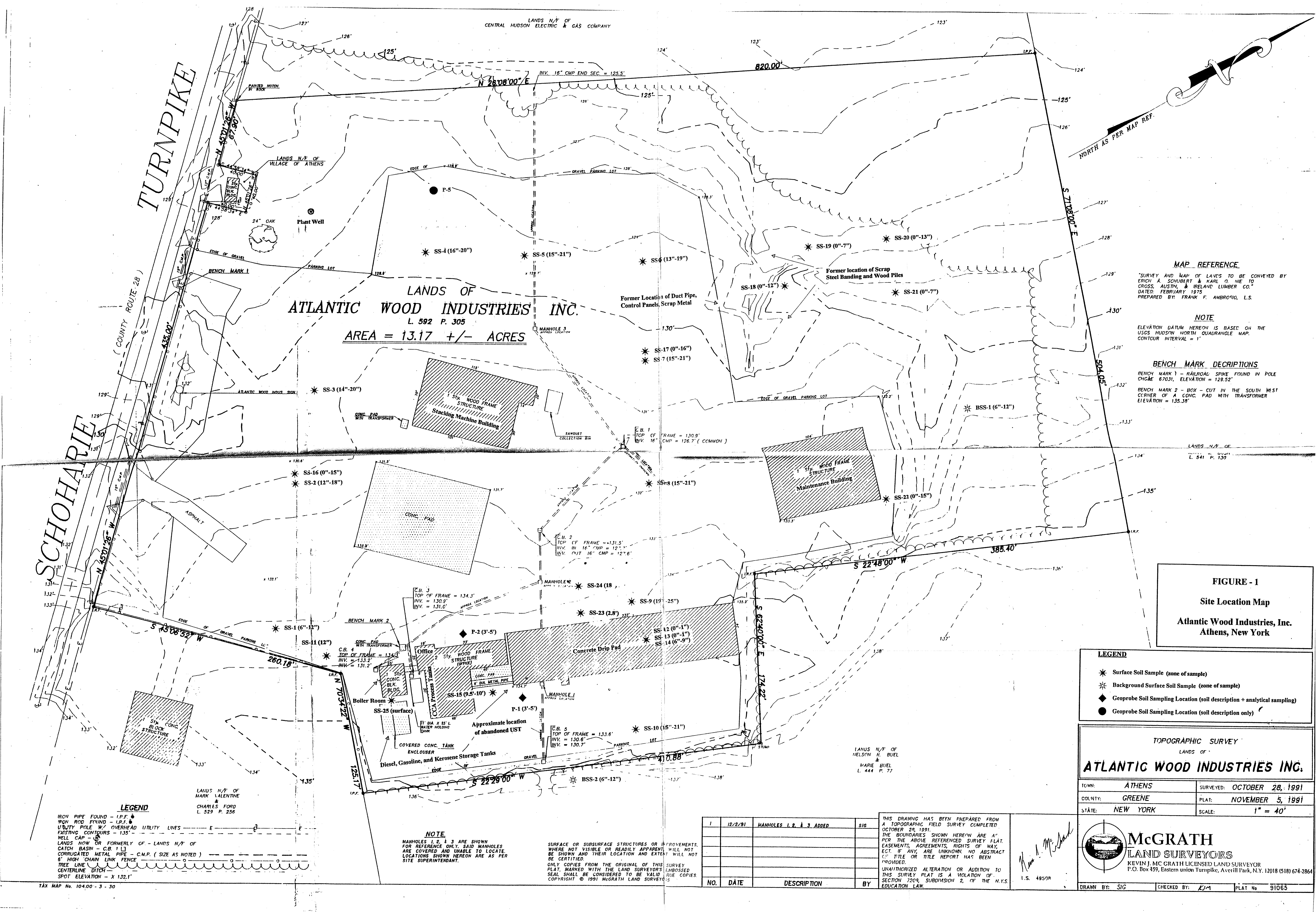


FIGURE - 1

Site Location Map

Atlantic Wood Industries, Inc.
Athens, New York

APPENDIX A
STORMWATER ANALYTICAL RESULTS

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S5-54145

RECEIVED AUG 18 1995

Received: 28 JUL 95

Mr. Richard Hales
Atlantic Wood Industries, Inc.
Rt. 1 Box 204, Schoharie Turnpike
Athens, NY 12015

CC: Ross Worsham-A.WOOD
Sampled By: Client

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED
54145-1	001 Grab	07-26-95/1330

PARAMETER	54145-1
Biochemical Oxygen Demand (5 Day) (405.1), mg/l	5.1
Suspended Solids (160.2), mg/l	24
Arsenic (7060), mg/l	0.18
Chromium (6010), mg/l	0.097
Copper (6010), mg/l	<0.025
Oil & Grease , mg/l	<5.0
Chemical Oxygen Demand, mg/l	94

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S5-54145

Received: 28 JUL 95

Mr. Richard Hales
Atlantic Wood Industries, Inc.
Rt. 1 Box 204, Schoharie Turnpike
Athens, NY 12015

CC: Ross Worsham-A.WOOD
Sampled By: Client

REPORT OF RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
54145-2	Method Blank
54145-3	Lab Control Standard (LCS) % Recovery/Duplicate
54145-4	Precision (LCS % RPD)
54145-5	Date Analyzed

PARAMETER	54145-2	54145-3	54145-4	54145-5
Biochemical Oxygen Demand (5 Day) (405.1), mg/l	<2.0	104/102 %	1.9 %	07.28.95
Suspended Solids (160.2), mg/l	<5.0	88/95 %	7.6 %	07.31.95
Arsenic (7060), mg/l	<0.010	104/107 %	2.8 %	08.01.95
Chromium (6010), mg/l	<0.010	104/105 %	0.96 %	08.01.95
Copper (6010), mg/l	<0.025	96/97 %	1.0 %	08.01.95
Oil & Grease , mg/l	<5.0	83/81 %	2.4 %	08.02.95
Chemical Oxygen Demand, mg/l	<20	97/99 %	2.0 %	07.31.95

Methods: EPA SW-846

Steven J. White

Steven J. White

Final Page Of Report

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S5-53544

Received: 28 JUN 95

Mr. Richard Hales
Atlantic Wood Industries, Inc.
Rt. 1 Box 204, Schoharie Turnpike
Athens, NY 12015

CC: Ross Worsham-Atlantic Wood
Sampled By: Client

Page 1

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED
53544-1	001 Grab	06-26-95/1500

PARAMETER	53544-1
Biochemical Oxygen Demand (5 Day) (405.1), mg/l	6.3
Chemical Oxygen Demand, mg/l	460
Suspended Solids (160.2), mg/l	7800
Oil & Grease , mg/l	13
Arsenic (7060), mg/l	0.90
Chromium (6010), mg/l	0.82
Copper (6010), mg/l	0.67

* First substantial rainfall in quite some time. This was also a heavy downpour. This may account for the high levels of oil and grease. Did not let the samples settle down also shake the samples up before transferring to lab packs. This will account for high levels of suspended solids.

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S5-53544

Received: 28 JUN 95

Mr. Richard Hales
Atlantic Wood Industries, Inc.
Rt. 1 Box 204, Schoharie Turnpike
Athens, NY 12015

CC: Ross Worsham-Atlantic Wood
Sampled By: Client

REPORT OF RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
53544-2	Method Blank
53544-3	Lab Control Standard (LCS) % Recovery/Du plicate
53544-4	Precision (LCS % RPD)
53544-5	Date Analyzed

PARAMETER	53544-2	53544-3	53544-4	53544-5
Biochemical Oxygen Demand (5 Day) (405.1), mg/l	<2.0	91/87 %	4.5 %	06.28.95
Chemical Oxygen Demand, mg/l	<20	94/93 %	1.1 %	06.29.95
uspended Solids (160.2), mg/l	<5.0	106/109 %	2.8 %	06.29.95
Jil & Grease , mg/l	<5.0	86/85 %	1.2 %	06.30.95
Arsenic (7060), mg/l	<0.010	103/103 %	0 %	07.05.95
Chromium (6010), mg/l	<0.010	111/106 %	4.6 %	07.03.95
Copper (6010), mg/l	<0.025	107/103 %	3.8 %	07.03.95

Methods: EPA SW-846 and 40 CFR Part 136.

Steven J. White

Steven J. White

Final Page Of Report

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

12510

- [ ] 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax (912) 352-0165
- [ ] Industrial Plaza Drive, Tallahassee, ... 301 — Phone: ...-3994 — Fax ...-9504
- [ ] 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
- [ ] 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
- [ ] 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

NUMBER	PROJECT NUMBER	PROJECT NAME	PAGE	OF
5			1	1

CLIENT NAME	TELEPHONE/FAX NO.
Atlantic Wood Ind, Inc.	518-945-2660

CLIENT ADDRESS	CITY, STATE, ZIP CODE
RD #1 Box 204	Athens, N.Y. 12015

SAMPLER(S) NAME(S)	CLIENT PROJECT MANAGER
R.J. Hales	R.J. Hales

MATRIX TYPE: AQUEOUS MATRIX / NONAQUEOUS MATRIX / OIL MATRIX / AIR MATRIX

REQUIRED ANALYSES / NUMBER OF CONTAINERS SUBMITTED

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	BOD5	Oil+Grease	As/Cr/Cu	TSS	COD						
6/26/95	3:00 PM	001 GRAB	X				3	2	3	3	1						PH 7.6 - 25°C

[X] STANDARD TAT
[ ] EXPEDITED TAT *

REPORT DUE DATE ______

* SUBJECT TO RUSH FEES

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
Richard J. Hales	6/27/95	12:00 NOON						

RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
Y. Baker	6/28/95	9:16	[✓] YES [ ] NO		53544	

NOV 01 '95 12:58PM ATLANTIC WOOD INC.

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.
5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S4-45954

Received: 03 NOV 94

Mr. Richard Hales
Atlantic Wood Industries, Inc.
Rt. 1 Box 204, Schoharie Turnpike
Athens, NY 12015

CC: Mr. Ross Worsham
Sampled By: Client

Page 1

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED
45954-1	001 Grab	11-01-94/0800

PARAMETER	45954-1
Biochemical Oxygen Demand (5 Day) (405.1), mg/l	17
Suspended Solids (160.2), mg/l	680
Arsenic (7060), mg/l	0.40
Chromium (6010), mg/l	0.45
Copper (6010), mg/l	0.23
Oil & Grease , mg/l	<5.0
Chemical Oxygen Demand (410.2), mg/l	68

ATLANTIC WOOD INDUSTRIES
RECEIVED
NOV 14 1994
ENVIRONMENTAL OFFICE

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

02 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S4-45954

Received: 03 NOV 94

Mr. Richard Hales
Atlantic Wood Industries, Inc.
Rt. 1 Box 204, Schoharie Turnpike
Athens, NY 12015

CC: Mr. Ross Worsham
Sampled By: Client

REPORT OF RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
45954-2	Method Blank
45954-3	Lab Control Sample (LCS) % Recovery/Duplicate
45954-4	Precisoin (LCS % RPD)
45954-5	Date Analyzed

PARAMETER	45954-2	45954-3	45954-4	45954-5
Biochemical Oxygen Demand (5 Day) (405.1), mg/l	<2.0	113/112 %	0.88 %	11.03.94
ıspended Solids (160.2), mg/l	<5.0	97/95 %	2.1 %	11.04.94
ɾsenic (7060), mg/l	<0.010	108/112%	3.6%	11.07.94
Chromium (6010), mg/l	<0.010	98/97 %	1.0 %	11.08.94
Copper (6010), mg/l	<0.025	95/94 %	1.1 %	11.08.94
Oil & Grease , mg/l	<5.0	112/122 %	8.5 %	11.03.94
Chemical Oxygen Demand (410.2), mg/l	<20	100/96 %	4.1 %	11.03.94

Methods: EPA 40 CFR Part 136

Steven J. White

Steven J. White

Final Page Of Report

NOV 01 '95 12:59PM ATLANTIC WOOD INC. P.8

SL S AVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

☐ LaRoche Avenue, Savannah, GA — Phone: ( ) -7858 — Fax: 2-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax (904) 878-9504
☐ 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

NALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

O. NUMBER	PROJECT NUMBER	PROJECT NAME	PAGE 1 OF 1

CLIENT NAME: Atlantic Wood Ind, Inc — TELEPHONE/FAX NO.: 518-945-2660

CLIENT ADDRESS: R#1 Box 204 — CITY, STATE, ZIP CODE: Athens, N.Y. 12015

SAMPLER(S) NAME(S): Hales — CLIENT PROJECT MANAGER: R.J. Hales

MATRIX TYPE: AQUEOUS MATRIX / NONAQUEOUS MATRIX / OIL MATRIX / AIR MATRIX

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

DATE	TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	BOD/SS	AS/CR/CU	OIL + GREASE	COD							
11/1/94	8:00 AM	001 GRAB	X				2	2	4	2							PH 6.0 13°C

☒ STANDARD TAT
☐ EXPEDITED TAT *
REPORT DUE DATE ____
* SUBJECT TO RUSH FEES

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
Richard J. Hales	11/2/94	10:30 AM						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RELINQUISHED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
D. Bond	11-3-94	9:13 am	☑ YES ☐ NO		45954	

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S2-46235
Revision 1
Received: 15 DEC 92

Mr. Ross Worsham
Atlantic Wood Industries
P.O. Box 1608
Savannah, GA 31498-0301

ATLANTIC WOOD INDUSTRIES
RECEIVED
JAN 21 1993
ENVIRONMENTAL OFFICE

Project: Athens,NY
Sampled By: Client

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
46235-1	Composite (Outfall) 001	12-11-92
46235-2	Composite (Run-On) 002	12-11-92

PARAMETER	46235-1	46235-2
Biochemical Oxygen Demand (5 Day), mg/l	9.6	2.6
Suspended Solids (160.2), mg/l	380	48
Total Kjeldahl Nitrogen-N, mg/l	1.6	1.2
Total Phosphorus, mg/l	0.37	<0.10
Nitrate + Nitrite-N, mg/l	1.1	0.28
Chemical Oxygen Demand, mg/l	110	50
Trivalent Chromium, mg/l	0.14	<0.010
Hexavalent Chromium (7196), mg/l	0.22	<0.010
Chromium (6010), mg/l	0.36	<0.010
Copper (6010), mg/l	0.16	0.027
Arsenic (7060), mg/l	0.38	<0.010
Dissolved trivalent chromium, mg/l	0.02	<0.010
Dissolved hexavalent chromium, mg/l	0.20	<0.010
Chromium (Dissolved) , mg/l	0.22	<0.010
Copper (Dissolved), mg/l	<0.025	<0.025
Arsenic (Dissolved), mg/l	0.16	<0.010

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S2-46235
Revision 1
Received: 15 DEC 92

Mr. Ross Worsham
Atlantic Wood Industries
P.O. Box 1608
Savannah, GA 31498-0301

Project: Athens,NY
Sampled By: Client

Page 2

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
46235-3	Grab (Outfall) 001	12-11-92
46235-4	Grab (Run-On) 002	12-11-92

PARAMETER	46235-3	46235-4
Biochemical Oxygen Demand (5 Day), mg/l	7.6	3.0
Suspended Solids (160.2), mg/l	510	72
Oil & Grease , mg/l	22	27
Total Kjeldahl Nitrogen-N, mg/l	1.7	1.3
Total Phosphorus, mg/l	0.46	0.10
Nitrate + Nitrite-N, mg/l	1.6	0.22
Chemical Oxygen Demand, mg/l	130	65
Trivalent Chromium, mg/l	0.23	<0.010
Hexavalent Chromium (7196), mg/l	0.26	<0.010
Chromium (6010), mg/l	0.49	<0.010
Copper (6010), mg/l	0.22	<0.025
Arsenic (7060), mg/l	0.51	<0.010
Chromium (Dissolved) , mg/l	0.25	<0.010
Copper (Dissolved), mg/l	<0.025	<0.025
Dissolved trivalent chromium, mg/l	0.01	<0.010
Dissolved hexavalent chromium, mg/l	0.24	<0.010
Arsenic (Dissolved), mg/l	0.15	<0.010

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S2-46235
Revision 1
Received: 15 DEC 92

Mr. Ross Worsham
Atlantic Wood Industries
P.O. Box 1608
Savannah, GA 31498-0301

Project: Athens,NY
Sampled By: Client

Page 3

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
46235-5	Method Blank-Water
46235-6	Lab Control Standard (LCS) % Recovery/Duplicate
46235-7	LCS (% RPD)-Water
46235-8	Date Analyzed-Water

PARAMETER	46235-5	46235-6	46235-7	46235-8
Biochemical Oxygen Demand (5 Day), mg/l	<2.0	102/100 %	2.0 %	12.15.92
Suspended Solids (160.2), mg/l	<5.0	100/99 %	1.0 %	12.16.92
Oil & Grease , mg/l	<5.0	109/106 %	2.8 %	01.04.93
Total Kjeldahl Nitrogen-N, mg/l	<0.10	104/100 %	3.9 %	12.21.92
Total Phosphorus, mg/l	<0.10	105/101 %	3.9 %	12.21.92
Nitrate + Nitrite-N, mg/l	<0.050	104/104 %	0 %	12.17.92
Chemical Oxygen Demand, mg/l	<20	119/119 %	0 %	12.21.92
Trivalent Chromium, mg/l	<0.010	105/106 %	0.94 %	12.15.92
Hexavalent Chromium (7196), mg/l	<0.010	105/106 %	0.94 %	12.15.92
Chromium (6010), mg/l	<0.010	91/90 %	1.1 %	12.28.92
Copper (6010), mg/l	<0.025	90/89 %	1.1 %	12.28.92
Arsenic (7060), mg/l	<0.010	100/102 %	2.0 %	12.28.92
Dissolved trivalent chromium, mg/l	<0.010	105/106 %	0.94 %	12.15.92
Dissolved hexavalent chromium, mg/l	<0.010	105/106 %	0.94 %	12.15.92
Chromium (Dissolved) , mg/l	<0.010	93/93 %	0 %	12.23.92
Copper (Dissolved), mg/l	<0.025	93/91 %	2.2 %	12.23.92
Arsenic (Dissolved), mg/l	<0.010	98/98 %	0 %	12.28.92

Methods: EPA 40 CFR Part 136

Steven J. White

Steven J. White

SL SAVANNAH LABORATORIES AND ENVIRONMENTAL SERVICES, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Savannah Division
5102 LaRoche Avenue
Savannah, GA 31404
Phone: (912) 354-7858

JOB NO.	P.O. NO.	PROJECT NAME	PAGE	OF
			1	1

CLIENT NAME: ATLANTIC WOOD INDUSTRIES
TELEPHONE: 518 945-2660
CLIENT ADDRESS: ATHENS, N.Y.
CLIENT PROJECT MANAGER: RICHARD J. HALES

STANDARD ☒ RUSH ☐
DATE REPORT REQUESTED ______

REQUIRED ANALYSES

SAMPLING DATE	SAMPLING TIME	SAMPLE ID	AQUEOUS MATRIX	NONAQUEOUS MATRIX	BOD/TSS	OIL + GREASE	TKN/P-TOTAL NO_3 + NO_2	COD	TOTAL METALS	DISSOLVED METALS (LAB FILLED)				REMARKS
12/11/92	4:00 PM	GRAB (OUTFALL) 001	X		1	1	1	1	1	1				8.0 pH + 2°C

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME	RELINQUISHED BY: (SIGNATURE)	DATE/TIME
S. Samuel	10/1 12:10				
R. Hales	12/14/92 1:00				

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE/TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS:
J. Sancomb	12/15 9:55	YES		46235	

APPENDIX B
PHOTO DOCUMENTATION

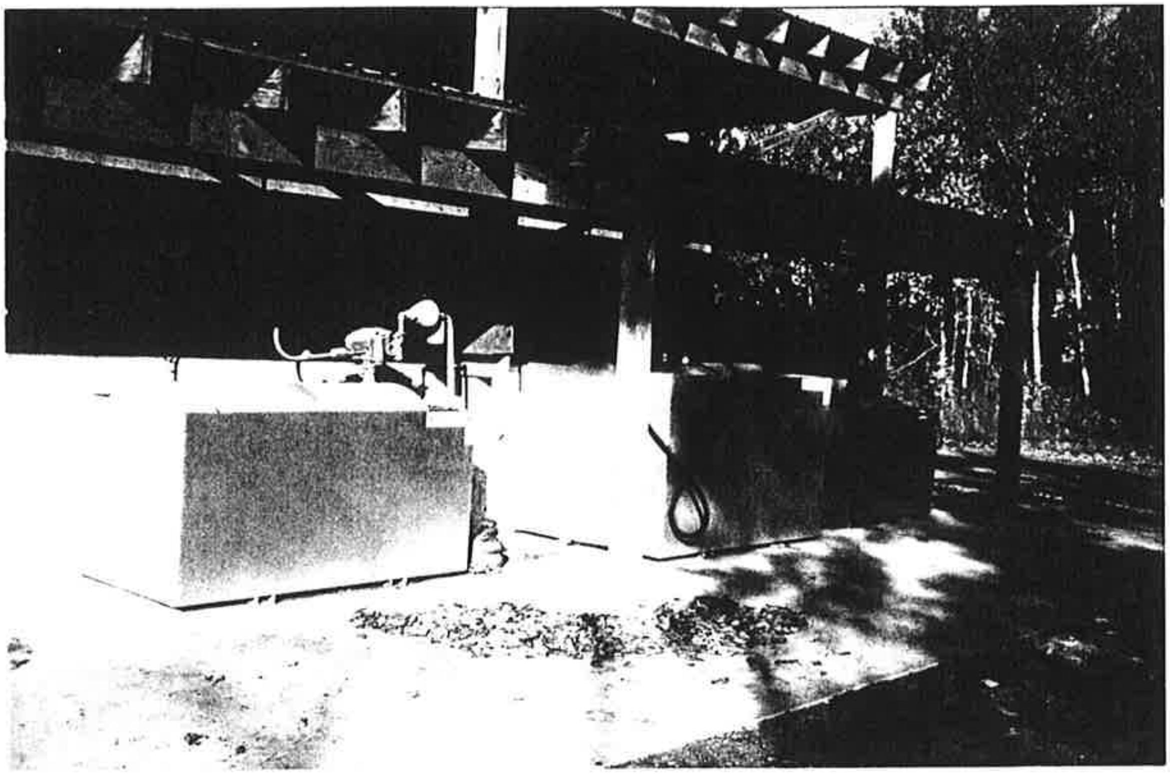


PHOTO NO. 1 - DIESEL, GASOLINE, AND KEROSENE TANKS

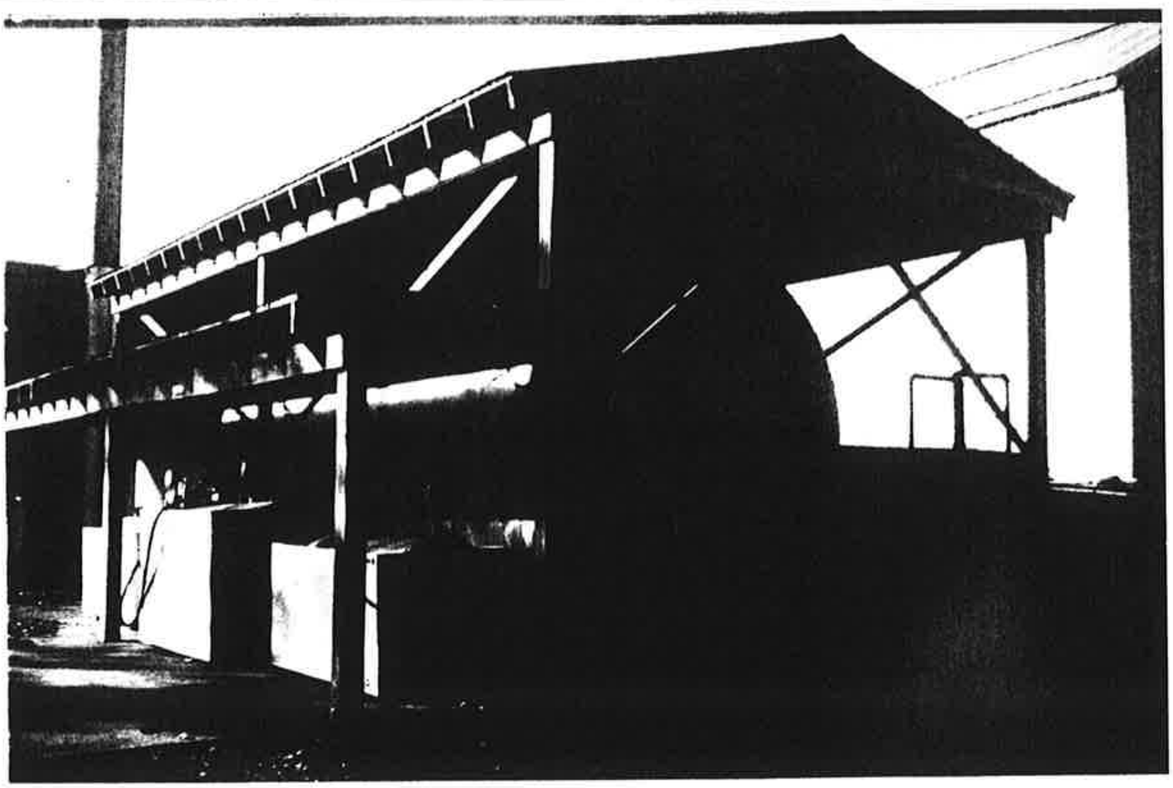


PHOTO NO. 2 - FUEL OIL TANK (18,000 GALLON)

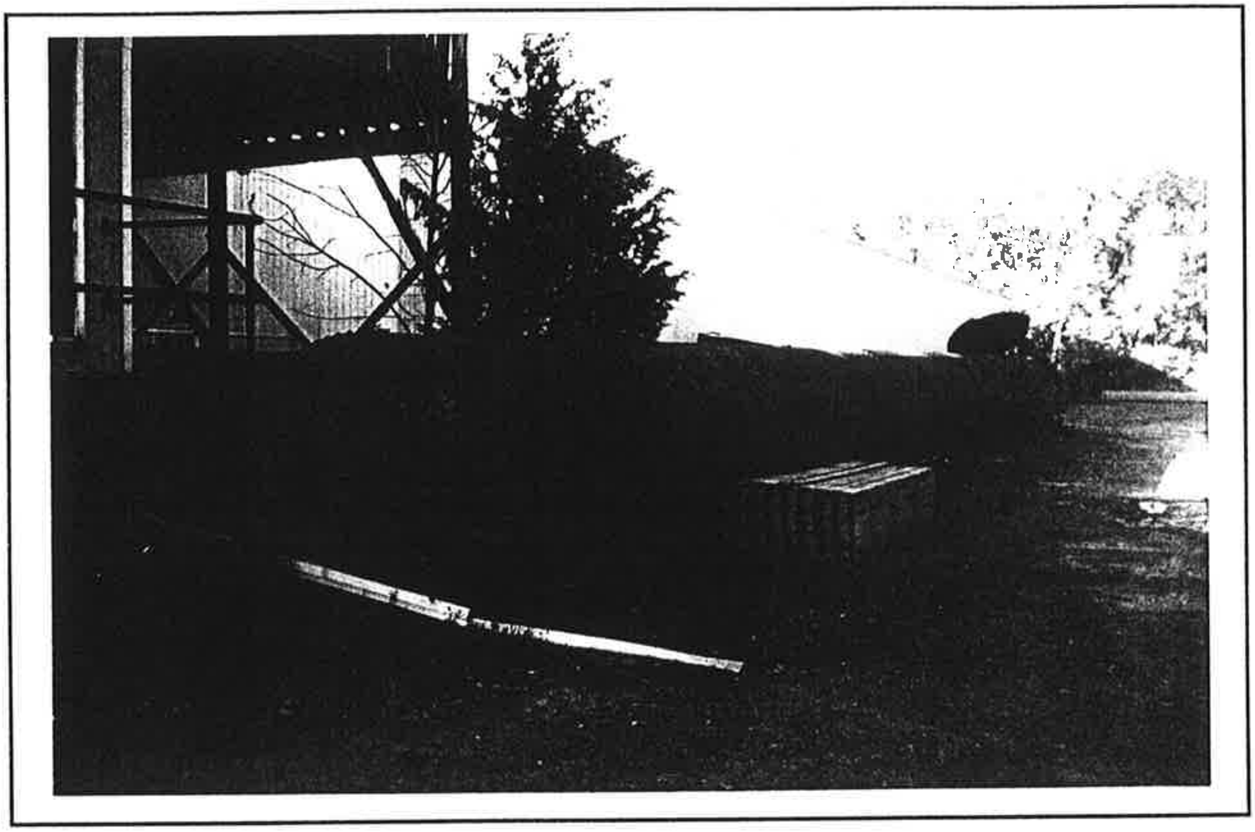


PHOTO NO. 3 - OLD TREATING CYLINDER

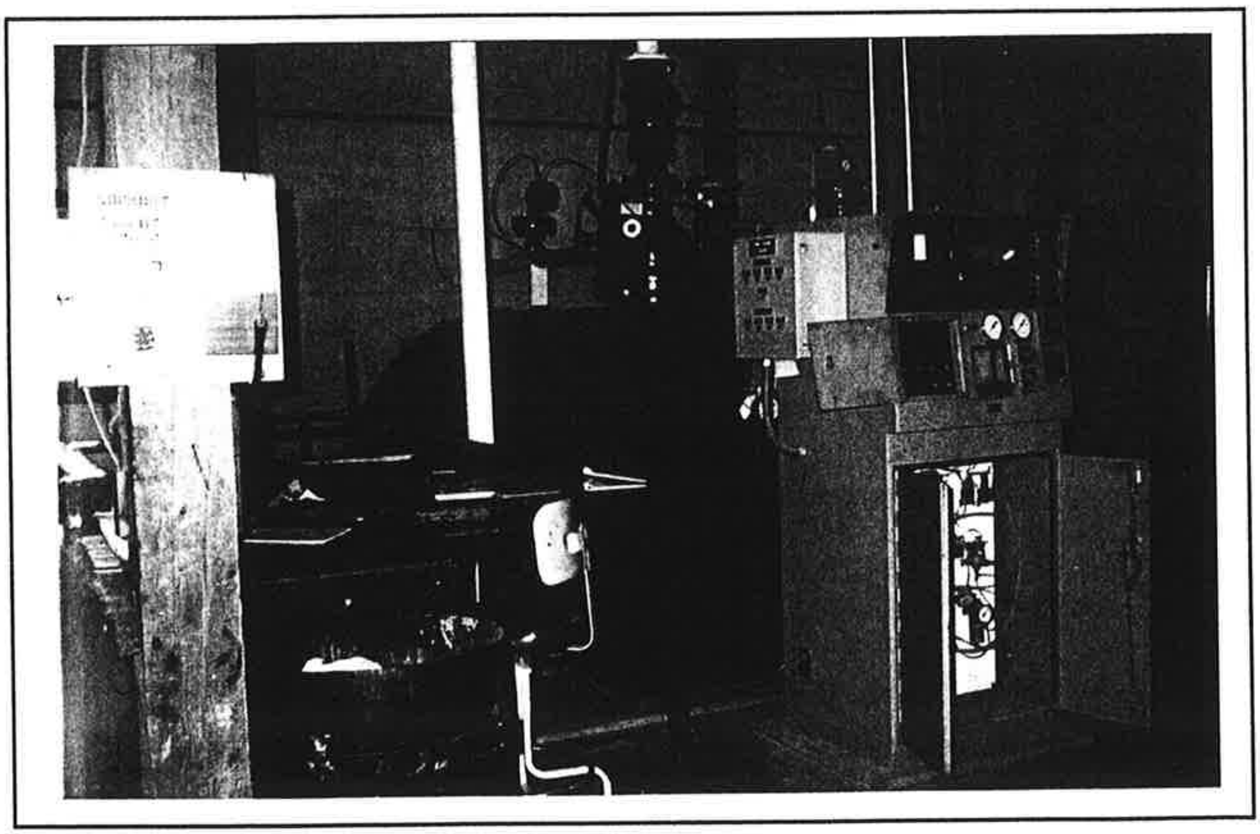


PHOTO NO. 4 - BACKEND OF TREATING CYLINDER

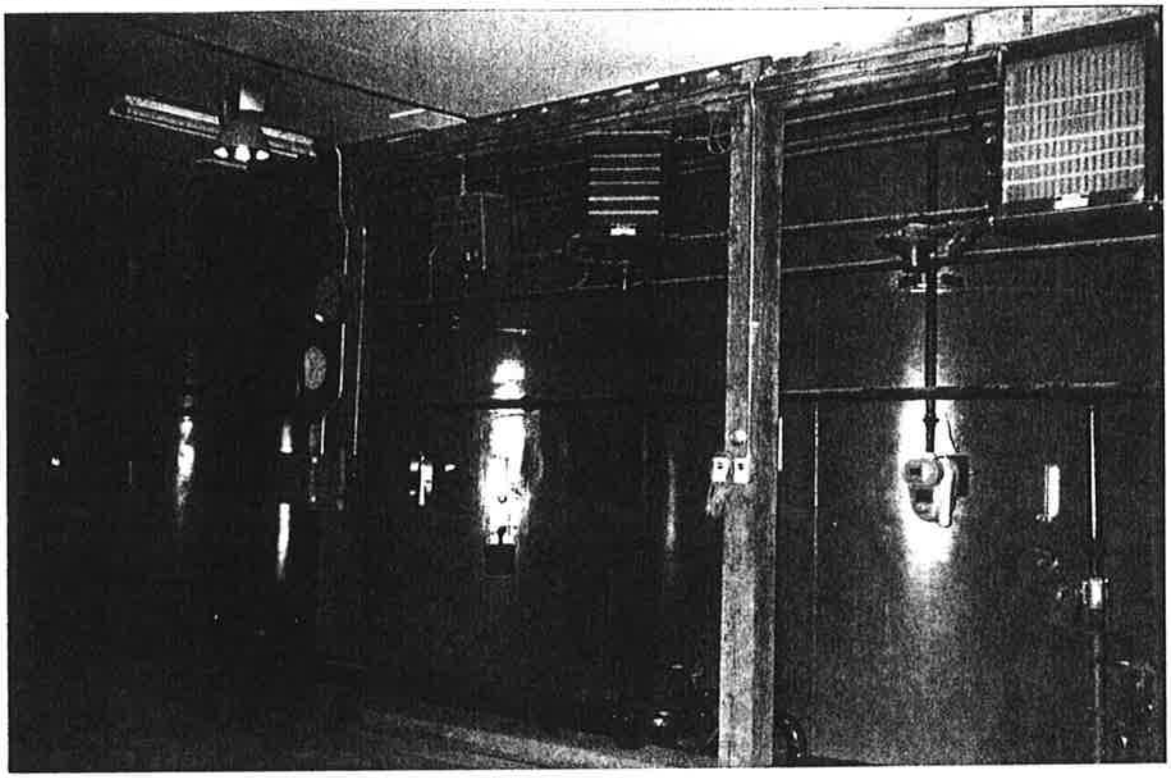


PHOTO NO. 5 - CCA SOLUTION STORAGE TANKS

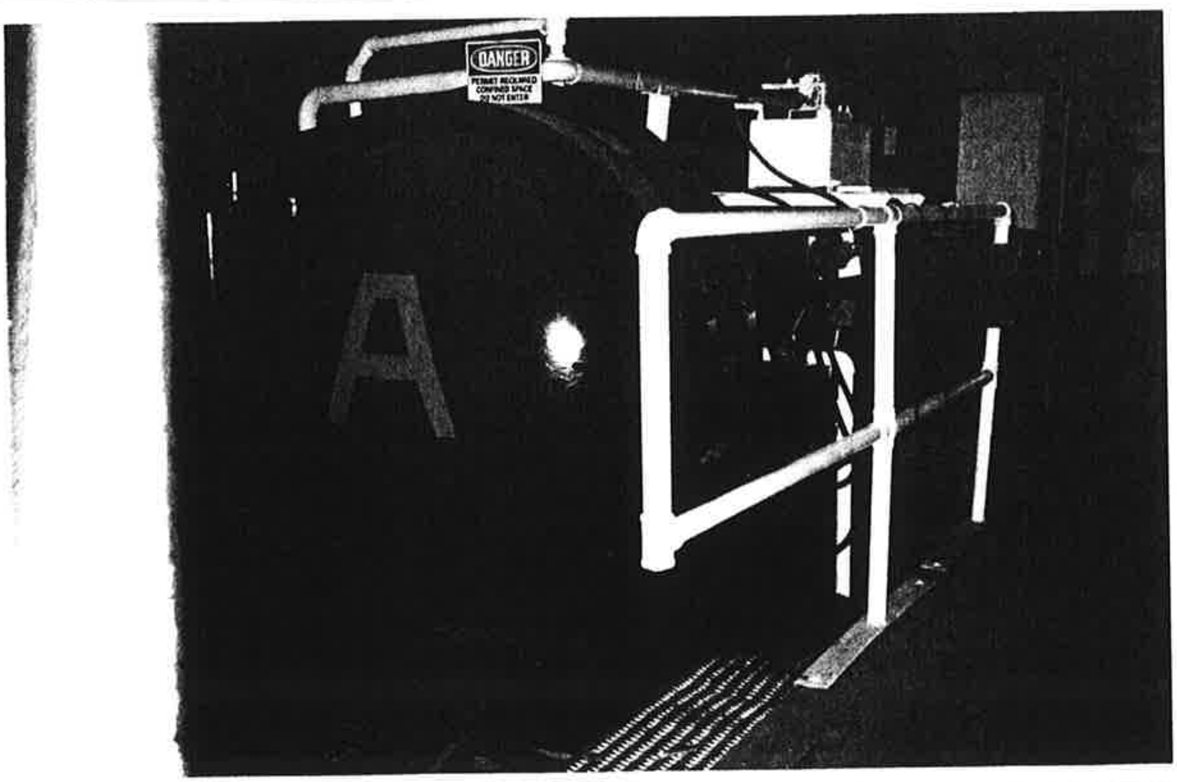


PHOTO NO. 6 - FRONT END OF TREATING CYLINDER

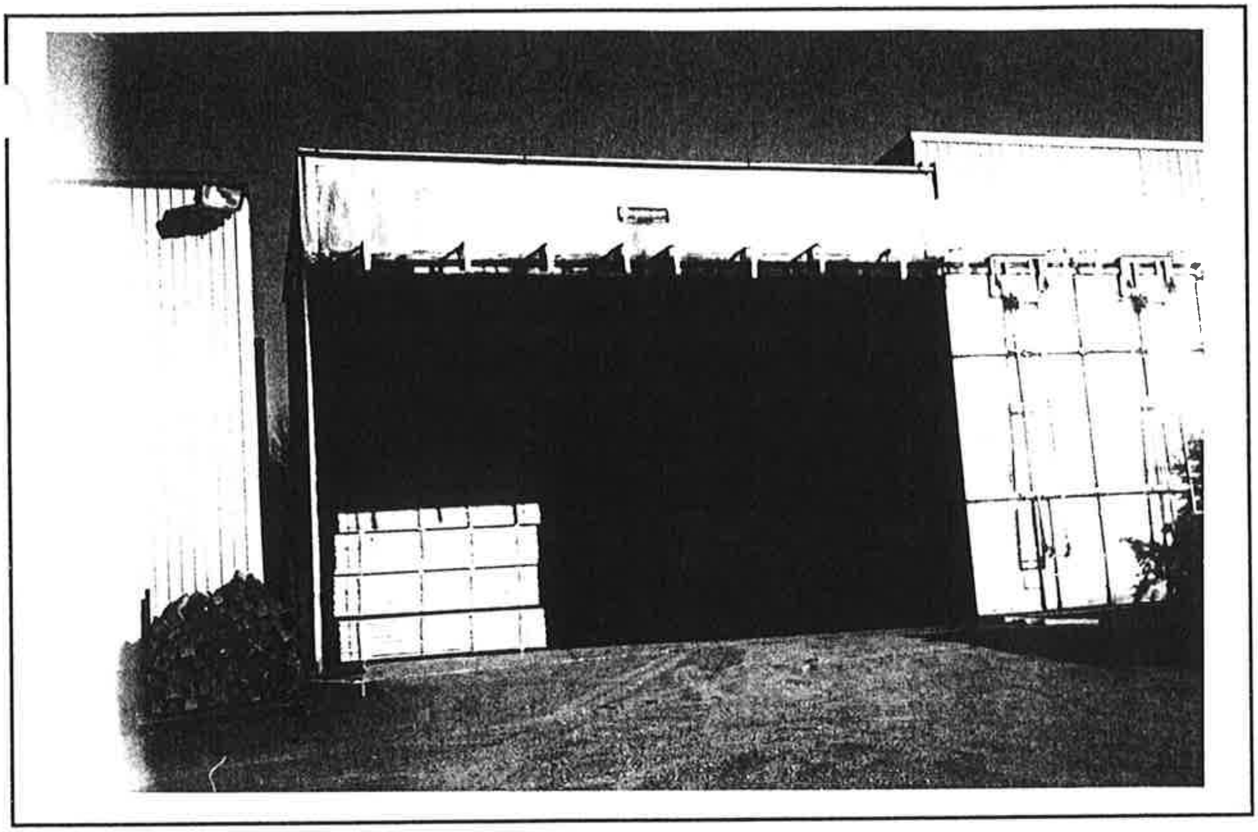


PHOTO NO. 7 - DRY KILN

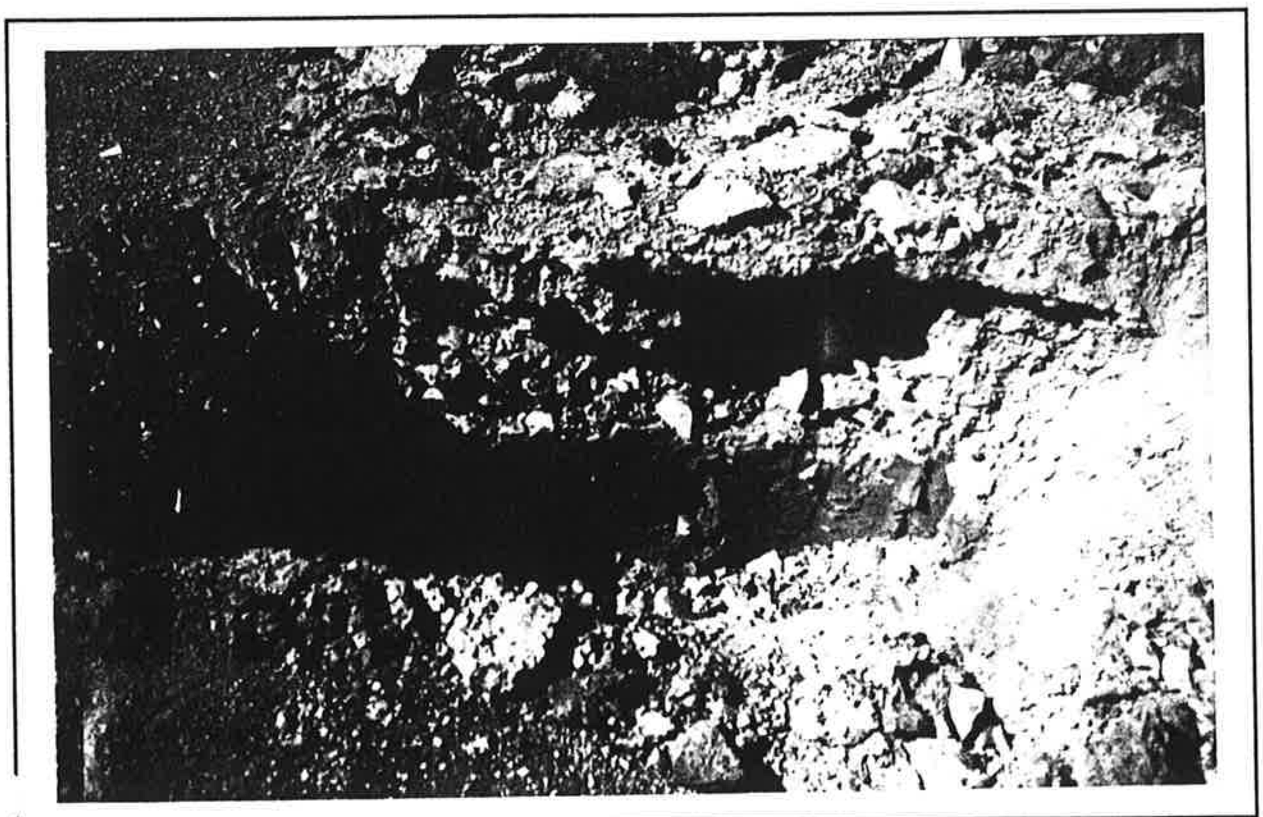


PHOTO NO. 8 - SAMPLE LOCATION - SS-8

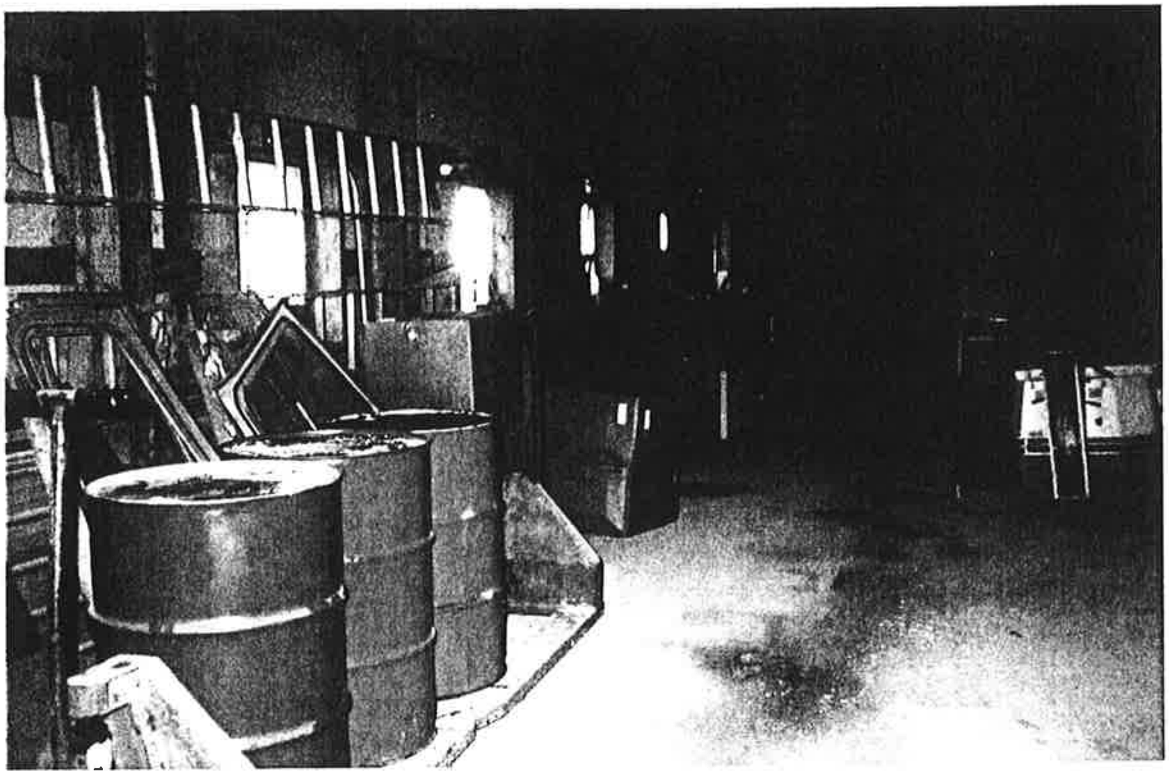


PHOTO NO. 9 - INSIDE MAINTENANCE BUILDING

PHOTO 10 - SMALL SAWDUST PILE BEHIND MAINTENANCE BUILDING

PHOTO NO. 11 - SCRAP STEEL BANDING PILE

PHOTO NO. 12 - DUCT PIPE

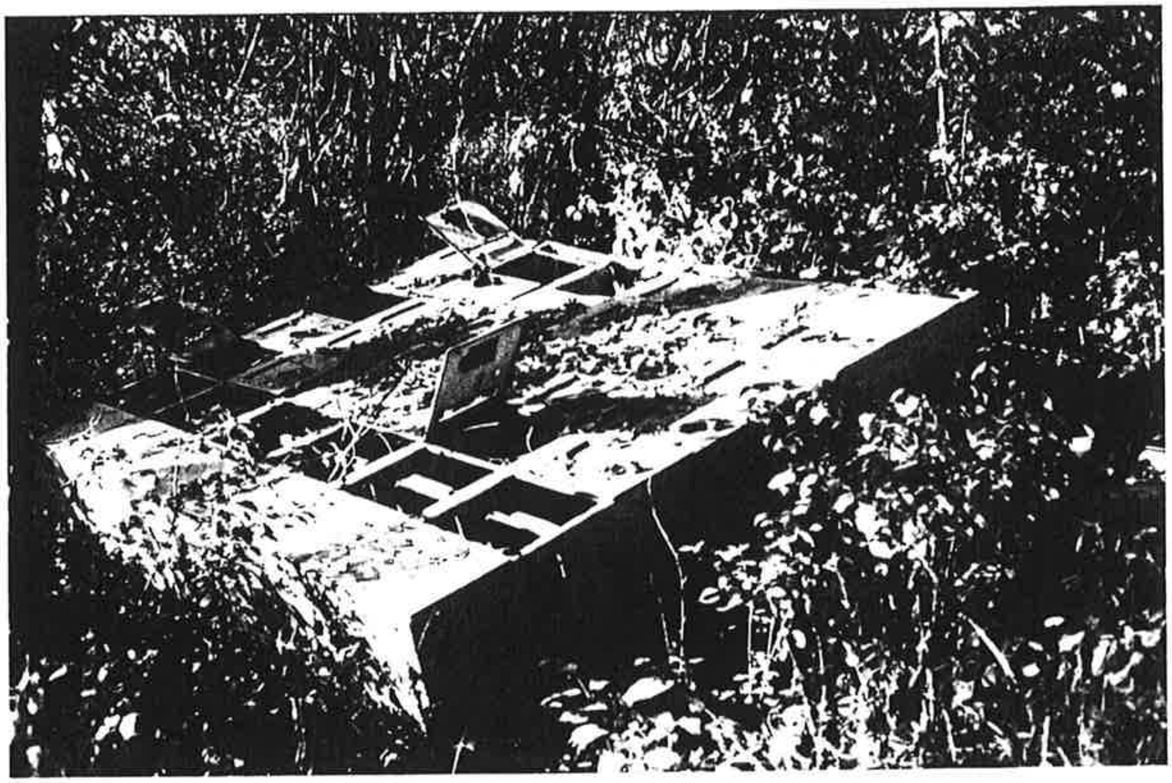


PHOTO NO. 13 - OLD CONTROL PANEL

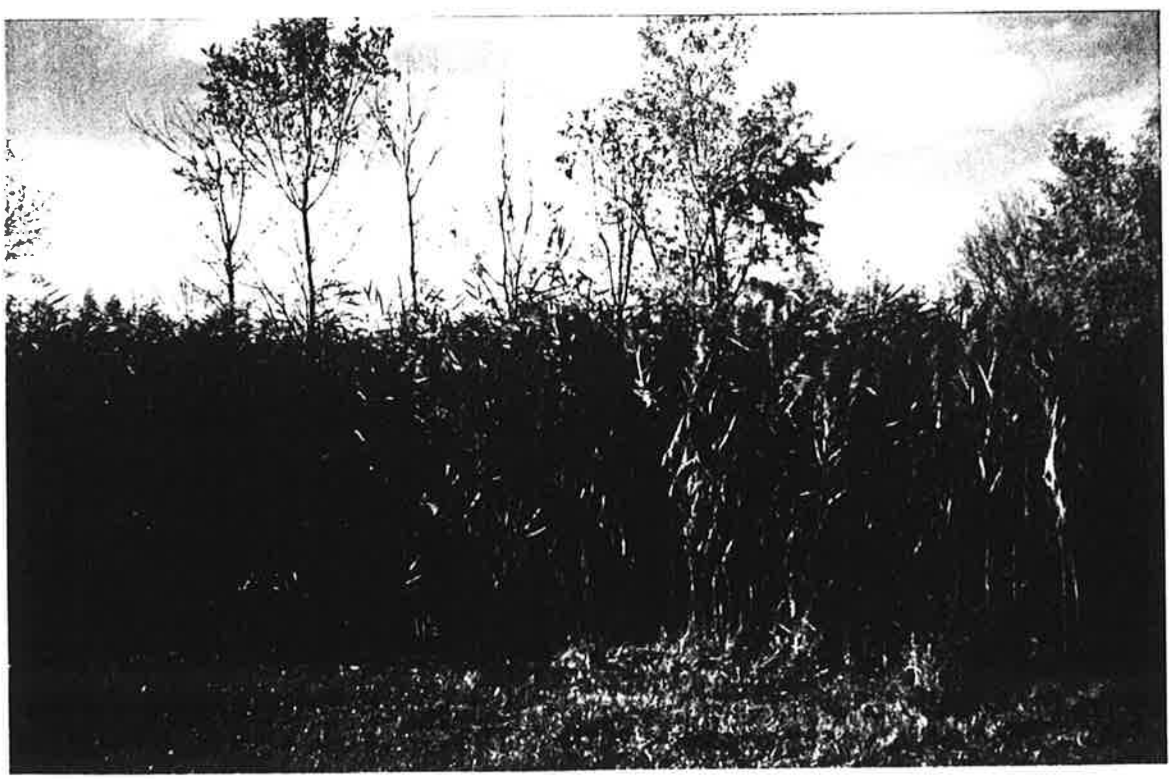


PHOTO NO. 14 - SMALL WET AREA ON WEST SIDE OF PROPERTY

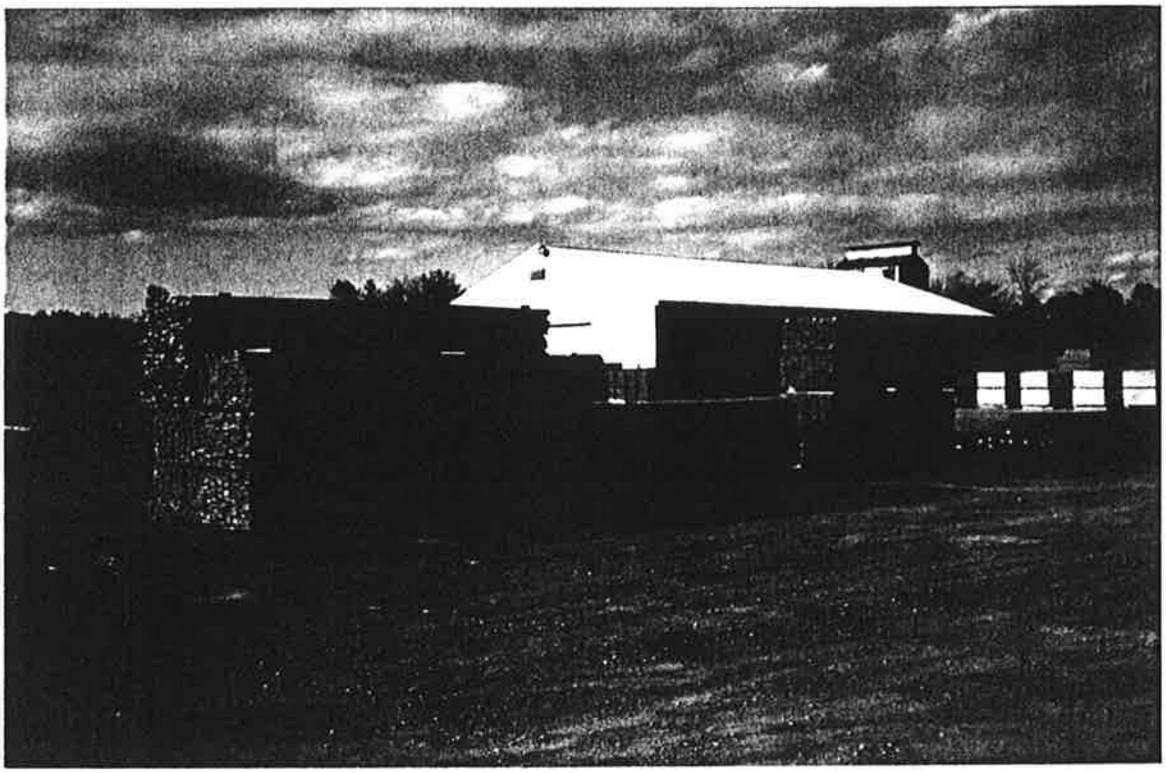


PHOTO NO. 15 - STACKING MACHINE BUILDING

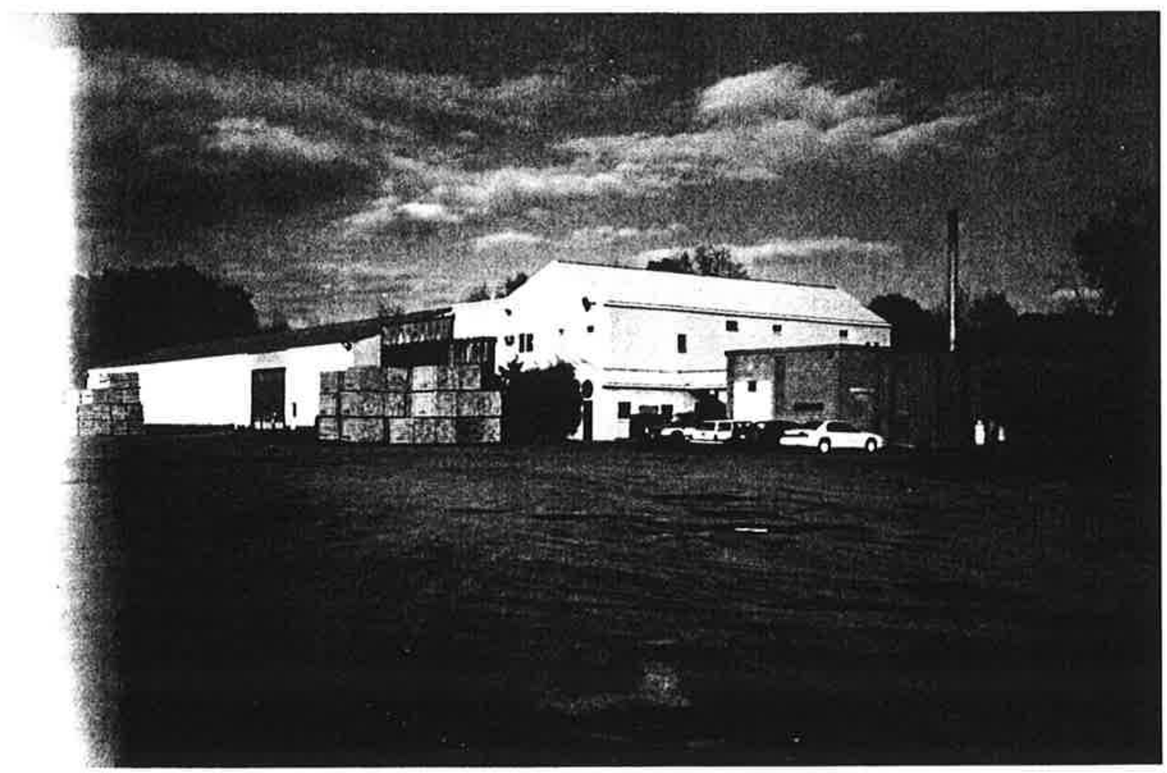


PHOTO NO. 16 - CCA PROCESS, DRY KILN, BOILER, AND OFFICE BUILDING

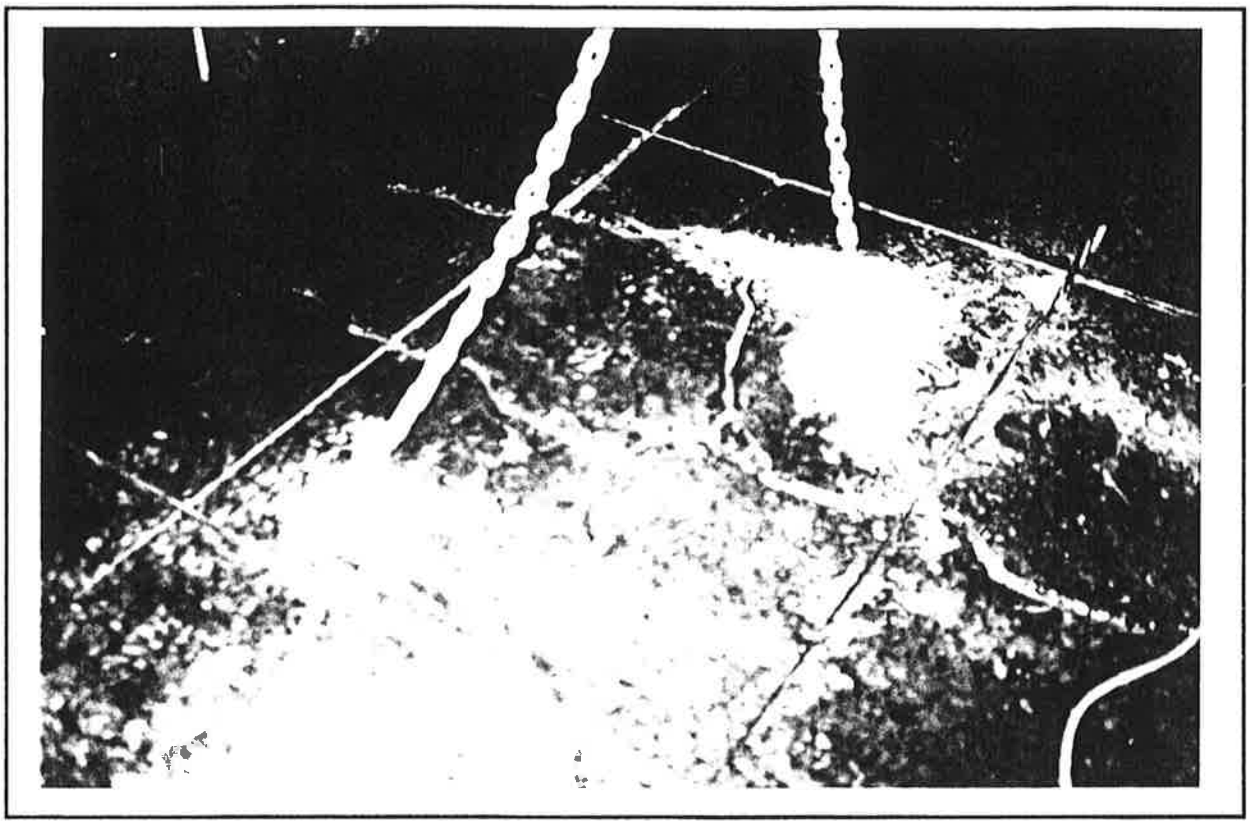


PHOTO NO. 17 SECTION OF CONCRETE PRIOR TO REMOVAL FROM DRIP PAD

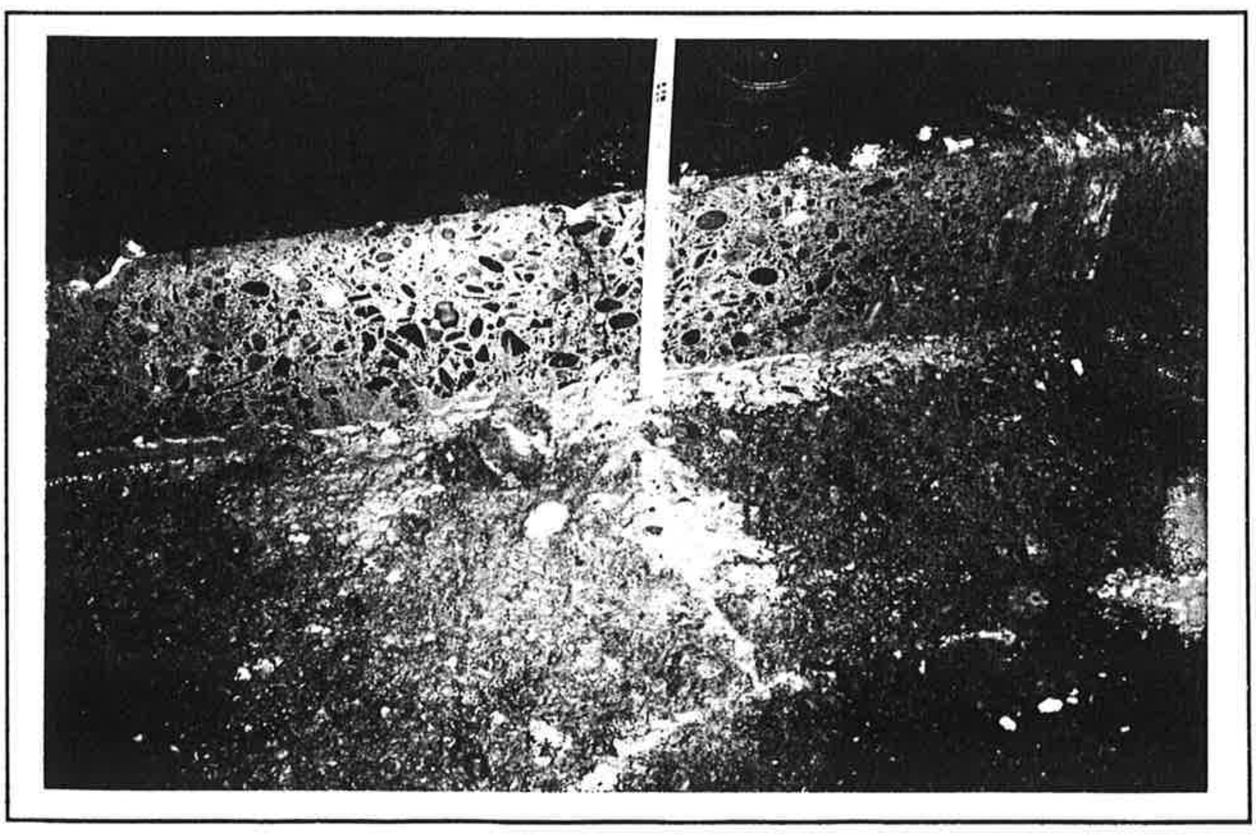


PHOTO NO. 18 CROSS SECTION OF DRIP PAD SHOWING CRACK AND UNDERLYING SOILS

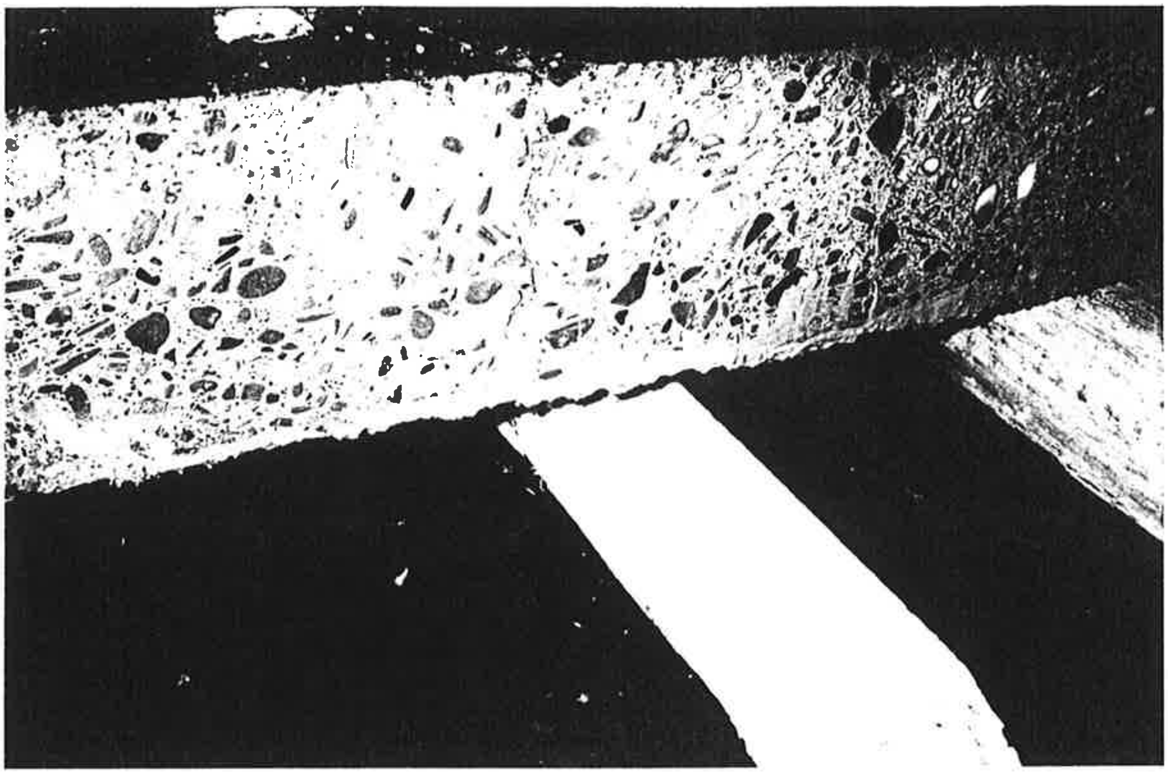


PHOTO NO. 19 END VIEW OF REMOVED SECTION FROM DRIP PAD SHOWING CRACK

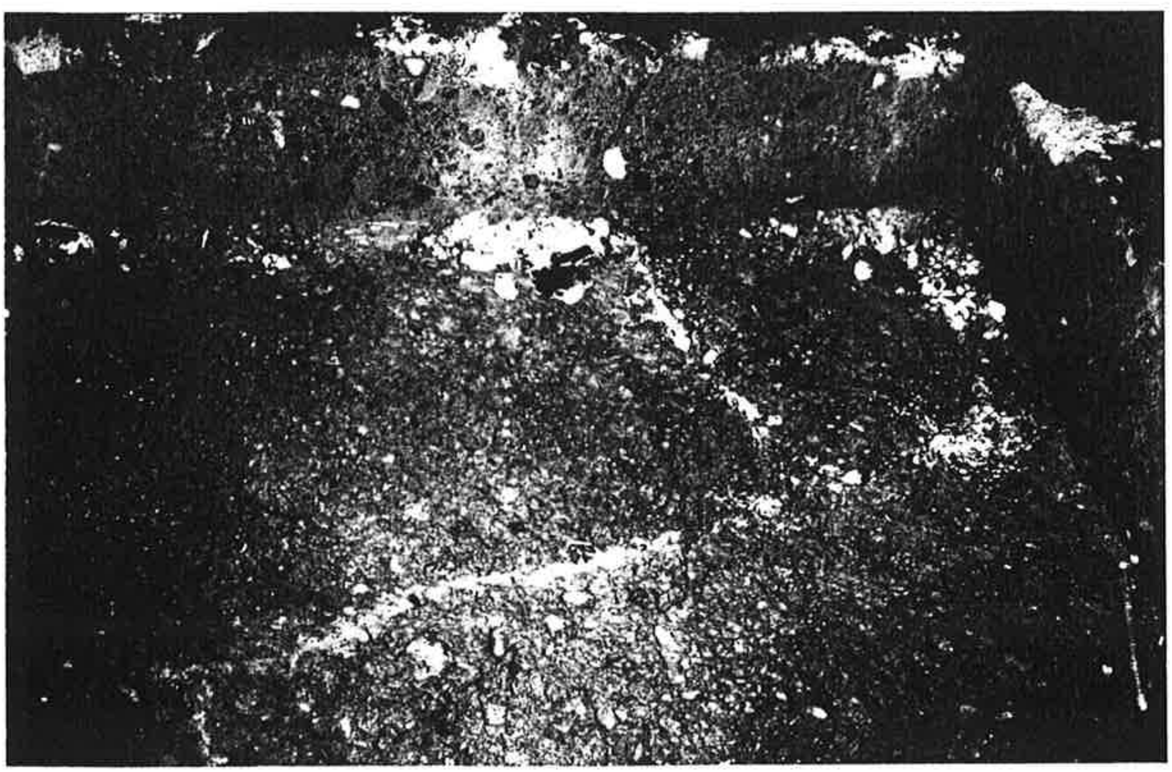


PHOTO NO. 20 REMOVED SECTION OF DRIP PAD SHOWS UNDERLYING SOIL

APPENDIX C
EDR AND VISTA REPORT

The EDR-Radius Map
with GeoCheck™

Atlantic Wood Industries
Schoharie Tpke.
West Athens, NY 12015

Inquiry Number: 194703.4p

October 30, 1995

EDR Environmental Data Resources, Inc.

Creators of Toxicheck/®

The Source
For Environmental
Risk Management
Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802

TABLE OF CONTENTS

SECTION **PAGE**

Executive Summary ---------- ES1
Topographic Map ---------- 2
GeoCheck Summary ---------- 3
Overview Map ---------- 4
Detail Map ---------- 5
Map Summary - All Sites ---------- 6
Map Summary - Sites with higher or the same elevation as the Target Property ---------- 7
Map Findings ---------- 8
Orphan Summary ---------- 9

APPENDICES

GeoCheck Version 2.1 ---------- A1
EPA Waste Codes ---------- A7
Government Records Searched / Data Currency Tracking Addendum ---------- A8

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The search met the specific requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-94, or custom distances requested by the user.

The address of the subject property for which the search was intended is:

SCHOHARIE TPKE.
WEST ATHENS, NY 12015

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the subject property or within the ASTM E 1527-94 search radius around the subject property for the following Databases:

NPL:........................ National Priority List
Delisted NPL:............... NPL Deletions
RCRIS-TSD:.................. Resource Conservation and Recovery Information System
State Haz. Waste:........... Inactive Hazardous Waste Disposal Sites in New York State
CERCLIS:.................... Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP:................. Comprehensive Environmental Response, Compensation, and Liability Information System
State LF:................... Facility Register
LUST:....................... Spills Information Database
UST:........................ Petroleum Bulk Storage (PBS, CBS, MOSF) Database
RAATS:...................... RCRA Administrative Action Tracking System
RCRIS-SQG:.................. Resource Conservation and Recovery Information System
HMIRS:...................... Hazardous Materials Information Reporting System
PADS:....................... PCB Activity Database System
ERNS:....................... Emergency Response Notification System
NPL Liens:.................. Federal Superfund Liens
TSCA:....................... Toxic Substances Control Act
MLTS:....................... Material Licensing Tracking System
RODS:....................... Records Of Decision
CONSENT:.................... Superfund (CERCLA) Consent Decrees
NY Spills:.................. Spills Information Database
Coal Gas:................... Former Manufactured gas (Coal Gas) Sites

Unmapped (orphan) sites are not considered in the foregoing analysis.

Search Results:

Search results for the subject property and the search radius, are listed below:

Subject Property:

The subject property was identified in the following government records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
ATLANTIC WOOD IND. INC. RT. 1, BOX 204-SCHOHARIE TURNPIKE ATHENS, NY 12015	AST	N/A
ATLANTIC WOOD INDUSTRIES INC SCHOHARIE TURNPIKE ATHENS, NY 12015	AST	N/A

EXECUTIVE SUMMARY

ATLANTIC WOOD INDUSTRIES INC SCHOHARIE TURNPIKE ROAD WEST ATHENS, NY 12015	FINDS RCRIS-LQG TRIS CORRACTS	NYD095240610

EXECUTIVE SUMMARY

Surrounding Properties:

Sites with an elevation equal to or higher than the subject property are in the left hand column; those with a lower elevation are in the right hand column. Page numbers refer to the EDR Radius Map report where detailed data on individual sites may be reviewed.

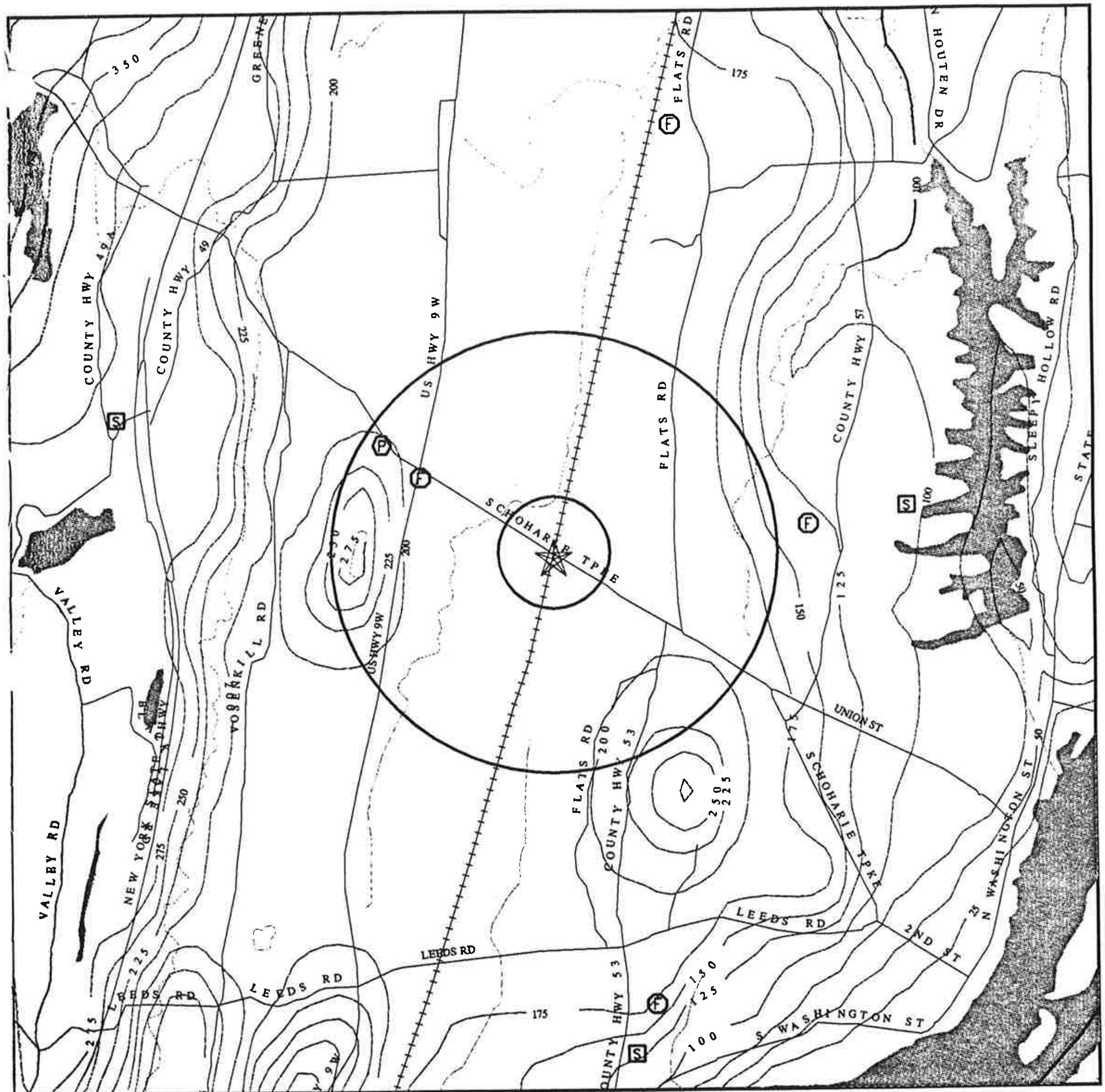
Sites listed in ***bold italics*** are in multiple databases.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
JOEL VANKUREN RESIDENCE	LUST
NIMO CTY RT 74	LUST
VALLEY OIL CO.	LUST
IN & OUT EXTRA MART	LUST
CATSKILL HIGHWAY DEPT.	LUST
EXTRA MART SUNOCO RT. 23B	LUST
CATSKILL MOTOR LODGE 23B	LUST
TWY MAINT BLDG EXIT 21	LUST
TUCZYNSKI RESIDENCE/DKTK	LUST
CARSON CITY RT 32	LUST
GREENE CO. WELDING RT 32	LUST
TUCZYNSKI RESIDENCE/DKTK	LUST
PAVLIN RES RT 385	LUST
CATSKILL MARINA	LUST, NY Spills
CAUTERSKILL RD SEALER	LUST
CUMBERLAND FARM JEFFERSON	LUST, NY Spills
CUMBERLAND FARMS 3150	RCRIS-SQG, FINDS, LUST
NIAGARA MOHAWK LEEDS SUBSTATION	UST
XTRA MART #1451-BRIDGE APPROACH	UST
DAVES TOWING INC	UST, AST
CATSKILL MOTOR LODGE	UST, AST
TOWN OF CATSKILL HIGHWAY DEPT.	UST, AST
CATSKILL XTRA MART	UST
RED RANCH MOTEL	UST
GALLAGHER'S GARAGE, INC.	UST, AST
STEWART'S ICE CREAM CO INC 298	UST
CATSKILL SECTION MAINT MP113.3	UST, AST
TOWN OF CATSKILL-LANDFILL	UST
D AND D AUTO	UST
SLEEPY HOLLOW LAKE WATER COMPANY	AST
TRAVCO INDUSTRIAL PROPERTIES	AST
GRAND INDUSTRIES PROPERTIES	RCRIS-SQG, FINDS
CATSKILL NICE N EASY	RCRIS-SQG, FINDS
XTRA MART	RCRIS-SQG, FINDS
CHARLIE'S AUTO BODY	RCRIS-SQG, FINDS
NYS BRIDGE AUTH - RIP VAN WINKLE	RCRIS-SQG, FINDS
NYSDOT BIN 1047370	FINDS, RCRIS-LQG
WORMUTH BROTHERS FOUNDRY INC	FINDS, RCRIS-LQG
GRUMMAN OLSON DIV OF GRUMMAN ALLIE	FINDS, RCRIS-LQG
NYSDOT BIN 1022380	FINDS, RCRIS-LQG
NYS THRUWAY AUTH	FINDS, RCRIS-LQG

TOPOGRAPHIC MAP - 194703.4p - Groundwater Technology, Inc



Source: US Geological Survey 1-Degree Digital Elevation Model
Compiled 09/15/92

0 1/4 1/2 1 2
Miles

N - Major Roads

N - Contour lines (25 foot interval unless otherwise shown)

- Waterways

- Earthquake epicenter, Richter 5 or greater.

F S - Closest well according to (F)ederal or (S)tate database in quadrant.

P - Closest public water supply well.

TARGET PROPERTY:	Atlantic Wood Industries	CUSTOMER:	Groundwater Technology, Inc
ADDRESS:	Schoharie Tpke.	CONTACT:	Karen Durkin
CITY/STATE/ZIP:	West Athens NY 12015	INQUIRY #:	194703.4p
LAT/LONG:	42.2862 / 73.8425	DATE:	October 30, 1995

GEOCHECK VERSION 2.1
SUMMARY

GEOLOGIC AGE IDENTIFICATION†

Geologic Code:	O2
Era:	Paleozoic
System:	Ordovician
Series:	Middle Ordovician (Mohawkian)

ROCK STRATIGRAPHIC UNIT†

Category: Stratified Sequence

GROUNDWATER FLOW INFORMATION

General Topographic Gradient: Undeterminable

General Hydrogeologic Gradient: The hydrogeologic data for this report indicates that groundwater flow generally is to the SSE. However, because of the number and/or location of wells, the various depths of aquifers or other insufficient data, the direction of groundwater flow is uncertain.

Note: In a general way, the water table typically conforms to surface topography.‡

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property: 2442073-C7 HUDSON NORTH, NY

FEDERAL DATABASE WELL INFORMATION

WELL QUADRANT	DISTANCE FROM TP	LITHOLOGY	DEPTH TO WATER TABLE
North	>2 Miles	Shale	40 ft.
East	1 - 2 Miles	Shale	24 ft.
South	>2 Miles	Shale	30 ft.
West	1/2 - 1 Mile	Sandstone and shale	6 ft.

STATE DATABASE WELL INFORMATION

WELL QUADRANT	DISTANCE FROM TP
Eastern	1 - 2 Miles
Southern	>2 Miles
Western	>2 Miles

PUBLIC WATER SUPPLY SYSTEM INFORMATION (EPA-FRDS)

Searched by Nearest Well.

Location Relative to TP: 1/2 - 1 Mile West
PWS Name: TWIN PONDS APARTMENTS
ATHENS, NY 12015
Well currently has or has had major violation(s): Yes

AREA RADON INFORMATION

GREENE COUNTY, NY

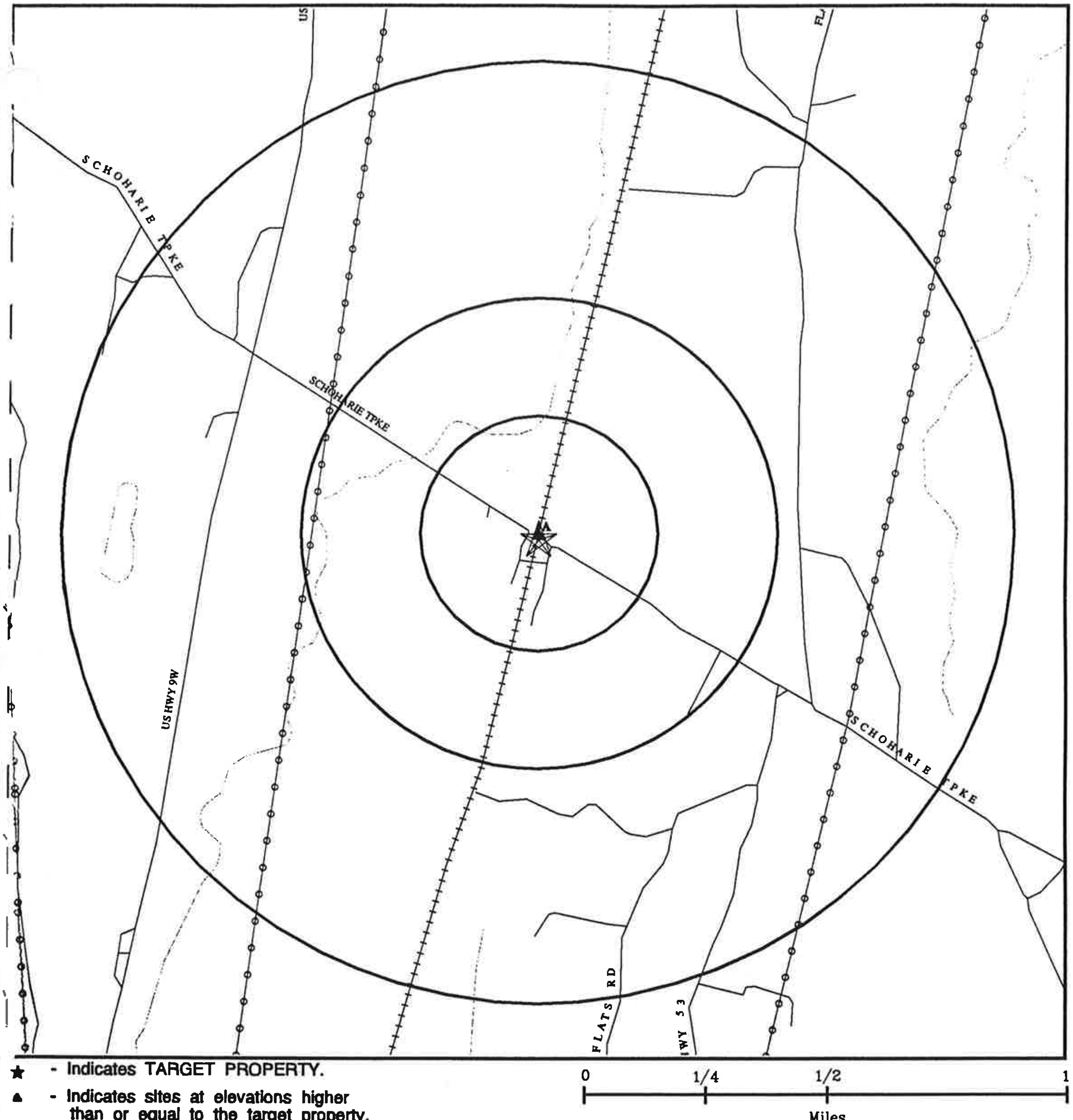
Number of sites tested: 19

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area	1.170 pCi/L	95%	5%	0%
Basement	2.910 pCi/L	47%	53%	0%

† Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

‡ U.S. EPA Ground Water Handbook, Vol I: Ground Water and Contamination, Office of Research and development EPA/625/6-90/016a,Chapter 4, page 78, September 1990.

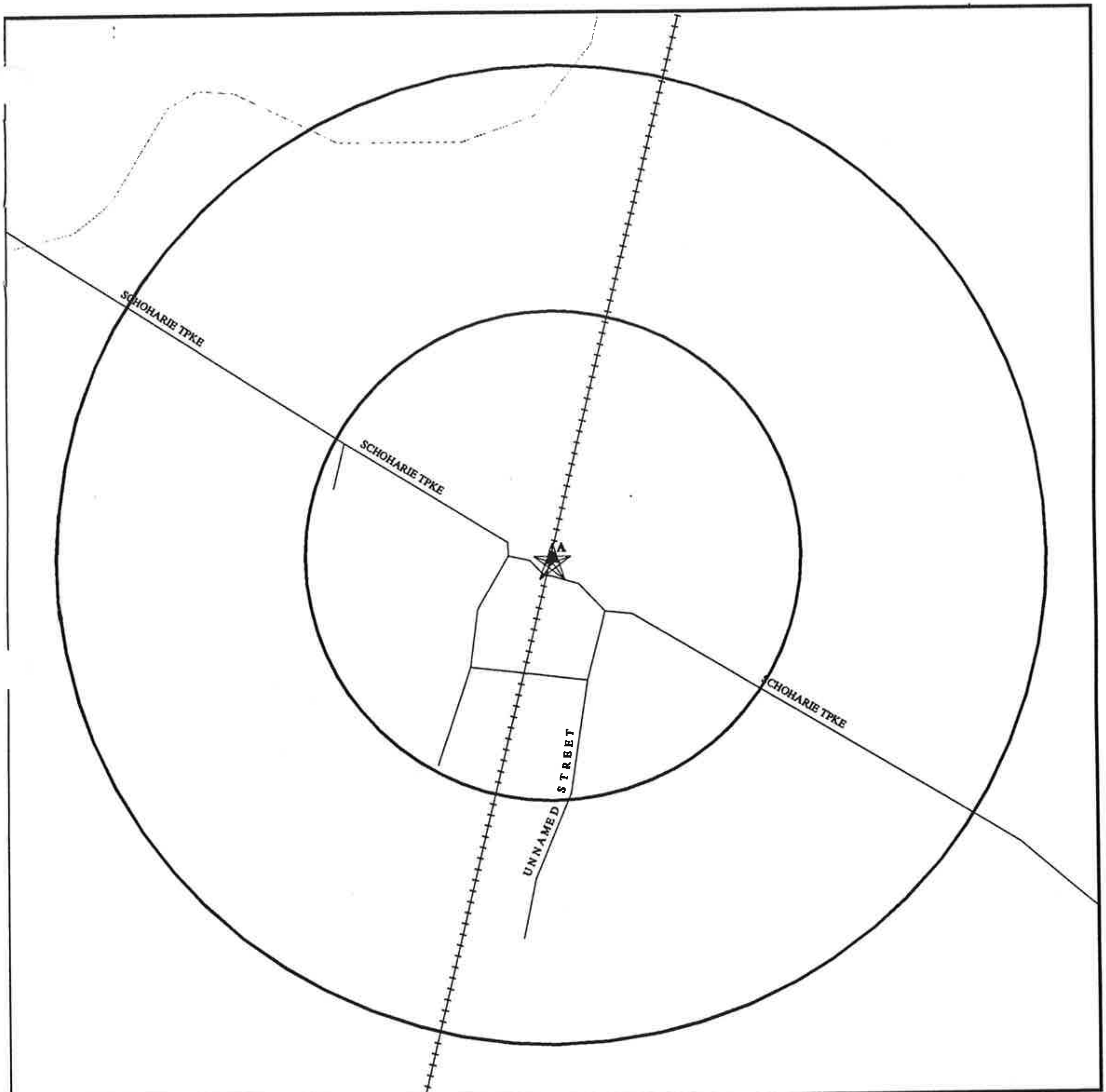
OVERVIEW MAP - 194703.4p - Groundwater Technology, Inc



- Indicates TARGET PROPERTY.
- Indicates sites at elevations higher than or equal to the target property.
- Indicates sites at elevations lower than the target property.
- Coal Gasification Sites (if requested)
- National Priority List Sites

- Power transmission lines (USGS DLG, 1993)
- Oil & Gas pipelines (USGS DLG, 1993)

TARGET PROPERTY:	Atlantic Wood Industries	CUSTOMER:	Groundwater Technology, Inc
ADDRESS:	Schoharie Tpke.	CONTACT:	Karen Durkin
CITY/STATE/ZIP:	West Athens NY 12015	INQUIRY #:	194703.4p
LAT/LONG:	42.2862 / 73.8425	DATE:	October 30, 1995



★ - Indicates TARGET PROPERTY.

▲ - Indicates sites at elevations higher than or equal to the target property.

◆ - Indicates sites at elevations lower than the target property.

- Coal Gasification Sites (if requested)

- Sensitive Receptors

- National Priority List Sites

0 1/8 1/4

Miles

- Power transmission lines (USGS DLG, 1993)

- Oil & Gas pipelines (USGS DLG, 1993)

TARGET PROPERTY:	Atlantic Wood Industries	CUSTOMER:	Groundwater Technology, Inc
ADDRESS:	Schoharie Tpke.	CONTACT:	Karen Durkin
CITY/STATE/ZIP:	West Athens NY 12015	INQUIRY #:	194703.4p
LAT/LONG:	42.2862 / 73.8425	DATE:	October 30, 1995

MAP FINDINGS SUMMARY SHOWING ALL SITES

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.000	0	0	0	0	NR	0
Delisted NPL		TP	NR	NR	NR	NR	NR	0
RCRIS-TSD		1.000	0	0	0	0	NR	0
State Haz. Waste		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		TP	NR	NR	NR	NR	NR	0
CORRACTS	X	1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
AST	X	0.125	0	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Lg. Quan. Gen.	X	0.250	0	0	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
FINDS	X	TP	NR	NR	NR	NR	NR	0
TRIS	X	TP	NR	NR	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
NY Spills		TP	NR	NR	NR	NR	NR	0
ROD		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
Coal Gas		1.000	0	0	0	0	NR	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

MAP FINDINGS SUMMARY SHOWING ONLY SITES HIGHER THAN OR THE SAME ELEVATION AS TP

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.000	0	0	0	0	NR	0
Delisted NPL		TP	NR	NR	NR	NR	NR	0
RCRIS-TSD		1.000	0	0	0	0	NR	0
State Haz. Waste		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		TP	NR	NR	NR	NR	NR	0
CORRACTS	X	1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
AST	X	0.125	0	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Lg. Quan. Gen.	X	0.250	0	0	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
FINDS	X	TP	NR	NR	NR	NR	NR	0
TRIS	X	TP	NR	NR	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
NY Spills		TP	NR	NR	NR	NR	NR	0
ROD		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
Coal Gas		1.000	0	0	0	0	NR	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

A3 Target Property	ATLANTIC WOOD IND. INC. RT. 1, BOX 204-SCHOHARIE TURNPIKE ATHENS, NY 12015	AST	U000724834 N/A
A2 Target Property	ATLANTIC WOOD INDUSTRIES INC SCHOHARIE TURNPIKE ATHENS, NY 12015	AST	U001845060 N/A
A1 Target Property	ATLANTIC WOOD INDUSTRIES INC SCHOHARIE TURNPIKE ROAD WEST ATHENS, NY 12015	FINDS RCRIS-LQG TRIS CORRACTS	1000153434 NYD095240610

CORRACTS Data:
Prioritization: Not reported
Status: RCRA Facility Investigation Completed

RCRIS:
Owner: A G LABROT
(912) 964-1234

Contact: RICH HALF
(518) 945-2660

Waste	Quantity	Info Source	Waste	Quantity	Info Source
D000	.00000 (N)	Notification	D004	.00000 (N)	Notification
D007	.00000 (N)	Notification	D004	2.49400 (M)	Part A
D007	.00100 (P)	Part A			

(P) = Pounds , (K) = Kilograms , (M) = Metric Tons , (T) = Tons , (N) = Not Reported

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
ATHENS	1000556900	GRAND INDUSTRIES PROPERTIES	RD 1 SCHOHARIE TNPK	12015	RCRIS-SQG, FINDS	
ATHENS	S100132804	JOEL VANKUREN RESIDENCE	RD 1 BOX 13 RT. 385	12015	LUST	8805673
ATHENS	1000790954	NYSDOT BIN 1047370	RTE 385 OVER MURDERERS CREEK	12015	FINDS, RCRIS-LQG	
ATHENS	U001959120	SLEEPY HOLLOW LAKE WATER COMPANY	RTE. 385-NORTH END OF VILLAGE	12015	AST	4-000183
ATHENS	S100560495	NIMO CTY RT 74	CTY RT 74	12015	LUST	9302412
ATHENS	1000549185	WORMUTH BROTHERS FOUNDRY INC	HOWARD HALL RD & SCHOHARIE TNP	12015	FINDS, RCRIS-LQG	
ATHENS	U001323627	NIAGARA MOHAWK LEEDS SUBSTATION	LEEDS-ATHENS ROAD, CO.RT.74	12015	UST	4-600151
ATHENS	U000383488	TRAVCO INDUSTRIAL PROPERTIES	SCHOHARIE TNPK	12015	AST	4-443069
ATHENS	1000300853	GRUMMAN OLSON DIV OF GRUMMAN ALLIE	SCHOHARIE TURNPIKE RD	12015	FINDS, RCRIS-LQG	
CATSKILL	S100134518	VALLEY OIL CO.	RTE. 23	12414	LUST	8701668
CATSKILL	U001845004	XTRA MART #1451-BRIDGE APPROACH	ROUTE 23	12414	UST	4-066052
CATSKILL	U001845041	DAVES TOWING INC	RT 23	12414	UST, AST	4-072508
CATSKILL	U001845076	CATSKILL MOTOR LODGE	RT 23 B	12414	UST, AST	4-057886
CATSKILL	1000552489	CATSKILL NICE N EASY	RTE 23 RIP VAN WINKLE APPROACH	12414	RCRIS-SQG, FINDS	
CATSKILL	1000553308	XTRA MART	RTE 23 B & NYS THRUWAY	12414	RCRIS-SQG, FINDS	
CATSKILL	U001845253	TOWN OF CATSKILL HIGHWAY DEPT.	RTE 23A	12414	UST, AST	4-133760
CATSKILL	S100133717	IN & OUT EXTRA MART	RT. 23B @ EXIT 21 THRUWAY	12414	LUST	8907549
CATSKILL	S100134986	CATSKILL HIGHWAY DEPT.	RT 23B	12414	LUST	8709065
CATSKILL	S100136541	EXTRA MART SUNOCO RT. 23B	RT. 23B	12414	LUST	9100424
CATSKILL	S100780860	CATSKILL MOTOR LODGE 23B	RT. 23B	12414	LUST	9306119
CATSKILL	S101174205	TWY MAINT BLDG EXIT 21	RT. 23B @ EXIT 21	12414	LUST	9401094
CATSKILL	U001845468	CATSKILL XTRA MART	RT 23B	12414	UST	4-163988
CATSKILL	S100135099	TUCZYNSKI RESIDENCE/DKTK	RD 3 BOX 74 RT. 385	12414	LUST	8709969
CATSKILL	S100663731	CARSON CITY RT 32	RT. 32	12414	LUST	9101392
CATSKILL	S100663757	GREENE CO. WELDING RT 32	RT. 32	12414	LUST	9109610
CATSKILL	U000382342	RED RANCH MOTEL	4555 RT. 32	12414	UST	4-086150
CATSKILL	U000383265	GALLAGHER'S GARAGE, INC.	RTE. 32	12414	UST, AST	4-428507
CATSKILL	1000364275	CHARLIE'S AUTO BODY	RT 32	12414	RCRIS-SQG, FINDS	
CATSKILL	1000790951	NYSDOT BIN 1022380	RTE 32 OVER KISKATOM CREEK	12414	FINDS, RCRIS-LQG	
CATSKILL	S100163902	TUCZYNSKI RESIDENCE/DKTK	RT. 385 RD #3 BOX 74	12414	LUST	8710017
CATSKILL	S101340551	PAVLIN RES RT 385	RT 385	12414	LUST	9409539
CATSKILL	1000552669	NYS THRUWAY AUTH	BRG MP 110.01 RTE 23A	12414	FINDS, RCRIS-LQG	
CATSKILL	S100134855	CATSKILL MARINA	CATSKILL MARINA	12414	LUST, NY Spills	8706511
CATSKILL	S100664687	CAUTERSKILL RD SEALER	CAUTERSKILL RD NEAR RT 23	12414	LUST	9204877
CATSKILL	U001845896	STEWART'S ICE CREAM CO INC 298	CO.RT.23B AT THRUWAY EXIT 21	12414	UST	4-485004
CATSKILL	S100781613	CUMBERLAND FARM JEFFERSON	145 JEFFERSON AVE.	12414	LUST, NY Spills	9311834
CATSKILL	1000552364	CUMBERLAND FARMS 3150	145 JEFFERSON HEIGHTS RTE 23	12414	RCRIS-SQG, FINDS, LUST	9309372
CATSKILL	U001845317	CATSKILL SECTION MAINT MP113.3	NEW YORK STATE THRUWAY	12414	UST, AST	4-141267
CATSKILL	1000458005	NYS BRIDGE AUTH - RIP VAN WINKLE	RIP VAN WINKLE BRG PLZ RTE 23	12414	RCRIS-SQG, FINDS	
CATSKILL	U001845252	TOWN OF CATSKILL-LANDFILL	GR RTE 47	12414	UST	4-133744
CATSKILL	U001845053	D AND D AUTO	STAR ROUTE BOX 41	12414	UST	4-075477

GEOCHECK VERSION 2.1 ADDENDUM
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (North Quadrant)

BASIC WELL DATA

Site ID:	421844073495801	Distance from TP:	>2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Greene
Altitude:	180.00 ft.	State:	New York
Well Depth:	500.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	40.00 ft.	Prim. Use of Site:	Unused
Date Measured:	Not Reported	Prim. Use of Water:	Unused

LITHOLOGIC DATA

Geologic Age ID (Era/System/Series):	Ordovician-Lower
Principal Lithology of Unit:	Shale
Further Description:	Not Reported

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 2.1
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (East Quadrant)

BASIC WELL DATA

Site ID:	421716073491901	Distance from TP:	1 - 2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Greene
Altitude:	160.00 ft.	State:	New York
Well Depth:	65.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	24.00 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	Not Reported	Prim. Use of Water:	Stock

LITHOLOGIC DATA

Geologic Age ID (Era/System/Series):	Ordovician-Lower
Principal Lithology of Unit:	Shale
Further Description:	Not Reported

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 2.1
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (South Quadrant)

BASIC WELL DATA

Site ID:	421531073500401	Distance from TP:	>2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Greene
Altitude:	110.00 ft.	State:	New York
Well Depth:	400.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	30.00 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	Not Reported	Prim. Use of Water:	Domestic

LITHOLOGIC DATA

Geologic Age ID (Era/System/Series):	Ordovician-Lower
Principal Lithology of Unit:	Shale
Further Description:	Not Reported

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 2.1
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (West Quadrant)

BASIC WELL DATA

Site ID:	421727073511201	Distance from TP:	1/2 - 1 Mile
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Greene
Altitude:	160.00 ft.	State:	New York
Well Depth:	75.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	6.00 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	Not Reported	Prim. Use of Water:	Domestic

LITHOLOGIC DATA

Geologic Age ID (Era/System/Series):	Ordovician-Middle
Principal Lithology of Unit:	Sandstone and shale
Further Description:	Not Reported

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Water Well Information:

Well Closest to Target Property (Eastern Quadrant)

Public Water Supply #:	1900033	Source ID:	001
PW Supply Name:	TANNERSVILLE VILLAGE		
Source Name:	RESERVOIR #1		
Source Description:	Surface		
Availability/Utilization:	Permanent Utilization	Source Type:	Source Record
Latitude:	421232	Longitude:	-740913
Source Prod Capacity:	1250000 Gallons	Fed ID of Seller:	Not Reported
Watershed Basin:	12	Watershed Sub-basin:	02
Treatment Plant ID:	P006	Date of rec Last Update:	19941108
Water Type:	Not Reported	Record Tag:	Existing Record

Well Closest to Target Property (Southern Quadrant)

Public Water Supply #:	1900033	Source ID:	004
PW Supply Name:	TANNERSVILLE VILLAGE		
Source Name:	DIBBLE'S DAM-SCHOHARIE CR (AUXIL)		
Source Description:	Surface		
Availability/Utilization:	Emergency Utilization	Source Type:	Source Record
Latitude:	420750	Longitude:	-740905
Source Prod Capacity:	100000 GPD	Fed ID of Seller:	Not Reported
Watershed Basin:	12	Watershed Sub-basin:	00
Treatment Plant ID:	P006	Date of rec Last Update:	19941108
Water Type:	Not Reported	Record Tag:	Existing Record

Well Closest to Target Property (Western Quadrant)

Public Water Supply #:	0310363	Source ID:	001
PW Supply Name:	MOUNT ETTRICK TERRACE		
Source Name:	DRILLED WELL		
Source Description:	Groundwater		
Availability/Utilization:	Permanent Utilization	Source Type:	Source Record
Latitude:	421328	Longitude:	-755856
Source Prod Capacity:	0	Fed ID of Seller:	Not Reported
Watershed Basin:	06	Watershed Sub-basin:	03
Treatment Plant ID:	Not Reported	Date of rec Last Update:	Not Reported
Water Type:	Not Reported	Record Tag:	Not Reported

GEOCHECK VERSION 2.1
PUBLIC WATER SUPPLY SYSTEM INFORMATION

Searched by Nearest Well.

PWS SUMMARY:

PWS ID:	NY0005402	PWS Status:	Active	Distance from TP:	1/2 - 1 Mile
Dir relative to TP:	West	Date Initiated:	Not Reported	Date Deactivated:	Not Reported
PWS Name:	TWIN PONDS APARTMENTS ATHENS, NY 12015				

Addressee / Facility Type: System Owner/Responsible Party
Facility Name: RILES MIKE
KENT & HAROLDSEN ASSOC.,INC
P.O. BOX 127, BROADWAY STATION
ALBANY, NY 12207

Facility Latitude:	42 17 34	Facility Longitude:	073 51 23
City Served:	ATHENS		
Treatment Class	Not Reported	Population Served:	Not Reported:

Well currently has or has had major violation(s): Yes

VIOLATIONS INFORMATION:

Not Reported

EPA Waste Codes Addendum

Code	Description
D000	NOT DEFINED
D004	ARSENIC
D007	CHROMIUM

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM RECORDS:

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA/NTIS
Telephone: 703-416-0702
CERCLIS: CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/30/95
Date Made Active at EDR: 09/13/95
Date of Data Arrival at EDR: 08/09/95
Elapsed ASTM days: 35

ERNS: Emergency Response Notification System
Source: EPA
Telephone: 202-260-2342
ERNS: Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/94
Date Made Active at EDR: 05/25/95
Date of Data Arrival at EDR: 04/11/95
Elapsed ASTM days: 44

NPL: National Priority List
Source: EPA
Telephone: 703-603-8852
NPL: National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, it is EDR's policy to plot NPL sites greater than approximately 500 acres in size as areas (polygons). Sites smaller in size are point-geocoded at the site's address.

Date of Government Version: 09/01/95
Date Made Active at EDR: 10/25/95
Date of Data Arrival at EDR: 10/17/95
Elapsed ASTM days: 8

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 703-308-7907
RCRIS: Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 05/31/95
Date Made Active at EDR: 08/22/95
Date of Data Arrival at EDR: 06/28/95
Elapsed ASTM days: 55

FEDERAL NON-ASTM RECORDS:

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: Varies | Date of Next Scheduled Update: 09/01/95

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 703-308-7907
CORRACTS: CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 04/10/95 | Date of Next Scheduled Update: 02/01/96

FINDS: Facility Index System
Source: EPA/NTIS
Telephone: 800-908-2493
FINDS: Facility Index System. FINDS contains both facility information and "pointers" to other sources that contain more detail. These include: RCRIS, PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]), CERCLIS, DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), FRDS (Federal Reporting Data System), SIA (Surface Impoundments), CICIS (TSCA Chemicals in Commerce Information System), PADS, RCRA-J (medical waste transporters/disposers), TRIS and TSCA.

Date of Government Version: 07/27/94 | Date of Next Scheduled Update: 01/28/96

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4555
HMIRS: Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/94 | Date of Next Scheduled Update: 02/28/96

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/01/95 | Date of Next Scheduled Update: 02/18/96

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 202-260-8969
NPL LIENS: Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91 | Date of Next Scheduled Update: 01/31/96

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3992
PADS: PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/14/94 | Date of Next Scheduled Update: 01/16/96

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RAATS: RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA.

Date of Government Version: 04/17/95 Date of Next Scheduled Update: 02/17/96

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0703
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/31/95 Date of Next Scheduled Update: 03/03/96

TRIS: Toxic Chemical Release Inventory System
Source: EPA/NTIS
Telephone: 202-260-2320
TRIS: Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/92 Date of Next Scheduled Update: 02/10/96

TSCA: Toxic Substances Control Act
Source: EPA/NTIS
Telephone: 202-260-1444
TSCA: Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site. USEPA has no current plan to update and/or re-issue this database.

Date of Government Version: 01/31/95 Date of Next Scheduled Update: 03/02/96

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STATE OF NEW YORK ASTM RECORDS:

LUST: Spills Information Database
Source: Department of Environmental Conservation
Telephone: 518-457-2462
LUST: Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 06/01/95
Date Made Active at EDR: 08/21/95
Date of Data Arrival at EDR: 07/10/95
Elapsed ASTM days: 42

SHWS: Inactive Hazardous Waste Disposal Sites in New York State
Source: Department of Environmental Conservation
Telephone: 518-457-0747
SHWS: State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 04/30/95
Date Made Active at EDR: 07/25/95
Date of Data Arrival at EDR: 06/19/95
Elapsed ASTM days: 36

SWF/LS: Facility Register
Source: Department of Environmental Conservation
Telephone: 518-457-2051
SWF/LS: Solid Waste Facilities/Landfill Sites. SWF/LS type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Section 2004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/30/94
Date Made Active at EDR: 04/04/95
Date of Data Arrival at EDR: 02/25/95
Elapsed ASTM days: 38

UST: Petroleum Bulk Storage (PBS, CBS, MOSF) Database
Source: Department of Environmental Conservation
Telephone: 518-457-4351
UST: Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 07/12/95
Date Made Active at EDR: 10/02/95
Date of Data Arrival at EDR: 08/28/95
Elapsed ASTM days: 35

STATE OF NEW YORK NON-ASTM RECORDS:

AST: Petroleum Bulk Storage
Source: Department of Environmental Conservation
Telephone: 518-457-4351
AST: Aboveground Storage Tanks.

Date of Government Version: 07/12/95
Date of Next Scheduled Update: 11/06/95

Historical and Other Database(s)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

Disclaimer Provided by Real Property Scan, Inc.

The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

DELISTED NPL: Delisted NPL Sites
Source: EPA
Telephone: 703-603-8769
DELISTED NPL: The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

NFRAP: No Further Remedial Action Planned
Source: EPA/NTIS
Telephone: 703-416-0702
NFRAP: As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

FRDS: Federal Reporting Data System
Source: EPA/Office of Drinking Water
FRDS provides information regarding public water supplies and their compliance with monitoring requirements, maximum contaminant levels (MCL's), and other requirements of the Safe Drinking Water Act of 1986.

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

Oil/Gas Pipelines/Electrical Transmission Lines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines and electrical transmission lines.

Sensitive Receptors: There are individuals who, due to their fragile immune systems, are deemed to be especially sensitive to environmental discharges. These typically include the elderly, the sick, and children. While the exact location of these sensitive receptors cannot be determined, EDR indicates those facilities, such as schools, hospitals, day care centers, and nursing homes, where sensitive receptors are likely to be located.

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1994 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

New York Public Water Wells
Source: New York Department of Health

General Records Found Under Site Description

Facility Name	: ATLANTIC WOOD IND. INC.
Facility Address	: RT. 1, BOX 204-SCHOHARIE TURNP
Facility City/Zip	: ATHENS, NY 12015
Facility County	: NOT REPORTED
VISTA #	: 742992

UST Record Details

Agency ID Number:4-000073

Owner Information

Owner Name: ATLANTIC WOOD IND. I

Owner Address: P.O. BOX 1608

Owner City: SAVANNAH

Owner State: GA

Owner Zip: 31402

Tank Information

Number of Above Ground Tanks: 4

Tanks Details

Tank Id: 500A

Tank Size: 4888 GALLONS

Tank Status: ACTIVE/IN SERVICE

Tank Material: BARE STEEL

Pipe Type: BARE STEEL

Leak Monitor: NO MONITOR

Tank Id: 300A

Tank Size: 18000 GALLONS

Tank Status: ACTIVE/IN SERVICE

Tank Material: BARE STEEL

Pipe Type: BARE STEEL

Leak Monitor: NO MONITOR

ATLANTIC WOOD IND. INC. (continued)

Tank Id:	200A
Tank Size:	18000 GALLONS
Tank Status:	ACTIVE/IN SERVICE
Tank Material:	BARE STEEL
Pipe Type:	BARE STEEL
Leak Monitor:	NO MONITOR

Tank Id:	100A
Tank Size:	18000 GALLONS
Tank Status:	ACTIVE/IN SERVICE
Tank Material:	BARE STEEL
Pipe Type:	BARE STEEL
Leak Monitor:	NO MONITOR

General Records Found Under Site Description

Facility Name	: ATLANTIC WOOD INDUSTRIES
Facility Address	: SCHOHARIE TNPK E OF RT. 9
Facility City/Zip	: ATHENS, NY
Facility County	: NOT REPORTED
VISTA Enhanced	
City/Zip	: ATHENS , 12015
VISTA #	: 1347318

State Spill Record Details

Agency ID Number:9001229

Owner Information

Resp. Name:	ATLANTIC WOOD IND.
Resp. Address:	RT. 1 BOX 204
Resp. City:	ATHENS

Spill Details

Incident Date:	05/02/90
Quantity:	3.00 POUNDS
Media Affected:	SOIL/LAND/SAND
Spill Cause:	MECHANICAL FAILURE
Remediation Status:	CASE CLOSED/CLEANUP COMPLETE

UST Record Details

Agency ID Number:4-000073

Owner Information

Owner Name:	ATLANTIC WOOD INDUST
Owner Address:	BOX 1608
Owner City:	SAVANNAH
Owner State:	GA
Owner Zip:	31498

Tank Information

Number of Above Ground Tanks: 4

Tanks Details

Tank Id:	4A
Tank Contents:	KEROSENE
Tank Size:	300 GALLONS
Tank Status:	ACTIVE/IN SERVICE
Tank Material:	BARE STEEL
Pipe Type:	BARE STEEL
Leak Monitor:	UNKNOWN

Tank Id:	3A
Tank Contents:	UNLEADED GAS
Tank Size:	300 GALLONS
Tank Status:	ACTIVE/IN SERVICE
Tank Material:	BARE STEEL
Pipe Type:	BARE STEEL
Leak Monitor:	UNKNOWN

Tank Id:	2A
Tank Contents:	DIESEL
Tank Size:	550 GALLONS
Tank Status:	ACTIVE/IN SERVICE
Tank Material:	BARE STEEL
Pipe Type:	BARE STEEL
Leak Monitor:	UNKNOWN

Tank Id:	1A
Tank Contents:	FUEL OIL
Tank Size:	18000 GALLONS
Tank Status:	ACTIVE/IN SERVICE
Tank Material:	BARE STEEL
Pipe Type:	BARE STEEL
Leak Monitor:	UNKNOWN

General Records Found Under Site Description

Facility Name	:	ATLANTIC WOOD INDUSTRIES INC
Facility Address	:	SCHOHARIE TNPK RD
Facility City/Zip	:	WEST ATHENS, NY 12015
Facility County	:	GREENE
VISTA Enhanced		
City/Zip	:	ATHENS , 12015
VISTA #	:	1532116

Industry Description
Sic Code:2491 - MFG-WOOD PRESERVING

FINDS Record Details

EPA ID Number:NYD095240610

Agency Id Information

Program Name: TOXICS-TRIS
Agency Id: 12015TLNTCSCHOH

Program Name: Haz Waste
Agency Id: NYD095240610

RCRA Record Details

EPA ID Number:NYD095240610

Generator Details

Waste Quantity Class: Generates at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

TRIS Record Details

EPA ID Number:NYD095240610

Agency ID Number:12015TLNTCSCHOH

CAS Number	Chemical Name	Total Qty.
NA	Reportable Chemical Compound	250 lbs.
NA	Reportable Chemical Compound	150 lbs.
NA	Reportable Chemical Compound	220 lbs.

RCRA Record Details

Transporter Details

Transports hazardous waste by highway

Compliance Records Found Under Site Description

Facility Name	: **ATLANTIC WOOD INDUSTRIES INC**
Facility Address	: **SCHOHARIE TURNPIKE ROAD**
Facility City/Zip	: **WEST ATHENS, NY 12015**
Facility County	: **NOT REPORTED**
VISTA Enhanced City/Zip	: **ATHENS , 12015**
VISTA #	: **3935054**

EPA ID: NYD095240610

RCRA COMPLIANCE INFORMATION

RCRA compliance evaluations are conducted by the US EPA or the state agency responsible for the RCRA program. The following is a summary of the facility's current compliance status and a listing of all RCRA evaluations. The current compliance status indicates any outstanding (not yet corrected) non-compliances issues found during one of the listed evaluations or after appropriate testing is completed by the agency.

RCRA Compliance Status: In Compliance

RCRA Compliance History:

Evaluations with at least one Class One Violation: 0

Evaluations

None

Violations

None

EPA Enforcements
None

State Enforcements
None

EPA Oversight Enforcements
None

Spill Records Found Under Site Description

Facility Name	: **ATLANTIC WOOD IND**
Facility Address	: **SCHOHARIE TURNPIKE A**
Facility City/Zip	: **ATHENS, NY**
Facility County	: **GREENE**
VISTA Enhanced City/Zip	: **ATHENS , 12015**
VISTA #	: **200077390**

ERNS Spill Record Details

ERNS Spill Details

Spill Date	:	05/02/1990	Vista ID#:	200077390
Spill Time	:	10:30 AM	Case Number:	20123
Spill Location	:	SCHOHARIE TURNPIKE ATLANTIC WOOD IND		
Spill City	:	ATHENS		
Spill State	:	NY		
Spill Zip	:			
VISTA Enhanced Zip	:	12015		
Spill County	:	GREENE		
Source/Agency	:			
Discharger Name	:	SMIGEL, JEFF		
Discharger Org	:	ATLANTIC WOOD IND		
Discharger Addr	:	POB 1608		
Discharger Phone	:	912-964-1234		
Discharger County	:			
Discharger City	:	SAVANAH		
Discharger St/Zip	:	GA, 31498		
Material Spilled	:	ARSENIC PENTAOXIDE , 00000003.00 , LBS		
Medium Affected	:	Land		
Water Way Affected	:	SOIL		

APPENDIX 1

Explanation of VISTA's Database Search for this Report:

Environmental reporting from the EPA and other government agencies is often inconsistent. The same facility or property may be listed many different ways. A facility may have more than one name(e.g., 'Smith's Garage' and 'Exxon Service Station #12') or an inconsistent presentation of the same name. A street name may also be known by more than one name (e.g., 'Main Street' is also known as 'Route 9'). An area may have more than one city name. City names also are frequently abbreviated.

To provide you with the most complete search of government records possible, VISTA does extensive computerized matching of records to combine agency data from different various sources. VISTA also performs address verification to the Post Office's Zip+4 database to assure the accuracy of the city and zip code information.

The additional search criteria indicated on Page 1 were used to further enhance the search for government records. This report comprises all VISTA records which fit any of the following conditions relative to the subject property:

Search Criteria

- matching street number,street name, city but no zip code:
- matching street number,street name, zip code:
- within 10 street numbers with matching facility name:
- no street number, but matching street name, city or zip and facility name:
- intersection of matching street name, matching city or zip and facility name:
- no street number or street name with matching city or zip and facility name:
- P.O. Box with matching city or zip and facility name:

Limitations of Information:
All data contained in this report was obtained from the federal and state government environmental databases. VISTA does not warrant the accuracy, timeliness, merchantability, completeness or usefulness of any information furnished, and the subscriber accepts any and all risks resulting from decisions made based solely or in part on VISTA information.

FACILITY RISK PROFILE

FEDERAL AGENCY RECORDS SEARCHED

Agency	Database	Type of Record	Database Currency
US EPA	NPL	Federal Superfund Sites	05/94
US EPA	CERCLIS	Sites Under Review by US EPA	04/94
US EPA	TRIS	Facilities Releasing Toxic Chemicals	08/93
US EPA	CICIS	Chemical Producers (as of 1981)	05/86
US EPA	FATES	Manufacturers or Processors of Pesticides	10/93
US EPA	PCS	Site with NPDES Water Dischg. Permit	07/93
US EPA	CDS AIRS	Produces Hazardous Air Emissions	09/93
US EPA	RCRIS	Hazardous Waste Handlers	07/93
US EPA	CORRACTS	RCRA Corrective Action Site	01/94
US EPA	RAATS	RCRA Administrative Action Site	02/94
US EPA	PADS	PCB Handler	10/93
US EPA	FRDS	Operators of a Pub. Drinking Water Sys.	09/93
US EPA	FINDS	Site on EPA's Facility Index System	04/94
US EPA	ERNS	Spill Sites	09/93
US DoL	OSHA	Facilities with OSHA Inspections	12/93
US EPA	FTTS	FIFRA/TSCA/EPCRA Compliance Sites	03/94
US EPA	SETS	Superfund Potentially Responsible Parties	01/94
US EPA	DOCKETS	Sites listed in Civil Enforcement System	04/94

NEW YORK STATE AGENCY RECORDS SEARCHED

Agency	Type of Record	Database Currency
Department of Environmental Conservation, Bureau of Hazardous Site Control	Inactive Hazardous Waste Disposal Sites	05/93
Department of Environmental Conservation	LUST (Tank Test Failures) Database	01/94
Department of Environmental Conservation, Bureau of Municipal Waste	Recycler's Listing	04/93
Department of Environmental Conservation, Bureau of Waste Management	Incinerators-Resource Recovery Projects	01/93

NEW YORK State Agency Databases Searched (continued)

Agency	Type of Record	Database Currency
Department of Environmental Conservation, Division of Municipal Waste	Active Solid Waste Disposal Sites	03/94
Department of Environmental Conservation, Petroleum Bulk Storage Program	Aboveground Storage Tanks	01/94
Cortland County Health Department, Division of Environmental Health	Cortland County Petroleum Bulk Storage-Aboveground Tanks	05/94
Rockland County Department of Health	Rockland County Petroleum Bulk Storage-Aboveground Tanks	05/94
Suffolk County Department of Health Services	Suffolk County Petroleum Bulk Storage-Aboveground Tanks	01/93
Department of Environmental Conservation, Petroleum Bulk Storage Program	Underground Storage Tank Database	01/94
Cortland County Health Department, Division of Environmental Health	Cortland County Petroleum Bulk Storage Database	05/94
Rockland County Department of Health	Rockland County Petroleum Bulk Storage Database	05/94
Suffolk County Department of Health Services	Suffolk County Petroleum Bulk Storage Database	01/93
Department of Environmental Conservation	Spills Database	01/94

INVENTORY OF ENVIRONMENTAL RECORDS REVIEWED

Records of Existing and Potential Contamination

Agency/Database	Type of Record	List Available	Record Found	Rec. Not Found
US EPA NPL	FEDERAL SUPERFUND SITE	Y		X
US EPA CERCLIS	POTENTIAL SUPERFUND SITE	Y		X
US EPA CORRACTS	CORRECTIVE ACTIONS SITE	Y		X
US EPA ERNS	SPILL NOTIFICATION	Y	X	
STATE PRIORITY	CONTAMINATED SITE	Y		X
STATE LUST	LEAKING TANKS SITE	Y		X
STATE SOLID WASTE	SOLID WASTE SITE	Y		X
STATE SPILL	SPILL SITE	Y	X	

Records Indicating Hazardous Materials or Environmental Permits Present

Agency/Database	Type of Record	List Available	Record Found	Rec. Not Found
US EPA RCRIS	HAZ WASTE TSD SITE	Y		X
US EPA RCRIS	HAZ WASTE TRANSPORTER	Y	X	
US EPA RCRIS	HAZ WASTE GENERATOR	Y	X	
US EPA PADS	PCB HANDLER	Y		X
US EPA CICIS	CHEMICAL PRODUCER SITE	Y		X
US EPA TRIS	TOXIC CHEMICALS RELEASED	Y	X	
US EPA PCS	WASTE WATER PERMIT	Y		X
US EPA CDS AIRS	HAZARDOUS AIR EMISSIONS	Y		X
US EPA FATES	PESTICIDES PROCESSOR	Y		X
US EPA FRDS	PUBLIC WATER SUPPLY	Y		X
US EPA FINDS	FACILITY INDEX SYSTEM	Y	X	
STATE UST/AST	TANK SITES	Y	X	

Records of Environmental Compliance

Agency/Database	Type of Record	List Available	Record Found	Rec. Not Found
US EPA RCRIS	RCRA COMPLIANCE	Y		X
US EPA RAATS	RCRA ADMIN. ACTIONS	Y		X
US EPA PCS	NPDES COMPL/ENF	Y		X
US EPA AIRS	AIR EMISSION COMPLIANCE	Y		X
US EPA FTTS	FIFRA/TSCA/EPCRA COMP	Y		X
US DoL OSHA	OSHA COMPLIANCE	Y		X
US EPA SETS	RESPONSIBLE PARTY	Y		X
US EPA DOCKET	CIVIL JUDICIAL ACTIONS	Y		X

FIRST UNION CORP
TRANSACTION SCREEN REPORT

PROPERTY INFORMATION	CLIENT INFORMATION
Loan #/Ref #: 0000001.98.3501 000 SCHOHARIC TURNPIKE RD ATHENS, NY 12015 Latitude/Longitude: (42.283556, 73.836604)	ATLANTIC WOOD ATLANTIC WOOD INC , 00000

ENVIRONMENTAL RISK SUMMARY	*Property/ Adjacent Area (w/in 1/8 mi)*	*Sur-rounding Area (1/8-1 mi)*
A) Properties in the area with Known Contamination:		
Designated for Superfund clean-up by the US EPA (NPL):	**0**	**0**
Prioritized by the state for clean-up (SPL):	**0**	**0**
B) Properties in the area with Potential Contamination:		
That treat, store, /or dispose of hazardous waste (RCRA TSD):	**0**	**0**
With RCRA violations or enforcement actions by the US EPA (RCRA VIOL):	**0**	**-**
Under review by the US EPA (CERCLIS):	**0**	**0**
Under review by the state (SCL)	**N/A**	**N/A**
With leaking underground storage tanks (LUST)	**0**	**0**
Permitted as solid waste landfills, incinerators, or transfer stations (SWLF):	**0**	**0**
C) Properties in the area with Environmentally Sensitive Business Activities:		
With registered aboveground storage tanks (AST):	**0**	**-**
With registered underground storage tanks (UST):	**0**	**-**

NOTES

This geographic database search meets the American Society for Testing Materials (ASTM) standards for a government records review. A (-) indicates the search distance exceeds ASTM search parameters.

FIRST UNION CORP
TRANSACTION SCREEN REPORT

DESCRIPTION OF DATABASES SEARCHED

A) DATABASES RECORDING PROPERTIES WITH ACTUAL CONTAMINATION

NPL
SRC#: 1803

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for NPL was May, 1994.

The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous wast sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Dept of Health and Human Services and the US EPA in order to become an NPL site.

SPL
SRC#: 1412

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Inactive Hazardous Waste Disposal Sites was May, 1993.

The New York Department of Environmental Conservation, Bureau of Hazardous Site Control maintains an inventory of facilities subject to investigations concerning likely or threatened releases of hazardous substances from those facilities.

B) DATABASES RECORDING PROPERTIES WITH POTENTIAL CONTAMINATION

RCRA-TSD
SRC#: 1372

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for RCRIS was July, 1993.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

CERCLIS
SRC#: 1722

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for CERCLIS was April, 1994.

The CERCLIS List is a compilation by the EPA of the sites which the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (Superfund Act).

LUST
SRC#: 1691

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for LUST (Tank Test Failures) Database was January, 1994.

The New York Department of Environmental Conservation maintains an inventory of leaking underground storage tanks.

SWLF
SRC#: 1332

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Recycler's Listing was April, 1993.

The New York Department of Environmental Conservation, Bureau of Municipal Waste maintains an inventory of the solid waste facilities in the state.

SWLF
SRC#: 1333

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Incinerators-Resource Recovery Projects was January, 1993.

The New York Department of Environmental Conservation, Bureau of Waste Management maintains an inventory of the solid waste facilities in the state.

SWLF
SRC#: 1784

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Active Solid Waste Disposal Sites was March, 1994.

The New York Department of Environmental Conservation, Division of Municipal Waste maintains an inventory of the solid waste facilities in the state.

RCRA-Viols
SRC#: 1372

VISTA conducts a database search to identify all sites within 1/8 mile of your property.
The agency release date for RCRIS was July, 1993.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste.

C) DATABASES RECORDING PROPERTIES WITH ENVIRONMENTALLY SENSITIVE BUSINESS ACTIVITIES

AST's
SRC#: 1667

VISTA conducts a database search to identify all sites within 1/8 mile of your property.
The agency release date for Aboveground Storage Tanks was January, 1994.

The New York Department of Environmental Conservation, Petroleum Bulk Storage Program maintains an inventory of registered underground storage tanks (aboveground tanks are reported when included on this list).

AST's
SRC#: 1786

VISTA conducts a database search to identify all sites within 1/8 mile of your property.
The agency release date for Cortland County Petroleum Bulk Storage-Aboveground Tanks was May, 1994.

The New York Cortland County Health Department, Division of Environmental Health maintains an inventory of registered underground storage tanks (aboveground tanks are reported when included on this list).

UST's
SRC#: 1667

VISTA conducts a database search to identify all sites within 1/8 mile of your property.
The agency release date for Underground Storage Tank Database was January, 1994.

The New York Department of Environmental Conservation, Petroleum Bulk Storage Program maintains an inventory of registered aboveground storage tanks (aboveground tanks are reported when included on this list).

FIRST UNION CORP
TRANSACTION SCREEN REPORT

RISK INVENTORY

RISK AT PROPERTY AND THE ADJACENT AREA (within 1/8 mile)	A		B						C		NOTES
	NPL	SPL	TSD	RCRA VIOL	CERCLIS	SCL	LUST	SWLF	AST	UST	*VISTA ID*
No Records Found											

RISK AT PROPERTIES IN THE SURROUNDING AREA (within 1/8 - 1 mile)	A		B						C		NOTES
	NPL	SPL	TSD	RCRA VIOL	CERCLIS	SCL	LUST	SWLF	AST	UST	*VISTA ID*
No Records Found											

FIRST UNION CORP
TRANSACTION SCREEN REPORT

UNGEOCODED SITES	A		B						C		NOTES
	NPL	SPL	TSD	RCRA VIOL	CERCLIS	SCL	LUST	SWLF	AST	UST	*VISTA ID*
HILLSDALE T.S. , NY								X			3502344
HUNTER T.S. , NY								X			3502351
BERBATO T.S. , NY								X			4898109
WINDHAM T.S. , NY								X			3502656
LIVINGSTON T.S. , NY								X			3502408
HUDSON ST MRF HUDSON, NY 12534								X			3998550
COPAKE T.S. P.O. BOX 324 HUDSON, NY 12534								X			2489493
CHATHAM T.S. , NY								X			3502235
COXSACKIE T.S. , NY								X			3954892
CASINGS INC CATSKILL, NY 12414								X			3998679
GREENE CO CATSKILL, NY 12414								X			3998680
GALLATIN T.S. , NY								X			3502317
GERMANTOWN T.S. , NY								X			3502324
GREENPORT T.S. , NY								X			3502329
PECKHAM MATERIALS ATHENS, NY 12015							X				4120833
GREENE CO ARC BRIDGE ST BRIDGE ST. RT. 9W CATSKILL, NY 12414							X				4111619
VALLEY OIL/CATSKILL ROUTE 23 E. OF ROUTE 9W CATSKILL, NY 12414							X				4111621
NYS TWY EXIT 21 MAINTAREA NYS TWY @ 23B EXIT 21 CATSKILL, NY 12414							X				2728455
GREENE CO. MEM. HOSPITAL GREENE CO. MEMORIAL HOSP. CATSKILL, NY 12414							X				2720270

FIRST UNION CORP
TRANSACTION SCREEN REPORT

UNGEOCODED SITES	A		B						C		NOTES
	NPL	SPL	TSD	RCRA VIOL	CERCLIS	SCL	LUST	SWLF	AST	UST	VISTA ID
317 RT. 32 317 RT. 32 CATSKILL, NY 12414							X			X	1531407
GEORGE W SAULPAUGH+SON INC ROUTE 9 HUDSON, NY 12534							X			X	2734870
FAIRVIEW LINCOLN FAIRVIEW LINCOLN HUDSON, NY 12534							X				2719513
AMOS POST SELF-SERVE ROUTE 9W CATSKILL, NY 12414							X				2733849
CASINGS INC. ROUTE 9W CATSKILL, NY 12414							X				2733850
DON HAINES - CATSKILL RT 9W CATSKILL, NY 12414							X				2733851
VALLEY OIL NICEEASY RT9W RT. 9W CATSKILL, NY 12414							X				2733852
BRENDA WILLIAMS RESIDENCE RD2 BOX 136A HUDSON, NY 12534							X				2732330
COLUMBIA GREENE COMM COLL RT 23 CGCC @ WATER PLANT HUDSON, NY 12534							X				2735155
GEORGE W. SAULPAUGH SON RT 121 HUDSON, NY 12534							X				2732095
TOWN OF NO. HUDSON ROUTE 9 HUDSON, NY 12534							X				2734911
JOE/NELL TRAILR PK BARBER JOSLEN BLVD. TRAILER PK. HUDSON, NY 12534							X				2722882
AMOS POST RT 23A CATSKILL, NY 12414							X				2732615
CATSKILL HIGHWAY DEPT. RT 23B CATSKILL, NY 12414							X				2732650
VALLEY OIL CO. RTE. 23 CATSKILL, NY 12414							X				2732651

FIRST UNION CORP
TRANSACTION SCREEN REPORT

UNGEOCODED SITES	A		B						C		NOTES
	NPL	SPL	TSD	RCRA VIOL	CERCLIS	SCL	LUST	SWLF	AST	UST	*VISTA ID*
FAIRVIEW MOBIL ROUTE 9 HUDSON, NY 12534							X			X	742256
JOEL VANKUREN RESIDENCE RD 1 BOX 13 RT. 385 ATHENS, NY 12015							X				2731895
CATSKILL MOTOR LODGE 23B RT. 23B CATSKILL, NY 12414							X				4719481
CATSKILL XTRA MART RT 23B CATSKILL, NY 12414							X			X	1531261
A.L.MOON BULK PLANT BROWNS CROSSING RD BOX245 CATSKILL, NY 12414							X				2713994
THE BODY SMITH RT 9G RT. 9G HUDSON, NY 12534							X				2733971
IN OUT EXTRA MART RT. 23B @ EXIT 21 THRUWAY CATSKILL, NY 12414							X				2718618
CLERMONT FRUIT PACKERS RT. 9 POB 117 STAR RT. HUDSON, NY 12534							X				2729633
NYS TWY MP 113 MAINT AREA MP 113.9 NYS TWY CATSKILL, NY 12414							X				2726568
COLUMBIA COUNTY AIRPORT RTE 9H HUDSON, NY 12534							X		X		756905
COLUMBIA GREEN COMM. COLL RT 9 HUDSON, NY 12534							X				2733745
CATSKILL GAME FARM INC RD 1 BOX 133 GAME FARM RD CATSKILL, NY 12414							X		X		744123
DAVIS RES. KIPS TR. PK.38 LOT 38 KIPS TRAILER PARK HUDSON, NY 12534							X				2738107
CATSKILL MARINA CATSKILL MARINA CATSKILL, NY 12414							X				2716860
INDEPENDENT CEMENT CORP. ROUTE 9 WEST CATSKILL, NY 12414							X	X	X		207807

FIRST UNION CORP
TRANSACTION SCREEN REPORT

UNGEOCODED SITES	A		B						C		NOTES
	NPL	SPL	TSD	RCRA VIOL	CERCLIS	SCL	LUST	SWLF	AST	UST	*VISTA ID*
COLUMBIA CO. HWY. GARAGE RT. 23B RD 1 HUDSON, NY 12534							X				*1347014*
HESS RT. 9 HUDSON, NY 12534							X				*2733766*
COLUMBIA MEMOM HOSP COLUMBIA MEMORIAL HOSP HUDSON, NY 12534							X				*2715343*
INDUSTRIAL CEMENT RT 9W INDUSTRIAL CEMENT CATSKILL, NY 12414							X				*2722260*
COLUMBIA CO PUBLIC SAFETY RT. 66 HUDSON, NY 12534							X				*1531618*
BLUE RIDGE ROAD FRONTIER TOWN GAS STATION HUDSON, NY 12534							X				*2719739*
CLAPPER ROUTE 9W ATHENS, NY 12015							X				*2733823*
CATSKILL TIRE FIRE RT 9 BOULVEVARD AVENUE CATSKILL, NY 12414					X						*73759*

FIRST UNION CORP
TRANSACTION SCREEN REPORT

RISKS DETAILS

RISK AT PROPERTY AND THE ADJACENT AREA (within 1/8 mile)
No Records Found

RISK AT PROPERTIES IN THE SURROUNDING AREA (within 1/8 - 1 mile)
No Records Found

APPENDIX D
CORRESPONDENCE RELATED TO SPILL

New York State Department of Environmental Conservation
2176 Guilderland Avenue, Schenectady, New York 12306
(518) 382-0680

ATLANTIC WOOD INDUSTRIES
RECEIVED
AUG 24 1990
ENVIRONMENTAL OFFICE

August 21, 1990

Thomas C. Jorling
Commissioner

Atlantic Wood Industries
ATTN: Jeffrey Smigel
P.O. Box 1608
Savannah, GA. 31498

Re: Spill #90-01229
Atlantic Wood, Athens

Dear Mr. Smigel:

I have discussed the latest results of lab sampling of the soils at your facility with Robert Kircher, Division of Solid Waste. Based upon these results, remedial activities may be discontinued. To summarize, the contaminant levels are now below detection limits and should not leach from the soils.

As soon as I receive documentation from the solids disposal, I will consider this spill closed. If you need further information on this project, please contact me.

Sincerely yours,

William Blain

William Blain
Environmental Engineer I
Region IV

WEB/gjh-11W35

cc: B. Berner
A. Geisendorfer
R. Kircher, SW Mgt. Specialist

Post-it® Fax Note 7671	Date 11/14/95	# of pages ▸ 3
To DAVID KING	From ROSS W.	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

Atlantic wood industries
INCORPORATED
PRESSURE TREATED FOREST PRODUCTS P.O. BOX 1608, SAVANNAH, GEORGIA 31498
PHONE (912) 964-1234
FAX (912) 964-2633

August 27, 1990

Mr. William Blain
Environmental Engineer
Region IV
New York State Department
of Environmental Conservation
2176 Guilderland Avenue
Schenectady, New York 12306

RE: Spill #90-01229
Athens, NY

Dear Mr. Blain:

With reference to your letter of August 21, 1990 regarding the above spill, please find enclosed two manifest which document the disposal of solids from our remedial activities. A total of 84,880 pounds of contaminated soils were disposed of at the Chemical Waste Management Facility in Emelle, Alabama.

Unless we are advised differently, we will assume this submittal closes this spill incident.

Sincerely,

ATLANTIC WOOD INDUSTRIES, INC.

Jeffrey A. Smigel

Jeffrey A. Smigel, P.E.
Director of Environmental Affairs

JAS/wk

Enclosure

cc: C. E. Martin
R. J. Hales

APPENDIX E
CHEMICAL LIST

ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NY PLANT

CHEMICAL INVENTORY LIST

REVISED: 10/27-95

COMMON NAME	CHEMICAL NAME	WORK AREA	MSDS DATE	MANUFACTURER
AFG 1V	Polymer	Boiler	02-16-91	Betz
Corrogen	Oxygen Scavenger	Boiler	05-06-94	Betz
Lay-Up-1	Oxygen Scavenger	Boiler Room	04-05-93	Betz
Molybdate Reagent		Boiler Room	11-03-94	Betz
Phenolphthalein Indicator		Boiler Room	02-16-91	Betz
Potassium Iodide Iodate		Boiler Room	02-16-91	Betz
219P Sulfite Indicator Plus		Boiler Room	02-10-95	Betz
Pena-Seal Accelerator	Amido Amine	Drip Pad	08- -94	J & R Ind.
Pena-Seal Base Compound	Epoxy Resin	Drip Pad	08- -94	J & R Ind.
Kerosene	Petroleum Hydrocarbons	Fuel Storage	01-04-94	Hess
Propane	Paraffin Hydrocarbons	Fuel Storage	02- -85	Arco
Unleaded Gasoline	Unleaded Gasoline	Fuel Storage	05- -88	Getty
# 2 Fuel Oil	Petroleum Hydrocarbons	Fuel Storage	09- -94	Hess

ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NY PLANT

CHEMICAL INVENTORY LIST

REVISED: 10/27-95

COMMON NAME	CHEMICAL NAME	WORK AREA	MSDS DATE	MANUFACTURER
Heart/Sap Indicator	Hydrocarbon	Lab	11- -88	Hickson
Acetylene	Acetylene	Shop	05- -85	Union Carbide
Antifreeze	Ethylene Glycol	Shop	07- -86	Cam 2
Gear Oil	Petroleum Hydrocarbons	Shop	01-26-87	Century
Grease	Petroleum Hydrocarbons	Shop	11-14-85	Amalie
Hydraulic Oil	Petroleum Hydrocarbons	Shop	- -87	Kendall
Motor Oil	Petroleum Hydrocarbons	Shop	05- -85	Mobil
Motor Oil	Petroleum Hydrocarbons	Shop	- -86	Amalie
Motor Oil 15 - 40	Petroleum Hydrocarbons	Shop	02-22-91	Amalie
Oxygen	Oxygen	Shop	09- -85	Union Carbide
Speedy Dry	Cam 2 Big Red	Shop	06-06-90	Waverly
Transmission Fluid	Dextron II-D	Shop	08-28-86	Cam 2
Ink	Flexographic # 4 Black Ink	Stacker	04- -86	Pannier

ATLANTIC WOOD INDUSTRIES, INC.
ATHENS, NY PLANT

CHEMICAL INVENTORY LIST

REVISED: 10/27-95

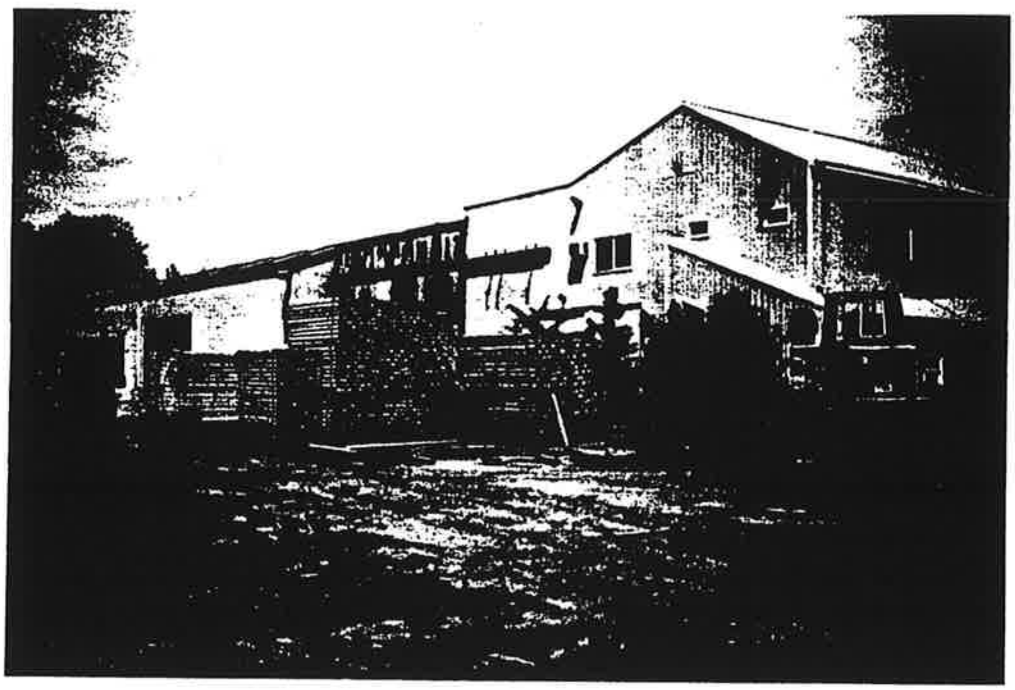
COMMON NAME	CHEMICAL NAME	WORK AREA	MSDS DATE	MANUFACTURER	
Diluted Treat Solution	Chromated Cr. Arsenate Sol.	Treating Room	06- -93	Hickson	
Speedy Dry	Cam 2 Big Red	Treating Room	06-06-90	Waverly	
Treat 00	Copper Naphthenate	Treating Room	02- -87	Koppers	NEVER USED
Wolmanac 50 %	Chromated Cr. Arsenate Sol.	Treating Room	06- -93	Hickson	
Wolman Extra	Polymer Emulsion	Treating Room	11- -88	Hickson	NEVER USED
Wolmanized Treated Wood	N/A	Yard	10-11-95	Hickson	
Wood Dust	N/A	Yard	08- -94	N/A	

APPENDIX F
DRIP PAD
ENGINEER'S CERTIFICATION

DRIP PAD CERTIFICATION

ATLANTIC WOOD INDUSTRIES, INC.

Athens, New York



November 1995

PETE A. SHACK, P.E.
P.O. Box 121555 • Nashville, TN 37212
(615)292-0401 • fax (615)292-1080

DRIP PAD ASSESSMENT

ATLANTIC WOOD INDUSTRIES, INC.
Athens, New York

This Assessment covers the 50-ft wide by 235-ft long drip track and drip pad in front of the treatment cylinder at the above-referenced facility. The facility consists of one six-foot diameter by 80-ft treating cylinder which is entirely covered by three structures. The drip pad and tracks are completely enclosed by a structure. The main floor of the building slopes to the tracks, and the tracks slope to the door pit, providing containment for the drip pad and cylinder. The facility is estimated to have been constructed in 1976. Compliance with each regulatory item required by 40 CFR 265.441 is evaluated below.

40 CFR 265.443(a)(1) Constructed of Non-Earthen Materials

The drip pad is constructed of reinforced concrete coated with a penetrating sealer. Further details of construction materials are provided below. This requirement is satisfied.

40 CFR 265.443(a)(2) Sloped to Free Drain to Collection System

The drip pad slopes toward the tracks, and drains freely to the tracks and down the tracks to the door pit. Areas of poor drainage have been channeled or filled to drain freely to the collection system. Attachment 1 contains a survey of the drip pad provided by AWI. This requirement has been satisfied.

40 CFR 265.443(a)(3) Curbed or Bermed Around Perimeter

The drip pad slab is higher than the surrounding ground by at least 6 inches and therefore prevents runon. There is no runoff because the building totally encloses the drip pad. The drip pad slab is sloped toward the tracks such that it forms a berm to contain any drippage within the building. This requirement is satisfied.

40 CFR 265.443(a)(4)(i) Sealed or Coated to Less Than or Equal To 1 x 10^{-7}cm/sec Permeability

The concrete drip pad is coated with Pena Seal epoxy-based, penetrating sealer manufactured by J&R Industries, Inc. of Wilmington, California. Test data on the permeability of concrete sealed with Pena Seal indicate less than 1 x 10^{-9}cm/sec can be achieved when this material is properly applied to concrete. All joints and non-bridgeable cracks in the concrete have been cleaned and sealed with FX-571 (made by Fox Industries, Baltimore, Maryland). Both the penetrating sealer and the joint sealer have been demonstrated compatible with CCA treating solution. Product information and test data are provided in Attachment 2. This requirement is satisfied.

40 CFR 265.443(a)(5) Sufficient Structural Strength and Thickness

The drip pad slab is a minimum of 9 inches thick concrete reinforced with wire mesh The drip track is believed to have been constructed in 1976. It was expanded in 1981 and 1984 by adding a drip pad to one side, and had some repairs in the track area in 1988. The track area repairs consisted of replacing the first 90 ft of track. A drain pipe that ran the length of the drip track and the drainage channel between the rails was grouted in 1995 by trowelling into low places high strength grout manufactured by Gill in conjunction with an epoxy bonding agent also made by Gill. The slabs are structurally sound and adequate for the loads applied, as evidenced by two decades of performance. It has operated under normal stresses without structural failure. This requirement is satisfied.

40 CFR 265.443 (b)(1) Synthetic Liner Below Drip Pad

Not applicable.

40 CFR 265.443(b)(2) Leak Detection System Above Liner

Not applicable.

40 CFR 265.443(b)(3) Leakage Collection System Above Liner

Not applicable.

40 CFR 265.443(c) Free of Cracks, Gaps, Corrosion or Other Deterioration That Could Cause Releases

The drip pad has been cleaned, repaired and coated with the aforementioned penetrating epoxy sealer. Joints have been sealed with polymeric joint sealer to prevent releases. Cracks in the concrete are either bridged with sealant or have been sawed with a crack chaser and caulked with the joint sealer. This requirement is satisfied.

40 CFR 265.443(d) Convey, Drain and Collect Liquid to Prevent Run-Off

The entire drip pad system is entirely enclosed by a structure that prevents precipitation from getting on the drip pad. This requirement is satisfied.

40 CFR 265.443(e) Run-On Control System

Run-on is controlled by the building and curb around the drip pad. The plant is graded to convey stormwater away from the drip pad. This requirement is satisfied.

40 CFR 265.443(f) Run-Off Management System

Not applicable.

40 CFR 265.443(g) Drip Pad Assessment Certified By PE

This assessment of the extent to which the referenced drip pads meet the design requirements of 40 CFR 265.443(a) through (f) shows the drip pads satisfy all of those design requirements. Data provided by Atlantic Wood Industries, Inc. for use in this assessment included the survey of the drip pad and modified layout dated January 7, 1991 from Richard Hales. These are included in Attachment 1.

Date: 11/21/95

Pete A. Shack, P.E.
Tennessee P.E. No. 14,650
New York Limited Certificate Attached

PETE A. SHACK
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 14650
STATE OF TENNESSEE

The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Division of Professional Licensing Services
Cultural Education Center
Albany, New York 12230

November 13, 1995

THIRTY-DAY LIMITED PERMIT AUTHORIZING PRACTICE AS A PROFESSIONAL ENGINEER IN THE STATE OF NEW YORK

BE IT KNOWN THAT

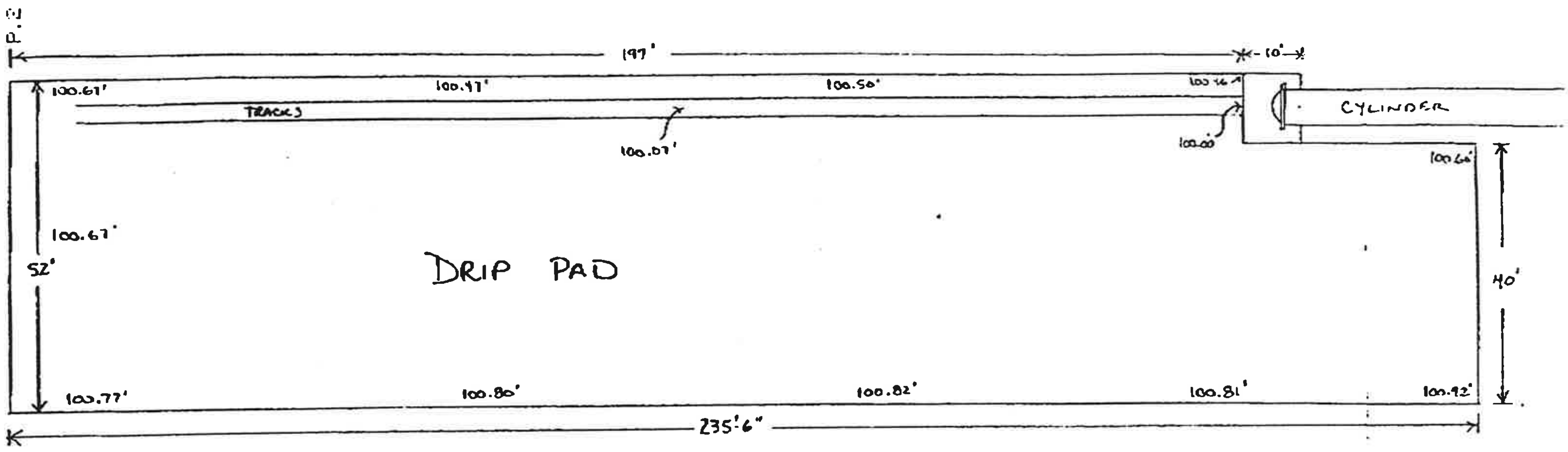
PETE ALLAN SHACK

naving given satisfactory evidence that he/she is a registered PROFESSIONAL ENGINEER in the State ı **Tennessee** and holds certificate number **14650**, is eligible to practice as a PROFESSIONAL ENGINEER n the STATE OF NEW YORK for the thirty days beginning **November 20, 1995**, through **December 19, 1995** inclusive, in accordance with Section 7207 of the Education Law, and is authorized to file plans, pecifications, plats and reports under his/her **Tennessee** seal, as provided in Section 7209.

Signature:
Title: Executive Secretary
State Board for Engineering and
Land Surveying

ATTACHMENT 1

DRIP PAD INFORMATION



Atlantic Wood Industries, Inc.
Athens NY

Drip Pad Dimensions and Elevations
10/31/95

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 3

To Pete Snack	From Ross Worsham
Co.	Co.
Dept.	Phone #
Fax #	Fax #

ATLANTIC WOOD INDUSTRIES
RECEIVED
JUL 6 1993
ENVIRONMENTAL OFFICE

TO: Jeff Smigel

FROM: Richard Hales

DATE: January 7, 1991

SUBJECT: Athens drip pad.

Drip Pad Section A.

Section A is the original construction when Plant was purchased by AWI. Estimated date of installation late 1975 or 1976.

Concrete thickness is 9". I do not have any drawings or specifications on the construction.

NOTE: There is an underground drain pipe that runs the length of track and drains into the cylinder pit. Drain pipe is pluged with debris and not used.

Drip Pad Section B.

Section B was installed in May 1981.

There are no drawings of this installation. See attached purchase order for Section C. These specifications apply also for B.

Drip Pad Section C.

Section C was installed in August 1984.

There are no drawings of this installation. See attached purchase order for concrete specifications.

Drip Pad Section D.

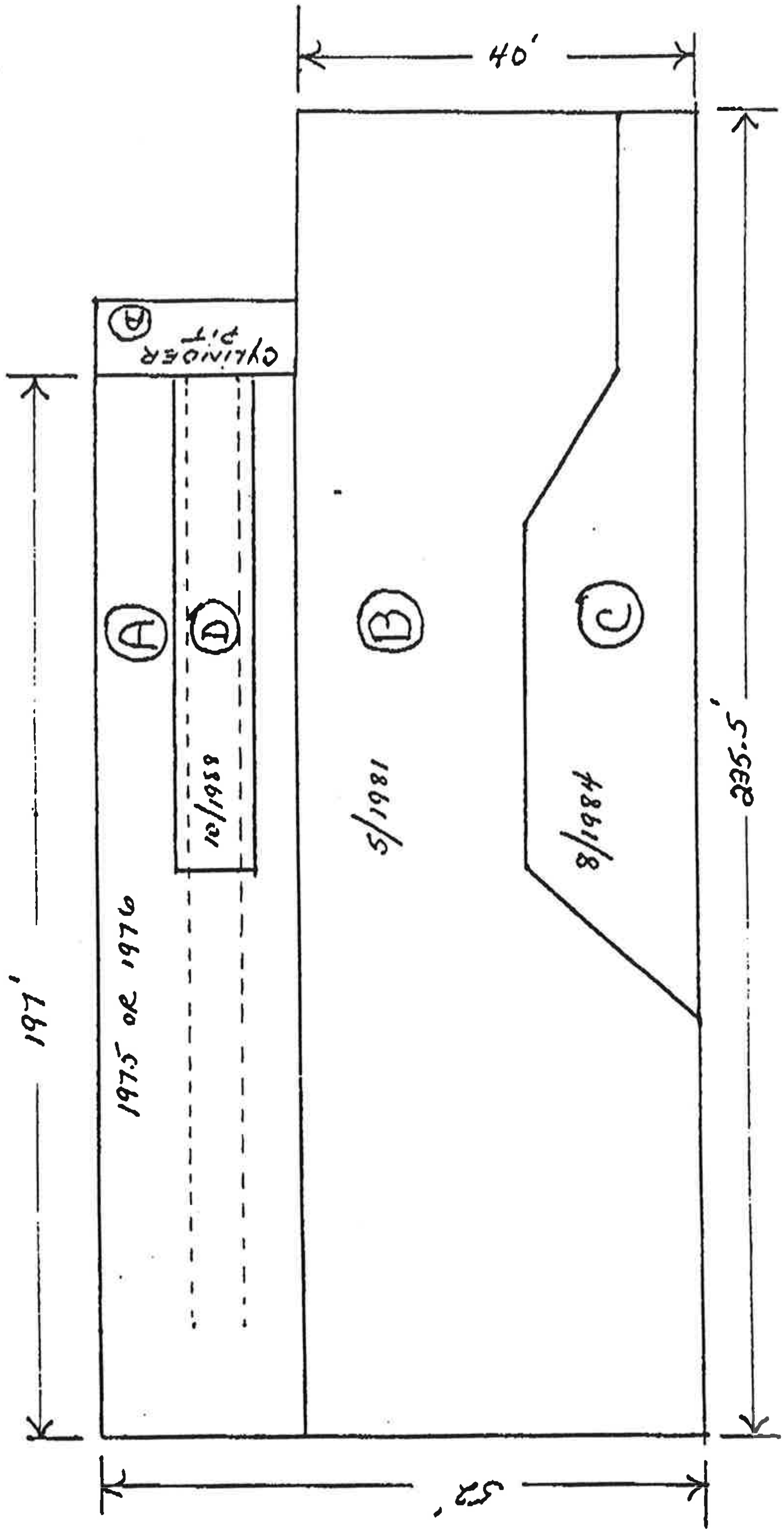
Section D was installed in October 1988.

There are no drawings on this installation.

This installation was for replacement of 90' of track. Concrete is 9" thick. All seams were filled with rubber epoxy.

Richard

T.A.S


40'
235.5'
197'
52'
A
B
C
D
CYLINDER PIT
1975 OR 1976
12/1988
5/1981
8/1984

J.A.S.

Atlantic wood industries
INCORPORATED
PRESSURE TREATED FOREST PRODUCTS RD. 1, BOX 203, ATHENS, NEW YORK 12015
PHONE (518) 945-2660

August 17, 1984

Jack Graham
Empire Masonry, Inc.
P.O. Box 161
Athens New York 12015

Dear Jack:

Please accept this letter as our purchase order for the following concrete slab:

SPECIFICATIONS: 1789 Square Feet
9" Thick
All reinforced with wire.
All joints matted with rubber gaskets and hot tar all seams.
~~Concrete to contain anti-hydro.~~
~~Re-bar must be used to connect new concrete slab to existing slab.~~
Broom Finish.
Sealer applied to surface of concrete.

PRICE: Total price included all Labor, Material, & Equipment to furnish Atlantic Wood Industries, Inc. with one concrete slab conforming to the above specifications.
Total price: $8,413.00 (Eight thousand four hundred thirteen dollars 00/100).

TERMS: Net 10 days, after 100% completion of work.

ATTACHMENT 2

SEALER INFORMATION

J & R INDUSTRIES, INC.

800 E. ANAHEIM ST., WILMINGTON, CA 90744

Telephone: (310) 830-9904

FAX: (310) 830-9908

PENA-SEAL

THIS IS A HIGH SOLIDS DEEP PENETRATING CONCRETE SEALER. PENA-SEAL HAS GOOD WATER, ACID AND SOLVENT RESISTANCE, VERY LOW VISCOSITY, AND HIGH POLARITY TO OBTAIN THE DEEPEST POSSIBLE PENETRATION. WHEN PROPERLY APPLIED THE USER CAN EXPECT TO SEAL A CONCRETE PAD AGAINST MOST SOLVENTS AND MOST WATER BASED SYSTEMS. IN ADDITION THE SHOCK RESISTANCE OF THE CONCRETE WILL BE IMPROVED BY A FACTOR OF 3 OR 4 TIMES. THE COMPRESSIVE STRENGTH OF THE CONCRETE WILL BE ESSENTIALLY DOUBLED AND THE TENSILE STRENGTH DOUBLED OR TRIPLED. ALTHOUGH THE ABRASION RESISTANCE OF THE PENA-SEAL IS NOT "OUT STANDING" THE ABRASION RESISTANCE OF THE CONCRETE WILL ALSO BE GREATLY IMPROVED.

PROPERTIES

*DEEP PENETRATING- DEPENDING ON THE CONCRETE UP TO 1/2".

*GOOD RESISTANCE TO WATER SYSTEMS, ACID AND SOLVENTS.

*EASY TO APPLY.

*GREATLY INCREASE THE PHYSICAL PROPERTIES OF THE CONCRETE

*GIVES AN OUTSTANDING SEAL FOR THE LONGEST PERIOD OF TIME

APPLICATION

THE CONCRETE MUST BE COMPLETELY CLEAN. WE RECOMMEND A BLAST TRACK OR SAND BLAST FOR OPTIMUM RESULT.

ALLOW THE CONCRETE TO DRY. THE PAD SHOULD FEEL DRY TO THE TOUCH. ALTHOUGH PENA-SEAL WILL ADHERE TO SLIGHTLY MOIST CONCRETE, ANY WATER WILL REDUCE THE DEPTH OF PENETRATION.

MIX THE PENA-SEAL SHORTLY BEFORE THE START OF APPLICATION. THE PENA-SEAL IS CLEAR IN COLOR. THE APPLICATION TIME IS IN EXCESS OF TWO HOURS TO ALLOW THE MATERIAL TIME TO PENETRATE DEEPLY. IT WILL EXOTHERM MILDLY. A 100 GRAM SAMPLE WILL REACH A TEMPERATURE OF ABOUT 110°F. IN ABOUT TWO HOURS. LARGER MASSES WILL WARM FASTER AND HEAT TO A HIGHER TEMPERATURE.

SPRAY OR ROLL COAT A GENEROUS COATING ON THE CONCRETE. DEPENDING ON THE POROSITY OF THE CONCRETE (AND THE TEMPERATURE)

THIS MATERIAL WILL SOAK IN, IN ABOUT 30 MINUTES. COVERAGE WILL DEPEND ON THE POROSITY.

ALLOW TO CURE. 24 HOURS IS USUALLY SUFFICENT. CHECK FOR SEAL WITH A 15X LIGHTED MAGNIFIER. IF THERE ARE STILL OPEN PORES, APPLY A SECOND COAT IN THE SAME MANNER. A HOLE IS OK IF THE BOTTOM IS SEALED. IF IN DOUBT, DRILL A HALF INCH DIAMETER HOLE ABOUT 1/32" DEEP. THERE SHOULD BE NO EXIT HOLES OUT OF THE BOTTOM OR THE SIDES. FILL THIS TEST HOLE BACK UP WITH PENA-SEAL.

PROPERTIES OF MATERIAL

VISCOSITY OF THE BASE	14 POISE
VISCOSITY OF CURE	1 POISE
WEIGHT RATIO BASE TO CURE	100/50
VOLUME RATIO BASE TO CURE	2/1
VISCOSITY OF CLEAR MIXED MATERIAL	5 POISE
APPEARANCE OF MIXED MATERIAL READY TO APPLY	CLEAR LIGHT AMBER
EXPECTED PENETRATION	1/8" TO 1/2" DEPENDING ON POROSITY
WORK LIFE 77°F.	2 HOURS
CURE TIME 77°F.	24 HOURS.
TOTAL VOC MIXED MATERIAL	7% BY WEIGHT 0.55 LBS/GAL
TOTAL SOLIDES MIXED MATERIAL	93% BY WEIGHT

CHEMICAL RESISTANCE

REAGENTS	NO FAILURE IN WEEKS
WATER	52
HYDROCHLORIC ACID 10%	52
HYDROCHLORIC ACID 36%	14
SULFURIC ACID 20%	52
SULFURIC ACID 50%	14
AMMONIA 25%	14
SODIUM HYDROXIDE 50%	52
XYLENE	52
GASOLINE	52
DIESEL FUEL	52
SKYDROL	52
ISOPROPANOL	52
MEK FAILED IN	12 WEEKS
50% ETHANOL	52

THE 14 WEEK TESTS SHOWED NO FAILURE. THESE HIGHER CONCENTRATIONS WERE NOT PUT TO TEST AS EARLY AS THE REST. ALL TESTS WERE TERMINATED AT 52 WEEKS.

Prepared by Dr. R. J. Moualim

JANUARY 1992

J & R INDUSTRIES INC.
800 EAST ANAHEIM STREET
WILMINGTON, CALIFORNIA 90744
(213) 830-9904

MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor "Essentially Similar" to Form OSHA-20)

CHEMICAL NAME: Amido Amine

CHEMICAL FAMILY: Amide Amine

SYNONYMS:

MOLECULAR WEIGHT:

FORMULA:

TRADE NAME AND SYNOMYMS: J & R PENA SEAL HARDNER

I. PHYSICAL DATA

BOILING POINT, 760 mm. Hg	>250°F	FREEZING POINT	N/A
SPECIFIC GRAVITY (H_2O = 1)	1	VAPOR PRESSURE AT 20° C.	N/A
VAPOR DENSITY (air = 1)	N/A	SOLUBILITY IN WATER % by wt.	Insoluble
PER CENT VOLATILES BY VOLUME	1°	EVAPORATION RATE Butyl Acetate = 1	N/A
APPEARANCE AND ODOR	Liquid Amine Odor		

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)
Amido Amine	100	N/A

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method)	>220°F	AUTOIGNITION TEMPERATURE	N/A
FLAMMABLE LIMITS IN AIR, % by volume	N/A		

EXTINGUISHING MEDIA	Water, Foam, Carbon Dioxide Dry Chemical
SPECIAL FIRE FIGHTING PROCEDURES	Water, Foam, Carbon Dioxide Dry Chemical
UNUSUAL FIRE AND EXPLOSION HAZARDS	N/A

EMERGENCY PHONE NUMBER (213) 830-9904
(213) 476-7121

PREPARED BY: GLENN ARBUTHNOT
JANUARY 1992

J & R INDUSTRIES INC.
800 EAST ANAHEIM STREET
WILMINGTON, CALIFORNIA 90744
(213) 830-9904

MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor 'Essentially Similar' to Form OSHA-20)

CHEMICAL NAME: EPOXY RESIN

SYNONYMS:

CHEMICAL FAMILY: OXIRANE

FORMULA:

MOLECULAR WEIGHT:

TRADE NAME AND SYNOMYMS: J & R PENA-SEAL

I. PHYSICAL DATA

BOILING POINT, 760 mm. Hg	OVER 200º C	FREEZING POINT	N/A
SPECIFIC GRAVITY (H2O = 1)	1.12	VAPOR PRESSURE AT 20' C.	N/A
VAPOR DENSITY (air = 1)	LARGER THAN	SOLUBILITY IN WATER % by wt.	<4%
PER CENT VOLATILES BY VOLUME	5%	EVAPORATION RATE Butyl Acetate = 1	LESS THAN
APPEARANCE AND ODOR	DARK BLUE-RESIN ODOR		

II. HAZARDOUS INGREDIENTS

MATERIAL	% Wt.	TLV (Units)
EPOXY	92%	N/A

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method)	OVER 250°F TC	AUTOIGNITION TEMPERATURE	UNKNOWN
FLAMMABLE LIMITS IN AIR, % by volume	N/A		

EXTINGUISHING MEDIA	WATER, WATER SPRAY, CO_2, POWDER
SPECIAL FIRE FIGHTING PROCEDURES	WEAR PROTECTIVE CLOTHING
UNUSUAL FIRE AND EXPLOSION HAZARDS	NONE KNOWN

EMERGENCY PHONE NUMBER

310-476-7121
310-830-9904

PENA SEAL HARDNER (CONTINUED)

IV. HEALTH HAZARD DATA

ESHOLD LIMIT VALUE	N/A
ECTS OF OVEREXPOSURE	POSSIBLE NAUSEA & IRRITATION. CONSULT PHYSICIAN.
RGENCY AND FIRST AID PROCEDURES	WASH SKIN AND EYES WITH PLENTY OF SOAP AND WATER. FRESH AIR. CONSULT PHYSICIAN.

V. REACTIVITY DATA

STABILITY — UNSTABLE / STABLE		CONDITIONS TO AVOID	EXCESSIVE HEAT
NCOMPATIBILITY (materials to avoid)		STRONG ACIDS & ALKALIS	
ARDOUS DECOMPOSITION PRODUCTS		CARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF NITROGEN	
HAZARDOUS POLYMERIZATION — Occur / Will Not Occur		CONDITIONS TO AVOID	EXCESSIVE HEAT

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	WASH WITH PLENTY OF SOAP AND WATER. SCOOP UP MATERIAL AND DISPOSE ACCORDING TO FEDERAL AND STATE PROCEDURES.
WASTE DISPOSAL METHOD	STATE & FEDERAL RECOMMENDED PROCEDURES.

VII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)		APPROVED NIOSH/MSMA RESPIRATOR	
VENTILATION	LOCAL EXHAUST	✓	SPECIAL
	MECHANICAL (general)		OTHER
PROTECTIVE GLOVES		GLOVES TO AVOID & EYE CONTACT	EYE PROTECTION Glasses
OTHER PROTECTIVE EQUIPMENT		AVOID SKIN & EYE CONTACT	

VIII. SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING	AVOID SKIN & EYE CONTACT
OTHER HANDLING AND STORAGE CONDITIONS	STORE IN A COOL AREA AWAY FROM HEAT & OPEN FLAME.

IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	N/A
EFFECTS OF OVEREXPOSURE	MODERATELY TOXIC BY INGESTION & SKIN CONTACT POSSIBLE RASH ORAL RAT LD-50 1100mg./Kg.
EMERGENCY AND FIRST AID PROCEDURES	SKIN: WASH WITH SOAP AND WATER. IF RASH PRESIST GET MEDICAL ATTENTION. EYES: WASH WITH WATER FOR AT LEAST 15 MINUTES. IF REDNESS OR PAIN PRESIST GET MEDICAL ATTENTION.

V. REACTIVITY DATA

STABILITY			
UNSTABLE	STABLE: X	CONDITIONS TO AVOID	HIGH TEMPERATURE, STRONG OXIDIZE AGENTS
INCOMPATIBILITY (materials to avoid)		STRONG OXIDIZING AGENTS, ALIPHATICAMINES	
HAZARDOUS DECOMPOSITION PRODUCTS		ACRID SMOKE & FUMES IN A FIRE	
HAZARDOUS POLYMERIZATION: May Occur	Will Not Occur: X	CONDITIONS TO AVOID	LOW MOLECULAR WEIGHT ALIPHATICAMINES

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	ABSORB ON ANY NON REACTIVE SYSTEM
WASTE DISPOSAL METHOD	DISPOSE ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS

VII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)		ADEQUATE VENTILATION	
VENTILATION	LOCAL EXHAUST	X	SPECIAL
YES	MECHANICAL (general)		OTHER
PROTECTIVE GLOVES		RUBBER	EYE PROTECTION GLASSES
OTHER PROTECTIVE EQUIPMENT			

VIII. SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING	
OTHER HANDLING AND STORAGE CONDITIONS	DO NOT STORE AT TEMPERATURES OVER 130°F

LAW ENGINEERING

A MEMBER OF LAW COMPANIES GROUP

February 14, 1992

Mr. Fred Omundson
Chemical Specialties, Inc.
One Woodlawn Green, Suite 250
Charlotte, North Carolina 28217

Subject: Report on Concrete Sealer Testing
Law Project No. 224-03309.03

Mr. Omundson:

As authorized by your acceptance of our Proposal No. 101MR1 dated October 23, 1991, Law Engineering has completed testing of three concrete sealers. The purpose of our testing was to determine the permeability and absorption of concrete specimens treated with the specified sealers. This report presents a summary of the test procedures used, the materials used in the test and our test results.

SUMMARY OF TEST PROCEDURES

__Permeability__
The permeability of three test specimens (concrete cores treated with a sealer) was determined in general accordance with the test procedures outlined in the Corps of Engineers (COE) CRD-C 48-73 "Method of Test for Water Permeability of Concrete". The test procedures used varied from the COE test in that the concrete core specimen thicknesses were reduced from 6 inches to 4 inches and CCA was used in lieu of water to determine the permeability of the sample. In brief, CCA under constant pressure was forced through the concrete core sample and the amount of CCA passing into the sample was measured when a steady flow was achieved.

__Absorption__
The percent reduction in weight gain of concrete cores was determined by soaking four samples in a 2 percent solution of CCA. The weight gain of the samples treated with a sealer on the top was compared to the weight gain of the control (untreated) sample. The core samples were treated by applying a concrete sealer product to

P.O. BOX 11297
CHARLOTTE, NC 28220
4333 WILMOUNT ROAD, SUITE 100
CHARLOTTE, NC 28217
704-357-8600
FACSIMILE 704-357-8639

the top surface (except for the control) and coating the bottom and sides with a chemical resistant epoxy before being soaked. The weight gain of the samples was measured at 3, 6, 9, 12, 15, 18 and 21 days.

Depth of Penetration
The depth of penetration of the sealers was determined by diametrically cutting the core samples treated. The depth of penetration was determined by noting the depth at which water will "bead" on the cut surface or by noting the depth of concrete discoloration caused by the sealer/coating.

MATERIAL INFORMATION

Concrete
The concrete tested was part of a portland cement concrete apron constructed by Concrete Supply at their South Plant. The concrete apron was poured July 15, 1991. On December 4, 1991 six 6 inch diameter and fourteen 4 inch diameter cores were removed from the apron for the product testing. From the mix design information submitted we estimate that the concrete sampled had a water to cement ratio of 0.54 and a water to cement and flyash ratio of 0.43. The concrete had a specified compressive strength of 3,600 psi at 28 days. Cores removed from the apron and tested in general accordance with ASTM C 42, "Methods of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete", had an average compressive strength of 4,520 psi at approximately 5 months from date of placement.

Sealers

J & R Industries Pena-Seal: 2-Part Epoxy, application rate: 130 square feet per gallon

3M Concrete and Masonry Sealer 2000: Siloxane Sealer, application rate: 110 square feet per gallon

Sika Sikagard 70: Siloxane Sealer, application rate: 100 square feet per gallon

Our test results are summarized in the following table.

TEST RESULTS

Permeability and Absorption Testing of Concrete Sealers
Chemical Specialties, Inc.
February 14, 1992

Product	Permeability (10^{-9} cm/s)	Percent Wt. Gain[1]	Percent Reduct. in Wt. Gain[1&2]	Penetration Depth (in.)[3]
Sikagard 70	3.7	0.31	44	0.2
Pena-Seal	0.9	0.17	100	0.3
3M 2000	0.8	0.32	40	0.2

1 Results for weight gain through twenty-one days.
2 Percent reduction of weight gain based on comparison of test specimens to a control specim The control specimen was coated on all exposed surfaces (top, bottom and sides) with chemical resistant epoxy. The top surfaces of the test specimens were treated with the t products (Sikagard 70, Pena-Seal or 3M 2000).
3 Depth of penetration of coating/sealer was determined by cutting core specimens diametrica and visually examining the sawed surfaces.

CLOSURE

Law Engineering appreciates this opportunity to provide our professional services on this project. Please contact us if we can be of further assistance or if you have any questions concerning this report.

Sincerely,

LAW ENGINEERING

Thomas R. Tate, P.E.
Materials Engineer

William J. Brickey, P.E.
Principal Engineer

FX-570 & FX-571 POLYMERIC JOINT SEALANTS

(Formerly FX-71)

FOX INDUSTRIES

Fox Industries Inc. • 3100 Falls Cliff Road • Baltimore, Maryland 21211

E CRIPTION: FX-570/FX-571 POLYMERIC JOINT SEALANTS provide a flexible and watertight seal between concrete, masonry, metals, glass, wood and other construction materials. FX-570 (Gun Grade)/FX-571 (Pourable) are two-component, rubber-like materials and are mixed just prior to application. Color is light gray. (Other colors are available on special order)

DVANTAGES: FX-570/FX-571 bond tightly to any clean, dry surface as they cure. The cured sealant has rubber-like flexibility and performs well to -10°F. Joint movement ± 25% is easily accommodated through years of outdoor exposure. FX-570/FX-571 are resistant to moisture and chemical attack.

PERTIES: FX-570/FX-571 have excellent electrical properties. Typical electrical properties at 77°F (25°C) and 50% relative humidity of cured material are as follows:

Volume resistivity (ohm-cm)	$1 \times 10^{11} - 7 \times 10^{12}$
Surface resistivity (ohms)	$1 \times 10^{12} - 2 \times 10^{14}$
Dielectric constant @ 1 kc	5.5 - 8
Dissipation factor @ 1 kc	.001 - .010

Pot life after mixing is approximately 40 minutes at 70°F.

Initial cure is 4 days; final cure is 7 days.

SPECIFICATION: FX-570/FX-571 meet the following specifications:

National Bureau of Standards and GSA
TT-S-0227E (1970)

American Society for Testing & Materials
(ASTM) USASI - A116.1 (1967)

MIXING: Mix "A" and "B" Components with a slow-speed mechanical mixer for 3 minutes. Use FX-570 with caulking gun or mechanical equipment. FX-571 may be poured into joint from container or from watering can. For large projects, mechanical placing equipment may be utilized.

LICATION: Inspect joint slots to assure that they are clean and dry. To maximize bond to concrete, masonry, and steel, apply FX-570/FX-571 Joint Primer and allow to dry.

ERAGE: Each gallon of mixed material will fill 231-cubic inches of joint slot (77' of 1/2" x 1/2" or 38 ft. of 1/2" x 1" joint slot).

MITATIONS: Do not install in damp or wet joints, Temperature should be above 40°F at time of application to assure proper curing.

CAUTION: Repeated or prolong contact with skin should be avoided; protective gloves should be worn as a precaution. Avoid contact with eyes; in case of eye contact, flush with water for 15 minutes and consult a physician.

FOR INDUSTRIAL USE ONLY

KEEP AWAY FROM CHILDREN

BALTIMORE, MD./PHONE 301-243-8856 · WASHINGTON, D.C. AREA/PHONE 202-621-4303

Material Safety Data Sheet May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.	U.S. Department of Labor Occupational Safety and Health Administration (Non-Mandatory Form) Form Approved OMB No. 1218-0072
IDENTITY (As Used on Label and List) FX-571 "A" Comp.	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name Fox Industries, Inc.	Emergency Telephone Number 1-800-424-9300 CHEMTREC
Address (Number, Street, City, State, and ZIP Code) 3100 Falls Cliff Road Baltimore, MD 21211	Telephone Number for Information (410) 243-8856
	Date Prepared 9/93
	Signature of Preparer (optional)

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))		OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Titanium Dioxide	CAS #13463-67-7		10 mg/m^3		
Polysulfide Polymer		N/E			
Chlorinated Parafin	CAS #108171-26-2	N/E	N/E		

Section III — Physical/Chemical Characteristics

Boiling Point	N/D	Specific Gravity (H_2O = 1)	1.6
Vapor Pressure (mm Hg.)	N/D	Melting Point	N/A
Vapor Density (AIR = 1)	>1	Evaporation Rate (Butyl Acetate = 1)	N/D

Solubility in Water
Slight

Appearance and Odor
Gray paste

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
300°F		N/D	N/D

Extinguishing Media
CO_2, dry chemical, foam

Special Fire Fighting Procedures
Wear self-contained breathing apparatus with full face piece.

Unusual Fire and Explosion Hazards
None

N/A = Not Applicable N/D = Not Determined N/E = Not Established

Section V — Reactivity Data

St ity	Unstable		Conditions to Avoid
	Stable	X	

Ir npatibility (*Materials to Avoid*) None known

Hazardous Decomposition or Byproducts CO, CO_2

H rdous P nerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

S tion VI — Health Hazard Data

R e(s) of Entry:	Inhalation? No	Skin? Yes	Ingestion? Yes

H th Hazards (*Acute and Chronic*) Eyes: May cause irritation. Skin: Can cause slight irritation. May cause irritationof nasal passages.

C inogenicity:	NTP? Chlor Para. proposed 5th report	IARC Monographs? Not Listed	OSHA Regulated? Not Regulated

s and Symptoms of Exposure Skin irritation

ical Conditions
nerally Aggravated by Exposure None known

ency and First Aid Procedures Skin: Wash thoroughly with soap and water. Eyes: Irrigate for 15 minutes with water. If irritation persists, seek medical attention.

ction VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled Absorb with absorbent material. Scoop to suitable containers.

aste Disposal Method Dispose of in accordance with Federal, State, and Local regulations.

ecautions to Be Taken in Handling and Storing Keep containers closed.

her Precautions Wash after handling.

ection VIII — Control Measures

espiratory Protection (*Specify Type*) None normally needed

Ventilation	Local Exhaust	Special
	Mechanical (*General*) Good general ventilation	Other

ective Gloves Rubber gloves	Eye Protection Safety glasses

Other Protective Clothing or Equipment Long sleeved clothing.

Work/Hygienic Practices Follow practices of good industrial hygiene.

U.S.G.P.O.: 1986-491-529/45775

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List): FX- 571 "B" Comp.

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name: Fox Industries, Inc.	Emergency Telephone Number: 1-800-424-9300 CHEMTREC
Address (Number, Street, City, State, and ZIP Code): 3100 Falls Cliff Road, Baltimore, MD 21211	Telephone Number for Information: (410) 243-8856
	Date Prepared: 9/93
	Signature of Preparer (optional):

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Alkyl Benzyl Ester CAS #68515-40-2	5 ppm			
Managanese Dioxide CAS #1313-13-9	N/E			

Section III — Physical/Chemical Characteristics

Boiling Point	734 F	Specific Gravity (H_2O = 1)	1.63
Vapor Pressure (mm Hg.)	.5 mmHg	Melting Point	N/A
Vapor Density (AIR = 1)	>1	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water: Insoluble

Appearance and Odor: Dark brown paste

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
440°F		N/D	N/D

Extinguishing Media: Regular foam, water fog, CO_2

Special Fire Fighting Procedures: Wear self-contained breathing apparatus with full face piece.

Unusual Fire and Explosion Hazards: N/A

N/A = Not Applicable N/D = Not Determined N/E = Not Established

tion V — Reactivity Data

lity	Unstable		Conditions to Avoid
	Stable	X	

mpatibility (*Materials to Avoid*) Avoid strong oxidizing agents

zardous Decomposition or Byproducts CO, CO_2

rdous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry: Inhalation? No Skin? Yes Ingestion? Yes

h Hazards (*Acute and Chronic*) Eyes: May cause irritation. Skin: Can cause slight irritation. ay cause irritation of nasal passages.

Carcinogenicity: NTP? Not Listed IARC Monographs? Not Listed OSHA Regulated? Not Regulated

Signs and Symptoms of Exposure Skin or eye irritation.

Medical Conditions Generally Aggravated by Exposure None

Emergency and First Aid Procedures Skin: Wash thoroughly with soap and water. Eyes: Irrigate for minutes with water. If irritation persists, seek medical attention.

Section VII — Precautions for Safe Handling and Use

ps to Be Taken in Case Material Is Released or Spilled Absorb with absorbent material. Scoop to suitable containers.

te Disposal Method Dispose of in accordance with Federal, State, and Local regulations.

autions to Be Taken in Handling and Storing Keep containers closed.

r Precautions Wash after handling.

ction VIII — Control Measures

Respiratory Protection (*Specify Type*) None normally needed

ilation	Local Exhaust	Special
	Mechanical (*General*) Good general ventilation	Other

ective Gloves Rubber gloves | Eye Protection Safety glasses

Ot rotective Clothing or Equipment Long sleeved clothing.

/Hygienic Practices Follow practices of good industrial hygiene.

* U.S.G.P.O.: 1986-491-529/45775

APPENDIX G
BORING LOGS FOR P-1, P-2 AND P-5

PROJECT: ATLANTIC WOOD INDUSTRIES, INC. LOCATION: ATHENS, NEW YORK CLIENT: ATLANTIC WOOD INDUSTRIES	GEOPROBE LOG: P-1
DRILLING METHOD: TRUCK-MOUNTED GEOPROBE DRILLER: ZEBRA ENVIRONMENTAL DATE DRILLED: OCTOBER 30, 1995 GEOLOGIST: ROB GASS	GROUND ELEVATION: NA ELEVATION DATUM: NA BORING DEPTH: 22 DEPTH DATUM: FEET

DEPTH (feet)	BLOW COUNT (SPT)	SAMPLES	GRAPHIC LOG	DESCRIPTION
0–2.5		X		Brown SAND and GRAVEL, loose (fill material).
2.5–13		X		Olive-brown to brown Silty CLAY, with some gray mottling, dense, dry.
13–22		X		Dark blue gray Silty CLAY, soft, slightly plastic, moist.
22				Bottom of Boring at 22.0 feet.

Depth scale: 5, 10, 15, 20, 25, 30, 35

PROJECT: ATLANTIC WOOD INDUSTRIES, INC.
LOCATION: ATHENS, NEW YORK
CLIENT: ATLANTIC WOOD INDUSTRIES

GEOPROBE LOG: P-2

DRILLING METHOD: TRUCK-MOUNTED GEOPROBE
DRILLER: ZEBRA ENVIRONMENTAL
DATE DRILLED: OCTOBER 30, 1995
GEOLOGIST: ROB GASS

GROUND ELEVATION: NA
ELEVATION DATUM: NA
BORING DEPTH: 30
DEPTH DATUM: FEET

DEPTH (feet)	BLOW COUNT (SPT)	SAMPLES	GRAPHIC LOG	DESCRIPTION
0–2		X		Brown SAND and GRAVEL, loose (fill material).
2–13		X		Olive-brown to brown Silty CLAY, with some gray mottling, dense, dry.
13–30		X		Dark blue gray Silty CLAY, soft, slightly plastic, moist.
30				Bottom of Boring at 30.0 feet.

Depth scale: 5, 10, 15, 20, 25, 30, 35

PROJECT: ATLANTIC WOOD INDUSTRIES, INC.
LOCATION: ATHENS, NEW YORK
CLIENT: ATLANTIC WOOD INDUSTRIES

GEOPROBE LOG: P-5

DRILLING METHOD: TRUCK-MOUNTED GEOPROBE	GROUND ELEVATION: NA
DRILLER: ZEBRA ENVIRONMENTAL	ELEVATION DATUM: NA
DATE DRILLED: OCTOBER 30, 1995	BORING DEPTH: 24
GEOLOGIST: ROB GASS	DEPTH DATUM: FEET

DEPTH (feet)	BLOW COUNT (SPT)	SAMPLES	GRAPHIC LOG	DESCRIPTION
				Brown SAND and GRAVEL, loose (fill material).
5				
				Olive-brown to brown Silty CLAY, with some gray mottling, dense, dry.
10				
15				
20				Dark blue gray Silty CLAY, soft, slightly plastic, moist.
				Bottom of Boring at 24.0 feet.
25				
30				
35				

Page 1 of 1

APPENDIX H
SOIL ANALYTICAL RESULTS

CHESTER LabNet - Pittsburgh
3000 Tech Center Drive
Monroeville, PA 15146-9998
(412) 825-9833

For: Laboratory Analyses Report
Atlantic Wood

Date of Report: 11/09/95

DRY WEIGHT ANALYSES

Source: P-1 3-5'
Log Number: 95-0016921
Date Collected: 10/30/95
Time Collected: 17:35
Date Received: 11/01/95

Account No.: 461
Project No.: 9511002
Client No.: 04003047001
P.O. No.: 04003047001

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	11/01
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	80	wt%	1.0	160.3	mls	11/03
pH	9.2	Units	N/A	9045	jeb	11/02
MET/GFAA						
TOTAL METALS						
Arsenic, As	<0.6	mg/kg	0.6	7060	cby	11/06
MET/ICP						
TOTAL METALS						
Chromium, Cr	21.3	mg/kg	1.3	6010	jap	11/03
Copper, Cu	22.5	mg/kg	1.3	6010	jap	11/03

CHESTER LabNet - Pittsburgh
3000 Tech Center Drive
Monroeville, PA 15146-9998
(412) 825-9833

Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/09/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016921
Log Number: 95-0016922
Date Collected: 10/30/95
Time Collected: 17:35
Date Received: 11/01/95

Account No.: 461
Project No.: 9511002
Client No.: 04003047001
P.O. No.: 04003047001

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	11/01
Extract pH, Nonvolatiles	7.04	Units	N/A	9040	bap	11/01
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	11/01
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	11/01
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	11/06
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	11/06
TCLP Copper, Cu	<.01	mg/L	0.01	6010	jap	11/06

CHESTER LabNet - Pittsburgh
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Monroeville, PA 15146-9998
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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/09/95

DRY WEIGHT ANALYSES

Source: P-2 3-5'
Log Number: 95-0016923
Date Collected: 10/30/95
Time Collected: 17:15
Date Received: 11/01/95

Account No.: 461
Project No.: 9511002
Client No.: 04003047001
P.O. No.: 04003047001

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	11/01
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	77	wt%	1.0	160.3	mls	11/03
pH	8.2	Units	N/A	9045	jeb	11/02
MET/GFAA						
TOTAL METALS						
Arsenic, As	10.6	mg/kg	0.6	7060	cby	11/06
MET/ICP						
TOTAL METALS						
Chromium, Cr	28.6	mg/kg	1.3	6010	jap	11/03
Copper, Cu	28.6	mg/kg	1.3	6010	jap	11/03

CHESTER LabNet · Pittsburgh
3000 Tech Center Drive
Monroeville, PA 15146-9998
(412) 825-9833

Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/09/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016923
Log Number: 95-0016924
Date Collected: 10/30/95
Time Collected: 17:15
Date Received: 11/01/95

Account No.: 461
Project No.: 9511002
Client No.: 04003047001
P.O. No.: 04003047001

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	11/01
Extract pH, Nonvolatiles	5.21	Units	N/A	9040	bap	11/01
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	11/01
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	11/01
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	11/06
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	11/06
TCLP Copper, Cu	0.012	mg/L	0.01	6010	jap	11/06

CHESTER LabNet - Pittsburgh
3000 Tech Center Drive
Monroeville, PA 15146-9998
(412) 825-9833

Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-1
Log Number: 95-0016527
Date Collected: 10/10/95
Time Collected: 09:15
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	90	wt%	1.0	160.3	mls	11/01
pH	7.8	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	11.1	mg/kg	1.1	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	15.6	mg/kg	1.1	6010	jap	10/26
Copper, Cu	25.6	mg/kg	1.1	6010	jap	10/26

CHESTER LabNet - Pittsburgh
3000 Tech Center Drive
Monroeville, PA 15146-9998
(412) 825-9833

Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016527
Log Number: 95-0016528
Date Collected: 10/10/95
Time Collected: 09:15
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	5.76	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	<.01	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-2
Log Number: 95-0016529
Date Collected: 10/10/95
Time Collected: 09:50
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	96	wt%	1.0	160.3	mls	11/01
pH	8.9	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	42.7	mg/kg	2.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	50.0	mg/kg	1.0	6010	jap	10/26
Copper, Cu	42.7	mg/kg	1.0	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016529
Log Number: 95-0016530
Date Collected: 10/10/95
Time Collected: 09:50
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	6.24	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	6.24	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	<.01	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016531
Log Number: 95-0016532
Date Collected: 10/10/95
Time Collected: 10:25
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	4.89	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	<.01	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-3
Log Number: 95-0016531
Date Collected: 10/10/95
Time Collected: 10:25
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	77	wt%	1.0	160.3	mls	11/01
pH	8.8	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	5.5	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	27.3	mg/kg	1.3	6010	jap	10/26
Copper, Cu	32.5	mg/kg	1.3	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016535
Log Number: 95-0016536
Date Collected: 10/10/95
Time Collected: 11:15
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	4.80	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	<.01	mg/L	0.01	6010	jap	10/26

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For: Laboratory Analyses Report
Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-5
Log Number: 95-0016539
Date Collected: 10/10/95
Time Collected: 12:20
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	79	wt%	1.0	160.3	mls	11/01
pH	8.2	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	5.2	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	29.1	mg/kg	1.3	6010	jap	10/26
Copper, Cu	27.8	mg/kg	1.3	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: BSS-2
Log Number: 95-0016537
Date Collected: 10/10/95
Time Collected: 11:30
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	78	wt%	1.0	160.3	mls	11/01
pH	8.4	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	4.9	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	32.1	mg/kg	1.3	6010	jap	10/26
Copper, Cu	32.1	mg/kg	1.3	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-4
Log Number: 95-0016533
Date Collected: 10/10/95
Time Collected: 12:00
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	80	wt%	1.0	160.3	mls	11/01
pH	8.8	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	5.3	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	31.3	mg/kg	1.3	6010	jap	10/26
Copper, Cu	26.3	mg/kg	1.3	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016533
Log Number: 95-0016534
Date Collected: 10/10/95
Time Collected: 12:00
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	5.37	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	0.011	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

DRY WEIGHT ANALYSES

Date of Report: 10/31/95

Source: BSS-1
Log Number: 95-0016535
Date Collected: 10/10/95
Time Collected: 11:15
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	77	wt%	1.0	160.3	mls	11/01
pH	8.9	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	4.4	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	33.8	mg/kg	1.3	6010	jap	10/26
Copper, Cu	33.8	mg/kg	1.3	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016537
Log Number: 95-0016538
Date Collected: 10/10/95
Time Collected: 11:30
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	4.92	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	0.011	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016539
Log Number: 95-0016540
Date Collected: 10/10/95
Time Collected: 12:20
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	5.35	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	0.014	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-6
Log Number: 95-0016541
Date Collected: 10/10/95
Time Collected: 12:35
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	82	wt%	1.0	160.3	mls	11/01
pH	8.5	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	4.3	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	26.8	mg/kg	1.2	6010	jap	10/26
Copper, Cu	25.6	mg/kg	1.2	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016541
Log Number: 95-0016542
Date Collected: 10/10/95
Time Collected: 12:35
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	6.75	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	<.01	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-7
Log Number: 95-0016543
Date Collected: 10/10/95
Time Collected: 12:50
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	78	wt%	1.0	160.3	mls	11/01
pH	7.9	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	3.8	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	29.5	mg/kg	1.3	6010	jap	10/26
Copper, Cu	19.2	mg/kg	1.3	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016543
Log Number: 95-0016544
Date Collected: 10/10/95
Time Collected: 12:50
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	5.03	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	<.01	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-8
Log Number: 95-0016545
Date Collected: 10/10/95
Time Collected: 13:00
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	82	wt%	1.0	160.3	mls	11/01
pH	7.7	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	2.4	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	29.3	mg/kg	1.2	6010	jap	10/26
Copper, Cu	29.3	mg/kg	1.2	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016545
Log Number: 95-0016546
Date Collected: 10/10/95
Time Collected: 13:00
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	4.98	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	0.021	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-9
Log Number: 95-0016547
Date Collected: 10/10/95
Time Collected: 13:15
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	79	wt%	1.0	160.3	mls	11/01
pH	7.7	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	3.9	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	32.9	mg/kg	1.3	6010	jap	10/26
Copper, Cu	29.1	mg/kg	1.3	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

ANALYSES

Date of Report: 10/31/95

Source: Tclp Nonvolatile Extraction of 95-0016547
Log Number: 95-0016548
Date Collected: 10/10/95
Time Collected: 13:15
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	4.89	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	0.015	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-10
Log Number: 95-0016549
Date Collected: 10/10/95
Time Collected: 13:50
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	79	wt%	1.0	160.3	mls	11/01
pH	8.3	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	4.4	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	27.8	mg/kg	1.3	6010	jap	10/26
Copper, Cu	30.4	mg/kg	1.3	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016549
Log Number: 95-0016550
Date Collected: 10/10/95
Time Collected: 13:50
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	6.45	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	0.014	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

DRY WEIGHT ANALYSES

Source: SS-A
Log Number: 95-0016551
Date Collected: 10/10/95
Time Collected: 13:30
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 040030110603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	bap	10/24
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	78	wt%	1.0	160.3	mls	11/01
pH	8.3	Units	N/A	9045	jrk	10/23
MET/GFAA						
TOTAL METALS						
Arsenic, As	2.4	mg/kg	0.6	7060	jmy	10/25
MET/ICP						
TOTAL METALS						
Chromium, Cr	34.6	mg/kg	1.3	6010	jap	10/26
Copper, Cu	30.8	mg/kg	1.3	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 10/31/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0016551
Log Number: 95-0016552
Date Collected: 10/10/95
Time Collected: 13:30
Date Received: 10/13/95

Account No.: 461
Project No.: 9510283
Client No.: 0400301180603
P.O. No.: 0400301180603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	bap	10/24
Extract pH, Nonvolatiles	4.92	Units	N/A	9040	bap	10/24
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	bap	10/24
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	bap	10/24
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	jap	10/26
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	jap	10/26
TCLP Copper, Cu	<.01	mg/L	0.01	6010	jap	10/26

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-19 0-7"
Log Number: 95-0017705
Date Collected: 11/16/95
Time Collected: 14:10
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	71	wt%	1.0	160.3	rlb	11/21
pH	6.0	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	6.3	mg/kg	0.7	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	32.4	mg/kg	1.4	6010	jap	11/18
Copper, Cu	33.8	mg/kg	1.4	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017703
Log Number: 95-0017704
Date Collected: 11/16/95
Time Collected: 14:02
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	4.85	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/21
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	0.014	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-18 0-12"
Log Number: 95-0017703
Date Collected: 11/16/95
Time Collected: 14:02
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	84	wt%	1.0	160.3	rlb	11/21
pH	6.1	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	22.6	mg/kg	3.0	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	31.0	mg/kg	1.2	6010	jap	11/18
Copper, Cu	17.9	mg/kg	1.2	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017701
Log Number: 95-0017702
Date Collected: 11/16/95
Time Collected: 13:50
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	5.52	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/21
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	0.012	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-17 0-1.3'
Log Number: 95-0017701
Date Collected: 11/16/95
Time Collected: 13:50
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	95	wt%	1.0	160.3	rlb	11/21
pH	8.0	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	18.9	mg/kg	2.6	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	20.0	mg/kg	1.1	6010	jap	11/18
Copper, Cu	22.1	mg/kg	1.1	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017699
Log Number: 95-0017700
Date Collected: 11/16/95
Time Collected: 13:40
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	5.27	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/21
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	0.014	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-16 0-1.2'
Log Number: 95-0017699
Date Collected: 11/16/95
Time Collected: 13:40
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	95	wt%	1.0	160.3	rlb	11/21
pH	7.8	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	48.4	mg/kg	5.3	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	38.9	mg/kg	1.1	6010	jap	11/18
Copper, Cu	31.6	mg/kg	1.1	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017697
Log Number: 95-0017698
Date Collected: 11/16/95
Time Collected: 13:03
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	I	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	5.19	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/21
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	<.01	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-15 9.5-10'
Log Number: 95-0017697
Date Collected: 11/16/95
Time Collected: 13:03
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	76	wt%	1.0	160.3	rlb	11/21
pH	7.8	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	8.2	mg/kg	0.7	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	25.0	mg/kg	1.3	6010	jap	11/18
Copper, Cu	27.6	mg/kg	1.3	6010	jap	11/18

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For: Laboratory Analyses Report
Atlantic Wood

ANALYSES

Date of Report: 11/27/95

Source: Tclp Nonvolatile Extraction of 95-0017695
Log Number: 95-0017696
Date Collected: 11/16/95
Time Collected: 12:33
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	5.20	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/21
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	0.016	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-14
Log Number: 95-0017695
Date Collected: 11/16/95
Time Collected: 12:33
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	95	wt%	1.0	160.3	rlb	11/21
pH	8.0	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	7.7	mg/kg	0.5	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	25.3	mg/kg	1.1	6010	jap	11/18
Copper, Cu	20.0	mg/kg	1.1	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017693
Log Number: 95-0017694
Date Collected: 11/16/95
Time Collected: 12:21
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	4.92	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/21
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	0.011	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-13
Log Number: 95-0017693
Date Collected: 11/16/95
Time Collected: 12:21
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	95	wt%	1.0	160.3	rlb	11/21
pH	8.1	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	10.3	mg/kg	1.1	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	18.9	mg/kg	1.1	6010	jap	11/18
Copper, Cu	15.8	mg/kg	1.1	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017692
Log Number: 95-0017692
Date Collected: 11/16/95
Time Collected: 12:18
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	5.04	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/21
TCLP Chromium, Cr	0.028	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	0.010	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source:	SS-12
Log Number:	95-0017691
Date Collected:	11/16/95
Time Collected:	12:18
Date Received:	11/18/95

Account No.:	461
Project No.:	9511178
Client No.:	040030118-0603
P.O. No.:	040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	94	wt%	1.0	160.3	rlb	11/21
pH	8.4	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	128	mg/kg	13.3	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	105	mg/kg	1.1	6010	jap	11/18
Copper, Cu	34.0	mg/kg	1.1	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-11
Log Number: 95-0017690
Date Collected: 11/16/95
Time Collected: 11:12
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	80	wt%	1.0	160.3	rlb	11/21
GC						
VOLATILES						
Total Petroleum Hydrocarbons (GRO)	<13	mg/kg	13	GRO	akg	11/20
SEMIVOLATILES						
Total Petroleum Hydrocarbons (DRO)	<13	mg/kg	13	DRO	jmo	11/22

COMMENTS

01 No hydrocarbon pattern was determined for kerosene.

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017705
Log Number: 95-0017706
Date Collected: 11/16/95
Time Collected: 14:10
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	4.89	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/21
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	<.01	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-20 0-13"
Log Number: 95-0017707
Date Collected: 11/16/95
Time Collected: 14:16
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	74	wt%	1.0	160.3	rlb	11/21
pH	5.9	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	16.2	mg/kg	1.4	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	32.4	mg/kg	1.4	6010	jap	11/18
Copper, Cu	23.0	mg/kg	1.4	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017707
Log Number: 95-0017708
Date Collected: 11/16/95
Time Collected: 14:16
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	4.85	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/24
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	<.01	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-21 0-7"
Log Number: 95-0017709
Date Collected: 11/16/95
Time Collected: 14:21
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	72	wt%	1.0	160.3	rlb	11/21
pH	5.8	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	9.2	mg/kg	0.7	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	30.6	mg/kg	1.4	6010	jap	11/18
Copper, Cu	18.1	mg/kg	1.4	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017709
Log Number: 95-0017710
Date Collected: 11/16/95
Time Collected: 14:21
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	4.86	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/24
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	<.01	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-23 2.8'
Log Number: 95-0017711
Date Collected: 11/16/95
Time Collected: 14:45
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	77	wt%	1.0	160.3	rlb	11/21
pH	6.5	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	5.7	mg/kg	0.6	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	29.9	mg/kg	1.3	6010	jap	11/18
Copper, Cu	22.1	mg/kg	1.3	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017711
Log Number: 95-0017712
Date Collected: 11/16/95
Time Collected: 14:45
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	4.89	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/24
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	0.011	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Tclp Nonvolatile Extraction of 95-0017713
Log Number: 95-0017714
Date Collected: 11/16/95
Time Collected: 14:53
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
Extraction Fluid, Nonvolatiles	1	None	N/A	1311	rkm	11/20
Extract pH, Nonvolatiles	5.08	Units	N/A	9040	rkm	11/20
Initial Filtrate, Nonvolatiles	0	ml	N/A	1311	rkm	11/20
Weight Extracted, Nonvolatiles	100	Grams	N/A	1311	rkm	11/20
MET/ICP						
TCLP METALS						
TCLP Arsenic, As	<.03	mg/L	0.03	6010	rtg	11/24
TCLP Chromium, Cr	<.01	mg/L	0.01	6010	rtg	11/21
TCLP Copper, Cu	<.01	mg/L	0.01	6010	rtg	11/21

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-24 18"
Log Number: 95-0017713
Date Collected: 11/16/95
Time Collected: 14:53
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
LEACHPREP						
TCLP NONVOL						
TCLP Extraction, Nonvolatiles	done	None	N/A	1311	rkm	11/20
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	78	wt%	1.0	160.3	rlb	11/21
pH	6.4	Units	N/A	9045	jeb	11/20
MET/GFAA						
TOTAL METALS						
Arsenic, As	6.5	mg/kg	0.6	7060	jmy	11/20
MET/ICP						
TOTAL METALS						
Chromium, Cr	30.8	mg/kg	1.3	6010	jap	11/18
Copper, Cu	32.1	mg/kg	1.3	6010	jap	11/18

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

DRY WEIGHT ANALYSES

Source: SS-25
Log Number: 95-0017715
Date Collected: 11/16/95
Time Collected: 15:02
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
WET CHEM						
WET CHEMISTRY						
Total Percent Solids	87	wt%	1.0	160.3	rlb	11/21
GC						
VOLATILES						
Total Petroleum Hydrocarbons (GRO)	<12	mg/kg	12	GRO	akg	11/20
SEMIVOLATILES						
Total Petroleum Hydrocarbons (DRO)	<12	mg/kg	12	DRO	jmo	11/22

COMMENTS

01 No hydrocarbon pattern was determined for kerosene.

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/27/95

ANALYSES

Source: Trip Blank
Log Number: 95-0017716
Date Collected: 11/14/95
Time Collected: 00:00
Date Received: 11/18/95

Account No.: 461
Project No.: 9511178
Client No.: 040030118-0603
P.O. No.: 040030118-0603

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
GC						
VOLATILES						
Total Petroleum Hydrocarbons (GRO)	<.1	mg/L	0.1	GRO	akg	11/20

TOTAL P.27

APPENDIX I
PLANT WELL ANALYTICAL RESULTS

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/09/95

ANALYSES

Source: AW-1
Log Number: 95-0016926
Date Collected: 10/31/95
Time Collected: 10:00
Date Received: 11/01/95

Account No.: 461
Project No.: 9511002
Client No.: 04003047001
P.O. No.: 04003047001

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
MET/GFAA						
TOTAL METALS						
Arsenic, As	<.01	mg/L	0.01	7060	cby	11/06
DISS METALS						
Dissolved Arsenic, As	<.01	mg/L	0.01	7060	cby	11/06
MET/ICP						
TOTAL METALS						
Chromium, Cr	<.01	mg/L	0.01	6010	jap	11/03
Copper, Cu	<.01	mg/L	0.01	6010	jap	11/03
DISS METALS						
Dissolved Chromium, Cr	<.01	mg/L	0.01	6010	jap	11/03
Dissolved Copper, Cu	<.01	mg/L	0.01	6010	jap	11/03

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Laboratory Analyses Report
For: Atlantic Wood

Date of Report: 11/09/95

ANALYSES

Source: EB-1
Log Number: 95-0016925
Date Collected: 10/30/95
Time Collected: 14:50
Date Received: 11/01/95

Account No.: 461
Project No.: 9511002
Client No.: 04003047001
P.O. No.: 04003047001

	Conc.	Unit	Detection Limit	Procedure	Anl	Test Date
MET/GFAA						
TOTAL METALS						
Arsenic, As	<.01	mg/L	0.01	7060	cby	11/06
DISS METALS						
Dissolved Arsenic, As	<.01	mg/L	0.01	7060	cby	11/06
MET/ICP						
TOTAL METALS						
Chromium, Cr	<.01	mg/L	0.01	6010	jap	11/03
Copper, Cu	<.01	mg/L	0.01	6010	jap	11/03
DISS METALS						
Dissolved Chromium, Cr	<.01	mg/L	0.01	6010	jap	11/03
Dissolved Copper, Cu	<.01	mg/L	0.01	6010	jap	11/03

APPENDIX J
COMPLIANCE AUDIT CHECKLIST

Environmental Audit Questionnaire

Facility: AWI - Athens, New York
County: Greene
Completed By: David King
Size of Facility: Approximately 13 acres
EPA ID #: NYD 095 240 610

Address: P.O. Box 204, Athens, NY 12015
SIC Codes: 2491
Date: August 10, 1994, updated October 10, 1995
Age of Facility: 20 yrs Phone: (518) 945-2660

	Yes	No	N/A	Comments
General				
1 Are all environmental files centrally located?	X			At the Corporate office in Savannah
2 Is there a written environmental records retention policy?		X		No written policy, records kept indefinitely
3 Is there a file of laws, regulations, and ordinances applicable to facility activities?	X			BNA on CD, RCRA Training Manual, OSHA Training & Compliance Manual
4 Is there an up-to-date site plan?	X			Copy obtained
5 Does the site plan show all emission and discharge points?		X		
6 Is there an emergency action plan to cover potential environmental emergencies?	X			Copy reviewed
7 Are copies of Corporate environmental policies available?	X			Copy reviewed
Is there a waste minimization plan or source reduction plan?		X		See Ltr 1/6/93 NYDEP & AWI ltr 2/11/93. 25 tons/yr
9 What is the name of the nearest surface water?				Murders Creek
Air				
1 Have all air emission sources been identified?	X			For SARA Title III, Form R
2 Are industrial boilers used?	X			One process boiler - #2 diesel fuel for dry kilns
3 Have construction permits been obtained for emission sources?			X	
4 Are air permits required?		X		
5 Are air permits current?			X	
6 Expiration date(s)?			X	
7 Is self monitoring and reporting required?		X		
8 Have there been odor complaints?		X		
9 Has an air emissions inventory been conducted?	X			For SARA Title III Form R report, CCA process only
10 Are air monitoring records available?			X	
Have there been any air inspections by regulatory agencies in the last 12 months?		X		

Environmental Audit Questionaire

	Yes	No	N/A	Comments
. Are any air-regulated legal actions being pursued against the facility (i.e.: NOVs)?		X		
13 Is the facility in compliance with emission standards and permit conditions?			X	
14 Are there any emission control devices?		X		
15 Are there any CFCs or HCFCs used on-site?		X		
:. Water				
1 Is there a public water supply at this facility?	X			Village of Athens
2 Are there any on-site wells?	X			One process water well
3 Are on-site wells used for drinking water?		X		
4 Has drinking water been analyzed?			X	
5 Are on-site wells used for other purposes?	X			One process water well
6 Do on-site wells require permits?		X		
7 Are there wastewater discharge permits?		X		Stormwater only
Is there an on-site wastewater treatment facility?		X		
9 Is there a NPDES permit for process discharges?		X		No process discharge
10 Does NPDES permit address all point source discharges?			X	
11 Do DMRs indicate any violations in the last 2 years?			X	
12 Are there discharge to a publicly owned treatment works?		X		
13 Is pretreatment required prior to discharge?			X	
14 Are there self-monitoring and reporting requirements?	X			For the stormwater permit
15 Is a septic system used?	X			
16 Does underground injection occur?		X		
17 Has stormwater runoff been evaluated?		X		
18 Are raw materials/products stored outdoors?	X			
19 Is a stormwater permit required?	X			General permit # GP-93-05
20 Has an application been made for a stormwater permit?	X			
Are there any ponds or lagoons on-site?		X		
22 Are there wetlands on-site?	X			Potentially. Also some w/i 100 ft of property

A-353

Environmental Audit Questionaire

	Yes	No	N/A	Comments
23 Have there been any water-related violations?		X		
24 Have there been any inspections by the water quality regulatory agencies in the last 12 months?		X		
25 Are any water-related legal actions being pursued against the facility?		X		
26 Is the facility in compliance with discharge standards and permit conditions?	X			Currently no discharge standards in Stormwater Permit
). Chemical Handling				
1 Is there a list of hazardous chemicals used?	X			
2 Is there a program to inform and educate employees about the hazardous chemicals in the work place? (HAZCOM)	X			
3 Are training records available?	X			
4 Are containers properly labeled?	X			
5 Is employee exposure to hazardous materials minimized?	X			
υ Are hazardous materials and/or empty containers shipped off-site?	X			See Hazardous Waste
. Spill Prevention				
1 Are there aboveground chemical or oil storage tanks?	X			
2 Is there a plot plan showing the location of tanks?		X		
3 Do aboveground tanks have secondary containment?	X			
4 Are inspection records maintained?		X		However, inspections are performed
5 Is oil stored on-site?	X			Drums in Maintenance Building
6 Is there a SPCC plan?	X			Plan reviewed, OK. Last revision March 1995
7 Are chemicals stored on-site?	X			In tanks and drums
8 Is there a best management practices plan?		X		See Stormwater Permit
9 Have there been any reportable spills in the last 12 months?		X		Last reportable spill May 1990
10 Were appropriate authorities notified?			X	
Underground Storage Tanks (UST)s				
1 Have USTs ever been used?	X			One filled with sand
2 Are USTs currently used?		X		

Environmental Audit Questionaire

	Yes	No	N/A	Comments
3 Are any UST installations planned?		X		
4 Have all USTs been registered?			X	
5 Do USTs have secondary containment?			X	
6 Do USTs have corrosion protection?			X	
7 Do USTs have leak detection/monitoring systems?			X	
8 Are USTs located near water supply wells?			X	
9 Are financial liability insurance requirements being met?			X	
10 Have there been leaks from USTs?			X	
11 Is there pressurized underground piping?		X		
12 Is the depth to groundwater known?	X			Approximately 60 feet
G. Solid Wastes				
1 Is there a waste analysis plan?	X			See Hazardous Waste Section
Is waste oil generated?	X			Stored in 55-gallon drums; 2-3 drums maximum
3 Is waste oil burned on-site?		X		
4 Is there a waste oil contractor?	X			Local service - Maincare
5 Are waste oil shipment records maintained?		X		
6 Is there a written agreement with the waste oil transporter?		X		
7 Is there a written agreement with the waste oil disposal facility?		X		
8 Is solid waste transported off-site?	X			Waste Management, Inc. (914) 473-2955
9 Have solid wastes been buried on-site?		X		
10 Is solid waste burned on-site?		X		
11 Has back-fill or other fill material been used on-site?	X			Yard base - 6" - 20" of compacted rock
12 Has a recycling plan been implemented?		X		
H. Hazardous Waste Management - General				
1 Is there a hazardous waste analysis plan?	X			
2 Is hazardous waste generated?	X			D004, D007, F035
3 Is the facility a small quantity generator?		X		LQG 1992 - 7920 lbs; 1993 - 13680 lbs

Environmental Audit Questionaire

	Yes	No	N/A	Comments
4 Are manifests and land disposal forms maintained on-site?	X			1993, 1994, and 1995 manifests reviewed at site
5 Are annual or biennial reports submitted?	X			Reviewed at site. 1992 report missing
6 Is there a designated hazardous waste storage or accumulation area?	X			< 90-day accumulation
7 Are periodic inspections of accumulation areas performed?	X			Records at plant
8 Is hazardous waste transported off-site?	X			
9 Is hazardous waste sent to a disposal facility?	X			Hickson Corporation
10 Are hazardous waste containers properly labeled?			X	No haz. waste drums on site during visit
11 Is there a hazardous waste training program?	X			
12 Are training records available?	X			Records reviewed and are up-to-date
13 Is there a hazardous waste contingency plan?	X			Plan reviewed - OK; revised March 1995
. Hazardous Waste Management - Subpart W, Drip Pad				
Is there a written contingency plan?			X	NYDEC has not approved Subpart W
2 Are drip pad cleaning records maintained?	X			
3 Are records maintained documenting when drippage ceases?	X			
4 Are records maintained documenting past operating practices?			X	NYDEC has not approved Subpart W
5 Has the pad been certified by a registered engineer?	X			
J. SARA Title III				
1 Are MSDSs available for all workplace chemicals?	X			
2 Have Tier I or Tier II reports been submitted?	X			1992, 1993 & 1994 reports reviewed - OK
3 Have Form Rs been submitted?	X			1992, 1993 & 1994 reports reviewed - OK
4 Have MSDSs or a list of hazardous chemicals been submitted to emergency management agencies?	X			
K. PCBs/Asbestos				
1 Are there transformers on-site?	X			Two
2 Are the transformers company owned?		X		Central Hudson Gas & Electric Company
3 Has PCB sampling been done?		X		
Are results of testing on file?		X		
5 Is there any PCB-containing equipment on-site?		X		Ltr from CHG&E 10/19/89, no PCBs in transformers

Environmental Audit Questionaire

	YES	NO	N/A	Comments
6 Has PCB-contaminated material been sent off-site?		X		
7 Is PCB-containing equipment being stored on-site?		X		
8 Any PCB spills?		X		
9 Is all PCB equipment properly labeled?			X	
10 Is asbestos suspected?		X		
11 Has an asbestos survey been performed?	X			No asbestos found
12 Has asbestos material been shipped off-site?		X		
L. Solvents				
1 Are solvents used on-site?		X		
2 Are spent solvents transported off-site?			X	
3 Are solvents sent to a reclaimer?			X	
M. Neighboring Property				
1 Do neighboring properties have commercial activities?	X			An industrial park
2 Are federal or state superfund sites located in the immediate vicinity?		X		

APPENDIX H

REPORT OF FINDINGS SAMPLING VISIT WORK PLAN IMPLEMENTATION

REPORT OF FINDINGS
SAMPLING VISIT WORK PLAN IMPLEMENTATION
FORMER ATLANTIC WOOD INDUSTRIES, INC. FACILITY
ATHENS, NEW YORK
EPA I.D. NO. NYD095240610

Prepared for:

Atlantic Wood Industries
P. O. Box 1608
Savannah, GA 31402

Prepared by:

KU Resources, Inc.

April 1999

RESOURCES, INC.
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1.0 INTRODUCTION

Atlantic Wood Industries, Inc. (AWI) is the former owner of a wood preserving facility located in Athens, New York. In 1980, AWI protectively filed for Interim Status under the Resource Conservation and Recovery Act (RCRA). AWI subsequently determined that it was a small quantity generator of hazardous waste materials, and beginning in 1983, attempted to extricate itself from Interim Status. In early 1996, AWI sold the facility to Northeast Treaters, Inc., which currently operates the wood preserving facility. As part of the sales agreement, AWI agreed to resolve any issues related to the *"Final Report for the Corrective Action Prior to Loss of Interim Status"* (CAPTLOIS) that was prepared prior to the sale of the facility in 1996

The facility was built in 1977, and has undergone a number of upgrades since that time. Most notably, the area around the original drip track was paved with concrete to form a large drip pad, and the entire process area and drip pad was placed inside a building. This drip pad is currently in compliance with RCRA Subpart W requirements, which include: sealing/coating the concrete surface with a chemical resistant material, and maintaining that chemical-resistant surface; removing chemical build-up and cleaning the drip pad on a routine basis to allow for weekly inspections; and having a Professional Engineer inspect the drip pad on a yearly basis and certify its compliance with the applicable Subpart W requirements.

In March 1989, the *"Final Report for the Corrective Action Prior to Loss of Interim Status"* (CAPTLOIS) for the facility was prepared by A.T. Kearney (a contractor to U.S. EPA). This Report noted that "the bottom of the CCA Solution Recycle Sump could not be inspected during the site visit since it contained CCA solution." The Report went on to recommend that the sump be inspected for integrity, and "should the inspection reveals (sic) cracks or other deterioration, soil sampling is recommended. The soil sampling should include arsenic and chromium."

This sump remains in use at the facility, resulting in the continued inability to thoroughly inspect the bottom and interior surfaces to evaluate the integrity of the unit. As a result, sampling was performed immediately around the sump in June 1997 to respond to the sampling recommendations in the CAPTLOIS Final Report. A sample was also collected from an area presumed to be representative of background conditions.

The results of this investigation were presented in the *"Report of Findings, CCA Solution Recycle Sump (SWMU 3) Integrity Evaluation"* prepared by KU Resources, Inc. in August 1997 (Attachment A). This investigation indicated that, in the vicinity of the CCA Solution Recycle Sump, approximately five feet of granular fill material overlie native clay. This suggests that the area was excavated for the purpose of constructing the sump, and subsequently backfilled with materials from an off-site source. Samples collected from the clay unit at depth intervals located beneath the base of the sump were submitted for laboratory analysis. Arsenic and hexavalent chromium concentrations in the native clay were below detection limits for all samples, while chromium concentrations in the native clay were similar to the concentration detected in the background sample.

The August 1997 Report of Findings concluded that "CCA wood preservatives have not been released into the native clay soils immediately underlying the Sump. Given the physical setting of the Sump, it can therefore be further concluded that the integrity of the Sump structure is sufficient to prevent releases of wood preservative solution in the Sump."

Concurrent with the 1997 investigation of the CCA Solution Recycle Sump, AWI was notified that the New York State Department of Environmental Conservation (NYSDEC) would be assuming the lead role from U.S. EPA. NYSDEC conducted a Visual Site Investigation on September 12, 1997 and reviewed the information acquired during AWI's June 1997 investigation activities. In a letter dated December 28, 1997, NYSDEC requested that a Sampling Visit (SV) Work Plan be submitted to address six specific points in their SV Outline. This SV Outline included sampling requirements for the following three additional areas:

- North Sump (treating cylinder door pit)
- Drip Pad; and
- Former Underground Effluent Tank/Piping.

The SV Work Plan was submitted to NYSDEC on September 10, 1998, and was revised in implementation in response to NYSDEC comments dated September 22, 1998. A Health and Safety Plan was also submitted on September 29, 1998 in response to a NYSDEC request, and revised on October 8, 1998 in response to NYSDEC comments.

2.0 SAMPLING RATIONALE

The collection of samples from directly beneath the bottom of the sumps, tank or piping was not attempted, due to access difficulties and the possibility of destroying the long-term integrity of these structures. Rather, it was felt that the collection of samples of backfill and natural soils from immediately adjacent to and below the base of the sumps, tank, and piping would provide representative data to evaluate the potential for releases from these units. Based on facility construction drawings and information collected for the August 1997 Report of Findings, the sumps were constructed by excavating a pit into natural cohesive (clay) soils, placing granular backfill as a base of the concrete sump floor, and pouring the sump floor/wall structures. The tank cavity and pipe trenches were also reportedly excavated in the natural clay, and the area surrounding them backfilled with granular backfill. This natural clay unit is of low permeability, and is laterally and vertically extensive. As a result, any releases would be restricted to the granular backfill materials in the immediate vicinity of the units, rather than migrate downward or laterally through the low-permeability clay unit. The August 1997 sampling results confirm this conceptual migration model. In that investigation, it was determined that the quality of the uppermost portion of the clay unit (immediately beneath the granular backfill) adjacent to the South Sump was not affected by constituents of interest.

Given the specific type of wood preservative used at this facility (CCA), samples were analyzed for arsenic, total chromium, and hexavalent chromium.

3.0 INVESTIGATIVE METHODOLOGY

Soil sampling was performed on November 12 and 13, 1998. Samples were collected using direct-push sampling equipment, driven by a Geoprobe® sampling unit. Soil samples were collected in either two- or four-foot disposable acetate liners placed inside of the direct-push sampling tubes. All down-hole equipment was decontaminated between samples.

Soil samples were collected from a total of sixteen borings (C-1 through C-15, and C-B) at the locations described below. Boring locations are presented on Figure 1. The borings were placed as close to each process unit as practicable, given physical constraints presented by overhead structures, at-grade structures and equipment, and subsurface utilities and foundations. For the locations inside the building, the building's concrete floor slab was cored to provide access to the underlying soil.

Following completion of sampling, boreholes were backfilled with bentonite hole-plug. For the boring locations inside the building, the concrete slab was patched with concrete and a bentonite gasket subsequent to borehole backfilling.

Soil samples were submitted under chain-of-custody protocols via overnight express for analysis. Analyses were performed by Accutest Laboratories of Dayton, NJ for total chromium, hexavalent chromium, and arsenic. The samples collected from the granular fill materials were identified for initial analysis, with the remaining samples being held by the laboratory. These held samples were also analyzed following receipt of the fill material analyses.

The sampling performed in association with the individual investigation areas is described below.

3.1 CCA Solution Recycle Sump ("South Sump")

As with the previous investigation, the collection of samples through the bottom of the Sump was not attempted, due to access difficulties and the possibility of destroying the long-term integrity of the Sump bottom. Three borings (C-5, C-7, and C-9) were advanced immediately adjacent to the Sump. Refusal was encountered in Borings C-5 and C-9 at depths of 5.5 and 7.5 feet, respectively. Samples of the backfill materials immediately above the depth of refusal were collected for analysis. In Boring C-9, where concrete was apparently encountered at a depth of 7.5 feet, an additional sample was able to be collected from the 7.5- to 8.0-foot interval. Boring C-7 did not encounter refusal and was advanced to just below the backfill/natural soil interface of 7.0 feet. Soil samples were collected in Boring C-7 from the base of the backfill material and from the natural soils immediately underlying this backfill. It should be noted that Boring C-7, in addition to being located adjacent to the South Sump, is located immediately adjacent to the southern section of piping associated with the former underground effluent tank and was also used to assess the soils that underlie the piping.

3.2 Treating Cylinder Door Pit ("North Sump")

Three soil borings (C-4, C-10, and C-14) were advanced immediately adjacent to North Sump. As with the South Sump, these borings were located adjacent to the door pit rather than in the pit itself, in order to avoid compromising the long-term integrity of this pit structure. All of these borings were advanced to just below the backfill/natural soil interfaces of 6.5, 7.5, and 2.0 feet, respectively. Soil samples were collected in each boring from the base of the backfill material and from the natural soils immediately underlying this backfill. It should be noted that Boring C-14, in addition to being located adjacent to the North Sump, is located immediately adjacent to the Drip Pad and was also used to assess the soils that underlie the Drip Pad.

3.3 Drip Pad

Five borings (C-11, C-12, C-13, C-14, and C-15) were advanced at 25-foot intervals along the drip track, in the area outside of the rails in order to maintain the long-term integrity of the concrete between the rails. . All of these borings were advanced to just below the backfill/natural soil interfaces of 3.0, 2.5, 2.0, 2.0, and 3.0 feet, respectively. Soil samples were collected in each boring from the base of the backfill material and from the natural soils immediately underlying this backfill. It should be noted that Boring C-14, as discussed previously, was located such that it could also be used to assess the soils that underlie the North Sump.

3.4 Former Underground Effluent Tank/Piping

Two soil borings (C-3 and C-6) were advanced in the approximate area of the northern section of piping (from the Door Pit to the tank). Both of these borings were advanced to just below the backfill/natural soil interfaces of 4.5 and 14.0 feet, respectively. Two additional soil borings (C-7 and C-8) were advanced in the approximate area of the southern section of piping (from the South Sump to the tank). These borings were also advanced to just below the backfill/natural soil interfaces of 7.0 and 6.5 feet, respectively. Samples were collected at each location from the base of the backfill material and from the natural soils immediately underlying this backfill.

In order to evaluate soil quality beneath the remainder of the tank area, one soil boring (C-1) was installed at the midpoint of the eastern side of the tank. This boring was advanced to just below the backfill/natural soil interface of 15.5 feet. Samples were collected from the base of the backfill material and from the natural soils immediately underlying the backfill.

3.5 Background Sample

One boring was advanced in an area immediately to the east of the parking area to the east of the plant. The location of the background sample is in an area outside of the normal plant operating areas and is believed to be representative of natural conditions. The boring was advanced to a depth of 4.0 feet and a single soil sample was obtained.

4.0 PROJECT FINDINGS AND INTERPRETATION

4.1 Physical Setting and Geology

The former AWI facility is located in a predominantly rural area. The property is bounded by agricultural land to the north, a distributor/maintenance garage and wooded land to the east, County Route 28 to the south, and Central Hudson Electric and Gas Company property to the west.

The predominant soils in the vicinity of the property consist of dark brown to dark gray clay and silty clay. According to a local driller, the clay unit is areally extensive around Athens, and extends to the shale bedrock that is present at depths of between 60 and 100 feet. The clay unit does not produce water in volumes sufficient for any type of groundwater usage.

The nearest surface water body is Murderers Creek, which is located approximately 1.6 miles to the north of the facility. A NYSDEC-designated wetland is reportedly located between the facility and Murderers Creek.

4.2 Site Stratigraphy

Soil sampling activities indicated that the depth of fill materials overlying the native clay varied between 2.0 and 15.5 feet. Figure 2 present s a generalized cross-section showing the sampling points relative to the depths of the adjacent process units being investigated. This cross-section indicates that the sampling points were appropriately located to identify the potential presence of releases from these units. Further, the cross-section indicates that the excavation cavity for the former effluent tank would tend to serve as a "sump" that would likely collect any releases of CCA solution from the North and South Sumps, as well as releases from the tank itself and its associated piping.

4.3 Soil Quality

Analytical results for the soil sampling programs are summarized in Table 1, and the laboratory data packages are included as Attachment B.

Representative concentrations of wood preservative materials that would be present in the sumps and on the drip pad, and that would have been present in the former effluent tank/piping system, are as follows:

Arsenic	up to 20,000 ppm
Total Chromium	up to 25,000 ppm
Hexavalent Chromium	up to 20,000 ppm

A review of Table 1 indicates that the constituents of interest were detected at concentrations that were notably above the background soil concentrations in at least one sample collected from each unit investigated. Hexavalent chromium, which is considered to be an indicator parameter for the CCA wood preservative, was not detected in samples collected from the vicinity of the other units investigated. However, the maximum concentration of hexavalent chromium detected (42 mg/kg in Sample C-10 Fill in the "North Sump") is well below the concentration that would be expected in the event of a release of wood preservative solution. Similarly, the highest concentrations of arsenic and total chromium that were detected in the investigation (911 mg/kg in Sample C-14 and 730 mg/kg in Sample C-12, respectively) are substantially below the concentrations that would be expected in the event of a release of wood preservative from the units.

A comparison between the fill material and clay material soil quality data indicates that the constituent concentrations in the underlying clay unit are generally lower than the concentrations found in the overlying fill materials. Hexavalent chromium concentrations were low to non-detect for all samples collected. These results suggest that the constituents of interest have not migrated into the underlying clay unit from the fill unit.

4.4 Characterization of Potential Risks

The concentrations of the constituents of interest in the fill unit were further evaluated to determine whether they pose a potential risk to human health. For this evaluation, the potential for exposure to industrial workers in the event that these subsurface soils become exposed was examined. This is believed to be a highly conservative scenario, given the active nature of the facility and the subsurface/covered nature of the fill materials in question. Because of the thickness, lateral extensiveness, and inability to provide groundwater in appreciable quantities of the underlying clay unit, the potential mobility of constituents of interest and the resultant potential for exposures are low. As a result, the soil-to-groundwater pathway and corresponding groundwater use scenarios were not considered in this risk characterization.

The complete risk characterization is presented in Attachment C. In summary, the results of the risk assessment indicate that theoretical excess lifetime cancer risk for the industrial worker scenario was 8.5×10^{-5} is within the acceptable risk range of 1×10^{-4} to 1×10^{-6}. Similarly, the summed hazard index was 0.53, which is below the target benchmark of 1.0. Since these methodologies used to estimate these potential risks are extremely conservative, adverse health effects would not be expected to occur in workers in the hypothetical future scenario associated with the exposure of the subsurface fill materials containing the constituents of interest.

5.0 SUMMARY AND CONCLUSIONS

While the results of some of the individual sample analyses from the investigation detected constituent concentrations that were elevated above background soil concentrations, the concentrations detected are not of the magnitude that would be expected in the event of a continuing release of wood preservative solution from any of the units investigated. Rather, if the constituent concentrations detected are related to the operation of the facility, they appear to be attributable to historical operations, where there may have been incidental drippage or *de minimus* releases prior to the expansion of the drip pad. In the early period of facility operation, the majority of the current drip pad and building were not present. As a result, it is likely that incidental releases of wood treating chemicals to the immediately adjacent unpaved areas occurred -- particularly during heavy rainfall and snow events. The facility operating practices during this period were in full compliance with applicable regulations of the time. Since that time, an industry-wide upgrade of environmental practices and increasingly more stringent regulations have resulted in a higher level of containment as currently in place at this facility.

The presence of the detected constituents in the fill unit is not of significance from a fate-and-transport perspective. The majority of the sample locations are paved and under roof, and are therefore isolated from precipitation infiltration. Further, data from the underlying clay materials and information regarding the permeability and thickness of the clay unit indicates that the constituents have not migrated in/through the clay unit . Finally, the lateral extensiveness and vertical thickness (60 to 100 feet) of the clay unit precludes migration of the constituents in groundwater.

The presence of the detected constituents in the fill unit is also not of significance from a human health perspective. The results of a risk assessment performed using these data indicate that the theoretical excess lifetime cancer risk and hazard index for the future industrial worker in the event that the subsurface fill materials containing the constituents of interest are exposed are within acceptable risk limits.

TABLE 1
ANALYTICAL RESULTS -- ATHENS, NEW YORK
NOVEMBER 1998 SOIL SAMPLING ACTIVITIES

Location	Depth Interval (ft.)	Soil Material	Arsenic (mg/kg)	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)
Background					
C-B	3.5 - 4.0	Clay	6.6	29	<2.5
South Sump					
C-5	4.5 - 5.5	Fill	7.5	39.9	<2.4
C-7	6.5 - 7.0	Fill	70.9	46.5	<2.2
C-7	7.0 - 7.5	Clay	10.6	41.8	<2.6
C-9	7.0 7.5	Fill	50.9	29.8	<2.1
C-9	7.5 - 8.0	Clay	6.7	36.9	<2.6
North Sump					
C-4	6.25 - 6.5	Fill	246	155	10
C-4	7.0 - 7.5	Clay	6.2	40.5	3.4
C-14	1.5 - 2.0	Fill	911	120	30.5
C-14	2.0 - 2.5	Clay	23.8	48.8	<2.6
C-10	7.0 - 7.5	Fill	404	312	42
C-10	7.5 - 8.0	Clay	21.3	348	4.3
Drip Pad					
C-11	2.5 - 3.0	Fill	74.1	21.4	<2.1
C-11	3.0 - 3.5	Clay	10.8	42.8	<2.5
C-15	2.5 - 3.0	Fill	75	28.3	3.4
C-15	3.0 - 3.5	Clay	8.5	40.8	<2.5
C-12	2.0 - 2.5	Fill	9.2	730	<2.1
C-12	2.5 - 3.0	Clay	41.7	108	<2.5
C-13	1.5 - 2.0	Fill	71.7	84.7	3.8
C-13	2.0 - 2.5	Clay	6.9	32.8	<2.5
Underground Tank					
C-1	14.5 - 15.5	Fill	5.4	22.3	<2.5
C-1	15.5 - 16.0	Clay	8.6	34.2	<2.8
C-2	4.5 - 5.0	Fill	192	229	17.6
C-2	5.0 - 5.5	Clay	28.6	79.1	<2.6
C-3	4.25 - 4.5	Fill	662	580	21.6
C-3	4.5 - 5.25	Clay	22.1	47	<2.7
C-6	13.5 - 14.0	Fill	16	41.9	<2.4
C-6	14.0 - 14.5	Clay	8.5	42.5	<2.7
C-8	6.0 - 6.5	Fill	25.2	99	3.5
C-8	6.5 - 7.0	Clay	9.5	36.4	<2.7

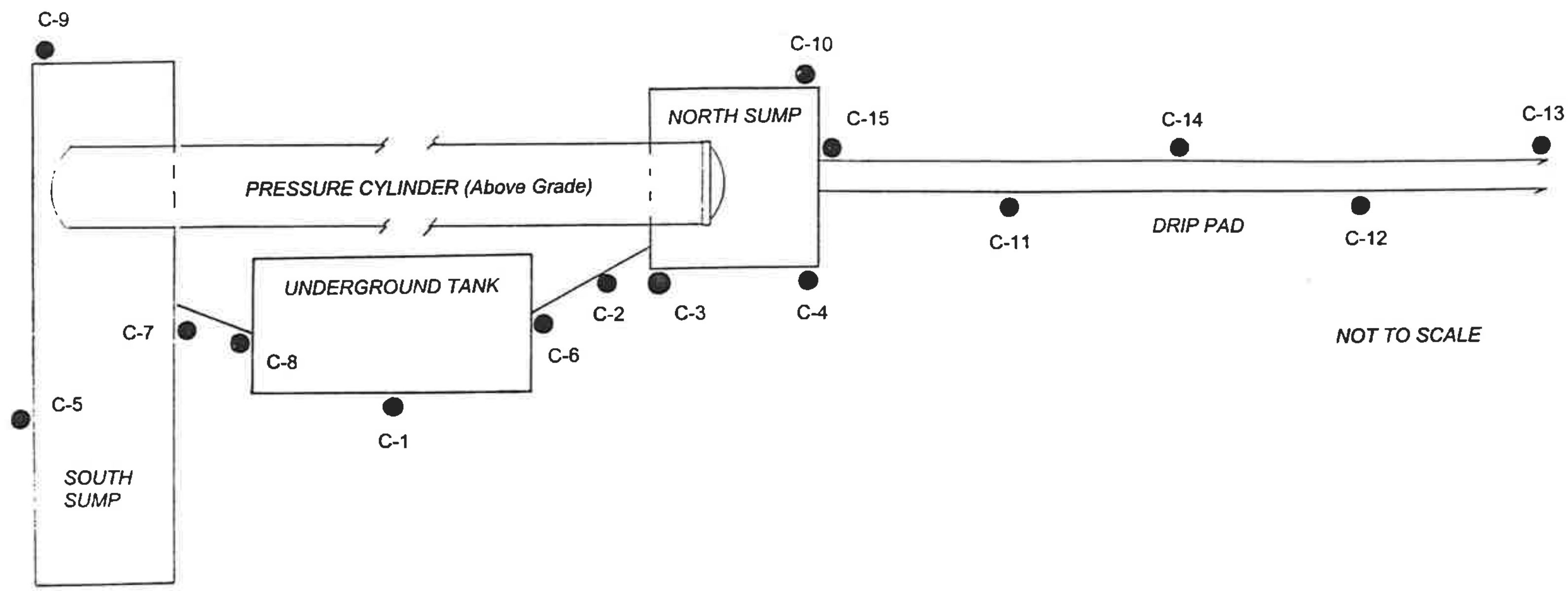

FIGURE 1
SAMPLING LOCATIONS

Former Atlantic Wood Industries, Inc. Facility
Athens, New York

RESOURCES, INC.

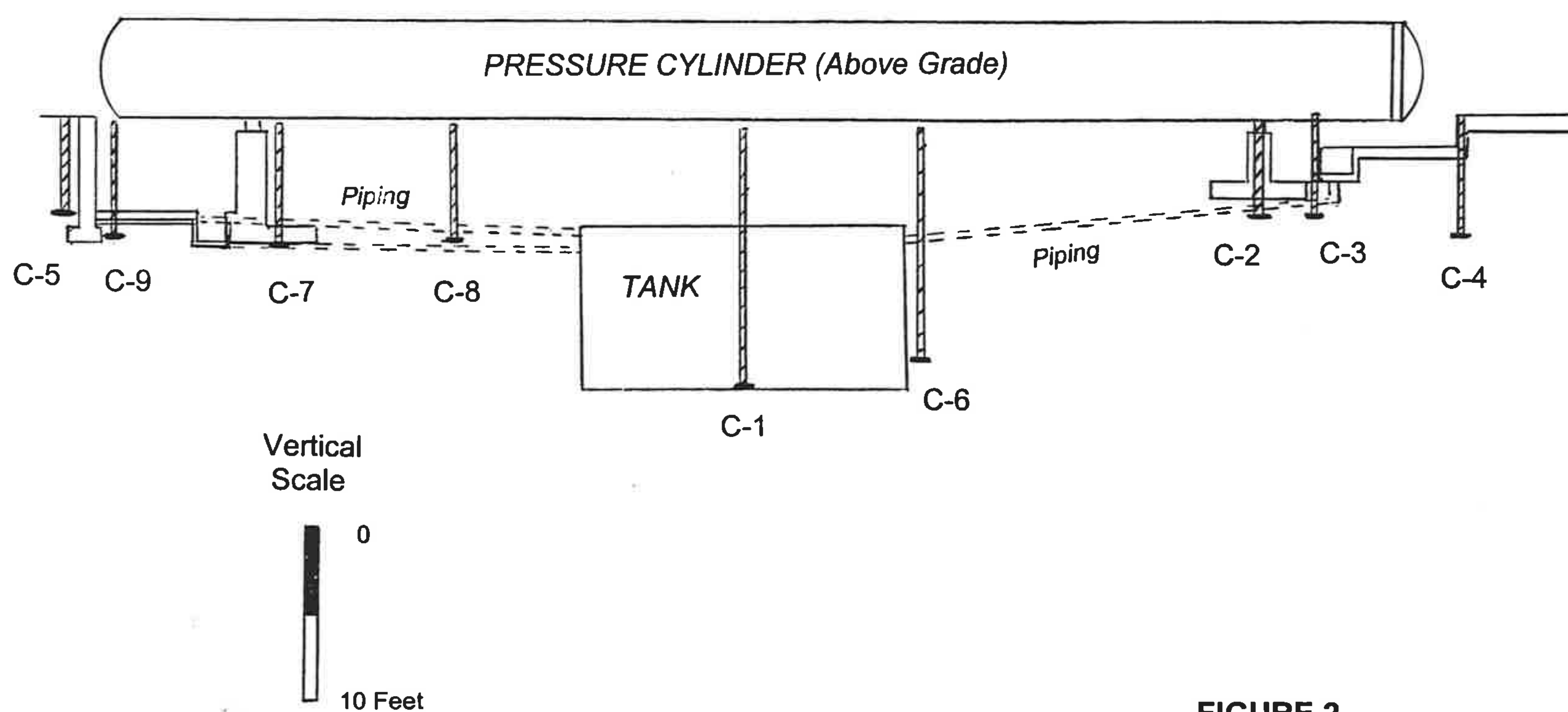

FIGURE 2
SAMPLE DEPTH PROFILES

Former Atlantic Wood Industries, Inc. Facility
Athens, New York

Kai Resources, Inc.

ATTACHMENT A

REPORT OF FINDINGS
CCA SOLUTION RECYCLE SUMP INTEGRITY EVALUATION
AUGUST 1997

REPORT OF FINDINGS
CCA SOLUTION RECYCLE SUMP (SWMU 3) INTEGRITY EVALUATION
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FORMER ATLANTIC WOOD INDUSTRIES FACILITY
ATHENS, NEW YORK
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INTRODUCTION

In the Final Report for the Corrective Action Prior to Loss of Interim Status (CAPTLOIS) inspection conducted at the Athens facility by A.T. Kearney (a contractor to U.S. EPA), it was noted that "the bottom of the CCA Solution Recycle Sump could not be inspected during the site visit since it contained CCA Solution." The Report goes on to recommend that the sump be inspected for integrity, and "should the inspection reveals (sic) cracks or other deterioration, soil sampling is recommended. The soil sampling should include arsenic and chromium."

The CCA (chromated copper arsenate) Solution Recycle Sump (identified by the contractor as SWMU 3) measures approximately 36 feet long by 8.5 feet wide, and is approximately six feet deep. The CCA Solution Recycle Sump is entirely under roof, and partially located along an outside wall of the facility building.

This Sump has remained in use at the facility, resulting in the continued inability to thoroughly inspect the bottom and interior surfaces to evaluate Sump integrity. As a result, KU Resources, Inc. collected soil samples in the vicinity of this Sump, with the intent of demonstrating Sump integrity through soil quality data.

SAMPLING RATIONALE

The collection of samples through the bottom of the Sump was not attempted, due to access difficulties and the possibility of destroying the long-term integrity of the Sump bottom. Rather, it was felt that the collection of samples of natural soils from immediately adjacent to and below the base of the Sump would provide representative data to evaluate the potential for releases from this unit. It is our understanding that the Sump was constructed by excavating a pit into natural cohesive soils, placing granular backfill as a base of the concrete sump floor, and pouring the sump floor/wall structures. Any releases of liquids contained in the Sump would be expected to enter the granular backfill and ultimately spread throughout that backfilled area. As a result, samples collected from areas immediately adjacent to the Sump would be expected to encounter affected soil if such a release has occurred.

Given the nature of the wood preservative materials contained by the Sump, the samples were analyzed for arsenic, total chromium, and hexavalent chromium. Hexavalent chromium was included in the analytical suite as a primary indicator of the presence of the wood preservative. Arsenic and total chromium, while present in the wood preservative, could also be expected to be detected at ambient (background) concentrations in soils under natural conditions, unaffected by plant operations. Hexavalent chromium, on the other hand, would not be expected to be detected in soils under natural conditions.

SOIL SAMPLING AND ANALYSIS

Soil sampling was performed by Nittany Geoscience, Inc. of State College, Pennsylvania. Samples were collected using direct-push sampling equipment, driven by a van-mounted Geoprobe® sampling unit where access was available, and driven by a pneumatic jackhammer where van access was not available. Soil samples were collected in new four-foot acetate liners placed inside of the direct-push sampling tubes. All down-hole equipment was decontaminated between samples.

Soil samples were collected from a total of nine borings (B-1 through B-9) surrounding the CCA Solution Recycle Sump. These boring locations are shown on Figure 1. The borings were placed as close to the Sump as practicable, given physical constraints presented by overhead structures, at-grade structures and equipment, and subsurface utilities and foundations, as also shown on Figure 1. In all but three of the boring locations, this resulted in the borings being placed within two feet of the edge of the Sump. For the locations inside the building, the building's concrete floor slab was cored to provide access to the underlying soil.

One representative background soil sample of non-fill materials was also collected from a boring (BK-1) located in an area away from the wood preserving operations area. The boring location is 95 feet to the northeast of the boring B-2 location shown on Figure 1. The background soil sample was collected in natural soils, at a depth interval of five to six feet below grade. This corresponded to the depth interval sampled by the eight borings surrounding the Sump.

Sampling equipment was advanced to a depth beneath the base of the sump. The samples were collected from the natural (non-fill) soils, at depths below the level of the base of the Sump. Upon collection and removal from the acetate sampling tube liners, the samples were examined by the field geologist, and logged accordingly.

Following completion of sampling, boreholes were backfilled with bentonite hole-plug. For the boring locations inside the building, the concrete slab was patched following borehole backfilling.

Soil samples were submitted under chain-of-custody protocols via overnight express for analysis. Analyses were performed by Centre Analytical Laboratories, Inc. of State College, PA for total chromium, hexavalent chromium, and arsenic.

PROJECT FINDINGS

Soil sampling activities indicated that, in the vicinity of the CCA Solution Recycle Sump, approximately five feet of fill materials overlie the native clay. Analytical results for the soil sampling program are summarized in Table 1, and the laboratory data package is included as Attachment A. Arsenic and hexavalent chromium concentrations in the native clay beneath the base of the Sump are below detection limits for all samples. Total chromium was detected in all samples, including the sample considered as being representative of background conditions. Concentrations of total chromium in the native clay for samples collected from around the Sump were similar to the concentration of total chromium detected in the background sample.

SUMMARY AND CONCLUSIONS

Soil sampling and analytical work were performed at the former Atlantic Wood Industries facility in Athens, New York to evaluate the integrity of the CCA Solution Recycle Sump. Soil borings were conducted at eight locations around the Sump, in close proximity to the Sump, and samples of the native clay soils immediately beneath the level of the base of the Sump were submitted for analysis. In addition, a sample from a similar depth interval in a background location was collected and submitted for analysis. Analytical results were non-detect for arsenic and hexavalent chromium at all locations sampled. Total chromium concentrations in the vicinity of the Sump were similar to the total chromium concentration detected in the background sample.

As a result of these investigative activities, it has been demonstrated that CCA wood preservatives have not been released into the native clay soils immediately underlying the Sump. Given the physical setting of the Sump, it can therefore be further concluded that the integrity of the Sump structure is sufficient to prevent releases of wood preservative solution in the Sump.

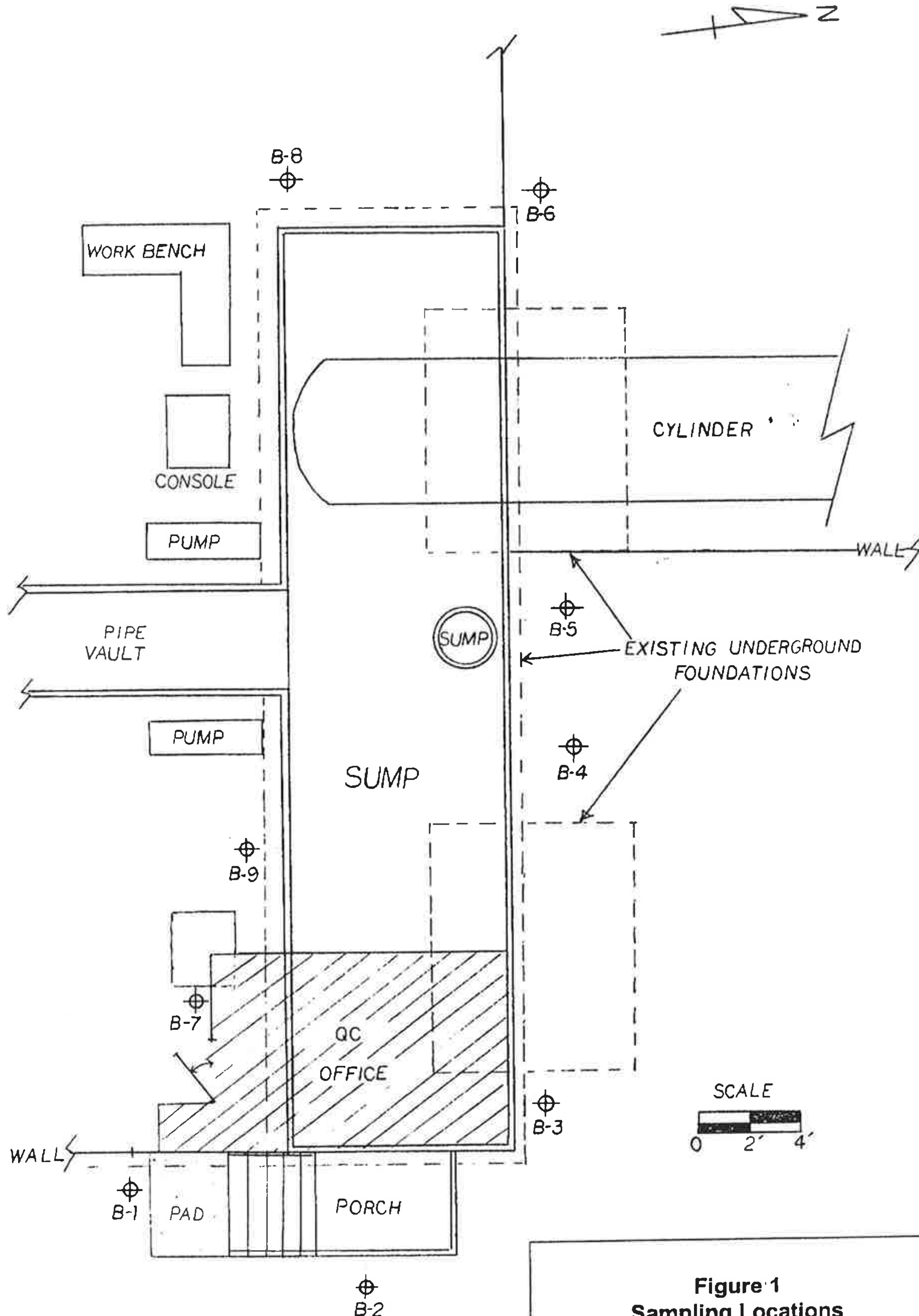

Figure 1
Sampling Locations
former
Atlantic Wood Industries, Inc.
Athens, NY

TABLE 1
Summary of Results (all results in mg/kg)
Northeast Treaters, Athens, New York

	BK-1	B-3	B-4	B-5	B-2	B-1	B-9	B-7	B-6	B-8
Arsenic	< 2.85	< 2.9	< 2.88	< 2.82	< 2.87	< 2.87	<3.25	< 2.95	< 2.95	< 2.86
Chromium	24	25.9	29	23.8	28.6	25.5	24.5	27.5	32.7	42.3
Hexavalent Chromium	< 4.98	< 5.23	< 5.37	< 5.26	<5.47	< 5.16	< 5.27	< 5.24	< 5.18	< 4.9

ATTACHMENT A

LABORATORY DATA PACKAGE

Centre Analytical Laboratories, Inc.

3048 Research Drive. State College PA 16801 814-231-8032 FAX 814-231-1253

NITTANY GEOSCIENCE INC
120 RADNOR ROAD
STATE COLLEGE , PA 16801
Account Number: 165

Contact: SHANA TRITSCH

Date Received: 18-JUN-97
Date Reported: 24-JUN-97

Invoice Number: 14414

Date Collected: 17-JUN-97

Client ID: BK-1

Lab ID: L15119-1

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
HEXAVALENT CHROMIUM	mg/kg(dry)	< 4.98	4.98	EPA 7196	18-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg(dry)	< 2.85	2.85	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg(dry)	24	.57	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	78.63	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

Centre Analytical Laboratories, Inc.

3048 Research Drive, State College PA 16801 814-231-8032 FAX 814-231-1253

NITTANY GEOSCIENCE INC
120 RADNOR ROAD
STATE COLLEGE , PA 16801
Account Number: 165

Contact: SHANA TRITSCH

Date Received: 18-JUN-97
Date Reported: 24-JUN-97

Invoice Number: 14414

Date Collected: 17-JUN-97

Client ID: B-1

Lab ID: L15119-6

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
HEXAVALENT CHROMIUM	mg/kg(dry)	< 5.16	5.16	EPA 7196	18-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg(dry)	< 2.87	2.87	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg(dry)	25.5	.575	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	77	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs, Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

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Centre Analytical Laboratories, Inc.

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NITTANY GEOSCIENCE INC
120 RADNOR ROAD
STATE COLLEGE , PA 16801
Account Number: 165

Contact: SHANA TRITSCH

Date Received: 18-JUN-97
Date Reported: 24-JUN-97

Invoice Number: 14414

Date Collected: 17-JUN-97

Client ID: B-2

Lab ID: L15119-5

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
HEXAVALENT CHROMIUM	mg/kg(dry)	< 5.47	5.47	EPA 7196	18-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg(dry)	< 2.87	2.87	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg(dry)	28.6	.574	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	73.86	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs. Inc.
Reviewed and Approved by:

Kevin J Lloyd
Laboratory Supervisor

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120 RADNOR ROAD
STATE COLLEGE , PA 16801
Account Number 165

Contact SHANA TRITSCH

Date Received: 18-JUN-97
Date Reported: 24-JUN-97

Invoice Number. 14414

Date Collected: 17-JUN-97

Client ID B-1

Lab ID L15119-2

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
HEXAVALENT CHROMIUM	mg/kg(dry)	< 5.23	5.23	EPA 7196	18-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg(dry)	< 2.0	2.0	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg(dry)	25.3	.541	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	74.25	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs, Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

Centre Analytical Laboratories, Inc.

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NITTANY GEOSCIENCE INC
120 RADNOR ROAD
STATE COLLEGE , PA 16[illegible]
Account Number 1[illegible]

Contact: SHANA TRITSCH

Date Received: 18-JUN-97
Date Reported: 24-JUN-97

Invoice Number: 14414

Date Collected: 17-JUN-97

Client ID B 4

Lab ID [illegible]

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
HEXAVALENT CHROMIUM	mg/kg dry	< [illegible]	[illegible].37	EPA 7196	19-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg dry	< [illegible]	[illegible]	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg dry	2[illegible]	.576	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	72.[illegible]	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs, Inc.
Reviewed and Approved by:

[illegible]
Laboratory Supervisor

Centre Analytical Laboratories, Inc.

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NITTANY GEOSCIENCE INC
120 RADNOR ROAD
STATE COLLEGE , PA 16801
Account Number: 165

Contact: SHANA TRITSCH

Date Received: 18-JUN-97
Date Reported: 24-JUN-97

Invoice Number: 14414

Date Collected: 17-JUN-97

Client ID: B-5

Lab ID: L16119-4

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
HEXAVALENT CHROMIUM	mg/kg-dry	< 5.26	5.26	EPA 7196	18-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg-dry	< 2.82	2.82	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg-dry	23.8	.563	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	76.2	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs, Inc.
Reviewed and Approved by

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STATE COLLEGE , PA 16801
Account Number: 165

Contact: SHANA TRITSCH

Date Received: 18-JUN-97
Date Reported: 24-JUN-97

Invoice Number: 14414

Date Collected: 17-JUN-97

Client ID: B-6

Lab ID: L15119-10

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
HEXAVALENT CHROMIUM	mg/kg(dry)	< 5.18	5.18	EPA 7196	18-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg(dry)	< 2.95	2.95	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg(dry)	32.7	.591	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	76.97	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs, Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

Centre Analytical Laboratories, Inc.

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120 RADNOR ROAD
STATE COLLEGE , PA 16801
Account Number: 165

Contact: SHANA TRITSCH

Date Received: 18-JUN-97
Date Reported: 24-JUN-97

Invoice Number: 14414

Date Collected: 17-JUN-97

Client ID: B-7

Lab ID: L15119-8

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYS
HEXAVALENT CHROMIUM	mg/kg(dry)	< 5.24	5.24	EPA 7196	18-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg(dry)	< 2.95	2.95	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg(dry)	27.5	.589	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	75.43	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs, Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

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120 RADNOR ROAD
STATE COLLEGE , PA 16801
Account Number 168

Contact SHANA TRITSCH

Date Received: 18-JUN-97
Date Reported: 24-JUN-97

Invoice Number: 14414

Date Collected: 17-JUN-97

Client ID: B-4

Lab ID [illegible]

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
HEXAVALENT CHROMIUM	mg/kg dry	< 4.3	4.3	EPA 7196	18-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg dry	< 2.36	2.36	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg dry	42.3	.572	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	78.31	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs, Inc
Reviewed and Approved by

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NITTANY GEOSCIENCE INC
120 RADNOR ROAD
STATE COLLEGE , PA 16801
Account Number: 165

Contact: SHANA TRITSCH

Date Received: 16-JUN-97
Date Reported: 24-JUN-97

Invoice Number: 14414

Date Collected: 17-JUN-97

Client ID: B-9

Lab ID: 115117-7

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
HEXAVALENT CHROMIUM	mg/kg dry	< 5.27	5.27	EPA 7196	18-JUN-97	GAF
METALS ANALYSIS						
ARSENIC-TOTAL	mg/kg dry	< 1.35	1.35	EPA 6010	19-JUN-97	JWH
CHROMIUM-TOTAL	mg/kg dry	24.5	.67	EPA 6010	19-JUN-97	JWH
PERCENT SOLIDS	%	77.7	.01	SM 2540A	19-JUN-97	JWH

Submitted by
Centre Analytical Labs, Inc.
Reviewed and Approved by:

Kevin J. Lloyd
Laboratory Supervisor

Geoprobe® Soil Boring Log

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator	C. Rockwell
Geologist	S. Tritsch

Boring no.	BK-1
Sheet of	1 1
Sample name	BK-1

Sampling location

See Figure

	Boring Start	Boring Finish
Sampling Method: Geoprobe	Time: 0750	Time: 0815
Headspace analysis method: None	Date: 6/17/97	Date: 6/17/97
Depth to water		

Surface conditions, other comments

Gravel and grass

Cloudy 60°

Depth (feet) From	Depth (feet) To	Recovery in feet	Recovery in %	USCS abbrev.	Description of material and remarks	Sample collected	PID meas. (ppm) Total
0	4	4	100	CH	10" topsoil		
					Brown varved clay (hard, medium plasticity)		
4	8	4	100	CH	Same as above	X	
					Sampled from 5-6'		
					Arsenic and Total Cr 5.-5.5		
					Hex Cr 5.5-6		

Geoprobe® Soil Boring Log

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator	C. Rockwell
Geologist	S. Tritsch

Boring no.	B-1
Sheet of	1 1
Sample name	B-1

Sampling location

See Figure

Sampling Method	Geoprobe		
		Boring Start	**Boring Finish**
Headspace analysis method	None	Time 1130	Time 1150
Depth to water	Unknown	Date 6/17/97	Date 6/17/97

Surface conditions, other comments

Hard gravel
Cloudy 65°

Depth (feet) From	Depth (feet) To	Recovery in feet	Recovery in %	USCS abbrev.	Description of material and remarks	Sample collected	PID meas. (ppm) Total
0	4	1.5			Black sand and gravel fill		
					Bottom 0.5' brown clay		
4	8	4			Hard brown clay	X	
					Sample 5.5-6.5		

Im 07/ags GeoprobeS.B.Log

NITTANY GEOSCIENCE INC.

Geoprobe® Soil Boring Log

Boring no.	Sheet of
B-2	1 1
Sample name: B-2	

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator: C. Rockwell	Geologist: S. Tritsch

Sampling location

See Figure

	Boring Start	Boring Finish
Sampling Method: Geoprobe	Time: 1050	Time: 1115
Headspace analysis method: None	Date: 6/17/97	Date: 6/17/97
Depth to water		

Surface conditions, other comments

Gravel
Cloudy 60°

Depth (feet) From	Depth (feet) To	Recovery in feet	Recovery in %	USCS code	Description of material and remarks	Sample collected	PID meas. (ppm) total
0	4	1.8		GW-SW	Black sand-gravel fill		
				CH	Bottom 0.4' hard brown clay		
4	8	4			Hard brown varved clay	X	
					Sample from 5.5-8		

ss DT/mg s Geoprobe5.8 Log

NITTANY GEOSCIENCE INC.

Geoprobe® Soil Boring Log

Boring no.	B-3
Sheet of	1 1
Sample name	B-3

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator	C. Rockwell
Geologist	S. Tritsch

Sampling location

See Figure

Sampling Method	Geoprobe	Boring	Start	Finish
Headspace analysis method	None	Time	0900	0930
Depth to water		Date	6/17/97	6/17/97

Surface conditions, other comments

Gravel

Raining 60°

Depth (feet) From	Depth (feet) To	Recovery in feet	Recovery in %	USCS abbrev.	Description of material and remarks	Sample collected	PID meas. (ppm) Total
0	4	1.5		GW-SW	Black sand and gravel fill		
					Bottom 6' wet		
		2.7			Top 1.2' Same as above, possible fall in		
					Hard clay below	X	
					Sample for arsenic and total chromium 5.2-5.8		
					Hex chromium 5.8-6.2' bgs		

1m 07/mga Geoprobe5.B Log

NITTANY GEOSCIENCE INC.

Geoprobe® Soil Boring Log

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator	C. Rockwell
Geologist	S. Tritsch

Boring no.	B-4
Sheet of	1 1
Sample name	B-4

Sampling location

See Figure

Sampling Method	Geoprobe		
		Boring Start	Boring Finish
		Time	Time
Headspace analysis method	None	0930	1000
		Date	Date
Depth to water		6/17/97	6/17/97

Surface conditions, other comments

Gravel, flat

Raining 60°

Depth (feet) From	Depth (feet) To	Recovery in feet	Recovery in %	USCS abbrev.	Description of material and remarks	Sample collected	PID meas. (ppm) Total
0	4	1.7		CH	0.9' fill		
					Hard brown and gray clay		
4	8	4		CH	Hard brown and gray (30%) clay	X	
					5.5-6.9 Hex chromium		
					5.9-6.4 arsenic and chromium		

ce 07/ng\GeoprobeSB.Log

NITTANY GEOSCIENCE INC.

Geoprobe® Soil Boring Log

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator	C. Rockwell
Geologist	S. Tritsch

Boring no.	B-5
Sheet of	1 1
Sample name	B-5

Sampling location

See Figure

		Boring Start	Boring Finish
Sampling Method	Geoprobe	Time 1015	Time 1040
Headspace analysis method	None	Date 6/17/97	Date 6/17/97
Depth to water			

Surface conditions, other comments

Gravel, flat

Raining 60°

Depth (feet) From	Depth (feet) To	Recovery in feet	Recovery in %	USCS abbrev.	Description of material and remarks	Sample collected	PID meas. (ppm) Total
0	4	0.4			Black gravel-sand fill		
4	8	1.8			Top 1' black fill, possibly fall-in		
					Arsenic chromium bottom 6" and 6.5-7'	X	
					Hex chromium 7-7.5		

NITTANY GEOSCIENCE INC.

Geoprobe® Soil Boring Log

Boring no.	B-6
Sheet of	1 1
Sample name	B-6

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator	C. Rockwell
Geologist	S. Tritsch

Sampling location

See Figure

Sampling Method	Handprobe
Headspace analysis method	None
Depth to water	

Boring	Start	Finish
Time	1440	1520
Date	6/17/97	6/17/97

Surface conditions, other comments

6" Concrete
Inside building
Cloudy 60s

Depth (feet) From	Depth (feet) To	Recovery (feet)	Recovery in %	USCS abbrev.	Description of material and remarks	Sample collected	PID meas. (ppm) Total
0	4	1	25	SW-GW	Black sand and gravel fill		
4	7	2.92	100	CH	Brown varved clay	X	
					Sampled from 5-6'		

NITTANY GEOSCIENCE INC.

Geoprobe® Soil Boring Log

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator	C. Rockwell
Geologist	S. Tritsch

Boring no.	B-7
Sheet of	1 1
Sample name	B-7

Sampling location

See Figure

Sampling Method	Handprobe
Headspace analysis method	None
Depth to water	

Boring	Start	Finish
Time	1415	1420
Date	6/17/97	6/17/97

Surface conditions, other comments

6" Concrete

Cloudy 65°

Depth (feet) From	Depth (feet) To	Recovery in feet	Recovery in %	USCS class	Description of material and remarks	Sample collected	PID meas. (ppm) total
0	4	2.5		CH	0.5' fill		
					Gray brown hard medium plasticity clay		
4	7	27		CH	Same as above, wet brown gray	X	
					Hex Cr 5-5.5		
					Cr As 5.5-6.0		

ts.07/ng1.GeoprobeS.B.Log

NITTANY GEOSCIENCE INC.

Geoprobe Soil Boring Log

Boring no. B-8	Sheet 1 of 1
Sample name B-8	

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator C. Rockwell	Geologist S. Tritsch

Sampling location

See Figure

		Boring Start	Boring Finish
Sampling Method	Handprobe	Time 1530	Time 1550
Headspace analysis method	None	Date 6/17/97	Date 6/17/97
Depth to water			

Surface conditions, other comments

Pavement inside building

Cloudy 60

Depth (feet) From	To	Recovery in feet	Recovery in %	USCS abbrev.	Description of material and remarks	Sample collected	PID meas. (ppm) Total
0	4	0.5	13	SW-GW	Black sand and gravel fill		
4	7	3	100	CH	Hard gray/brown clay	X	
					Sampled from 5-6'		

NITTANY GEOSCIENCE INC.

Geoprobe® Soil Boring Log

Boring no. B-9	Sheet 1 of 1
Sample name B-9	

NGS Project Number	272-004
Project Location	Northeast Treaters, Athens, NY
Operator	C. Rockwell
Geologist	S. Tritsch

Sampling location

See Figure

Sampling Method	Handprobe
Headspace analysis method	None
Depth to water	
Surface conditions, other comments	6" Concrete

Boring	Start	Finish
Time	1330	1400
Date	6/17/97	6/17/97

Depth (feet) From	To	Recovery in feet	Recovery in %	USCS abbrev.	Description of material and remarks	Sample collected	PID meas. (ppm) Total
0	4	1.2			Black sand-gravel fill-wet		
4	8	3		CH	Top 1' fill		
					Gray wet clay, medium plasticity	X	
					Hex Cr 5.5-6		
					Cr Arsenic 5-5.5		

fm.07ags.GeoprobeS.B Log

ATTACHMENT B

ANALYTICAL DATA
NOVEMBER 1998 FIELD SAMPLING PROGRAM

ACCUTEST

Report of Analysis

Client Sample ID:	C1 14.5-15.5	**Date Sampled:**	11/12/98
Lab Sample ID:	E42068-1	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	79.9
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	5.4	1.2	mg/kg	1	11/20/98	11/24/98	MEH	SW846 6010B
Chromium	22.3	1.2	mg/kg	1	11/20/98	11/24/98	MEH	SW846 6010B

4

RDL = Reported Detection Limit

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ACCUTEST.

Report of Analysis

Client Sample ID:	C1 14.5-15.5		
Lab Sample ID:	E42068-1	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	79.9
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.5	2.5	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	79.9		%	1	11/19/98	DM	EPA 160.3 M

5

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID: C1 15.5-16.0
Lab Sample ID: E42068-2R
Matrix: SO - Soil
Date Sampled: 11/12/98
Date Received: 11/16/98
Percent Solids: 71.2
Project: AWI-Athens, NY

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	8.6	1.4	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	34.2	1.4	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

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Report of Analysis

Client Sample ID:	C1 15.5-16.0		
Lab Sample ID:	E42068-2R	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	71.2
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.8	2.8	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	71.2		%	1	12/17/98	DM	EPA 160.3 M

4

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Report of Analysis

Client Sample ID:	C2 4.5-5.0		
Lab Sample ID:	E42068-3	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	83.7
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	192	1.2	mg/kg	1	11/20/98	11/24/98	MFH	SW846 6010B
Chromium	229	1.2	mg/kg	1	11/20/98	11/24/98	MFH	SW846 6010B

6

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C2 4.5-5.0		
Lab Sample ID:	E42068-3	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	83.7
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	17.6	2.4	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	83.7		%	1	11/19/98	DM	EPA 160.3 M

7

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C2 5.0-5.5	**Date Sampled:**	11/12/98
Lab Sample ID:	E42068-4R	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	75.7
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	28.6	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	79.1	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

5

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C2 5.0-5.5		
Lab Sample ID:	E42068-4R	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	75.7
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.6	2.6	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	75.7		%	1	12/17/98	DM	EPA 160.3 M

6

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C3 4.25-4.5		
Lab Sample ID:	E42068-5	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	82.0
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	662	1.2	mg/kg	1	11/20/98	11/24/98	MFH	SW846 6010B
Chromium	580	1.2	mg/kg	1	11/20/98	11/24/98	MFH	SW846 6010B

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C3 4.25-4.5		
Lab Sample ID:	E42068-5	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	82.0
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	21.6	2.4	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	82		%	1	11/19/98	DM	EPA 160.3 M

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Report of Analysis

Client Sample ID:	C3 4.5-5.25	**Date Sampled:**	11/12/98
Lab Sample ID:	E42068-6R	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	74.5
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	22.1	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	47.0	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

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RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C3 4.5-5.25	**Date Sampled:**	11/12/98
Lab Sample ID:	E42068-6R	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	74.5
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.7	2.7	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	74.5		%	1	12/17/98	DM	EPA 160.3 M

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RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C-4 6.25-6.5		
Lab Sample ID:	E42068-30	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	85.9
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	246	1.2	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	155	1.2	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

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Report of Analysis

Client Sample ID:	C-4 6.25-6.5		
Lab Sample ID:	E42068-30	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	85.9
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	10.0	2.3	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	85.9		%	1	11/19/98	DM	EPA 160.3 M

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Report of Analysis

Client Sample ID:	C4 7'-7.5'			
Lab Sample ID:	E42068-7		**Date Sampled:**	11/12/98
Matrix:	SO - Soil		**Date Received:**	11/16/98
			Percent Solids:	78.6
Project:	AWI-Athens, NY			

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	6.2	1.3	mg/kg	1	11/20/98	11/24/98	MFH	SW846 6010B
Chromium	40.5	1.3	mg/kg	1	11/20/98	11/24/98	MFH	SW846 6010B

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Report of Analysis

Client Sample ID:	C4 7'-7.5'		
Lab Sample ID:	E42068-7	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	78.6
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.4	2.5	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	78.6		%	1	11/19/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C5 4.5-5.5		
Lab Sample ID:	E42068-8	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	83.5
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	7.5	1.2	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	39.9	1.2	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

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Report of Analysis

Client Sample ID:	C5 4.5-5.5		
Lab Sample ID:	E42068-8	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	83.5
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.4	2.4	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	83.5		%	1	11/19/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C6 13.5-14.0		
Lab Sample ID:	E42068-9	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	84.1
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	16.0	1.2	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	41.9	1.2	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C6 13.5-14.0		
Lab Sample ID:	E42068-9	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	84.1
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.4	2.4	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	84.1		%	1	11/19/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C6 14.0-14.5			
Lab Sample ID:	E42068-10R		**Date Sampled:**	11/12/98
Matrix:	SO - Soil		**Date Received:**	11/16/98
			Percent Solids:	72.8
Project:	AWI-Athens, NY			

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	8.5	1.4	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	42.5	1.4	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

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RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C6 14.0-14.5			
Lab Sample ID:	E42068-10R		**Date Sampled:**	11/12/98
Matrix:	SO - Soil		**Date Received:**	11/16/98
			Percent Solids:	72.8
Project:	AWI-Athens, NY			

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.7	2.7	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	72.8		%	1	12/17/98	DM	EPA 160.3 M

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RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C7 6.5-7.0		
Lab Sample ID:	E42068-12	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	91.2
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	70.9	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	46.5	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID: C7 6.5-7.0
Lab Sample ID: E42068-12
Matrix: SO - Soil
Date Sampled: 11/12/98
Date Received: 11/16/98
Percent Solids: 91.2
Project: AWI-Athens, NY

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.2	2.2	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	91.2		%	1	11/19/98	DM	EPA 160.3 M

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Report of Analysis

Client Sample ID:	C7 7.0-7.5			
Lab Sample ID:	E42068-13R		**Date Sampled:**	11/12/98
Matrix:	SO - Soil		**Date Received:**	11/16/98
			Percent Solids:	75.7
Project:	AWI-Athens, NY			

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	10.6	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	41.8	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C7 7.0-7.5	**Date Sampled:**	11/12/98
Lab Sample ID:	E42068-13R	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	75.7
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.6	2.6	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	75.7		%	1	12/17/98	DM	EPA 160.3 M

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RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C8 6.0-6.5		
Lab Sample ID:	E42068-14	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	83.3
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	25.2	1.2	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	99.0	1.2	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

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RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C8 6.0-6.5		
Lab Sample ID:	E42068-14	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	83.3
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.5	2.4	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	83.3		%	1	11/19/98	DM	EPA 160.3 M

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Report of Analysis

Client Sample ID:	C8 6.5-7.0		
Lab Sample ID:	E42068-15R	**Date Sampled:**	11/12/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	74.5
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	9.5	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	36.4	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

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Report of Analysis

Client Sample ID:	C8 6.5-7.0	**Date Sampled:**	11/12/98
Lab Sample ID:	E42068-15R	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	74.5
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.7	2.7	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	74.5		%	1	12/17/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C9 7.0-7.5	**Date Sampled:**	11/13/98
Lab Sample ID:	E42068-16	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	93.4
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	50.9	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	29.8	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

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Report of Analysis

Client Sample ID:	C9 7.0-7.5		
Lab Sample ID:	E42068-16	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	93.4
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.1	2.1	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	93.4		%	1	11/19/98	DM	EPA 160.3 M

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RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	C9 7.5-8.0		
Lab Sample ID:	E42068-17R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	78.2
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	6.7	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	36.9	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

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RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C9 7.5-8.0		
Lab Sample ID:	E42068-17R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	78.2
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.6	2.6	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	78.2		%	1	12/17/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C10 7.0-7.5		
Lab Sample ID:	E42068-18	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	90.0
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	404	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	312	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

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Report of Analysis

Client Sample ID:	C10 7.0-7.5		
Lab Sample ID:	E42068-18	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	90.0
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	42.0	2.2	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	90		%	1	11/19/98	DM	EPA 160.3 M

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Report of Analysis

Client Sample ID:	C10 7.5-8.0	**Date Sampled:**	11/13/98
Lab Sample ID:	E42068-19R	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	76.9
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	21.3	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	348	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

RDL = Reported Detection Limit

ACCUTEST.

Report of Analysis

Client Sample ID:	C10 7.5-8.0		
Lab Sample ID:	E42068-19R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	76.9
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	4.3	2.6	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	76.9		%	1	12/17/98	DM	EPA 160.3 M

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RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	C11 2.5-3.0		
Lab Sample ID:	E42068-20	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	94.3
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	74.1	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	21.4	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C11 2.5-3.0		
Lab Sample ID:	E42068-20	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	94.3
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.1	2.1	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	94.3		%	1	11/19/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C11 3.0-3.5		
Lab Sample ID:	E42068-21R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	78.8
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	10.8	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	42.8	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C11 3.0-3.5		
Lab Sample ID:	E42068-21R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	78.8
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.5	2.5	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	78.8		%	1	12/17/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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ACCUTEST.

Report of Analysis

Client Sample ID:	C12 2.0-2.5		
Lab Sample ID:	E42068-22	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	93.3
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	9.2	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	730	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C12 2.0-2.5		
Lab Sample ID:	E42068-22	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	93.3
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.1	2.1	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	93.3		%	1	11/19/98	DM	EPA 160.3 M

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RDL = Reported Detection Limit

ACCUTEST.

Report of Analysis

Client Sample ID:	C12 2.5-3.0		
Lab Sample ID:	E42068-23R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	80.9
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	41.7	1.2	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	108	1.2	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

RDL = Reported Detection Limit

ACCUTEST.

Report of Analysis

Client Sample ID:	C12 2.5-3.0		
Lab Sample ID:	E42068-23R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	80.9
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.5	2.5	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	80.9		%	1	12/17/98	DM	EPA 160.3 M

22

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	C13 1.5-2.0		
Lab Sample ID:	E42068-24	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	94.0
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	71.7	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	84.7	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C13 1.5-2.0		
Lab Sample ID:	E42068-24	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	94.0
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.8	2.1	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	94		%	1	11/19/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C13 2.0-2.5	**Date Sampled:**	11/13/98
Lab Sample ID:	E42068-25R	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	80.5
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	6.9	1.2	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	32.8	1.2	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	C13 2.0-2.5		
Lab Sample ID:	E42068-25R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	80.5
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.5	2.5	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	80.5		%	1	12/17/98	DM	EPA 160.3 M

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RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C14 1.5-2.0		
Lab Sample ID:	E42068-26	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	90.3
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	911	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	120	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

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Report of Analysis

Client Sample ID:	C14 1.5-2.0		
Lab Sample ID:	E42068-26	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	90.3
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	30.5	2.2	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	90.3		%	1	11/19/98	DM	EPA 160.3 M

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RDL = Reported Detection Limit

ACCUTEST.

Report of Analysis

Client Sample ID:	C14 2.0-2.5	**Date Sampled:**	11/13/98
Lab Sample ID:	E42068-27R	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	77.2
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	23.8	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	48.8	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

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Report of Analysis

Client Sample ID:	C14 2.0-2.5		
Lab Sample ID:	E42068-27R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	77.2
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.6	2.6	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	77.2		%	1	12/17/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	C15 2.5-3.0		
Lab Sample ID:	E42068-28	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	93.2
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	75.0	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	28.3	1.1	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

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Report of Analysis

Client Sample ID:	C15 2.5-3.0		
Lab Sample ID:	E42068-28	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	93.2
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.4	2.1	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	93.2		%	1	11/19/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	C15 3.0-3.5	**Date Sampled:**	11/13/98
Lab Sample ID:	E42068-29R	**Date Received:**	11/16/98
Matrix:	SO - Soil	**Percent Solids:**	79.0
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	8.5	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B
Chromium	40.8	1.3	mg/kg	1	12/17/98	12/17/98	BB	SW846 6010B

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RDL = Reported Detection Limit

ACCUTEST.

Report of Analysis

Client Sample ID:	C15 3.0-3.5		
Lab Sample ID:	E42068-29R	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	79.0
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.5	2.5	mg/kg	1	12/17/98	MET	SW846 3060A/7196A
Solids, Percent	79		%	1	12/17/98	DM	EPA 160.3 M

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	CB 3.5-4.0		
Lab Sample ID:	E42068-11	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	79.0
Project:	AWI-Athens, NY		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	6.6	1.3	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B
Chromium	29.0	1.3	mg/kg	1	11/24/98	12/03/98	MMC	SW846 6010B

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	CB 3.5-4.0		
Lab Sample ID:	E42068-11	**Date Sampled:**	11/13/98
Matrix:	SO - Soil	**Date Received:**	11/16/98
		Percent Solids:	79.0
Project:	AWI-Athens, NY		

General Chemistry

Analyte	Result	RDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	<2.5	2.5	mg/kg	1	12/01/98	MET	SW846 3060A/7196A
Solids, Percent	79		%	1	11/19/98	DM	EPA 160.3 M

17

RDL = Reported Detection Limit

ATTACHMENT C

HUMAN HEALTH RISK ASSESSMENT

ATTACHMENT C
HUMAN HEALTH RISK ASSESSMENT

1.0 INTRODUCTION

This human health risk assessment has been prepared for the former Atlantic Wood Industries, Inc. wood preserving facility, located in Athens, New York. The facility is currently in operation under new ownership. The risk assessment consists of a quantitative analysis of the potential for adverse effects to human health that may be associated with constituents present at the site.

1.1 Purpose of the Risk Assessment

Human health risk assessment is defined as the scientific evaluation of potential health effects posed by a particular substance or mixture of substances. The purpose of this risk assessment is to provide quantitative analyses, in a conservative and health-protective manner, of the likelihood that adverse health effects may be associated with potential exposures to constituents in environmental media at the site. In providing health-related information about potential human contact with site-associated constituents, this risk assessment is designed to provide a sound basis for risk management decisions.

This risk assessment will describe the nature of constituent presence at the site, the possible pathways of human exposure, and the degree to which such exposure may pose a potential for adverse health effects. This document focuses on current and potential future use of the site.

1.2 Regulatory Framework

This risk assessment generally follows standard and customary practice within federal guidelines for the performance of risk assessments (U.S. EPA, 1988, 1989, 1991a, 1992a, 1997). To the extent possible, recent improvements and refinements in the practice of risk assessment have been incorporated into this risk assessment. In addition, relevant guidance from the State of New York has been incorporated as appropriate (NYSDEC, 1994).

1.3 Approach

This risk assessment follows standard and customary United States Environmental Protection Agency (U.S. EPA) guidelines for the performance of risk assessments (U.S. EPA, 1989, 1991a, 1992a, 1997). The scientific basis and validity of values used in this assessment are considered and discussed in the context of primary research literature in order to provide a frame of reference for the conclusions. However, due to regulatory policies which establish the custom of using very conservative assumptions in preparing such risk assessments, the actual levels of human exposure and the potential health risks associated with exposure to constituents at the facility are likely to be lower than the quantitative estimates described in this document.

The organization of this human health risk assessment follows the guidelines published in the U.S. EPA's

Risk Assessment Guidance for Superfund (1989). These guidelines suggest that risk assessments should contain the following four major steps:

- ***Hazard Identification (Identification of Constituents of Interest):*** An evaluation of site investigation data and identification of constituents of interest with regard to potential health effects;
- ***Exposure Assessment:*** Identification of the human receptors likely to be exposed to site-originated constituents and the likely extent of their exposure under defined exposure scenarios;
- ***Dose-Response Assessment (Toxicity Assessment):*** A description of the relationship between the magnitude of exposure (dose) and the probability of occurrence of adverse health effects (response) associated with the constituents of interest; and
- ***Risk Characterization:*** Description of the nature and magnitude of potential human health risks, comparison to federal criteria regarding health risks at hazardous waste sites, and a discussion of uncertainties in the analysis.

1.4 Risk Assessment Organization

This report is organized in a manner consistent with the above-mentioned sections of a risk assessment. The sections of the report are as follows:

- Section 1 provides an introduction to the risk assessment and describes the structure of the report.
- Section 2 provides background information on the site and identifies constituents of interest at the site.
- Section 3 identifies likely human receptors at the site and presents the exposure factors that are used to estimate the extent of exposure for each receptor.
- Section 4 describes the standard procedures for deriving health effects criteria and presents the U.S. EPA health criteria for the constituents of interest.
- Section 5 quantifies and summarizes the potential risks associated with exposure to the constituents of interest.
- Section 6 describes the uncertainties associated with the calculated exposures and potential health risks.
- Section 7 presents the conclusions of the risk assessment.
- Section 8 presents the references cited in the risk assessment.

2.0 IDENTIFICATION OF CONSTITUENTS OF INTEREST

The purpose of this section is to identify the constituents that will be evaluated quantitatively in the risk assessment. This section presents background information and analytical data for the site that were used in the risk assessment. Constituents of interest (COIs) are identified for detailed quantitative evaluation. COIs for human health risk assessment are defined as those constituents present at a site that comprise the major portion of the calculated hazard and risk values.

2.1 Sampling Conducted at the Site

In 1998, fifteen soil samples were collected from the surficial fill unit that overlies an extensive natural clay unit. Other samples were collected from the underlying clay unit, but these samples are not considered relevant to the potential for exposure. The fill unit samples were collected from locations that are largely beneath concrete pavement and under roof, at depths of between 1.5 and 15.5 feet below ground surface. The soil samples were analyzed for arsenic, total chromium, and hexavalent chromium (chromium VI). Table 2-1 presents a list of the samples collected, the depth of each sample, and the analytical results for each constituent analyzed.

2.2 Constituents of Interest

An important step in the risk assessment process is to identify the COIs at a site. COIs are defined by the U.S. EPA as constituents potentially related to the site whose data are of sufficient quality for use in a quantitative risk assessment.

For this facility, arsenic, total chromium, and hexavalent chromium have been identified as COIs. These are the primary constituents associated with the chromated copper arsenate (CCA) wood treating process used at the facility since the start of operations.

Table 2-2 provides a summary of the analytical data for the site, including the frequency of detection, range of detected concentrations, range of detection limits, mean concentration, and the sample number of the maximum detected concentration for each COI.

NYSDEC provides soil cleanup objectives for arsenic and chromium of 7.5 mg/kg and 10 mg/kg, respectively (NYSDEC, 1994). The maximum concentrations of arsenic and total chromium detected in the fill unit sampling program exceed these recommended levels; however, the concentration of hexavalent chromium is below the recommended level. Nevertheless, each of the three constituents will be evaluated in the site-specific, quantitative risk assessment.

3.0 EXPOSURE ASSESSMENT

Exposure assessment is the process of measuring or estimating the intensity, frequency, and duration of human exposure to a constituent in the environment. This section of the risk assessment discusses the mechanisms by which people might come in contact with constituents of interest and the approximate magnitude, frequency, and duration of contact between potential human receptors and the constituents. The quantitative assessment of exposure, based on constituent concentrations and the degree of absorption of each constituent, provides the basis for estimating constituent uptake (dose) and associated health risks. The exposure assessment follows, as much as possible, the recommendations for conducting an assessment according to U.S. EPA risk assessment guidance (1989) and the *Guidelines for Exposure Assessment* (U.S. EPA, 1992a).

3.1 Pathways of Potential Human Exposure

An exposure pathway describes the course that a constituent takes from its environmental source to a human receptor. Each exposure pathway includes the following aspects: 1) a source or constituent release from a source; 2) an exposure medium (e.g., soil); 3) a point of potential contact for the receptor with the exposure medium (e.g., exposed surface soil); and 4) an exposure route at the contact point (e.g., incidental ingestion, dermal contact). An exposure pathway is considered complete when all of these aspects are present. Only complete exposure pathways are evaluated quantitatively in the risk assessment.

3.1.1 Potential Exposure Media and Routes of Exposure

COIs were identified for the fill unit investigated at the facility. It is important to note that the samples were collected from beneath pavement and/or at depth. Therefore, under current conditions, there is no potential for contact with these soils. However, this assessment addresses the hypothetical future case in which these soils could be brought to the surface, where potential direct contact could occur. For receptors with potential to directly contact site soils, incidental ingestion of constituents in soil and dermal contact with constituents in soil are the standard exposure routes which are assessed.

3.1.2 Potential Receptors

The potential human receptors at a site must be characterized in order to evaluate potential exposure pathways. Potential receptors for the site are identified based on the assumptions that current and future land use is industrial.

The site is currently active, and the only potential receptors expected to be present are industrial workers. However, as stated previously, under current conditions, there is no potential for subsurface soil contact. Under hypothetical future conditions, if soils are brought to the surface due to excavation activities, a worker may contact these soils. Therefore, this assessment evaluates an industrial worker for the future industrial land use scenario. This hypothetical industrial worker would be exposed to soil by the direct contact routes, incidental ingestion and dermal contact.

It is also possible that a future construction worker may be exposed to these subsurface soils during excavation activities. However, the duration of exposure for a construction worker would be much shorter than that expected for an industrial worker, as it is limited to only the time period that the excavation activity is occurring. Therefore, only the future industrial worker was evaluated in this assessment, as this would be the most highly exposed potential receptor.

3.1.3 Potentially Complete Exposure Pathways

Complete exposure pathways require exposure media with elevated levels of COIs and receptors with the opportunity to contact these media. The previous sections described the potential exposure pathways at this site under current and future land use conditions as well as the likely receptors. Exposures resulting from all potentially complete pathways are quantitatively evaluated in this assessment. Therefore, the evaluation will consider the scenario of subsurface soil exposure to a future industrial worker via incidental ingestion and dermal contact.

3.2 Quantification of Exposure Point Concentrations

Potential exposure to constituents in the environment is directly proportional to the concentrations of constituents in environmental media (e.g., soil) and characteristics of exposure (e.g., frequency and duration). The concentrations at exposure points generally are referred to as exposure point concentrations (EPCs). The analytical results for samples from a given area are combined to derive a single concentration (EPC) for each constituent that represents the level of that constituent to which potential receptors may be exposed. For constituents in soil, EPCs were statistically calculated from sampling data.

U.S. EPA (1989) guidance discusses the usability of data in risk assessments. In accordance with this guidance, for constituents detected in at least one sample, samples that were non-detects for the constituent of interest ("U" qualifier) were incorporated into statistical calculations at one-half the sample detection limit. This value is assigned to non-detects when averaging because the actual value can range between zero and just below the limit of detection.

For this assessment, the EPCs for constituents in soil are based on the arithmetic mean concentration. These values were presented previously in Table 2-2.

3.3 Estimation of Constituent Exposure and Intake

The U.S. EPA's *Guidelines for Exposure Assessment* (U.S. EPA, 1992a) define constituent exposure as "the condition of a chemical contacting the outer boundary of a human." The constituents are contained in an environmental medium such as water, soil, or air. Generally, two steps are required for a constituent to enter a body: contact with the outer boundary of the body (exposure), and then crossing the boundary from outside to inside the body (intake). For most exposure routes, intake is evaluated in terms of how much of the carrier medium containing the constituents crosses the outer boundary (e.g., amount of soil ingested, volume of air inhaled). Dermal contact pathways, however, are evaluated in terms of uptake, or the absorption of the constituent through the skin.

Two types of doses, applied and internal, are defined for evaluating constituent exposure (U.S. EPA, 1992a). The applied dose is the amount of a constituent present at an absorption barrier (e.g., lung, skin, gastrointestinal tract) and available for absorption. The applied dose is estimated as the amount of constituent ingested, inhaled, or contained in material contacting the skin. This is analogous to the administered dose in a dose-response experiment. The internal dose is the amount of constituent actually absorbed across the barrier and available for internal biological interactions. It is the portion of the internal dose that actually reaches cells, sites, or membranes where adverse effects occur. Doses are generally presented as dose rates (dose per unit time) on a per-unit-body-weight basis (units of mg/kg-day).

Noncarcinogenic health effects are evaluated by calculating the average dose of a constituent over the course of the exposure period. This dose is termed the Average Daily Dose (ADD). Carcinogenic health effects are evaluated in terms of an individual's theoretical increased risk of developing cancer over a lifetime. Although the duration of exposure to a constituent release generally does not last for an entire lifetime, constituent intake for carcinogens is estimated as the average dose over a human lifetime (70 years). This lifetime dose applies specifically to the evaluation of carcinogenic effects and is termed the Lifetime Average Daily Dose (LADD). In a risk assessment, the calculated ADD or LADD are estimated quantitatively using assumptions about the duration, frequency, and magnitude of exposure experienced by each potential receptor, and assumptions about the constituent properties that influence absorption. Table 3-1 presents the general form of the equation used to evaluate intake of constituents.

3.4 Estimation of Constituent Absorption

The administered dose in a dermal exposure pathway is the amount of constituent in the volume of soil contacting the skin. Only a small fraction of this amount of the constituent will actually penetrate the skin and enter the body of a receptor. Dermal exposure calculations are, therefore, always calculated as an absorbed dose and require the inclusion of a dermal absorption factor (DAF). For each of the COIs in soil, dermal absorption factors have been incorporated into the dose calculations. The following list presents the DAFs for each of these constituents (U.S. EPA Region III, 1995).

Constituent	Dermal Absorption Factor (DAF)
Arsenic	0.032
Total Chromium	0.01
Hexavalent Chromium	0.01

3.5 Basis for Exposure Assumptions

The quantitative estimation of constituent intake involves the incorporation of numerical assumptions for a variety of exposure parameters. Exposure assumptions used in these dose calculations are based on U.S. EPA (1989, 1991b, 1997) recommended values. All exposure assumptions utilized in this risk assessment are described below.

3.5.1 All Pathways

The following factors are consistent across both of the exposure pathways considered in this assessment (incidental ingestion and dermal contact).

- ***Exposure Frequency and Duration:*** Exposure frequency for the industrial worker is 5 days a week for 50 weeks a year, or 250 days a year (U.S. EPA, 1991b). The industrial worker is assumed to work for 25 years at the same location, which is the 95th percentile value according to the Bureau of Labor Statistics (U.S. EPA, 1989). Therefore, the exposure duration is equal to 25 years.
- ***Body Weight:*** The default value for average body weight of an adult is 71.8 kg based on U.S. EPA guidance (1997). This value was used for the body weight of the industrial worker in this assessment.
- ***Averaging Time:*** As described above, the doses for noncarcinogenic health effects are averaged over the specific period of exposure for a given receptor. Noncarcinogenic averaging times are, therefore, calculated by multiplying the exposure duration for the receptor by 365 days/year. The resulting noncarcinogenic averaging time for the industrial worker is 9,125 days. Carcinogenic health effects are calculated over a lifetime exposure, so the U.S. EPA (1989) value for average lifetime, 70 years, was used for exposure duration. The resulting carcinogenic averaging time is 25,550 days.

3.5.2 Incidental Ingestion of Soil

The following factors are incorporated into calculations of the soil ingestion pathway. Exposure factors for the industrial worker and the general calculation for this pathway are presented in Table 3-2.

- ***Soil Ingestion Rate:*** The U.S. EPA (1991b) recommended value of 50 mg.day was used to describe soil ingestion for a worker not involved in construction or intrusive activities.

3.5.3 Dermal Contact with Soil

The following factors are incorporated into calculations of the dermal contact with soil pathway. Exposure factors for the industrial worker and the general calculation for this pathway are presented in Table 3-3.

- ***Skin Surface Area:*** Potentially exposed workers are assumed to wear appropriate clothing during outdoor activities that may involve soil contact. Skin surface area available for dermal contact with soil is assumed to be the typical case clothing scenario for outdoor activities as described by U.S. EPA guidance (1997). Exposed skin areas are the head and hands, for a total of 2,000 cm^2.
- ***Soil Adherence Factor:*** The soil adherence factor describes the amount of soil that is assumed to be in contact with the exposed skin surface area. The value 0.6 mg/cm^2 was used in this assessment for all receptors. This is an average of the range 0.2 to 1.0 mg/cm^2 from U.S. EPA (1992b).

- ***Dermal Absorption Factor:*** As described in Section 3.4, a dermal absorption factor is included in calculations of exposure to constituents in soil through dermal contact.

3.6 Summary

The calculations of estimated doses (ADD and LADD) for the complete exposure pathways identified in this section are presented in Table 3-4. These dose estimates will be combined in the risk characterization (Section 5) with the toxicity values presented in the Dose-Response Assessment (Section 4) to estimate potential carcinogenic risks and noncarcinogenic effects.

4.0 DOSE-RESPONSE ASSESSMENT

The dose-response assessment provides a description of the relationship between a dose of a constituent and the anticipated incidence of an adverse health effect (Preuss and Ehrlich, 1987). The majority of existing knowledge about the dose-response relationship is based on data collected from studies of animals (usually rodents), studies of human occupational exposures, and theories about how humans respond to environmental doses of constituents.

The U.S. EPA has developed dose-response assessment techniques to set "acceptable" levels of human exposure to constituents in the environment. These U.S. EPA-derived risk criteria address potential carcinogenic health risks and both subchronic and chronic noncarcinogenic health effects.

4.1 Evaluation of Carcinogenic Responses

The subsections below discuss the assumed mechanisms of carcinogenic response, the derivation of carcinogenic health effects criteria, the manner in which these criteria are used in this risk assessment, and some of the limitations of these values. The limitations are addressed in greater detail in the uncertainty section of this report (Section 6).

4.1.1 Background

U.S. EPA typically has required that potentially carcinogenic constituents be treated as if minimum threshold doses do not exist (U.S. EPA, 1986). The regulatory dose-response curve used for carcinogens only allows for zero risk at zero dose. Thus, for all environmental doses, some level of risk is assumed to be present. Much of the known information on the carcinogenic potential of constituents is derived from animal studies; however, doses administered in these experiments are generally several orders of magnitude greater than levels that could be received through environmental exposure.

To estimate the theoretical response at environmental doses, various mathematical dose-response models are used. U.S. EPA uses the linearized multistage model for low dose extrapolation. This model assumes that the effect of the carcinogenic agent on tumor formation seen at high doses in animal data is basically the same at low doses (i.e., the slope of the dose-response curve can be extrapolated downward to the origin in a linear manner). U.S. EPA's Guidelines for Carcinogen Risk Assessment recommend that the linearized multistage model be employed in the absence of adequate information to the contrary, and that in general models that incorporate low-dose linearity are preferred (U.S. EPA, 1986).

4.1.2 Carcinogenic Health Effects Criteria

U.S. EPA uses a two-step approach for evaluating potential carcinogenic effects of constituents. First, the substance is assigned a weight-of-evidence classification reflecting the likelihood that the constituent is a human carcinogen. Second, a cancer slope factor (CSF) is calculated for known or probable human carcinogens.

In addition to deriving a quantitative estimate of cancer potency, U.S. EPA also assigns weight-of-evidence classifications to potential carcinogens. Constituents are classified as either Group A, Group B1, Group B2, Group C, Group D, or Group E, which are defined according to the U.S. EPA as follows:

- Group A constituents (known human carcinogens) are agents for which there is sufficient evidence to support a causal association between exposure to the agents in humans and cancer.
- Group B1 constituents (probable human carcinogens) are agents for which there is limited evidence of carcinogenicity in humans.
- Group B2 constituents (probable human carcinogens) are agents for which there is sufficient evidence of carcinogenicity in animals but inadequate or no evidence in humans.
- Group C constituents (possible human carcinogens) are agents for which there is limited evidence of carcinogenicity in animals and inadequate or no human data.
- Group D constituents (not classifiable as to human carcinogenicity) are agents with inadequate human and animal evidence of carcinogenicity or for which no data are available.
- Group E constituents (evidence of noncarcinogenicity in humans) are agents for which there is no evidence of carcinogenicity from human or animal studies, or both.

In general, quantitative cancer risk characterization is performed for all Group A, B1, and B2 carcinogens identified at a site.

CSFs are typically calculated for potential carcinogens in classes A, B1, and B2. The slope factor is used to estimate an upperbound lifetime probability of an individual developing cancer as a result of exposure to a particular level of a potential carcinogen. To derive the CSF, data from animal studies (or occasionally from human epidemiology) are fit to the linearized multistage model, and the upper 95th percent confidence limit on the slope of the resulting dose-response curve is calculated. This slope factor therefore reflects an upperbound estimate of the probability of carcinogenic response per unit dose of a constituent. The CSF is expressed in units of reciprocal dose $(mg/kg\text{-}day)^{-1}$.

CSFs that are available for the carcinogens of potential concern are listed in Table 4-1 for oral exposures. As CSFs are not derived for the dermal route of exposure, the oral CSFs will be used to evaluate the dermal pathway. U.S. EPA's Integrated Risk Information System (IRIS; U.S. EPA, 1999) was the primary source for the CSF values. Brief summaries of the derivation of these criteria are presented in Section 4.3.

4.1.3 Estimating the Theoretical Excess Lifetime Cancer Risk

For carcinogenic constituents, a risk assessment evaluates the degree to which a receptor may have a theoretical increased likelihood of developing cancer over a lifetime due to exposure to site-associated constituents. At environmental dosage levels, the CSF is assumed to be constant and potential carcinogenic risk to be directly related to intake. In order to estimate the theoretical excess lifetime cancer risk, the lifetime average daily dose (LADD) of a constituent is multiplied by the CSF as shown:

$$\text{LADD} \times \text{CSF} = \text{Risk}$$

For each pathway, this calculation is carried out for each applicable constituent, and the risks are summed to obtain the total risk due to that pathway. The total theoretical excess lifetime cancer risk for a particular receptor is then calculated as the sum of the risks from all exposure pathways for that receptor.

4.2 Evaluation of Noncarcinogenic Responses

The sections that follow discuss the mechanisms of noncarcinogenic response, the derivation of acceptable dose levels, the manner in which these levels are used in this risk assessment, and some of the limitations of these values. The limitations are addressed in greater detail in the uncertainty analysis section of this report (Section 6).

4.2.1 Background

It is widely accepted that noncarcinogenic biological effects of chemical substances occur only after a threshold dose is achieved. Pharmacokinetic mechanisms (e.g., absorption, distribution, metabolism, or excretion) exist that will minimize the adverse effect. Therefore, a range of exposures and resulting doses up to the threshold level can be tolerated by a receptor with no adverse effects. The threshold dose for a compound is usually estimated from the no observed adverse effect level (NOAEL) or the lowest observed adverse effect level (LOAEL), as determined from animal studies or human data. The NOAEL is the highest dose at which no adverse effects occur, while the LOAEL is the lowest dose at which adverse effects are discernable.

4.2.2 Noncarcinogenic Health Effects Criteria

U.S. EPA uses the NOAEL or LOAEL estimates of threshold dose to establish reference doses (RfDs) for human exposure. A RfD is an estimate of a daily exposure level (dose) that is unlikely to present an appreciable risk of deleterious effects during a lifetime. U.S. EPA has derived both chronic and subchronic RfDs: subchronic RfDs are appropriate for evaluating exposure periods of less than seven years, while chronic RfDs are intended for evaluating long-term exposure. RfDs are expressed in units of dose (mg/kg-day) and incorporate uncertainty factors to account for limitations in the quality or quantity of available data.

The U.S. EPA-derived chronic RfDs that are available for the constituents of interest are provided in Table 4-1. These criteria were identified from U.S. EPA's IRIS database, and as with the CSFs, the oral RfDs will be used to evaluate the dermal exposure pathway. Brief summaries of the derivation of the RfD values are presented in Section 4.3.

4.2.3 Estimating the Likelihood of Adverse Noncarcinogenic Response

The likelihood of occurrence of adverse noncarcinogenic effects depends on the relationship between the RfD and the estimated average constituent dose received by the receptor. Doses less than the RfD are not likely to be associated with any adverse health effects and are, generally, not of regulatory concern. Doses that exceed the RfD are considered to present the potential for adverse effects.

Noncarcinogenic responses are evaluated numerically using parameters known as the hazard quotient (HQ) and hazard index (HI). The HQ is obtained by dividing the average daily dose (ADD) by the RfD as presented below. The average daily dose is the estimated daily dose of a constituent averaged over the specific duration of exposure, which may not necessarily be an entire lifetime.

$$\text{ADD} \;/\; \text{RfD} = \text{HQ}$$

Each dose calculation with a specific combination of constituent, receptor, and exposure pathway, will have a distinct average daily dose and calculated hazard quotient. Hazard quotients associated with all constituents for a particular pathway are summed to yield the hazard index, as indicated:

$$HQ_i + HQ_{ii} + HQ_{iii} + ... = HI$$

If a receptor is subject to exposure through more than one pathway, the hazard indices for all pathways are summed. A calculated hazard index of less than one indicates that an adverse effect would not be anticipated.

Scientifically, the HI approach is highly conservative and does not reflect actual mechanisms of constituent toxicity. Noncarcinogenic constituents produce toxic effects in specific target organs. If the constituents of interest affect different organs or operate through different mechanisms of action, adverse affects due to different constituents are unlikely to be cumulative. The U.S. EPA (1989) recognizes that this situation may occur, and suggests that if the HI is greater than one as a consequence of summing several hazard values, it is appropriate to segregate the compounds by target organ and by mechanism of action and to derive separate hazard indices for each group. For this report, hazard indices were summed without regard to target organ.

4.3 Summary of Critical Studies for Derivation of Toxicity Criteria

This section presents brief summaries of the critical studies upon which CSFs and RfDs of constituents of interest are based.

- **Arsenic**

  IRIS provides an oral reference dose for arsenic (U.S. EPA, 1999). The noncarcinogenic effects of concern are related to the vascular system. Inorganic arsenic has been classified by the U.S. EPA as a known human carcinogen (Group A). IRIS also provides a cancer slope factor for the oral route of exposure to arsenic.

  - **Chronic Oral Reference Dose**

    The U.S. EPA (1999) presents a chronic oral RfD for arsenic as 0.0003 mg/kg-day. The chronic oral RfD for arsenic was derived from a study by Tseng (1977).

    The Tseng study investigated the relationship between peripheral circulatory disease characterized by gangrene of the extremities and the arsenic concentrations in drinking water along the southeast coast of Taiwan. The study evaluated 40,421 residents in 37 villages. A positive correlation was observed between the presence of Blackfoot disease (a peripheral vasoconstriction disorder), arsenic concentration, and duration of water intake. This study established a NOAEL of 0.001 to 0.017 mg/L for Blackfoot disease (U.S. EPA, 1984). An uncertainty factor of 1 was used, presumably because the NOAEL is based on epidemiologic data that included a very large study population. There was not a clear consensus among agency scientists on the chronic oral RfD based on this and other studies to date since other studies show a significantly lesser effect of arsenic.

- **Oral Cancer Slope Factor**

IRIS (U.S. EPA, 1999) presents an oral cancer slope factor of 1.5 $(mg/kg\text{-}day)^{-1}$ for arsenic. The U.S. EPA's Risk Assessment Forum has concluded that the most appropriate basis for an oral quantitative estimate is the 1977 study by Tseng of about 40,000 Taiwanese who were exposed to arsenic in their drinking water (U.S. EPA, 1997). The author reported a significant excess of skin cancers in this population when compared to 7,500 residents of Taiwan and Matsu who consumed relatively arsenic- and other constituent-free water (Tseng et al., 1968). The exposed population was reported to have significantly elevated standard mortality ratios for cancer of the bladder, lung, liver, kidney, skin and colon. The cancer cases were reported to have a significant association with arsenic exposure that was dose-related. The arsenic levels in well water ranged from less than 0.0001 ppm in shallow wells to 1.82 ppm.

- **Total Chromium**

An oral reference dose for trivalent chromium is available from IRIS (U.S. EPA, 1999). This value will be used to evaluate total chromium. Trivalent chromium is classified by the U.S. EPA as Group D: not classifiable as to human carcinogenicity.

- **Chronic Oral Reference Dose**

The U.S. EPA (1999) provides a chronic oral RfD for trivalent chromium of 1.5 mg/kg-day. This dose is based on a chronic rat feeding study conducted by Ivankovic and Preussman (1975) in which groups of 60 male and female rats were fed chromic oxide baked in bread for 600 feedings (850 days). The average total amounts of ingested chromic oxide ranged from 360 g/kg in the low dose group to 1,800 g/kg in the high dose group. No adverse effects were observed in any of the treatment groups.

Ivankovic and Preussman (1975) also treated smaller groups of rats for approximately 65 feedings (90 days). The highest dose group exhibited a reduction in the absolute weight of livers and spleens; otherwise no adverse effects were observed. The dose of this group was equivalent to 1,468 mg/kg-day. An uncertainty factor of 100 was applied to this NOAEL to account for interhuman and interspecies variability, and an additional modifying factor of 10 was applied to reflect database deficiencies.

- **Hexavalent Chromium**

An oral reference dose for hexavalent chromium is available from IRIS (U.S. EPA, 1999). Hexavalent chromium is classified by the U.S. EPA as Group D (not classifiable as to human carcinogenicity) when exposed via the oral route.

Chronic Oral Reference Dose

The U.S. EPA (1999) provides a chronic oral RfD for hexavalent chromium of 0.003 mg/kg-day. This dose is based on a study by MacKenzie et al. (1958) in which Sprague-Dawley rats were supplied with drinking water containing varying levels of hexavalent chromium (as K_2CrO_4 or chromic chloride). No significant adverse effects were noted in weight gain, food consumption, or appearance, and no pathologic changes were noted in the blood or tissues in any treatment group. The group of rats receiving 25 mg/L of chromium (as K_2CrO_4) did show a reduction in the amount of water consumption. Thus, this level was adjusted to a NOAEL of 2.5 mg/kg-day. An uncertainty factor of 300 was applied to account for interhuman and interspecies variability, and to account for the less-than-lifetime exposure duration of the study. An additional modifying factor of 3 was applied to address concerns regarding gastrointestinal effects in humans (Zhang and Li, 1987).

5.0 RISK CHARACTERIZATION

Risk characterization is the final step of the human health risk assessment process. It includes a description of the nature and magnitude of the potential for occurrence of adverse health effects under a specific set of conditions. In this step, the toxicity assessment and site-specific exposure assessment are integrated into quantitative and qualitative estimates of potential health risks. Potential carcinogenic and noncarcinogenic health risks are calculated and summarized individually for each receptor, medium, and constituent of interest identified in Section 3.1.3. Estimated risks are combined across exposure pathways as appropriate. The following subsections describe the approaches and results for the evaluation of potential carcinogenic and noncarcinogenic effects.

5.1 Carcinogenic Effects

Theoretical excess lifetime cancer risks associated with exposure to potential carcinogenic COIs at the site were estimated by comparing estimated intakes with the constituent-specific CSFs, as described in Section 4.1.3. Theoretical risks are calculated for the industrial worker by combining pathway-specific risks. Table 5-1 presents a summary of the theoretical excess lifetime cancer risks for the industrial worker.

These results may be compared with U.S. EPA criteria for acceptable risks. Various demarcations of acceptable risk have been established by regulatory agencies. U.S. EPA has recommended that sites posing a cumulative theoretical excess lifetime cancer risk of less than 1 x 10^{-4} may not pose an unacceptable risk and may not be candidates for remedial activities (U.S. EPA, 1991a). Under most situations, theoretical excess lifetime cancer risks in the range of 1 x 10^{-4} to 1 x 10^{-6} are considered to be acceptable.

As indicated in Table 5-1, the estimated theoretical excess lifetime cancer risks associated with exposure to COIs at the site are within the range of acceptable risks (1 x 10^{-4} to 1 x 10^{-6}), indicating that significant theoretical excess lifetime cancer risks to the future industrial worker will not occur.

5.2 Noncarcinogenic Effects

Potential noncarcinogenic effects associated with exposure to COIs at the site were estimated by comparing estimated intakes with the constituent-specific RfD, as described in Section 4.2.3. The hazard indices (HIs) are then calculated for the industrial worker by combining pathway-specific HIs. Table 5-2 presents the summed hazard indices for the industrial worker.

Noncarcinogenic HIs less than or equal to one are considered acceptable by U.S. EPA (1989). As indicated in Table 5-2, the HI for exposure to COIs at the site is less than one, indicating that adverse noncarcinogenic health effects are not likely to occur.

6.0 UNCERTAINTY ANALYSIS

Uncertainties are inherent in every aspect of a quantitative risk assessment. The inclusion of site-specific factors, which this assessment has attempted to incorporate, decreases uncertainty, although some uncertainty persists in even the most site-specific and accurate risk assessments. A careful and comprehensive analysis of the critical areas of uncertainty in a risk assessment is a very important part of the risk assessment process. The uncertainty analysis provides a context for better understanding the assessment conclusions by identifying the uncertainties that have most significantly affected the assessment results.

U.S. EPA (1992a) guidance stresses the importance of providing a complete analysis of uncertainties so that risk management decisions take these uncertainties into account when evaluating risk assessment conclusions. The major sources of uncertainty in this risk assessment are identified qualitatively below.

6.1 Uncertainties in Hazard Identification

Uncertainties in the hazard identification step of the risk assessment are associated with the available analytical data. The environmental sampling used in this assessment was designed to locate the highest likely concentrations of constituents. Random sampling would have been more likely to provide a representative set of values to be incorporated into the risk assessment for consistency with other exposure considerations. This directed sampling effort tends to lead to an overestimation of exposure point concentrations.

6.2 Uncertainties in Exposure Assessment

The U.S. EPA approach to exposure assessments generally requires standard exposure scenarios rather than realistic site-specific evaluations of exposure. Under this approach, if a constituent is found to be present at a site, it is assumed that exposure to that substance will occur, regardless of whether that exposure is realistic or likely. Elements of uncertainty in exposure assessment include the following.

- ***Use of Default Exposure Factors:*** The scientific literature contains many examples of carefully designed and conducted studies which indicate that appropriate environmental exposure factors are significantly lower than those recommended by the U.S. EPA (1989, 1991b). These include soil ingestion rates (Calabrese et. al., 1989) in particular. Since this risk assessment is designed to provide a relative index for comparison of the risks associated with different remedial alternatives, the U.S. EPA default values were used herein. The use of the U.S. EPA default values tends to result in overestimates of the risks.
- ***Chemical Absorption Factors:*** When evaluating the risks associated with constituents in soil, typically the U.S. EPA does not incorporate a factor to address gastrointestinal absorption. However, it should be noted that many examples of gastrointestinal absorption less than 100% exist in the scientific literature. Using a gastrointestinal absorption factor of 100% for the three inorganic COIs in this risk assessment results in an overestimation of the risks due to soil ingestion.

6.3 Uncertainties in Toxicity Assessment

Toxicity assessments almost never incorporate direct data about the effects of environmental constituents on human receptors. Very little useful epidemiological data are available for most constituents for human populations near waste sites. The epidemiological studies on exposures in the workplace are largely inapplicable to evaluation of hazardous waste site because the exposure concentrations, frequencies, and durations are very different. In all, there is almost no direct data on the toxicity of chemicals to residential, recreational, or industrial receptors subject to environmental exposure levels. Therefore, toxicity assessments for nearly all constituents involve the extrapolation of results from studies on animals. The following are standard assumptions applied by the U.S. EPA when extrapolating the results of studies of carcinogenicity in animals to humans (HWCP, 1993).

- Any constituent showing carcinogenic activity in any animal species will also be a human carcinogen.
- There is no threshold dose for carcinogens.
- The results of the most sensitive animal study are appropriate to apply to humans.
- Humans are more sensitive than the most sensitive animal species on a body weight basis.

These considerations are generally inappropriate when applied to multiple chemicals in a specific situation. Other elements of uncertainty in toxicity assessment include the following.

- ***Dose Response Assessment - Potential Carcinogens:*** Uncertainties are introduced in animal to human extrapolation and high to low dose extrapolation. Mathematical models are used to estimate the possible responses due to exposure to chemicals at levels far below those tested in animals. These models contain several limitations which should be considered when the results (e.g., risk estimates) are evaluated. Primary among these limitations is the uncertainty in extrapolation of results obtained in animal research to humans and the shortcomings in extrapolating responses obtained from high-dose research studies to estimate responses at very low doses. For example, humans are typically exposed to environmental chemicals at levels that are less than a thousandth of the lowest dose tested in animals. Such doses may be easily degraded or eliminated by physiological internal mechanisms that are present in humans (Ames, 1987; Abelson, 1990). Thus, a limited ability exists to use the results of standard rodent bioassays to understand the human biological hazard or cancer risks posed by routine levels of exposure (Crump et al., 1976; Sielken, 1985).
- ***Upper Bound Cancer Slope Factors:*** The U.S. EPA cancer slope factors are considered to be plausible upper bounds of risk at a 95 percent confidence level. Thus there is a 95 percent probability that the true risks do not exceed these levels, and the risks are likely to be much lower. The Carcinogen Assessment Group (U.S. EPA, 1986) states that the use of the linearized multistage model and upper bound risk estimates is appropriate, but that the lower limit of risk may be as low as zero. When biological factors are considered, the best estimate of the risk at very low levels is often zero (U.S. OMB, 1990).
- ***Dose Response Assessment – Noncarcinogens:*** Approaches typically utilized for designating reference doses are highly conservative. The U.S. EPA (1989) applies a factor of 10 to a No Observed Adverse Effect Level (NOAEL) for a chemical in an animal study for animal-to-human extrapolation. An additional factor of 10 is applied for interindividual variation in the human population, and additional factors of 10 may be applied to account for limitations in data quality or incomplete studies. Frequently,

reference doses are derived from animal studies which have little quantitative bearing on potential adverse effects in humans. Some of this uncertainty may be reduced if the absorption, distribution, metabolic fate, and excretion parameters of a chemical are known.

Because the fate and mechanism of action of a chemical may differ in animals and humans, effects observed in animals may not be observed in humans, resulting in an overestimation of potential adverse health effects. This is unlikely to occur in the converse, since the majority of chemicals have been studied in multiple animal species. Interspecies dose conversion may also be limited by differences in lifespan, body size, breathing rates, or the route of administration utilized in a study.

6.4 Uncertainties in Risk Characterization

The lack of actual current human exposure to contamination at many hazardous waste sites results in a situation where the public incorrectly perceives hazardous waste sites as a major health risk, while in reality these sites present moderate to low risks compared to many other environmental and public health problems (HWCP, 1993). U.S. EPA has concluded that human health risks from waste sites are ranked below risks from indoor radon, pesticides on food, other indoor air pollutants, exposure to chemicals in the workplace, air pollution, consumer exposure and depletion of stratospheric ozone (U.S. EPA, 1987).

- ***Risk Characterization:*** The typical approach to risk assessment involves conservatively multiplying the upper bound exposure assumptions together to evaluate exposure. U.S. EPA risk assessment guidance (1989) specifies that numerous factors in the exposure equation should each be represented by the 95th percentile value for that variable. These factors include the representative concentration, the contact rate with the environmental medium, and the exposure frequency and duration. Multiplying all of these upper bound values results in a risk estimate which is higher than the risks to 99.99% of the population. Thus, virtually all potentially exposed receptors will have a much lower level of risk than calculated following U.S. EPA guidance.
- ***Assumed Additivity:*** Scientifically, the additive approach for noncarcinogenic effects is highly conservative and does not reflect actual mechanisms of constituent toxicity when individual constituents have the potential to affect different target organs. If the COIs affect different organs or operate through different mechanisms of action, adverse effects due to different constituents are unlikely to be cumulative. Assuming additivity, as was done in this assessment, would overestimate hazard quotients.

All of the steps of the exposure assessment and toxicity assessment, including all of the factors incorporated into the dose calculations, individually include a conservative "safety margin." When all of these factors are combined, the margins of error are compounded and scientific accuracy is sacrificed.

7.0 CONCLUSIONS

This human health risk assessment evaluated hypothetical exposure of a future industrial worker to subsurface soils. Constituents of interest consist of arsenic, total chromium, and hexavalent chromium. The industrial worker was evaluated for exposure to these constituents via incidental ingestion of soil and dermal contact with soil.

The results of the assessment indicate that theoretical excess lifetime cancer risks and hazard indices for the industrial worker are within acceptable limits according to the U.S. EPA (1989, 1991a). The theoretical excess lifetime cancer risk for this receptor was 8.5×10^{-5}, which is within the acceptable range of 10^{-6} to 10^{-4}. The summed hazard index was 0.53, which is below U.S. EPA's target benchmark of 1.0. Therefore, adverse health effects will not occur to industrial workers at the site under the hypothetical case in which the investigated fill materials (currently beneath pavement and/or in the subsurface at the facility) would be exposed as surface soil.

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TABLE 2-1
SOIL DATA USED IN THE RISK ASSESSMENT
Athens, NY

Sample Number	Depth (ft)	Arsenic (mg/kg)	Chromium (total) (mg/kg)	Chromium VI (mg/kg)
C-1	14.5 - 15.5	5.4	22.3	2.5 U
C-2	4.5 - 5.0	192	229	17.6
C-3	4.25 - 4.5	662	580	21.6
C-4	6.25 - 6.5	246	155	10
C-5	4.5 - 5.5	7.5	39.9	2.4 U
C-6	13.5 - 14.0	16	41.9	2.4 U
C-7	6.5 - 7.0	70.9	46.5	2.2 U
C-8	6.0 - 6.5	25.2	99	3.5
C-9	7.0 - 7.5	50.9	29.8	2.1 U
C-10	7.0 - 7.5	404	312	42
C-11	2.5 - 3.0	74.1	21.4	2.1 U
C-12	2.0 - 2.5	9.2	730	2.1 U
C-13	1.5 - 2.0	71.7	84.7	3.8
C-14	1.5 - 2.0	911	120	30.5
C-15	2.5 - 3.0	75	28.3	3.4

U - Constituent not detected; value shown is the detection limit.

TABLE 2-2
SUMMARY OF ANALYTICAL SOIL DATA
Athens, NY

Constituent	Frequency of Detection	Range of Detected Values (mg/kg)	Range of Detection Limits (mg/kg)	Arithmetic Mean Concentration [1] (mg/kg)	Sample Number of Maximum Detection
Arsenic	15 / 15	5.4 - 911	--	188	C-14
Chromium (total)	15 / 15	21.4 - 730	--	169	C-12
Chromium VI	8 / 15	3.4 - 42	2.1 - 2.5	9.35	C-10

[1] The arithmetic mean incorporates non-detect results at one-half the detection limit.

TABLE 3-1
GENERAL FORMULA FOR CALCULATION OF CONSTITUENT INTAKES
Athens, NY

Symbol	Factor	Units	Comments
C	Constituent Concentration	mg/kg, mg/L, mg/m^3	Concentration of constituent in environmental medium.
CR	Contact Rate	mg/day, L/day	Receptor's rate of contact with environmental medium.
EF	Exposure Frequency	days/year	Days per year that receptor may be exposed.
ED	Exposure Duration	years	Number of years during which receptor may be exposed.
BW	Body Weight	kilograms	Intake is normalized for receptor's body weight.
AT	Averaging Time	days	Period over which exposure is averaged.

Equation:

$$\text{Intake (mg/kg-day)} = \frac{C \times CR \times EF \times ED}{BW \times AT}$$

TABLE 3-2
FACTORS USED IN DOSE CALCULATIONS: INCIDENTAL INGESTION OF SOIL
Athens, NY

Symbol	Factor	Industrial Worker Value	Source
CS	Constituent Concentration in Soil (mg/kg)	constituent-specific	Table 2-2
IR	Soil Ingestion Rate	50 mg/day	USEPA, 1991b
ABS	Gastrointestinal Absorption Factor	100%	conservative
CF	Conversion Factor	1×10^{-6} kg/mg	--
EF	Exposure Frequency	250 days/yr	USEPA, 1991b
ED	Exposure Duration	25 years	USEPA, 1989
BW	Body Weight	71.8 kg	USEPA, 1997
AT	Averaging Time	9,125 days (NC) 25,550 days (C)	USEPA, 1989

$$\text{Total Dose (adjusted for relative absorption)} = \frac{CS \times IR \times ABS \times CF \times EF \times ED}{BW \times AT}$$

NC - Noncarcinogenic averaging time
C - Carcinogenic averaging time

TABLE 3-3
FACTORS USED IN DOSE CALCULATIONS: DERMAL CONTACT WITH SOIL
Athens, NY

Symbol	Factor	Industrial Worker Value	Source
CS	Constituent Concentration in Soil (mg/kg)	constituent-specific	Table 2-2
CF	Conversion Factor	1×10^{-6} kg/mg	--
SA	Skin Surface Area	2,000 cm^2	USEPA, 1997
AF	Soil Adherence Factor	0.6 mg/cm^2	USEPA, 1992b
DAF	Dermal Absorption Factor (unitless)	constituent-specific	Section 3.4
EF	Exposure Frequency	250 days/yr	USEPA, 1991b
ED	Exposure Duration	25 years	USEPA, 1989
BW	Body Weight	71.8 kg	USEPA, 1997
AT	Averaging Time	9,125 days (NC) 25,550 days (C)	USEPA, 1989

$$\text{Total Dose (adjusted for relative absorption)} = \frac{CS \times CF \times SA \times AF \times DAF \times EF \times ED}{BW \times AT}$$

NC - Noncarcinogenic averaging time
C - Carcinogenic averaging time

TABLE 3-4
ESTIMATED DOSES FOR THE INDUSTRIAL WORKER
Athens, NY

Exposure Pathway	Constituent	Average Daily Dose (ADD) (mg/kg-day)	Lifetime Average Daily Dose (LADD) (mg/kg-day)
Incidental Ingestion of Soil	Arsenic	8.97E-05	3.20E-05
	Chromium (total)	8.06E-05	2.88E-05
	Chromium (hexavalent)	4.46E-06	1.59E-06
Dermal Contact with Soil	Arsenic	6.89E-05	2.46E-05
	Chromium (total)	1.93E-05	6.91E-06
	Chromium (hexavalent)	1.07E-06	3.82E-07

TABLE 4-1
HEALTH EFFECTS CRITERIA FOR CONSTITUENTS OF INTEREST
Athens, NY

Constituent	USEPA Weight-of-Evidence Classification	Oral Cancer Slope Factor (CSFo) $(mg/kg\ day)^{-1}$	Chronic Oral Reference Dose (RfDo) (mg/kg-day)
Arsenic	A	1.5	0.0003
Chromium (total)	D	NA	1.5
Chromium (hexavalent)	D *	NA	0.003

Source of values: IRIS (USEPA, 1999)

NA - Not available.

* It should be noted that hexavalent chromium is classified as Group D by the oral route of exposure, but is Group A by the inhalation route (USEPA, 1999).

TABLE 5-1
SUMMARY OF THEORETICAL EXCESS LIFETIME CANCER RISKS
FOR THE INDUSTRIAL WORKER
Athens, NY

Exposure Pathway	Constituent	Lifetime Average Daily Dose (LADD) (mg/kg-day)	Slope Factor $(mg/kg/day)^{-1}$	Potential Cancer Risk
Incidental Ingestion of Soil	Arsenic	3.20E-05	1.5	4.8E-05
	Chromium (total)	2.88E-05	NA	NA
	Chromium (hexavalent)	1.59E-06	NA	NA
	Pathway Total			4.8E-05
Dermal Contact with Soil	Arsenic	2.46E-05	1.5	3.7E-05
	Chromium (total)	6.91E-06	NA	NA
	Chromium (hexavalent)	3.82E-07	NA	NA
	Pathway Total			3.7E-05
TOTAL THEORETICAL EXCESS LIFETIME CANCER RISK				**8.5E-05**

NA - Chromium is not carcinogenic via the oral route of exposure.

TABLE 5-2
SUMMARY OF HAZARD INDICES FOR THE INDUSTRIAL WORKER
Athens, NY

Exposure Pathway	Constituent	Average Daily Dose (ADD) (mg/kg-day)	Reference Dose (mg/kg-day)	Hazard Index
Incidental Ingestion of Soil	Arsenic	8.97E-05	0.0003	0.299
	Chromium (total)	8.06E-05	1.5	0.000054
	Chromium (hexavalent)	4.46E-06	0.003	0.0015
	Pathway Total			0.3004
Dermal Contact with Soil	Arsenic	6.89E-05	0.0003	0.230
	Chromium (total)	1.93E-05	1.5	0.000013
	Chromium (hexavalent)	1.07E-06	0.003	0.00036
	Pathway Total			0.230
TOTAL HAZARD INDEX				**0.53**

APPENDIX I

BORING LOGS

STERLING
Sterling Environmental Engineering, P.C.

Boring ID: SP - 18

Project Name/No. Northeast Treaters / 2014-08 Location: Athens, NY
Drilling Contractor/Personnel: SJB - Ralph Ciccateri
Drilling Equip./Method: Geoprobe 5400 Inspector: Joe Spaulding
Sampling Method: Direct Push Size/Type of Bit: 1 1/2" Geoprobe
Elevation/Ground Surface: Not Measured Start/Finish Date: 4-15-2015 / 4-15-2015
Depth to Groundwater (date): None When Drilled Well Type: None

Depth (ft.)	Sample No.	Recovery (ft.)	Geologic Description	Comments:
0.0				
0.0–4.0	S - 1	2.7'	- Dark brown; Organic Loam; moist; Occasional cobbles/pebbles (Top soil) ~0.5' (0.5') - Dark gray to gray clay; some silt; mottled (brown); medium stiff to stiff; dry.	- Lab Sample SP-18S collected at 0.0-2.0" and SP-18 collected at 0.0-1.0' - Backfilled hole with Bentonite, Placed pink flag at borehole location
4.0–10.0			Bottom of Boring at 4.0'	

Depth scale: 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Proportions: Trace = 0 - 10% Little = 10 - 20% Some = 20 - 35% And = 35 - 50%

STERLING
Sterling Environmental Engineering, P.C.

Boring ID: SP - 19

Project Name/No. Northeast Treaters / 2014-08 Location: Athens, NY
Drilling Contractor/Personnel: SJB - Ralph Ciccateri
Drilling Equip./Method: Geoprobe 5400 Inspector: Joe Spaulding
Sampling Method: Direct Push Size/Type of Bit: 1 1/2" Geoprobe
Elevation/Ground Surface: Not Measured Start/Finish Date: 4-15-2015 / 4-15-2015
Depth to Groundwater (date): None When Drilled Well Type: None

Depth (ft.)	Sample No.	Recovery (ft.)	Geologic Description	Comments:
0.0				
0.5			0.5' - Dark brown; Organic Loam; moist; occasional cobbles/pebbles (Top soil) ~0.5'	
1.0				- Lab Sample SP-19S collected at 0.0-2.0" and SP-19 collected at 0.0-1.0'
1.5				- DUP 2 taken at 0.0-1.0'
2.0	S - 1	3.7'	- Dark gray to gray clay; some silt; mottled (brown); medium stiff to stiff; dry.	- Backfilled hole with Bentonite, Placed pink flag at borehole location
2.5				
3.0				
3.5				
4.0			Bottom of Boring at 4.0'	
4.5				
5.0				
5.5				
6.0				
6.5				
7.0				
7.5				
8.0				
8.5				
9.0				
9.5				
10.0				

Proportions: Trace = 0 - 10% Little = 10 - 20% Some = 20 - 35% And = 35 - 50%

STERLING
Sterling Environmental Engineering, P.C.

Boring ID: SP - 20

Project Name/No. Northeast Treaters / 2014-08 Location: Athens, NY
Drilling Contractor/Personnel: SJB - Ralph Ciccateri
Drilling Equip./Method: Geoprobe 5400 Inspector: Joe Spaulding
Sampling Method: Direct Push Size/Type of Bit: 1 1/2" Geoprobe
Elevation/Ground Surface: Not Measured Start/Finish Date: 4-15-2015 / 4-15-2015
Depth to Groundwater (date): None When Drilled Well Type: 1 1/4" PVC

Depth (ft.)	Sample No.	Recovery (ft.)	Geologic Description	Comments:
0.0				
0.5			0.5' - Dark brown; Organic Loam; Occasional cobbles/pebbles moist; (Top soil) ~0.5'	
1.0				
1.5				- Lab Sample SP-20S collected at 0.0-2.0" and SP-20 collected at 0.0-1.0' - Monitoring Well MW-2 installed. See separte well installation diagram.
2.0	S - 1	3.2'		
2.5				
3.0				
3.5				
4.0			- Dark gray to gray clay; some silt; mottled (brown); medium stiff to stiff; dry.	
4.5				
5.0				
5.5				
6.0	S - 2	4.0'		
6.5				
7.0				
7.5				
8.0			Bottom of Boring at 8.0'	
8.5				
9.0				
9.5				
10.0				

Proportions: Trace = 0 - 10% Little = 10 - 20% Some = 20 - 35% And = 35 - 50%

Sterling Environmental Engineering, P.C.

Boring ID: SP - 21

Project Name/No. Northeast Treaters / 2014-08 Location: Athens, NY
Drilling Contractor/Personnel: SJB - Ralph Ciccateri
Drilling Equip./Method: Geoprobe 5400 Inspector: Joe Spaulding
Sampling Method: Direct Push Size/Type of Bit: 1 1/2" Geoprobe
Elevation/Ground Surface: Not Measured Start/Finish Date: 4-15-2015 / 4-15-2015
Depth to Groundwater (date): None When Drilled Well Type: None

Depth (ft.)	Sample No.	Recovery (ft.)	Geologic Description	Comments:
0.0				
0.0 - 4.0	S - 1	3.8'	- Asphalt 5.0" - Brown to gray sand and gravel; medium coarse to coarse; trace clay and silt; occasional cobbles/pebbles; loose; dry; (fill material) 1.0' - Dark gray to gray clay; some silt; mottled (brown); medium stiff to stiff; dry.	- Lab Sample SP - 21S collected at 0 - 2.0" and sample SP - 21 collected at 0 - 1.0'
4.0			Bottom of Boring at 4.0'	

Depth scale (ft.): 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Proportions: Trace = 0 - 10% Little = 10 - 20% Some = 20 - 35% And = 35 - 50%

Sterling Environmental Engineering, P.C.

Boring ID: SP - 22

Project Name/No. Northeast Treaters / 2014-08 Location: Athens, NY
Drilling Contractor/Personnel: SJB - Ralph Ciccateri
Drilling Equip./Method: Geoprobe 5400 Inspector: Joe Spaulding
Sampling Method: Direct Push Size/Type of Bit: 1 1/2" Geoprobe
Elevation/Ground Surface: Not Measured Start/Finish Date: 4-15-2015 / 4-15-2015
Depth to Groundwater (date): None When Drilled Well Type: None

Depth (ft.)	Sample No.	Recovery (ft.)	Geologic Description	Comments:
0.0				
0.5	S - 1	3.1'	- Asphalt 5.0"	- Lab Sample SP - 22 collected at 0 - 1.0'
1.0			- Brown to gray sand and gravel; medium coarse to coarse; trace clay and silt; occasional cobbles/pebbles; loose; dry; (fill material) 1.7'	
1.5				
2.0			- Dark gray to gray clay; some silt; mottled (brown); medium stiff to stiff; dry.	
2.5				
3.0				
3.5				
4.0				
4.5			Bottom of Boring at 4.0'	
5.0				
5.5				
6.0				
6.5				
7.0				
7.5				
8.0				
8.5				
9.0				
9.5				
10.0				

Proportions: Trace = 0 - 10% Little = 10 - 20% Some = 20 - 35% And = 35 - 50%

Sterling Environmental Engineering, P.C.

Boring ID: SP - 23

Project Name/No. Northeast Treaters / 2014-08 Location: Athens, NY
Drilling Contractor/Personnel: SJB - Ralph Ciccateri
Drilling Equip./Method: Geoprobe 5400 Inspector: Joe Spaulding
Sampling Method: Direct Push Size/Type of Bit: 1 1/2" Geoprobe
Elevation/Ground Surface: Not Measured Start/Finish Date: 4-15-2015 / 4-15-2015
Depth to Groundwater (date): None When Drilled Well Type: None

Depth (ft.)	Sample No.	Recovery (ft.)	Geologic Description	Comments:
0.0				
0.0 - 4.0	S - 1	3.2'	- Asphalt 5.0"	
			- Brown to gray sand and gravel; medium coarse to coarse; trace clay and silt; occasional cobbles/pebbles; loose; dry; (fill material) 2.1'	- Lab Sample SP - 23 collected at 0 - 1.0'
			- Dark gray to gray clay; some silt; mottled (brown); medium stiff to stiff; dry.	
4.0 - 10.0			Bottom of Boring at 4.0'	

Depth scale: 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Proportions: Trace = 0 - 10% Little = 10 - 20% Some = 20 - 35% And = 35 - 50%

STERLING
Sterling Environmental Engineering, P.C.

Boring ID: SP - 24

Project Name/No. Northeast Treaters / 2014-08 Location: Athens, NY
Drilling Contractor/Personnel: SJB - Ralph Ciccateri
Drilling Equip./Method: Geoprobe 5400 Inspector: Joe Spaulding
Sampling Method: Direct Push Size/Type of Bit: 1 1/2" Geoprobe
Elevation/Ground Surface: Not Measured Start/Finish Date: 4-15-2015 / 4-15-2015
Depth to Groundwater (date): None When Drilled Well Type: None

Depth (ft.)	Sample No.	Recovery (ft.)	Geologic Description	Comments:
0.0 – 4.0	S - 1	2.6'	- Asphalt 5.0" - Brown to gray sand and gravel; medium coarse to coarse; occasional cobbles/pebbles; loose; dry; (fill material) 1.8'	- Lab Sample SP-24 collected at 0.0-1.0' - Monitoring Well MW-3 installed. See separte well installation diagram.
4.0 – 8.0	S - 2	4.0'	- Dark gray to gray brown clay; some silt; mottled (brown); medium stiff to stiff; dry.	
8.0 – 10.0			Bottom of Boring @ 8.0'	

Depth scale (ft.): 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Proportions: Trace = 0 - 10% Little = 10 - 20% Some = 20 - 35% And = 35 - 50%

STERLING
Sterling Environmental Engineering, P.C.

Boring ID: SP - 25

Project Name/No.	Northeast Treaters / 2014-08
Location:	Athens, NY
Drilling Contractor/Personnel:	SJB - Ralph Ciccateri
Drilling Equip./Method:	Geoprobe 5400
Inspector:	Joe Spaulding
Sampling Method:	Direct Push
Size/Type of Bit:	1 1/2" Geoprobe
Elevation/Ground Surface:	Not Measured
Start/Finish Date:	4-15-2015 / 4-15-2015
Depth to Groundwater (date):	None When Drilled
Well Type:	None

Depth (ft.)	Sample No.	Recovery (ft.)	Geologic Description	Comments:
0.0			- 2.0" of Asphalt	
0.0 - 2.0	S - 1	3.6'	- Brown to gray sand and gravel; medium coarse to coarse; occasional cobbles/pebbles; loose; dry; (fill material) 2.0'	- Lab Sample SP-25 collected at 0.0-1.0' - Monitoring Well MW-4 installed. See separte well installation diagram.
2.0 - 4.0			- Dark gray to gray brown clay; some silt; mottled (brown); medium stiff to stiff; dry.	
4.0 - 8.0	S - 2	4.0'		
8.0			Bottom of Boring 8.0'	

Depth scale (ft.): 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Proportions: Trace = 0 - 10% Little = 10 - 20% Some = 20 - 35% And = 35 - 50%

STERLING
Sterling Environmental Engineering, P.C.

Boring ID: MW - 1

Project Name/No. Northeast Treaters / 2014-08 Location: Athens, NY
Drilling Contractor/Personnel: SJB - Ralph Ciccateri
Drilling Equip./Method: Geoprobe 5400 Inspector: Joe Spaulding
Sampling Method: Direct Push Size/Type of Bit: 1 1/2" Geoprobe
Elevation/Ground Surface: Not Measured Start/Finish Date: 4-15-2015 / 4-15-2015
Depth to Groundwater (date): None When Drilled Well Type: None

Depth (ft.)	Sample No.	Recovery (ft.)	Geologic Description	Comments:
0.0				
0.5–4.0	S - 1	2.9'	- Brown to gray sand and gravel; medium coarse to coarse; occasional cobbles/pebbles; loose; dry; (fill material) 2.0' - Dark gray to gray brown clay; some silt; mottled (brown); medium stiff to stiff; dry.	- Monitoring Well MW-1 installed. See separte well installation diagram.
4.5–8.0	S - 2	4.0'		
8.5–10.0			Bottom of Boring 8.0'	

Proportions: Trace = 0 - 10% Little = 10 - 20% Some = 20 - 35% And = 35 - 50%

APPENDIX J

ANALYTICAL REPORTS
(PROVIDED ON CD)

APPENDIX K

DATA USABILITY SUMMARY REPORTS
(PROVIDED ON CD)

APPENDIX L

FACILITY WATER WELL
ANALYTICAL RESULTS SUMMARY

Attn Northeast Treaters-Athens

3/27/15

ANALYTICAL SERVICES

Fax:
Email:

Low Level CCA in Solution

Lot: 2015027724

Arch ID	Charge No	ppm As	ppm Cr	ppm Cu	Comments
15114743	Well Water1	nd	nd	nd	nd=not detected
15114744	Well Water2	nd	nd	nd	
15114745	0.100 PPM CCA QC	0.104	0.101	0.061	Stated concentration: 0.100ppm As, Cr 0.060 ppm Cu

APPENDIX M

FISH AND WILDLIFE RESOURCES IMPACT ANALYSIS

Delaware Engineering, D.P.C.
28 Madison Avenue Extension
Albany, New York 12203
Tel: 518.452.1290
Fax: 518.452.1335

May 14, 2015

Vedran Cirkovic, EIT
Assistant Engineer
Sterling Environmental Engineering, P.C.
24 Wade Road
Latham, New York 12110

Re: Fish and Wildlife Resources Impact Analysis Northeast Treaters, Inc., Town of Athens, Greene County, New York.

Per the request of Northeast Treaters, Inc. (Northeast Treaters), I have conducted an evaluation of the potential for the Northeast Treaters brownfield site (NYSDEC Site ID C420029 – "SITE") to have an impact on fish and wildlife resources. The evaluation was conducted generally following the procedures in the New York State Department of Environmental Conservation (NYSDEC), Division of Fish and Wildlife, "Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites" (October 1994) and the NYSDEC DER-10/Technical Guidance for Site Investigation and Remediation (DER-10). This letter provides a summary of existing conditions at the Site, the existing fish and wildlife resources in the vicinity of the Site and an assessment of the Site's potential impact on fish and wildlife resources.

The evaluation consisted of an on-site inspection of the facility and surrounding property, a review of available aerial photography, topographic data, the NYSDEC Environmental Resources on-line mapping program and NYSDEC 's Geodata inventory for wetlands, significant natural communities and hydrological features. The attached drawing depicts ecological cover types, topography, drainage, NYSDEC regulated wetlands and surface water (streams, lakes, ponds) located within a one-half mile radius of the Site.

Site chemical data was reviewed and compared to the NYSDEC Part 375 recommended soil cleanup objectives for protection of ecological resources (Table 375-6.8(b)). A pathway analysis was conducted to determine if Site chemicals could potentially migrate off-site and provide a potential for fish and wildlife resources to be exposed to Site related chemicals.

Facility Description

The existing facility consists of three (3) main buildings: the Lumber Stacking Building, the Process Building and the Maintenance Building. Raw and treated lumber is stored on hard packed gravel/stone throughout the remainder of the facility. What appears to be a raised septic system is located in the central northern area of the facility. The total property is approximately 13 acres and the brownfield Site is approximately 1.68 acres. The facility was originally constructed in the mid-1970s. The Northeast Treaters facility originally operated as a saw mill owned by Atlantic Wood Industries, Inc. (AWII). Operation as a pressure treating wood manufacturing facility began in 1979. For a period of time, the facility utilized chromated copper arsenate (CCA) to pressure treat wood products. In 2003 the facility switched to Micronized Copper Azole, a non-hazardous preservative. Wood is treated in the Process Building in an 80 foot long by 6 foot diameter treatment cylinder. The cylinder is filled with a solution and a pressure is then created to force the solution into the wood. After treatment under pressure, a vacuum in the cylinder extracts excess solution from the wood. Once removed from the cylinder, the wood is then stacked on the drip pad in the Process Building.

Regional and Local Topography and Drainage

The property is generally flat, at an elevation of approximately 136 feet above mean sea level (amsl) on the eastern property boundary and slopes to the west to an elevation of approximately 132 feet amsl. The surrounding topography located one-half (½) mile to the north, south, and west of the property is relatively flat with elevations between 124 - 150 feet amsl. Approximately 1,900 feet east south east of the property the topography rises to a high point of approximately 240 feet amsl and then slopes down to the north and east.

Regionally, within a two-mile radius of the property, drainage is primarily to unnamed tributaries of Murderers Creek which then flows into Sleepy Hollow Lake, located approximately 1.25 miles east of the property and is the only significant surface water body located within a two-mile radius of the property. There are several unnamed streams located south and south east of the property that flow south to the Hudson River.

Surface drainage at the facility is from east to west. A series of catch basins collects storm water and conveys it via sub-surface storm water piping to storm water management ponds located on the west side of the facility. Storm water runoff also flows across the property via sheet flow and shallow concentrated flow to the storm water ponds. The storm water ponds discharge to the west and north toward the adjacent wetlands.

Streams, Wetlands and Surface Water Located Within a One-Half Mile Radius of the Facility

Within a one-half mile radius of the facility there is one New York State regulated wetland (HN-108). NYSDEC GIS data indicate that the approximate boundary of Wetland HN-108 is located approximately 550 feet northwest of the Site brownfield limit and approximately 180 feet northwest of the Northeast Treaters western property boundary. A wetland exists between Northeast Treaters western property boundary and the depicted approximate boundary of HN-108 and therefore the actual boundary of wetland HN-108 is closer to the Northeast Treaters property than depicted by the NYSDEC geodatabase data. Wetland HN-108 is a Class I wetland. NYSDEC's wetland classification system consist of four wetland classes 1-4 with a Class I wetland generally supplying the greatest wetland benefits. Wetland HN-108 contains several different wetland structural groups, including, deciduous wooded, emergent marsh and wetland open water.

Within a one-half mile radius of the Site there are three unnamed tributaries to Murderers Creek. These streams flow into and through wetland HN-108 and are classified by NYSDEC as Class "C" streams. NYSDEC defines the best usage of Class "C" streams as fishing. These waters shall be suitable for fish, shellfish, and wildlife propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. These streams merge to form one unnamed tributary of Murderers Creek. Two of the streams are located approximately 1,200 feet and 1,600 feet northeast of the Site and the third is located approximately 800 feet north of the Site.

Threatened/Endangered Species and Significant Natural Communities

Correspondence from the NYSDEC Division of Fish, Wildlife and Marine Resources, New York Natural Heritage program stated that are no records of rare or state-listed animals or plants, or significant natural communities at or in the vicinity of the Site.

Site Chemicals, Pathway Analysis and Criteria-Specific Analysis

In order for fish and wildlife to be affected by chemical constituents from a site, two conditions must exist. There first must be an avenue by which fish and wildlife can be exposed to chemical constituents, referred to as a completed exposure pathway. In addition, the chemical concentrations within the completed exposure pathway must be of sufficient magnitude (criteria-specific analysis) to cause an impact.

On-Site soil samples collected in 2014 indicated that arsenic, chromium (trivalent) and to a lesser extent copper were the primary chemicals that exceeded the NYSDEC Part 375 recommended soil cleanup objectives (RSCO) for the protection of ecological resources: Arsenic 13 mg/Kg, Chromium 41 mg/Kg and copper 50 mg/Kg.

The principle completed pathways via which these chemicals could migrate off-Site include:

- entrainment of soil containing elevated levels of the Site contaminants in storm water runoff;
- Wind-blown dust of impacted fill from unpaved areas;
- physical capture of impacted soils in snow piles pushed to the edge of the Site on the east and northeast followed by melting and movement of soils in runoff.

Off-Site soil samples were collected at eighteen locations east and north of the Site in the adjacent mixed deciduous/coniferous forest area and analyzed for arsenic and chromium. Samples were collected from 0-2 inches at all locations and from 6-12 inches at fourteen of the locations. Refer to Sterling Environmental Engineering Figure 10 (attached) for sample locations and analytical results.

Five samples (OSS-9 thru OSS-13) were collected approximately 30 feet to the east of the Site. The data from the surface samples (0-2 inches) indicate that four of the five samples exhibited arsenic concentrations (range 14 mg/Kg to 35 mg/Kg) slightly above the Part 375 protection of ecological resources RSCO of 13 mg/Kg. The arsenic concentration in all five of these samples collected from 6-12 inches was less than the RSCO. All chromium concentrations were less than the RSCO.

Four pairs of samples (OSS-1/OSS-5, OSS-2/OSS-6, OSS-3/OSS-7 and OSS-4/OSS-8) were collected north of the Site with the first sample in each pair collected approximately 10 feet north of the Site and the second set collected approximately 40 feet north of the Site. At each location 40 feet north of the Site samples were collected from 0-2 inches and 6-12 inches.

Arsenic concentrations in all four samples collected 10 feet north of the site were slightly higher than the Part 375 RSCO (range 27 mg/Kg to 50 mg/Kg). Chromium concentrations in two of the samples collected 10 feet north of the Site were slightly higher than the RSCO (range 31 mg/Kg to 46 mg/Kg).

All chromium concentrations (range 21 mg/Kg to 31 mg/Kg) in the samples collected approximately 40 feet north of the Site were less than the Part 375 RSCO of 41 mg/Kg. The arsenic concentrations in the four samples collected approximately 40 feet North off the Site were consistently less than the concentrations in the samples collected 10 feet north of the Site. Two of the four samples collected from 6-12 inches were slightly higher than the Part 375 RSCO for protection of ecological resources and all four samples collected from 0-2 inches were slightly higher than the arsenic RSCO.

The arsenic and chromium data from the samples collected 10 feet and 40 feet north of the Site indicate that concentrations rapidly decrease with increasing distance from the Site. This is substantiated by arsenic and chromium results collected from five samples (OSS-15 to OSS-19) collected east and north of the Site between approximately 280 feet and 350 feet beyond the Site boundary. Samples were collected from 0-2 inches and 6-12 inches at all five locations and all arsenic and chromium concentrations were less than the respective Part 375 RSCO's for the protection of ecological resources.

The arsenic and chromium soil data indicate that concentrations significantly and rapidly decrease with increasing distance from the Site. Although no soil sample copper analyses were conducted, copper would be expected to exhibit similar decreases in concentration with increasing distance from the Site. The off-site soil data indicate that the Site has not had a significant impact on fish and wildlife resources.

Storm water runoff from flows principally to the west via sheet flow and shallow concentrated flow to the storm water ponds located on the western side of the property and storm water is also captured in storm drains and discharged to the storm water ponds. Overflow from the storm water ponds discharges to the west and north toward the adjacent wetlands. Sediment samples were collected from the collection system catch basins. Refer to Sterling Environmental Engineering Figure 11 (attached) for sample locations and analytical results.

Arsenic (39 mg/Kg) and chromium (87 mg/Kg) concentrations in sediment collected from catch basin CB-08 which discharges directly to the storm water ponds were higher than the respective Part 375 RSCO for the protection of ecological resources. However, analytical results from water samples collected from discharge to the storm water ponds pursuant to the facilities NYSDEC Multi-Sector permit indicate low insignificant concentrations of arsenic and chromium that were less than the Multi-Sector benchmark monitoring cutoff concentrations. Although copper concentrations exceeded the benchmark cutoff concentrations, the copper concentrations were in the ug/L range and not above 1 mg/L. Data indicate no significant impacts on fish and wildlife resources associated with the discharge from the storm water ponds and therefore no Site related impacts to fish and wildlife resources to the wetlands west and north of the Site.

In summary, although there are completed pathways for Site related chemicals to migrate off-Site, the data indicate that the Site has not had any significant impact on fish and wildlife resources.

Sincerely,

Ed Fahrenkopf

Ed Fahrenkopf
Senior Scientist
Delaware Engineering, D.P.C.
Phone (518) 452-1290 ext. 212

Attachments:

Drawing No. 1 Fish and Wildlife Resources One-Half Mile Radius of the Site
Sterling Environmental Engineering, P.C. Figures 10 and 11.

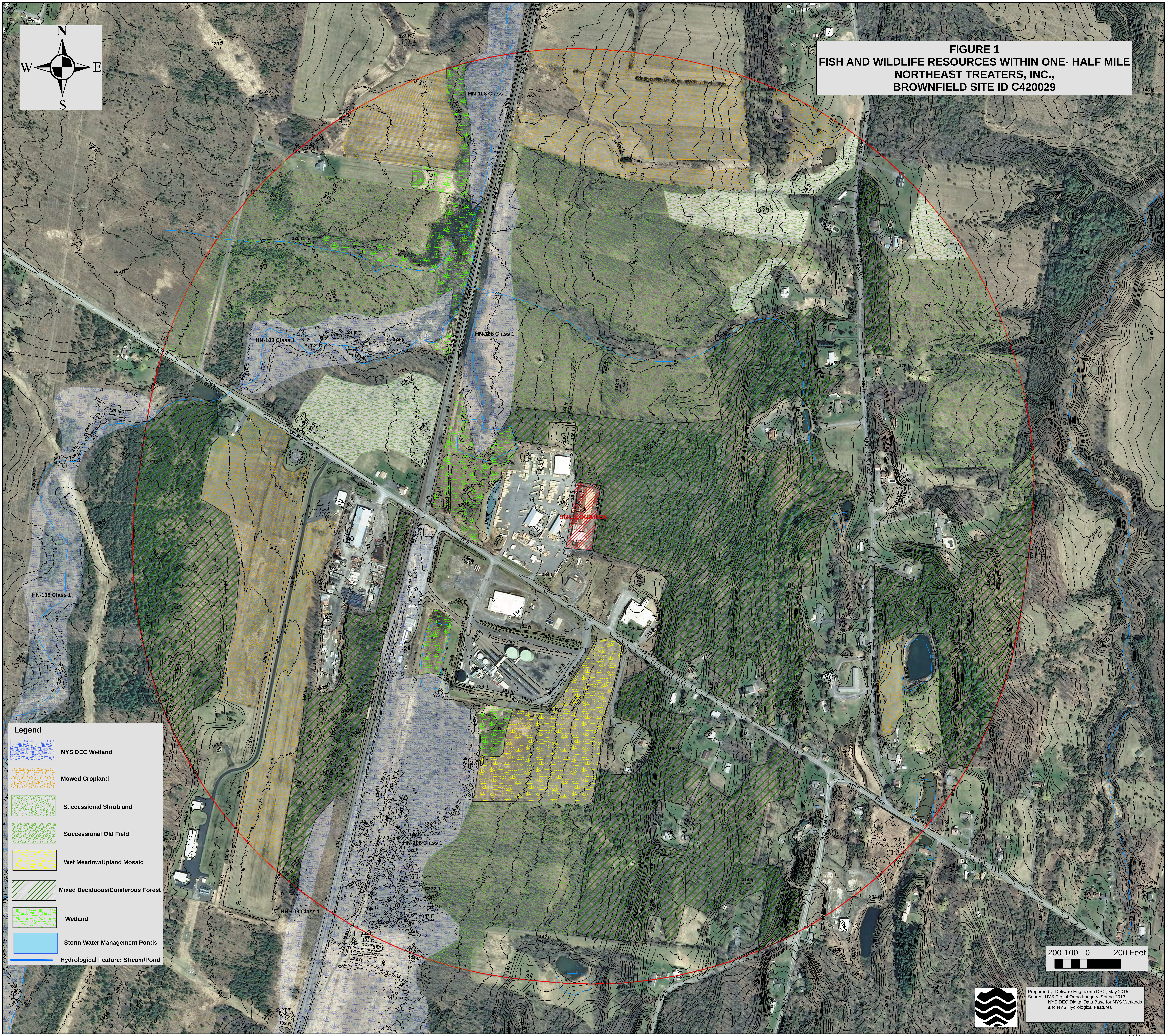
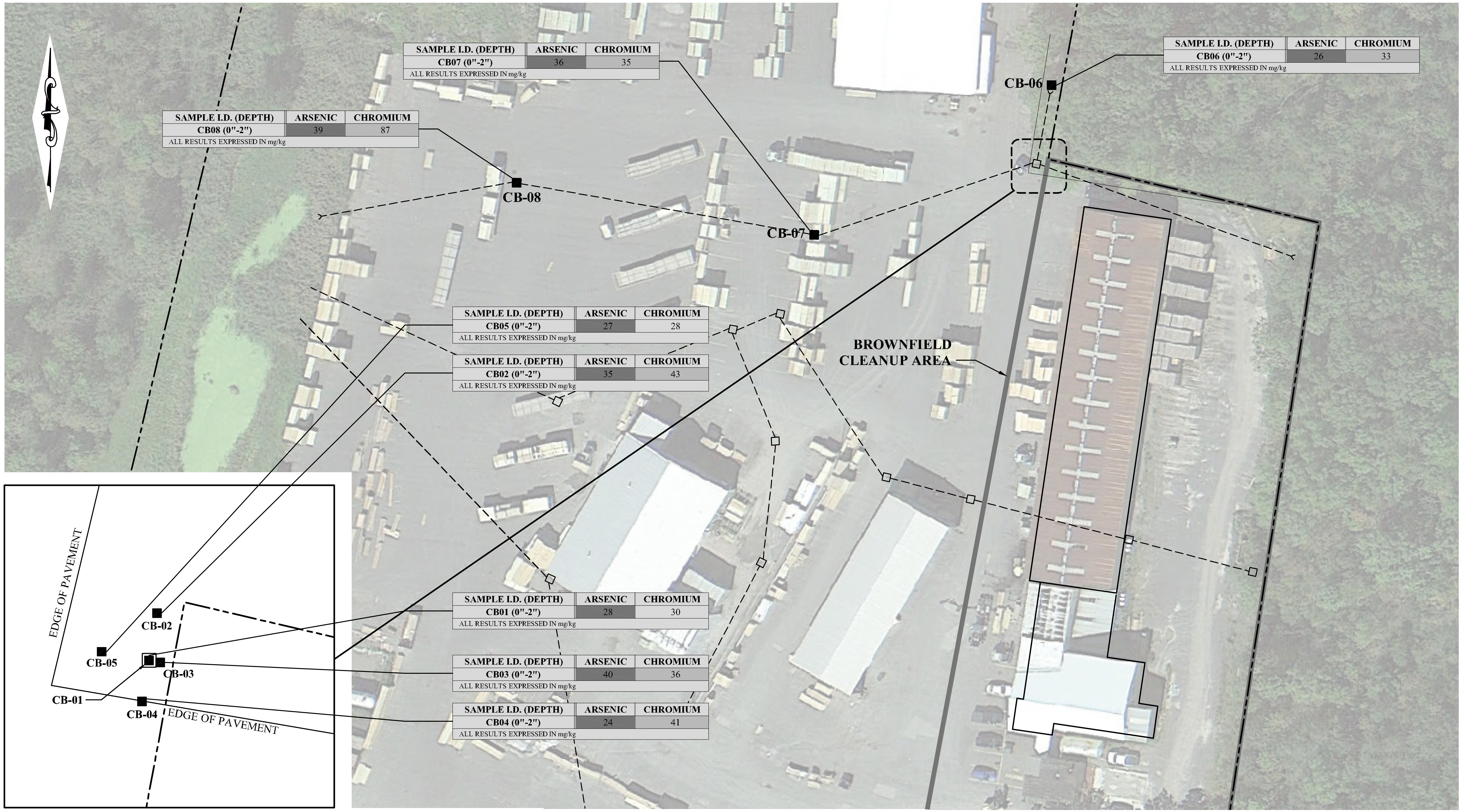


FIGURE 1
FISH AND WILDLIFE RESOURCES WITHIN ONE- HALF MILE
NORTHEAST TREATERS, INC.,
BROWNFIELD SITE ID C420029
N
S
E
W
HN-108 Class 1
HN-108 Class 1
HN-108 Class 1
HN-108 Class 1
HN-108 Class 1
HN-108 Class 1
Legend
NYS DEC Wetland
Mowed Cropland
Successional Shrubland
Successional Old Field
Wet Meadow/Upland Mosaic
Mixed Deciduous/Coniferous Forest
Wetland
Storm Water Management Ponds
Hydrological Feature: Stream/Pond
200 100 0 200 Feet
Prepared by: Delware Engineerin DPC, May 2015
Source: NYS Digital Ortho Imagery, Spring 2013
NYS DEC Digital Data Base for NYS Wetlands
and NYS Hydrological Features



SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
CB07 (0"-2")	36	35
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
CB06 (0"-2")	26	33
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
CB08 (0"-2")	39	87
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
CB05 (0"-2")	27	28
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
CB02 (0"-2")	35	43
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
CB01 (0"-2")	28	30
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
CB03 (0"-2")	40	36
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
CB04 (0"-2")	24	41
ALL RESULTS EXPRESSED IN mg/kg		

LEGEND:

- ■ CB-01 — PROPOSED SEDIMENT AND SURFACE SAMPLE LOCATIONS
- □ CB — CATCH BASIN
- - - - - - STORMWATER LINE
- — - — PROPERTY BOUNDARY

ARSENIC	CHROMIUM	
		- SHADED VALUES INDICATE EXCEEDANCE OF RESPECTIVE SOIL CLEANUP OBJECTIVES:
13 mg/kg	30 mg/kg	- UNRESTRICTED USE
16 mg/kg	1500 mg/kg	- INDUSTRIAL USE

0 30 60 120

1 inch = 60 ft.

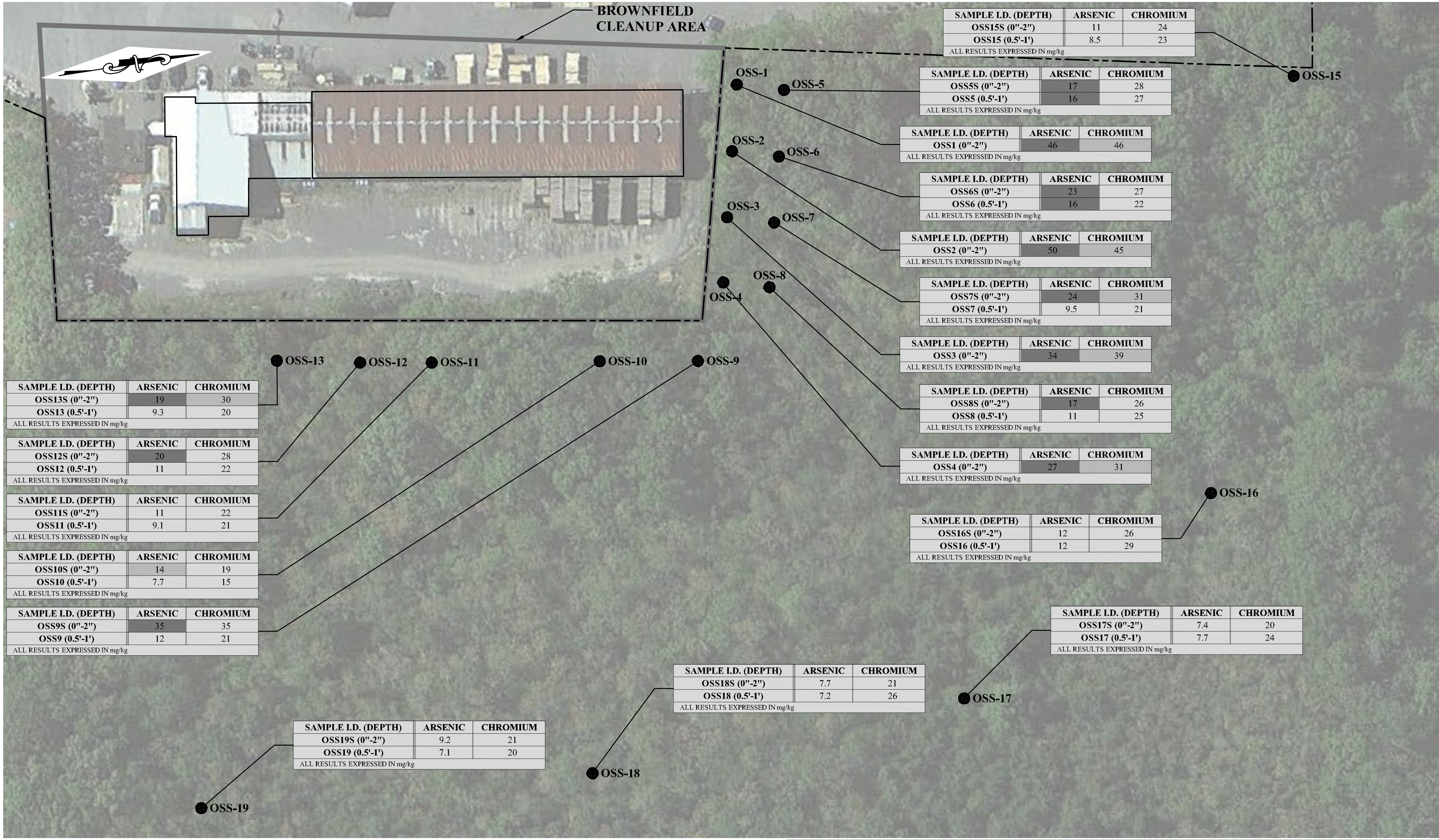
STERLING
Sterling Environmental Engineering, P.C.
24 Wade Road • Latham, New York 12110

SUMMARY OF CHROMIUM AND ARSENIC DETECTIONS AT CATCH BASIN SAMPLE LOCATIONS
NORTHEAST TREATERS
SCHOHARIE TURNPIKE

TOWN OF ATHENS — GREENE CO., N.Y.

PROJ. No.: 2014-08	DATE: 5/1/15	SCALE: 1" = 60'	DWG. NO. 2014-08032	FIGURE 11

S:\Drawings\2014-08 - Northeast Treaters of New York - Athens NY\2014-08031.CBSummary.dwg5/8/2015 4:13 PM



SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS15S (0"-2")	11	24
OSS15 (0.5'-1')	8.5	23
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS5S (0"-2")	17	28
OSS5 (0.5'-1')	16	27
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS1 (0"-2")	46	46
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS6S (0"-2")	23	27
OSS6 (0.5'-1')	16	22
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS2 (0"-2")	50	45
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS7S (0"-2")	24	31
OSS7 (0.5'-1')	9.5	21
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS3 (0"-2")	34	39
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS8S (0"-2")	17	26
OSS8 (0.5'-1')	11	25
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS4 (0"-2")	27	31
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS16S (0"-2")	12	26
OSS16 (0.5'-1')	12	29
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS17S (0"-2")	7.4	20
OSS17 (0.5'-1')	7.7	24
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS18S (0"-2")	7.7	21
OSS18 (0.5'-1')	7.2	26
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS19S (0"-2")	9.2	21
OSS19 (0.5'-1')	7.1	20
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS13S (0"-2")	19	30
OSS13 (0.5'-1')	9.3	20
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS12S (0"-2")	20	28
OSS12 (0.5'-1')	11	22
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS11S (0"-2")	11	22
OSS11 (0.5'-1')	9.1	21
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS10S (0"-2")	14	19
OSS10 (0.5'-1')	7.7	15
ALL RESULTS EXPRESSED IN mg/kg		

SAMPLE I.D. (DEPTH)	ARSENIC	CHROMIUM
OSS9S (0"-2")	35	35
OSS9 (0.5'-1')	12	21
ALL RESULTS EXPRESSED IN mg/kg		

LEGEND:

● OSS-5 SAMPLE LOCATIONS (APRIL 15, 2015 AND APRIL 20, 2015)

— - - — PROPERTY BOUNDARY

0 30 60 120

1 inch = 60 ft.

ARSENIC	CHROMIUM	
		- SHADED VALUES INDICATE EXCEEDANCE OF RESPECTIVE SOIL CLEANUP OBJECTIVES:
13 mg/kg	30 mg/kg	- UNRESTRICTED USE
16 mg/kg	1500 mg/kg	- INDUSTRIAL USE

STERLING
Sterling Environmental Engineering, P.C.
24 Wade Road • Latham, New York 12110

SUMMARY OF CHROMIUM AND ARSENIC DETECTIONS AT OFF-SITE SAMPLE LOCATIONS
NORTHEAST TREATERS
SCHOHARIE TURNPIKE
TOWN OF ATHENS GREENE CO., N.Y.

PROJ. No.: 2014-08	DATE: 5/1/15	SCALE: 1" = 60'	DWG. NO. 2014-08031	FIGURE 10

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Experience Profile:

Mr. Fahrenkopf has over twenty five years of experience in ecological assessments, wetland delineation, wetland mitigation including wetland creation and design. Mr. Fahrenkopf's ecological assessment experience includes preparation of a vegetative map and quantitative evaluation of species abundance on a 500 acre parcel. Mr. Fahrenkopf has prepared detailed design plans for restoration of impacted wetlands and for creation of wetlands for numerous sites including: a wetland restoration plan for a wetland located along the Little Niagara River in western New York State; a wetland restoration plan for forested wetland adjacent to Lake Champlain; a wetland creation plan for an eleven acre emergent wetland adjacent to a the City of Rome landfill landfill; a wetland creation plan for a 2 acre wetland in a former sedimentation pond adjacent to the Gloversville landfill; and a wetland creation plan for 2.3 acres of deciduous forested wetland and 2.3 acres of emergent wetland adjacent to existing wetlands to be impacted by a proposed gravel mine. Mr. Fahrenkopf has conducted several Fish and Wildlife Impact Analyses pursuant to New York State Department of Environmental Conservation guidelines.

Education:

BS Wildlife Biology, Colorado State University, 1980
AAS Biology Cobleskill Agricultural and Technical College, 1978
Twenty-seven Credit hours in chemistry
Short Course Interpretation of Mass Spectral Data and Environmental Applications of GC/MS
Wetland Delineation Course

Project Experience:

C&D Batteries Site NYSDEC ID No. 3-36-001
Conducted a NYSDEC Fish and Wildlife Impact Analysis. Analysis conducted pursuant to NYSDEC DER-10 and the NYSDEC Guidance Document "Fish and Wildlife Impact Analysis For Inactive Hazardous Waste Sites (October 1994).

Ecological Risk Assessment Chemical Waste Management, Model City Facility
Performed an ecological risk assessment as part of an RCRA Facility Investigation. Report was submitted to NYSDEC and USEPA for review and approval.

Endangered Species Evaluation
Determination of the suitability of an undeveloped tract of land as suitable habitat for the Bog turtle, an endangered species in New York State.

Endangered Species Evaluation.
Conducted survey for Upland Sandpiper and Northern Harrier . Survey methodology consisted of a combination of designated point count stations an area search and point transects.

Biodiversity Study, Waste Management of New York State
Conducted a biodiversity assessment of a 500-acre property. Included preparation of vegetation map and quantitative evaluation of species abundance. Characterization of birds that inhabit the facility via visual observations and Emlin lines (bird listening transects). Small mammal live trapping and tagging to evaluate species diversity and abundance.

City of Rome, New York/NYSDEC York State Department of Environmental Conservation

NYSDEC Fish and Wildlife Impact Analysis for the City of Rome Landfill. Wetland delineation and wetland mitigation associated with remediation of the City of Rome landfill. Project was 75% funded by the New York State Department of Environmental Conservation. Delineated boundaries of wetland around the landfill. Prepared mitigation plan, which included conceptual and final design plans for creation of 11 acres of wetland. Prepared U.S. Army Corps of Engineers Nationwide 38 permit.

Wetland delineation and U.S. Army Corps of Engineers Pre Construction Notification for wetlands located along proposed water line and water treatment plant site in Keeseville, New York
Wetland delineation report for both the Army Corps of Engineers and the Adirondack Park Agency.

Delineation of wetlands adjacent to existing proposed new landfill areas in Ticonderoga, New York.
Prepared wetland delineation report for submittal to the Adirondack Park Agency and the Army Corps of Engineers. Prepared Individual permit application for submittal to the Army Corps of Engineers.

Wetland Creation and Mitigation.
Design of wetland mitigation plan and creation of a two acre wetland associated with a project in Ticonderoga, New York.

Lake Champlain
NYSDEC Fish and Wildlife Impact Analysis and Ecological Risk Assessment of impacts of paper sludge containing PCBs in an enbayment of Lake Champlain in the vicinity of Plattsburgh, New York. Prepared a wetland design plan for the construction of approximately 3 acres of deciduous forested wetland and two acres of emergent wetland.

City of Gloversville Landfill
Involved in the delineation of existing wetlands and design of a 2-acre wetland to offset impacts to existing wetlands associated with landfill consolidation and closure.

Occidental Chemical Corporation
Preparation of a wetland restoration plan associated with the remediation of contaminated sediments from a wetland located along the Little Niagara River in Tonawanda, New York. Included preparation of conceptual and final design plans for restoration of an emergent marsh following excavation and dredging of contaminated soils.

Wetland Design, Redwing Inc.
Preparation of a wetland mitigation plan which included the creation of 4.9 acres of wetland. Involved in preparation of conceptual and final design plans for creation of 2.45 acres of deciduous forested wetland and 2.45 acres of emergent marsh.

Wetland Evaluations
Delineation of wetland areas and evaluation of the suitability of an area for creation of a wetland on a residential development project.

Wetland Delineations for numerous projects involving the creation of residential developments on vacant land.

Fish and Wildlife Impact Analyses at over 12 industrial and hazardous waste sites in New York State. Tasks included preparation of vegetative cover type maps, determination of animal types indigenous to the area, interpretation of site chemistry, and evaluation of potential impact to the surrounding environment.

Orange & Rockland Utilities, Inc.
Project Manager and Project Chemist/Biologist for an RI/FS at a former PCB transformer repair station. Site contaminants included PCBs in soils, BTEX in groundwater and soils and TCE, 1,1,1-TCA and related degradation products in groundwater. Recommended and implemented a site remedy. Completed a Fish and Wildlife Impact Analysis for the Site.

RCRA RFI/CMS, NGK Metals, Reading, Pennsylvania
Managed an ecological assessment at the site, including management of subcontractors and generation of a report detailing the results of a habitat evaluation and fish and benthos survey of a small stream using the USEPA Rapid Bioassessment Protocols for use in streams and rivers. Project chemist for the project, responsible for data validation, environmental chemical data review and report preparation.

Remedial Investigation Westinghouse Site, Buffalo, New York, NYSDEC Hazardous Waste Site
Project chemist/biologist and QA/QC officer for an RI which the firm was retained by the NYSDEC to conduct at the Westinghouse Site. Mr. Fahrenkopf was responsible for data validation, the fish and wildlife assessment and chemical data interpretation and review. Contaminants of concern included chlorinated solvents and PCBs.

Remedial Investigation Sweden 3 Site, Inactive Hazardous Waste Site, Brockport, New York
Project chemist/biologist and QA/QC officer for a Remedial Investigation which the firm implemented for the New York State Department of Environmental Conservation in 1992. Responsible for data validation, environmental chemical data interpretation and fish and wildlife impact analysis. Primary contaminant of concern was identified as TCE. Completed a Fish and Wildlife Impact Analysis at the Site.

Site Investigation, FICA Landfill, New York State Listed Hazardous Waste Site
Responsible for management of subcontractor analytical laboratory. Prepared Sampling and Analysis Plan and Quality Assurance Project Plan. Prepared report interpreting ground water, surface water, sediment and soil analytical results. Performed a Fish and Wildlife Impact Analysis at the site following the NYSDEC guidelines. Prepared report presenting the results of the impact analysis. Included delineation of an U.S. Army Corp of Engineers jurisdictional wetland. Evaluated sediment concentrations with respect to potential impact on aquatic life and terrestrial wildlife.

APPENDIX N

PROJECT SCHEDULE

Project Schedule (BCP #C420029)
Northeast Treaters of New York, LLC
Athens, New York
(as of 5/15/2015)