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Waste-Stream, Inc.

Feasibility Study Report

Waste-Stream, Inc. Site

Potsdam, New York

May 2009

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Certification

I, James M. Nuss, P.E., am a Professional Engineer in the State of New York. To the best of my knowledge, and based on my inquiry of the persons involved in preparing this document under my direction, certify that this *Feasibility Study Report* for the Waste-Stream, Inc. Site (Site #6-45-022) was completed in general accordance with the 2000 Order on Consent (Index #A6-0399-991) between the WSI Group and the New York State Department of Environmental Conservation. This Feasibility Study Report identifies and evaluates potential remedial alternatives to address environmental concerns at the site.

James M. Nuss, P.E.
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Feasibility Study Report

Waste-Stream, Inc. Site
Potsdam, New York

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May 2009

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Executive Summary

Introduction

This Feasibility Study (FS) Report presents an evaluation of remedial alternatives to address environmental impacts identified at the Waste-Stream, Inc. (WSI) site (Site #6-45-022) located in Potsdam, New York. This FS Report has been prepared by ARCADIS U.S., Inc. (ARCADIS) on behalf of the WSI Group. Members of the WSI Group include WSI, National Grid, and General Motors Corporation (GM). The FS has been completed in accordance with an Order on Consent (Index #A6-0399-9911) between the WSI Group and the New York State Department of Environmental Conservation (NYSDEC), which became effective on December 22, 2000.

This FS Report has been prepared to evaluate remedial alternatives to address environmental impacts at the site in a manner consistent with the Order on Consent and with the following documents:

- NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4025 titled, *Guidelines for Remedial Investigations/Feasibility Studies* (NYSDEC, 1989).
- NYSDEC TAGM #4030 titled, *Selection of Remedial Actions at Inactive Hazardous Waste Sites* (NYSDEC, 1990).
- United States Environmental Protection Agency (USEPA) guidance document titled, *Guidance for Conducting Remedial Investigations and Feasibility Studies Under the Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), Interim Final (USEPA, 1988).
- USEPA guidance document entitled, *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (USEPA, 2005a).
- Applicable provisions of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) regulations contained in Title 40 of the Code of Federal Regulations (CFR) Part 300.
- Applicable provisions of the New York State Environmental Conservation Law (ECL) and associated regulations, including Title 6 of the New York Code of Rules and Regulations (NYCRR) Part 375 (6NYCRR Part 375).

- NYSDEC *Draft DER-10 Technical Guidance for Site Investigation and Remediation* (NYSDEC, 2002).

The purpose of this FS Report is to identify and evaluate remedial alternatives that are:

- Appropriate for site-specific conditions

- Protective of human health and the environment

- Consistent with relevant sections of NYSDEC guidance, the NCP, and CERCLA

The overall objective of this FS Report is to recommend an appropriate remedial alternative that satisfies the remedial action objectives (RAOs) established for the site.

<u>Background</u>

The WSI site consists of the WSI property, areas immediately adjacent to the WSI property, the wetlands located northeast of the property (referred to as the northern drainage area [NDA]), and the drainage swale that conveys stormwater runoff from the WSI property to the NDA. The WSI property is an active scrap yard located at 147 Outer Maple Street (U.S. Route 11) in the Town and Village of Potsdam, St. Lawrence County, New York. The WSI property consists of two parcels that comprise an area of approximately 29.2 acres.

The WSI property is occupied by several structures, including a scale house, maintenance building, office building, storage barn, tin press, former solid waste transfer station (which has not operated since November 2001), a former aboveground fuel storage tank area, and various outbuildings. Various scrap processing equipment (large hydraulic shear, car crusher, etc.) are also located at the site. Scrap storage piles and material staging areas (for roll-off containers, trailers, etc.) previously occupied portions of the operations area at the site.

The WSI property has operated as a metal recycling facility and scrap yard since approximately 1957, initially as Chet Bisnett and subsequently by Chet Bisnett, Inc. (CBI). CBI merged with B&C Carting in 1987 and the resulting company was renamed Waste Stream Management, Inc. (WSMI). WSMI was subsequently renamed Waste-Stream Inc. (WSI) and has operated the site from 1987 until the present. In 1998, WSI became a wholly owned subsidiary of Casella Waste Systems, Inc.

Prior to the mid-1960s, operations were primarily conducted within the southern portion of the property. During the period between the mid-1960s and mid-1970s, facility operations shifted toward the north (extending just north of the former solid waste transfer station). Site activities conducted during this period reportedly included tin press operations, metal shearing, car crushing, and scrap metal processing. During this period, the facility reportedly processed scrap electrical transformers that contained polychlorinated biphenyl- (PCB-) containing dielectric fluids (mineral oil). The transformers were reportedly drained for subsequent recycling/wire recovery. The transformer recycling/wire recovery activities were conducted in an area north of the existing tin press operation. During the period between the mid-1960s and mid-1970s, the facility also reportedly processed scrap manufacturing equipment that had fluid reservoirs with PCB-containing oils. The manufacturing equipment that was brought to the site during this period was staged and processed (including disassembly and cutting) in an area southwest of the maintenance shop.

Environmental Impacts

The investigation activities and results were presented in the following NYSDEC-approved reports:

- *Remedial Investigation/Feasibility Study Work Plan* (Revision 1.0), September 2000, InteGreyted Consultants, LLC (InteGreyted, 2000).
- *Focused Remedial Investigation Report* (Focused RI Report) (ARCADIS, 2003).
- Supplemental Remedial Investigation Report (Supplemental RI Report) (ARCADIS, 2006).

PCBs are the primary constituent of concern (COC) in surface and subsurface soil and sediment at the site. Additional COCs include volatile organic compounds (VOCs) (in groundwater), semi-volatile organic compounds (SVOCs) (primarily polynuclear aromatic hydrocarbons [PAHs]) and inorganic constituents.

Analytical results for soil samples collected as part of the remedial investigation were initially screened against the soil cleanup objectives presented in the NYSDEC Division of Hazardous Waste Remediation Document entitled *Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels* HWR 94-4046 (TAGM 4046), dated January 24, 1994 (NYSDEC, 1994a). With its adoption in December 2006, the soil cleanup objectives in 6NYCRR Part 375-6 replaced TAGM 4046. 6NYCRR Part 375-6 provides soil cleanup objectives that are protective of human health and the environment based on current and foreseeable future use of the subject property. The foreseeable use of this site is continued use as an industrial site, namely a scrap yard for select materials (non-ferrous metals) and as a transfer station for materials/equipment to be managed at other WSI facilities. Operations at the site are conducted in accordance with a Site Operations Plan prepared by InteGreyted. The areas surrounding the property include wooded, wetland and residential areas.

Remedial Action Objectives

RAOs are medium-specific goals that result in the protection of human health and the environment. The RAOs were used to evaluate potential remedial options relative to their capacity to protect human health and the environment considering exposure pathways and applicable standards, criteria, and guidelines (SCGs).

The RAOs for the site, in consideration of COCs, exposure pathways, and receptors, are presented in the following table.

Environmental Media	COCs	Remedial Action Objective
Surface and Subsurface Soil	• PCBs • SVOCs (PAHs) • Inorganics	Eliminate or mitigate, to the extent practicable and feasible: • Direct contact/inhalation of impacted soil by current site workers, future site workers, off-site receptors and trespassers. • Direct contact/inhalation of contaminants in dust generated from soils by off-site receptors/residents and trespassers. • The potential for migration of contaminants in soil to groundwater. • Off-site migration of contaminants in soil via surface water runoff.

Environmental Media	COCs	Remedial Action Objective
		• Impacts to biota from ingestion/direct contact or bioaccumulation through the terrestrial food chain.
Groundwater	• PCBs • VOCs (primarily benzene, toluene, ethylbenzene, and xylene [BTEX], 1,2-Dichloroethane and vinyl chloride)	Eliminate or mitigate, to the extent practicable and feasible: • Dermal contact with impacted groundwater by site workers, site visitors and trespassers. • Ingestion of impacted groundwater by site workers and site visitors. • Off-site migration of contaminants via groundwater.
Sediment	• PCBs • SVOCs (primarily PAHs) • Inorganics	Eliminate or mitigate, to the extent practicable and feasible: • Impacts to biota from ingestion of impacted sediments or from bioaccumulation through uptake through the aquatic food chain.

Remedial Technology Screening and Development of Remedial Alternatives

General response actions (GRAs) were identified to address impacted site media. GRAs are medium-specific and describe actions that will satisfy the RAOs, and may include various actions such as treatment, containment, institutional controls, excavation, or any combination of such actions.

Potentially applicable technologies and technology process options associated with each of the GRAs underwent preliminary and secondary screening to select the technologies that would most-effectively achieve the RAOs identified for the site. The preliminary screening was performed to reduce the number of potentially applicable technologies and technology processes based on technical implementability. This screening was based on several considerations, including: successful full-scale demonstrations of the technology; compatibility of the technology with the specific media, location, and constituent distribution; time-frame to acquire necessary permits; and area required for setup/operation. To further reduce the technology processes to be assembled into remedial alternatives, the technology processes were subjected to a secondary screening. The objective of the secondary screening was to choose, when possible, one representative remedial technology process for each remedial technology category to simplify the subsequent development and evaluation of the remedial alternatives.

Technologies/process options that were retained following the screening were used to develop remedial alternatives. Consideration was given to the NCP (40 CFR Part 300.430), which indicates the following range of alternatives should be developed to the extent practical:

- The "No-Action" alternative.
- Alternatives that provide protection of human health and the environment by preventing or minimizing exposure to the COCs through the use of containment options and/or institutional controls.
- Alternatives that remove COCs to the extent possible, thereby minimizing the need for long-term management.
- Alternatives that treat the COCs but vary in the degree of treatment employed and long-term management needed.

<u>Detailed Evaluation of Remedial Alternatives</u>

Following preliminary and secondary screening, and the development of the media-specific remedial alternatives, a detailed description of each remedial alternative was prepared and evaluated with respect to the criteria presented in the NYSDEC guidance for Feasibility Studies in TAGM 4030 (NYSDEC, 1990) and *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (USEPA, 1988).

- Short-Term Effectiveness

- Long-Term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, or Volume
- Implementability
- Compliance with SCGs
- Overall Protection of Human Health and the Environment
- Cost

These evaluation criteria encompass statutory requirements and include other gauges such as overall feasibility.

Following completion of the detailed evaluation of each remedial alternative, a comparative analysis using the seven criteria was completed. The comparative analysis identifies the advantages and disadvantages of each alternative relative to each other and with respect to the seven criteria. The results of the comparative analysis were used as a basis for recommending preferred media-specific remedial alternatives for addressing the RAOs established for the site.

Preferred Site-Wide Remedy

The evaluation of the alternative for remediation of soil, groundwater, and wetland sediment at the site was completed in accordance with the procedures outlined in NYSDEC TAGM 4030 as well as USEPA guidance for the completion of feasibility studies in accordance with CERCLA and the NCP.

Based on the comparative analysis of the soil, groundwater, and sediment alternatives presented in Section 6, the preferred site-wide remedy consists of Alternatives S4, GW3, and SD3. This site-wide remedy would cost-effectively achieve the best balance of the seven NYSDEC evaluation criteria and would achieve the site-specific RAOs in a reasonable time frame. This remedy represents a permanent reduction in the toxicity, mobility, and volume of soil and sediment containing elevated concentrations of PCBs; mitigates potential exposure to material containing PCBs that would remain at the site through construction of a cap; and documents potential permanent reduction (via natural processes) in the toxicity, mobility, and volume of VOCs in site groundwater.

As detailed in respective subsections of Section 5, the primary components of the preferred site-wide remedy consist of the following:

- Excavating approximately 5,000 CY of soil from beyond the WSI property boundary and near monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs and backfilling excavation areas with imported material that meets those soil cleanup objectives.

- Excavating approximately 5,300 CY of soil containing PCBs at concentrations greater than 50 ppm within the WSI property boundary.

- Excavating approximately 14,700 CY of sediment such that the average PCB concentration in remaining sediments is less than 1 ppm.

- Managing approximately 5,400 CY of soil containing PCBs at concentrations greater than or equal to 50 ppm as a TSCA-regulated/NYS hazardous waste at an off-site RCRA Subtitle C Landfill.

- Managing approximately 500 CY of soil excavated from the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs as a non-hazardous waste at a solid waste landfill.

- Managing approximately 4,900 CY of sediment containing PCBs at concentrations greater than or equal to 50 ppm as a TSCA-regulated/NYS hazardous waste at an off-site RCRA Subtitle C Landfill.

- Consolidating approximately 4,400 CY of soil containing PCBs at concentrations less than 50 ppm on-site and approximately 9,800 CY of sediment containing PCBs at concentrations less than 50 ppm on-site. Consolidated soil and sediment would be used as backfill for excavation areas within the WSI property and the remainder of the material (if any) would be evenly distributed across the WSI property within the limits of the area to be capped.

- Constructing a cap over consolidated materials and remaining soils containing PCBs at concentrations greater than ecological SCOs. The actual cap construction materials would be determined during the remedial design, however, the cap is assumed to consist of the following:

  - Demarcation layer – a light-weight non-woven geotextile would be placed on the existing ground surface or over consolidated material

  - Base layer – 12 inches of compacted clay or other suitable material

  - Top layer – 6 inches of gravel or vegetated topsoil

- Abandoning existing monitoring wells and installing up to 10 new groundwater monitoring wells at locations both upgradient and downgradient from areas at the site where dissolved-phase COCs were detected during the RI.

- Backfilling the southern drainage areas with rip-rap stone to prevent (to the extent practicable) vegetation re-establishment or wildlife habitation.

- Restoring the northern drainage area via the importation and placement of appropriate fill materials, topsoil, wetland seed mixtures, shrubs, and trees.

- Implementing institutional controls in the form of deed restrictions to prevent current or future site owners from conducting activities that would potentially jeopardize the integrity of the cap. Deed restrictions would also be established for the areas beyond the WSI property to limit the potential future use and restrict current and future property owners from performing intrusive activities (e.g., excavation activities that would result in exposure of site workers to surface and subsurface soils containing PCBs at concentrations less than 1 ppm). Additionally, institutional controls will include implementation of investigation efforts to evaluate potential soil vapor intrusion for any new buildings constructed at the site or if the current use of existing site buildings changes.

- Implementing institutional controls in the form of deed restrictions, groundwater use restrictions, continued annual sampling of the water supply wells to monitor water quality, and continued supply of bottled water for potable use to limit the use of site groundwater.

- Implementing institutional controls in the form of deed restrictions to prevent current or future site owners from conducting activities that result in exposure to remaining PCB-impacted sediment.

- Conducting annual inspections to monitor the cap for erosion or other damage and repairing of the cap, as needed.

- Conducting annual groundwater monitoring to document the reduction of COC concentrations in site groundwater and to verify impacted groundwater is not migrating further downgradient.

- Conducting annual wetland vegetation monitoring to document that wetlands have been re-established and the northern drainage area is capable of supporting the aquatic and terrestrial wildlife that is present prior to the implementation of the remedial alternative.

- Conducting biennial biota monitoring that includes submitting biota samples for PCBs and lipids content to assess the effectiveness of this remedial alternative.

The total estimated cost associated with implementation of the preferred site-wide remedy is summarized in the following table.

Cost	Estimated Amount
Estimated Capital Cost	$9,880,000
Estimated 30-Year Present Worth of O&M Cost	$950,000
Total Estimated Present Worth Cost	**$10,830,000**

Acronyms and Abbreviations

AMSL	above mean sea level
AST	aboveground storage tank
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
CAMP	community air monitoring plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CF	cubic-foot
CFR	Code of Federal Regulations
COC	constituent of concern
CSX	CSX Transportation, Inc.
CY	cubic-yard
DER	Division of Environmental Remediation
ECL	Environmental Conservation Law
ELUR	environmental land use restriction
FS	Feasibility Study
GCL	geosynthetic clay liner
GIS	geographic information systems
GM	General Motors Corporation
GRA	general response action
HASP	Health and Safety Plan
HDPE	high-density polyethylene
HWR	hazardous waste remediation
ISCO	in-situ chemical oxidation
LDR	land disposal regulation
LNAPL	light non-aqueous phase liquid
mg/kg	milligram per kilogram
NCP	National Contingency Plan
NPDES	National Pollution Discharge Elimination System
NWI	National Wetland Inventory
NYCRR	New York Code of Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	operation and maintenance
OM&M	operation, maintenance, and monitoring
OSHA	Occupational Safety and Health Act
OSWER	Office of Solid Waste and Emergency Response

PAH	polynuclear aromatic hydrocarbon
PBS	petroleum bulk storage
PCB	polychlorinated biphenyls
POTW	publicly-owned treatment works
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
RAO	remedial action objective
RCRA	Resource Control and Recovery Act
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
SCG	standards, criteria, and guidelines
SDA	southern drainage area
SMP	site management plan
SPDES	State Pollution Discharge Elimination System
SPPP	stormwater pollution prevention plan
SVOC	semi-volatile organic compound
TAC	total average concentration
TAGM	Technical and Administrative Guidance Memorandum
TAL	target analyte list
TBC	to-be-considered
TCLP	toxicity characteristic leaching procedure
TOGS	Technical and Operation Guidance Series
TSCA	Toxic Substance Control Act
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

1. Introduction

1.1 General

This Feasibility Study (FS) Report presents an evaluation of remedial alternatives to address environmental impacts identified at the Waste-Stream, Inc. (WSI) site (Site #6-45-022) located in Potsdam, New York. This FS Report has been prepared by ARCADIS U.S., Inc. (ARCADIS) on behalf of the WSI Group. Members of the WSI Group include WSI, National Grid, and General Motors Corporation (GM). The FS has been conducted in accordance with an Order on Consent (Index #A6-0399-9911) between the WSI Group and the New York State Department of Environmental Conservation (NYSDEC), which became effective on December 22, 2000.

1.2 Regulatory Framework

This FS Report has been prepared to evaluate remedial alternatives to address environmental impacts at the site in a manner consistent with the Order on Consent and with the following documents:

- NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4025 titled, *Guidelines for Remedial Investigations/Feasibility Studies* (NYSDEC, 1989).

- NYSDEC TAGM #4030 titled, *Selection of Remedial Actions at Inactive Hazardous Waste Sites* (NYSDEC, 1990).

- United States Environmental Protection Agency (USEPA) guidance document titled, *Guidance for Conducting Remedial Investigations and Feasibility Studies Under the Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), Interim Final (USEPA, 1988).

- USEPA guidance document entitled, *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (USEPA, 2005a).

- Applicable provisions of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) regulations contained in Title 40 of the Code of Federal Regulations (CFR) Part 300.

- Applicable provisions of the New York State Environmental Conservation Law (ECL) and associated regulations, including Title 6 of the New York Code of Rules and Regulations (NYCRR) Part 375-6 (6NYCRR Part 375-6).

- NYSDEC *Draft DER-10 Technical Guidance for Site Investigation and Remediation* (NYSDEC, 2002).

1.3 Purpose

The purpose of this FS Report is to identify and evaluate remedial alternatives that are:

- Appropriate for site-specific conditions

- Protective of human health and the environment

- Consistent with relevant sections of NYSDEC guidance, the NCP, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

The overall objective of this FS Report is to recommend an appropriate remedial alternative that satisfies the remedial action objectives (RAOs) established for the site.

1.4 Report Organization

This FS Report has been organized as follows:

Section	Purpose
Section 1 – Introduction	Provides background information relevant to the development of remedial alternatives evaluated in this FS Report.
Section 2 – Standards, Criteria, and Guidelines	Identifies standards, criteria, and guidelines (SCGs) that govern the development and selection of remedial alternatives.
Section 3 – Remedial Action Objectives	Develops site-specific RAOs that are protective of human health and the environment, and identifies media to be addressed by the site remedy.

Section	Purpose
Section 4 – Technology Screening and Development of Remedial Alternatives	Presents the results of a screening process to identify potentially applicable remedial technologies and develops media-specific remedial alternatives that have the potential to meet the RAOs.
Section 5 – Detailed Evaluation of Remedial Alternatives	Presents a detailed description and analysis of each potential media-specific remedial alternative using the evaluation criteria presented in the referenced FS documents.
Section 6 – Comparative Analysis of Alternatives	Presents a comparative analysis of each remedial alternative using the evaluation criteria.
Section 7 – Preferred Site-Wide Remedy	Identifies the preferred site-wide remedy for the site.
Section 8 – References	Provides a list of references utilized to prepare this FS Report.

1.5 Background Information

This section summarizes site background information relevant to the development of the remedial alternatives evaluated in this FS Report, including site location and physical setting, site history, and summary of previous investigations.

1.5.1 Site Location and Physical Setting

The WSI site consists of the WSI property, areas immediately adjacent to the WSI property, the wetlands located northeast of the property (referred to as the northern drainage area [NDA]), and the drainage swale that conveys stormwater runoff from the WSI property to the NDA. The WSI property is an active scrap yard located at 147 Outer Maple Street (U.S. Route 11) in the Town and Village of Potsdam, St. Lawrence County, New York. The WSI property consists of two parcels that comprise an area of approximately 29.2 acres.

The WSI property is occupied by several structures, including a scale house, maintenance building, office building, storage barn, tin press, former solid waste transfer station (which has not operated since November 2001), a former above ground fuel storage tank area, and various outbuildings. Various scrap processing equipment (large hydraulic shear, car crusher, etc.) are also located at the site. Scrap storage piles and material staging areas (for roll-off containers, trailers, etc.) previously occupied portions of the operations area at the site.

The WSI property is bordered to the north by undeveloped land owned by Fay C., Jr. and Pearl F. Grant. The Corporation Line between the Town of Potsdam and the Village of Potsdam extends along the eastern boundary of the WSI property. The WSI property is bordered to the east by lands owned by Jeffords Steel & Specialty Company, Potsdam Hardwoods, and Norris Crary. The Jeffords Steel & Specialty Company property is a developed industrial facility. Jeffords Steel also currently leases the building identified as the WSI Main Office Building located south of the railroad right of way. However, this building is not currently occupied. The lands owned by Potsdam Hardwood and Norris Crary are undeveloped woodland and wetland areas. U.S. Route 11 borders the property to the south. Developed commercial/residential properties (including Clarkson University, Tennant Electric Motor Service, and Engles Foreign Auto Parts) and undeveloped properties (owned Deborah Robar) are located opposite U.S. Route 11 from the site. The area west of the site consists of a lightly developed property owned by Lonnie Dean Gillette. An active CSX Transportation (CSX) railroad right-of-way extends across the southern portion of site.

Two on-site water supply wells are located on the property, including one near the northwest corner of the WSI main office and one along the south wall of the scale house. The wells are approximately 100 feet deep and were reportedly installed prior to 1970. Water from these wells is supplied to the WSI Main Office Building (located south of the railroad right-of-way) and the Scale House Building (located north of the railroad right-of-way). Municipal water is also piped to the WSI Main Office Building from the Jeffords Steel property through a connection that is currently not utilized. WSI personnel do not utilize the supply wells as a source of drinking water. The only current usage of the wells is reportedly for sanitary (i.e., toilet) water and hand washing. Bottle water is supplied for drinking and signage is present directing personnel that water is not to be used for potable purposes. Analytical results for April 1997 samples collected from each well by the New York State Department of Health (NYSDOH) did not identify any water quality concerns associated with the groundwater withdrawn from the on-site wells. Analytical results for the samples collected from the wells were presented in the Remedial Investigation/Feasibility Study (RI/FS) Work Plan prepared by InteGreyted in

September 2000 (InteGreyted, 2000). Based on a request from the NYSDEC during an on-site kick-off meeting for the Focused Remedial Investigation (Focused RI) field activities, an additional water sample was collected for laboratory analysis for polychlorinated biphenyls (PCBs) from each water supply well as part of the Focused RI during June 2001 (as discussed below in Section 1.6.3.2). Additionally, WSI conducts annual sampling to monitor water quality from the water supply wells.

A septic system consisting of distribution box and leach field is located along the eastern side of the scale house building. The septic system was reportedly installed in 1999 and services the bathrooms in the scale house building. The WSI Main Office Building (located in the southern portion of parcel No. 2) is serviced by a municipal sanitary sewer.

1.5.2 Site History and Operation

The WSI property has operated as a metal recycling facility and scrap yard since approximately 1957, initially as Chet Bisnett and subsequently by Chet Bisnett, Inc. (CBI). CBI merged with B&C Carting in 1987 and the resulting company was renamed Waste Stream Management, Inc. (WSMI). WSMI was subsequently renamed Waste-Stream Inc. (WSI) and has operated the site from 1987 until the present. In 1998, WSI became a wholly owned subsidiary of Casella Waste Systems, Inc.

Prior to the mid-1960s, operations were primarily conducted within the southern portion of the property. During the period between the mid-1960s and mid-1970s, facility operations shifted toward the north (extending just north of the former solid waste transfer station). Site activities conducted during this period reportedly included tin press operations, metal shearing, car crushing, and scrap metal processing. During this period, the facility reportedly processed scrap electrical transformers that contained PCB-containing dielectric fluids (mineral oil). The transformers were reportedly drained for subsequent recycling/wire recovery. The transformer recycling/wire recovery activities were conducted in an area north of the existing tin press operation. During the period between the mid-1960s and mid-1970s, the facility also reportedly processed scrap manufacturing equipment that had fluid reservoirs with PCB-containing oils. The manufacturing equipment that was brought to the site during this period was staged and processed (including disassembly and cutting) in an area southwest of the maintenance shop.

Between the mid-1970s and the present, scrap yard operations shifted to the north into the current operating area. A municipal solid waste transfer station was constructed at the WSI property in the mid-1980s. The solid waste transfer station has not operated since November 2001.

Throughout the history of site operations, several aboveground and underground storage tanks (ASTs and USTs) have been in service at the facility. Petroleum product storage at the site included fuel oil and kerosene for heating purposes and gasoline and diesel for vehicles and equipment. The USTs were reportedly closed prior to April 1991 and May 1996. The ASTs were reportedly closed in 1995 and 1996. In addition to the closed petroleum storage tanks listed above, a 20,000-gallon diesel AST and a 10,000-gallon gasoline AST were previously located near the northeast corner of the storage barn. These tanks were subsequently relocated into a secondary containment structure, south of the storage barn in the southeast corner of the property, where they are presently located. The 10,000 gallon gasoline tank was reportedly converted to diesel storage at the time the tank was relocated to the secondary containment structure. Other than the ASTs that are currently located in the secondary containment structure, all ASTs and USTs at the property have been removed.

WSI is currently in the process of relocating the majority of operations from the site. Since mid-2001, WSI has relocated approximately 6,000 tons of scrap material from the site (leaving the majority of the site free of scrap material). Currently, three WSI employees at the site handle approximately 600 tons of non-ferrous scrap material per month. Scrap handling operations are conducted in accordance with a Site Operations Plan that addresses worker health and safety during typical site operations. Other activities currently conducted at the site included periodic use of the vehicle maintenance building. A limited number (i.e., less than five) office and clerical staff continue to occupy the office building and scale house located north of the railroad right-of-way. WSI intends to continue scrap processing operations at the property in the future.

1.5.3 Summary of Previous Investigations

Site investigation and remedial activities have been conducted at the site since the late 1980s as part of the following work efforts:

- Remediation of scrap equipment and soils (1989-1992)
- NYSDEC sediment sampling (1992)
- Golder Associates - Due Diligence Site Assessment (1998)

- Spectra Engineering - Due Diligence Site Assessment (1998)
- InteGreyted - Focused RI/FS Study (1999)
- ARCADIS (formerly Blasland, Bouck & Lee, Inc. [BBL]) – Focused Remedial Investigation (2001/2002)
- ARCADIS – Supplemental Remedial Investigation (2005)

The investigation activities and results were summarized in the following NYSDEC-approved reports:

- *Remedial Investigation/Feasibility Study Work Plan* (Revision 1.0), September 2000, InteGreyted Consultants, LLC (InteGreyted, 2000).
- *Focused Remedial Investigation Report* (Focused RI Report) (ARCADIS, 2003).
- Supplemental Remedial Investigation Report (Supplemental RI Report) (ARCADIS, 2006).

The site characterization information presented in the following section is based on the results of the above-listed investigations.

1.6 Site Characterization/Nature and Extent of Impacts

This section presents an overall site characterization and nature and extent of impacted media at the site based on the results obtained for the site investigation activities conducted to date (as described above). The site characterization consists of a summary of the following:

- Site topography and drainage
- Site geology and hydrogeology
- Nature and extent of impacts

A summary of site topography and drainage is presented below.

1.6.1 Site Topography and Drainage

Surface topography in the vicinity of the site is relatively level, with elevations ranging from approximately 427 feet to 439 feet above mean sea level. Stormwater from the property is conveyed from the WSI property to adjacent low-lying areas. Three drainage areas in the southwest-central portion of the site, referred to as southern drainage area (SDA)-1 through SDA-3, are the primary surface water features present at the property. SDA-2 and SDA-3 receive surface drainage from most of the central and southwest portions of the site. SDA-2 also receives drainage from areas located hydraulically upgradient (west) from the WSI property. Surface water from SDA-2 and SDA-3 is conveyed through a subsurface drainage pipe that extends from west to east beneath the southern portion of the WSI property. The pipe discharges to a drainage swale that coveys water to the NDA, located approximately 450 feet northeast of the WSI property. At the location where drainage from SDA-2 flows into the pipe, the drainage pipe consists of a 24-inch diameter corrugated metal pipe. At some point along the pipe (prior to the discharging into the drainage swale), the pipe diameter increases to 36-inches. The drainage pipe was reportedly installed at some point after 1975 within (or along the approximate path of) an open drainage ditch that previously conveyed surface drainage across the site.

1.6.2 Site Geology and Hydrogeology

The following subsections summarize geologic and hydrogeologic conditions at the site. Detailed descriptions of site geology and hydrogeology are presented in the Focused RI Report.

1.6.2.1 Geologic Characterization

The WSI site is located within the St. Lawrence Hills subdivision of the Champlain Lowland physiographic province. Geologic conditions within this subdivision generally consist of sandstone bedrock units overlain by glacial drift. Subsurface conditions encountered at the site consist of approximately 30 to 50 feet of overburden overlying sandstone and limestone bedrock.

The overburden generally consists of a heterogeneous mixture of glacio-fluvial silts, sands, and gravels (fine sand layer). A finer-grained silty clay layer (silt and clay unit) was encountered below the fine sand unit across the majority of the site at depths of approximately 1.5 to 10 feet below grade, with a thickness ranging from approximately 2 to 6 feet. The silt and clay unit appears to be relatively continuous across the western and central portions of the site, though the silt and clay layer was not typically encountered in soil borings located along the eastern property boundary. Where present, the upper surface of the silt and clay layer is generally highest in the central portion of the site (near monitoring well MW-202) and slopes downward to the north-northeast and south-southeast, generally following the land surface contours.

Additionally a sand and gravel unit was encountered below the silt and clay layer in the central and northern portion of the site. The top of the sand and gravel unit was encountered at depths of approximately 6 to 10 below grade. Impacted soil was generally encountered in the fine sand and silt and clay units. Impacts generally do not extend through the silt and clay unit into the underlying sand and gravel unit.

1.6.2.2 Hydrogeologic Characterization

Shallow groundwater is encountered at depths between one and six feet below grade. During multiple rounds of groundwater level measurements collected during Focused RI, a shallow groundwater mound was observed in the central portion of the site near monitoring well MW-202. As indicated in Section 1.6.2.1, the silt and clay layer is highest (shallowest) in this portion of the site and coincides with the groundwater mound. The low vertical permeability in the silt and clay layer (as evaluated during the Focused RI) suggests that groundwater flow above the silt and clay layer is predominately horizontal and downward groundwater is inhibited, causing the localized mounting.

The direction of shallow groundwater flow varies across the site largely due to the effects of the discontinuous silt and clay lay (described above) and influences of the drainage swale that conveys surface water from the southern drainage area to the north drainage areas. The high elevation of the silt and clay layer in the vicinity of MW-202 causes a shallow groundwater divide in this portion of the site. Groundwater flows towards the north-northeast and south-southeast from this area. A groundwater depression extends along the on-site drainage ditch (SDA-2) and the subsurface drainage pipe that extends across the southern portion of the property, which indicates that the drainage ditch and culvert may potentially serve as a groundwater drain. Groundwater discharges towards the south-southeast direction (from the mounded groundwater near MW-202) and towards the north-northeast direction (from the area south of the drainage ditch). The average linear velocity for groundwater flowing in the north-northwest direction is 5.4×10^{-3} ft/day (2 ft/year) to 4.5×10^{-2} ft/day (16 ft/year). The average linear velocity for groundwater flowing in the south-southeast direction is 0.14 ft/day (50 ft/year).

Regional deep groundwater flow is generally to the north-northwest, toward the St. Lawrence River. Groundwater within deep overburden at the site flows towards the southeast with an estimated average linear velocity of approximately 2.3×10^{-3} ft/day (0.83 feet/yr). The WSI property does not overlie a primary or principal aquifer.

1.6.3 Nature and Extent of Impacts

PCBs are the primary constituent of concern (COC) in surface and subsurface soil and sediment at the site. Additional COCs include volatile organic compounds (VOCs) (in groundwater), semi-volatile organic compounds (SVOCs) (primarily polynuclear aromatic hydrocarbons [PAHs]) and inorganic constituents. The nature and extent of these COCs in soil, groundwater, surface water and sediment at the site is summarized below.

Analytical results for soil samples collected as part of the remedial investigation were initially screened against the soil cleanup objectives presented in the NYSDEC Division of Hazardous Waste Remediation Document entitled *Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels* HWR 94-4046 (TAGM 4046), dated January 24, 1994 (NYSDEC, 1994a). With its adoption in December 2006, the soil cleanup objectives in 6NYCRR Part 375-6 replaced TAGM 4046. 6NYCRR Part 375-6 provides soil cleanup objectives that are protective of human health and the environment based on current and foreseeable future use of the subject property. The foreseeable use of this site is continued use as an industrial site, namely a scrap yard for select materials (non-ferrous metals) and as a transfer station for materials/equipment to be managed at other WSI facilities. As described in Section 1.5.1, the areas surrounding the property include wooded, wetland and residential areas.

1.6.3.1 Surface and Subsurface Soil

PCBs were detected at concentrations greater than the 1 part per million (ppm) 6NYCRR Part 375-6 restricted use soil clean up objective for the protection of ecological resources at 162 out of 231 surface soil sampling locations and 62 out of 164 subsurface soil sampling locations. Distribution of these soils is widespread at the site. At 153 of the 162 soil sampling locations where PCBs were detected in soil at concentrations greater than 1 ppm, the impacted soil did not extend deeper than four feet bgs. The remaining nine sampling locations where PCBs were detected at a concentration greater than 1 ppm (at a depth deeper than four feet bgs) were located immediately west of the Vehicle Maintenance Building (soil borings SB-320 and SB-

324); near the former Tin Press (soil borings SB-259, SB-261 and SB-270, monitoring well MW-206, and test pits TP-222 and TP-223); and one isolated location in the western portion of the site near the tree line (test pit TP-207). The vertical and lateral extent of PCBs in soil at concentrations greater than 1 ppm has not been completely delineated. However, for the purposes of this FS, conservative assumptions have been made to proceed with remedy evaluation and selection. Verification soil sampling would be conducted during the remedial design or remedial construction phases to confirm that soil cleanup objectives have been met.

Soil samples collected at 15 of the 231 surface soil sampling locations and subsurface soil samples collected at 10 of the 164 sampling locations contained PCBs at concentrations greater than or equal to the 50 ppm Toxic Substance Control Act- (TSCA-) regulated/New York State hazardous waste regulatory level. The maximum detected PCB concentrations in surface and subsurface soil were detected at sampling locations SB-258(0-1') (404 ppm) and SB-253(1-3') (4,400 ppm), respectively. Both of these sampling locations are located north of the concrete slab that supported the former tin press used in metal scrapping operations. Soil sampling locations where PCBs were detected at concentrations greater than or equal to 50 ppm were clustered in following locations:

- North of the former tin press – SB-257 (0-1')(97 ppm), SB-258 (0-1')(406 ppm), SB-259 (2-4')(53 ppm), SB-260 (0-1')(117 ppm), SB-262 (0-1')(303 ppm) and (2-3')(56.5), and MW-206 (4-6')(61.4 ppm)

- South, east, and west of the vehicle maintenance building - S-114 (0-1')(477 ppm), (1-2')(954 ppm), and (2-4')(59 ppm), SB-281 (0-1')(97 ppm), SB-311 (0-1')(150 ppm), SB-315 (0-1')(315 ppm), SB-317 (2-3')(75 ppm), SB-323 (0-1')(96 ppm), and MW-204 (0-1')(72 ppm)

- Southeast of a concrete slab in the northern portion of the scrap yard that supported a metal shear – SB-221 (1-3')(140 ppm), SB-222 (0-2')(71.6 ppm), SB-225 (0-1')(102 ppm), and SB-229 (0-1')(55 ppm)

Equipment, machinery, and metal that was handled and managed by the scrapping operations conducted in each of these areas may have contained PCBs. Two soil sampling locations SB-340 (1-3')(127 ppm) and TP-207 (1-3')(156 ppm) and (3-4')(77 ppm) where PCBs were detected in subsurface soil at concentrations greater than or equal to 50 ppm were located away from these areas along the western property boundary. Based on their spatially disconnected nature from the main scrapping operations and the fact that these locations are surround by sampling locations that do not contain elevated concentrations of PCBs, the presence of PCBs in these areas are likely isolated to small areas where PCB-containing equipment or machinery may have been stored or placed.

SVOCs and inorganic constituents are also present in surface and subsurface soil at the site. In most instances, sampling locations where SVOCs or inorganic constituents were detected coincided with locations where PCBs were detected at concentrations greater than 1 ppm. One or more inorganic constituent was detected at a concentration greater than 6NYCRR Part 375-6 restricted use soil cleanup objectives for the protection of ecological resources or residential future use (if a protection of ecological resource cleanup objective was not available) in samples collected at 27 of 37 surface soil sampling locations and 18 of 58 subsurface soil sampling locations. One or more individual SVOC was detected at a concentration greater than 6NYCRR Part 375-6 restricted use soil cleanup objectives for the protection of ecological resources or residential future use (if a protection of ecological resource cleanup objective was not available) in samples collected at 21 of 25 surface soil sampling locations and 11 out of 60 subsurface soil sampling locations.

In several instances, the existing sample distribution does not provide a definitive demarcation (laterally or vertically) of PCB levels to the 0.1 ppm 6NYCRR Part 375-6 unrestricted use soil cleanup objective. In those instances, conservative assumptions regarding the extent of PCBs were made to support the development of remedial alternatives and FS-level cost estimates to meet the 0.1 ppm unrestricted use soil cleanup objective. These conservative assumptions are discussed is Section 5.4.6.

Focused RI Report Figures 4A through 4C present PCB analytical results for soil samples and are included in Appendix A of this Feasibility Study Report. Focused RI Report Tables 4 through 9 present PCB, inorganic, and VOC and SVOC analytical results for soil samples and are included in Appendix B of this Feasibility Study Report. Note that at the time the Focused RI Report was prepared, analytical results for soil samples were compared to TAGM 4046 soil cleanup objectives. For this Feasibility Study, soil sampling results have been compared to 6NYCRR Part 375-6 soil cleanup objectives.

As a basis for identifying soil removal/soil cover areas and associated soil quantities, Thiessen polygons were used to estimate the limits of PCB-impacted soil (area and depth) to be addressed as part of this FS. Thiessen polygons were formed to enclose the space around each soil sampling location using an algorithm in geographic information system (GIS) software to calculate the midpoint between adjacent sampling locations and then connecting these midpoints to form the polygons. The resulting areas have the characteristic that any point inside a particular polygon is closer to the sampling location within that polygon than to any other sampling point.

Thiessen polygons were formed for each one foot depth interval (e.g., 0 to 1 foot, 1 to 2 feet, 2 to 3 feet, 3 to 4 feet, etc.) down to the deepest depth interval where PCBs were identified at concentrations greater than 1 ppm. Queries were then run through the GIS software for various cleanup objectives (i.e., 0.1, ppm, 10 ppm, 25 ppm, and 50 ppm) and the resulting areas and volumes of soil exceeding these criteria were calculated by the GIS software. Note that the Thiessen polygon analysis has been developed to provide a preliminary estimate of soil removal areas/volumes.

1.6.3.2 Groundwater

The nature and extent of impacts to groundwater at the site were initially characterized by groundwater sampling conducted as part of the June 2001 Focused RI. For the purposes of this Feasibility Study Report, impacted groundwater is defined as groundwater containing COCs at concentrations exceeding the New York State Class GA groundwater standards and guidance values presented in the NYSDEC Division of Water, Technical and Operational Guidance Series (TOGS 1.1.1) document titled, *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*, (NYSDEC, 1998). Focused RI Report Tables 16 through 18 present PCB, inorganic, and VOC and SVOC analytical results for groundwater samples and are included in Appendix B.

Results of the June 2001 sampling event indicated the presence of PCBs in groundwater at monitoring wells MW-202 (0.2 parts per billion [ppb]) located west of the former metal shear, MW-204 (0.68 ppb) located immediately west of the vehicle maintenance garage and MW-206 (1.2 ppb) located north of the former tin press. The Class GA groundwater standard for PCBs is 0.09 ppb. PCBs do not dissolve readily in water and detected concentrations are typically associated with PCBs sorbed to suspended solids in the water sample. Each of these wells was re-sampled in February 2002 using low-flow sampling techniques. Analytical results for the follow-up sampling indicated detectable concentrations of PCBs at MW-206 only (1.2 ppb). A third sampling event was conducted in April 2003 at monitoring well MW-206. During this sampling event both an unfiltered and filtered sample were collected and submitted for laboratory analysis. Results obtained for the analysis of the unfiltered and filtered sample collected at monitoring well MW-206 indicated PCB concentrations of 1.1 and

0.29 ppb, respectively. Monitoring wells MW-206 was constructed as a water table well with the well screen extending from 3 to 13 feet bgs. As indicated in Section 1.6.3.1, a soil sample collected from 4 to 6 feet bgs at the monitoring well MW-206 well location contained PCBs at a concentration greater than 50 ppm.

SVOCs were detected in groundwater at concentrations exceeding New York State Class GA standards and guidance values in samples collected from three groundwater monitoring wells during June 2001 (bis[2-ethylhexyl]phthalate at MW-206, pentachlorophenol at MW-207, and naphthalene at MW-209). An additional sample was collected from MW-207 during April 2003 to further evaluate the presence of pentachlorophenol at this well location. Pentachlorophenol was detected in the April 2003 sample collected from MW-207 at a concentration that exceeded NYSDEC Class GA standards and guidance values. However, the concentration of pentachlorophenol detected in the April 2003 sample (18 ppb) was much less than the result that was reported for the June 2001 sample (700 ppb). Monitoring well MW-207 is located in close proximity to a treated wood pole which could potentially be a source for the pentachlorophenol detected at this location.

VOCs were detected in groundwater samples collected during June 2001 from three shallow groundwater monitoring wells (MW-203, MW-204, and MW-209) at concentrations exceeding Class GA groundwater standards and guidance values. Benzene, toluene, ethylbenzene and xylene compounds (collectively referred to as BTEX) were identified in groundwater samples collected at monitoring well MW-209 at concentrations exceeding NYSDEC Class GA standards and guidance values (suggesting the potential presence of petroleum-related subsurface impacts in the former AST area). 1,2-Dichloroethane was detected at MW-203 and vinyl chloride was detected at MW-204 at concentrations that were slightly greater than NYSDEC Class GA standards and guidance values. The source of the low concentrations of VOCs detected at MW-203 and MW-204 is not known. Eight temporary wells (TW-1 through TW-8) were installed in April 2003 in the vicinity of monitoring well MW-209 to further investigate the presence of VOCs in groundwater near the former AST area. BTEX compounds were detected in one of the temporary well points (TW-1). TW-1 was presumed to be an upgradient location based on surface topography. Although BTEX concentrations at TW-1 were slightly greater than the NYSDEC groundwater standards and guidance values, the results were much less than the concentrations detected in MW-209. The groundwater sampling results indicate that BTEX groundwater impacts are localized to the former AST area and do not extend beyond the WSI property to the east.

Immediately following installation of the groundwater monitoring wells in June 2001, light non-aqueous phase liquid (LNAPL) was not encountered in any monitoring wells installed at the site. During April 2003, LNAPL was encountered in monitoring well MW-207. Approximately one gallon of LNAPL was removed from the well and submitted for laboratory analysis for total petroleum hydrocarbons. Laboratory analysis indicated that the LNAPL sample consisted of an unknown hydrocarbon that did not match the characteristics of fuel oil, gasoline, or lube oil. LNAPL has not been observed in monitoring well MW-207 or any other site monitoring wells to date since 2003.

With the exception of typical mineral constituents, beryllium was the only Target Analyte List (TAL) inorganic constituent detected in groundwater at concentrations exceeding NYSDEC Class GA standards and guidance values. Beryllium was detected in the groundwater sample collected from monitoring well MW-208 (located in the southern portion of the site south of the Vehicle Maintenance Building at a concentration of 8 ppb, which slightly exceeds the Glass GA groundwater guidance value (3 ppb). Beryllium was also detected in the associated laboratory method blank (suggesting possible laboratory contamination). Inorganic constituents do not represent a concern in groundwater at the site.

Bottled drinking water is currently supplied to on-site workers and groundwater is not currently used for potable purposes. Therefore, exposure to COCs in groundwater via ingestion is unlikely. As discussed in Section 1.5.1, two on-site water supply wells are located at the property, including one near the northwest corner of the WSI main office and one along the south wall of the scale house. At the request of the NYSDEC, water samples were collected for laboratory analysis for PCBs from each water supply well as part of the initial Focused RI activities during June 2001. Analytical results for the samples collected from the water supply wells indicate that PCBs were not detected in either sample at concentrations exceeding the analytical detection level of 0.05 ppb.

Based on the depth at which groundwater is encountered in the vicinity of the site (less than six feet below grade under most conditions), on-site workers could potentially be exposed to COCs in groundwater through direct contact during construction activities at the site. However, no future construction activities are anticipated at this time. In addition, based on the concentrations of COCs identified in groundwater, this is not expected to be a significant exposure pathway.

Based on the constituents and concentrations detected in groundwater samples collected from site monitoring wells during the Focused RI, active remedial measures would only be considered for this FS to address the presence of dissolved-phase VOCs in the vicinity of monitoring MW-209.

1.6.3.3 Surface Water

Focused RI Report Tables 13 through 15 present PCB, inorganic, and VOC and SVOC analytical results for surface water samples and are included in Appendix B. PCBs were detected in two surface water samples, including one sample collected at the outfall of the drainage pipe that extends beneath the site and one sample collected from the drainage swale near the point where the swale flows into the northern drainage area, at concentrations exceeding the NYSDEC Class A surface water quality standard (0.09 ppb) (NYSDEC, 1998). VOCs and SVOCs were also detected at the downgradient surface water sampling location near the drainage pipe outfall (i.e., at the eastern property boundary) at concentrations that slightly exceeded NYSDEC Class A surface water standards and guidance values. As indicated above, PCBs do not readily dissolve in water and the detected PCB concentrations are likely associated with PCBs sorbed to suspended solids in the water.

Surface water is present on a seasonal basis (and during periods of precipitation) within the southern drainage areas SDA-1 through SDA-3 located in the southwest-central portion of the site. Surface water from drainage areas SDA-2 and SDA-3 is diverted to an underground pipe that discharges to the drainage swale, and subsequently flows to the northern drainage area. There is limited potential for on-site workers and trespassers to be exposed to surface water at the site because access to drainage areas is limited, not required for daily operations, and (due to the relatively limited value of the drainage areas) there is no use for recreational purposes.

1.6.3.4 Sediment

The sediment investigation results indicate that PCBs are the primary COC in sediment in the southern drainage areas SDA-1 through SDA-3, the drainage swale that flows to the northern drainage area, and within the northern drainage area. The highest concentrations of PCBs were detected in sediment within the drainage swale that flows to the northern drainage area. Analytical results for PCBs, SVOCs, and inorganic constituents detected in sediment samples are compared to NYSDEC sediment screening values presented in the NYSDEC document titled, *Technical Guidance for Screening Contaminated Sediments* (NYSDEC, 1999). Note that analytical results for SVOCs and inorganics that exceeded the sediment screening values were collocated with sampling locations containing PCBs at concentrations greater than screening values.

Focused RI Report Figures 4D and 6A through 6C present PCB analytical results for sediment samples and are included in Appendix A. Focused IR Report Tables 10 through 12 present PCB, inorganic, and VOC and SVOC analytical results for sediment samples and are presented in Appendix B.

Southern Drainage Areas

Sediment samples were collected from a total of 35 sampling locations in the southern drainage areas. The most elevated concentration of PCBs in the southern drainage areas was at sampling location SED-236 (47.8 ppm) collected from SDA-3 located in the western portion of the property. Sediment samples collected from these areas contained PCBs at concentrations greater than the NYSDEC benthic aquatic life chronic toxicity and benthic aquatic life acute toxicity screening levels.

Sediment samples collected at four locations from the southern drainage areas were submitted for laboratory analysis for inorganic constituents and SVOCs. Samples collected from two of the four locations (SED-234 [lead and mercury] and SED-239 [copper]) indicated the presence of inorganic constituents at concentrations that slightly exceeded the lowest effect level presented in the NYSDEC sediment screening document. None of the samples contained SVOCs at concentrations greater than NYSDEC sediment screening levels.

Drainage Swale

Sediment samples were collected from a total of 10 sampling locations in the drainage swale. The drainage swale contained the most elevated PCB concentration of any of the sediment samples collected during the site investigation activities. Sediment samples collected at six of the sampling locations (SED-216B, SED-216C, SED-219A, SED-220B, SED-221A, and SED-222C) contained PCBs at concentrations greater than or equal to the 50 ppm TSCA-regulated/New York State hazardous waste regulatory level. The highest concentration of PCBs in the drainage swale was detected in sediment sample SED-221A (0-0.5’) (3,400 ppm) located immediately east of the WSI property boundary. Sediment samples collected from these areas contained PCBs at concentrations greater than the NYSDEC benthic aquatic life chronic toxicity and benthic aquatic life acute toxicity screening levels.

Sediment samples collected from five locations within the drainage swale were submitted for laboratory analysis for inorganic constituents and SVOCs. Samples collected at three of the sampling locations (SED-219C, SED-222A, and SED-224B) indicated the presence of several inorganic constituents (i.e., copper, lead and mercury) at concentrations that exceed the severe effect level presented in the NYSDEC sediment screening document. The same samples contained SVOCs at concentrations exceeding human health and/or benthic sediment screening criteria.

<u>Northern Drainage Area</u>

Sediment samples were collected from a total of 55 sampling locations in the northern drainage area. The highest concentrations of PCBs in sediment within the northern drainage area generally coincide with areas of lower elevation and lower surface water velocity where PCB-containing suspended solids settled out of the water column.

Sediment samples collected at seven of the sampling locations (SED-200, SED-201, SED-204, SED-205, SED-259, SED-268, and SED-279) contained PCBs at concentrations greater than the 50 ppm TSCA/New York State hazardous waste regulatory level. These sampling locations are located immediately east of the drainage swale outlet to the northern drainage area and along low areas and pools within the northern drainage area. Sediment samples collected from these areas contained PCBs at concentrations greater than the NYSDEC benthic aquatic life chronic toxicity and benthic aquatic life acute toxicity screening levels.

While the extent of PCBs in sediment in the vicinity of sampling locations SED-279 and SED-281 (collected as part of the supplemental investigation activities) may not be completely defined, there are sediment sampling locations to the west, north, and east, along with sampling locations in the upland areas to the south that surround these locations. The extent of PCBs in sediment to the south will be confirmed during either a pre-design investigation or the remedial construction phase. Elevated concentrations of PCBs were not identified in samples collected from the beaver pond or the pond outlet adjacent to the Potsdam Hardwoods property (which appears to be the primary outlet for the northern drainage area).

Samples collected from nine sediment sampling locations within the northern drainage area were submitted for laboratory analysis for inorganic constituents. Samples collected from two of the nine sampling locations (SED-279 and SED-281) contained inorganic constituents at concentrations that exceed the highest effect level presented in the NYSDEC sediment screening document. Sediment samples from four sampling locations were also submitted for laboratory analysis for SVOCs and none of the samples collected at these locations contained SVOCs at concentrations greater than the most conservative NYSDEC sediment screening levels.

1.6.3.5 Soil Vapor

A soil vapor intrusion (SVI) investigation for the site has not been completed to date. It is anticipated that an SVI investigation will be conducted to evaluate soil vapor intrusion into any new buildings that are constructed at the site in the future or if the use of any current site buildings changes.

2. Standards, Criteria, and Guidelines

2.1 General

This section presents potentially applicable standards, criteria, and guidelines (SCGs). Potentially applicable SCGs were identified as set forth in NYSDEC TAGM #4025, NYSDEC TAGM #4030, and applicable provisions of New York State ECL, and the NCP. SCGs are used to identify RAOs and evaluate potential remedial alternatives, but do not dictate a particular alternative and do not set remedial cleanup levels.

2.1.1 Definition of SCGs

Definitions of the SCGs are presented below:

- *Standards and Criteria* – are cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations that are generally applicable, consistently applied, and officially promulgated under federal or state law that are either directly applicable or relevant and appropriate to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances.

- *Guidelines* – are non-promulgated criteria that are not legal requirements and do not have the same status as "standards and criteria," however, remedial programs should be designed with consideration given to guidelines that, based on professional judgment, are determined to be applicable to the project [6NYCRR Part 375-6-1.10(c)(1)(ii)].

The NYSDEC has also identified certain guidance as "to-be-considered" (TBC) criteria. TBC criteria are non-promulgated advisories or guidance issued by federal or state governments that are not legally binding and do not have the status of potential SCGs. For example, the sediment criteria presented in the NYSDEC document titled, *Technical Guidance for Screening Contaminated Sediments* (NYSDEC, 1999), are TBC criteria. The TBC criteria are considered, as appropriate, with SCGs to develop remedial cleanup levels that are protective of human health and the environment.

2.1.2 Types of SCGs

NYSDEC has provided guidance on applying the SCG concept to the RI/FS process. In accordance with NYSDEC guidance, SCGs are to be progressively identified and applied on a site-specific basis as the RI/FS proceeds. The SCGs considered for the potential remedial alternatives identified in this Feasibility Study Report were categorized into the following classifications:

- *Chemical-Specific SCGs* – These SCGs are health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, result in the establishment of numerical values for each COC. These values establish the acceptable amount or concentration of chemical constituents that may be found in, or discharged to, the ambient environment.

- *Action-Specific SCGs* – These SCGs are technology- or activity-based requirements or limitations on actions taken with respect to hazardous waste management and remediation of the site.

- *Location-Specific SCGs* – These SCGs are restrictions placed on the concentration of hazardous substances or the conduct of activities solely because they occur in specific locations.

2.2 SCGs

The SCGs identified for the evaluation of remedial alternatives are presented below.

2.2.1 Chemical-Specific SCGs

Potentially applicable chemical-specific SCGs are presented in Table 2-1.

One set of chemical-specific SCGs that apply to soil and sediment at the site are the TSCA PCB regulations contained in 40 CFR Part 761 related to the handling, storage, and management of materials containing PCBs. The TSCA PCB regulations in 40 CFR 761.61 present options for cleanup and management of PCB remediation waste (including soil and sediment at the WSI site). The regulations indicate that the PCB remediation waste requirements are binding on activities conducted at CERCAL or RCRA Corrective Action Sites.

Soil guidance values presented in 6NYCRR Part 375-6 provide additional PCB (and other COC) chemical-specific SCGs that are potentially applicable to site soil and consist of the following:

- A restricted use soil cleanup objective (SCO) of 25 ppm (PCBs) for the protection of public health at a site used for industrial purposes.

- A restricted use SCO of 1 ppm (PCBs) for the protection of public health at a site used for residential, restricted residential, and commercial purposes.

- A restricted use SCO of 1 ppm (PCBs) for the protection of ecological resources (ecological SCOs).

- An unrestricted use SCO of 0.1 ppm (PCBs).

Additionally, a PCB subsurface soil cleanup objective of 10 ppm is presented in TAGM 4046. This objective may be achieved by removing soil containing PCBs at concentrations greater than or equal 10 ppm followed by capping remaining soil that contains PCBs at concentrations greater than or equal to 1 ppm (i.e., the TAGM 4046 surface soil cleanup objective for PCBs).

Another set of chemical-specific SCGs that may potentially be applicable to the soil and sediment at the site are the federal and New York State regulations regarding identification of hazardous wastes, as outlined in 40 CFR Part 261 and 6NYCRR Part 371, respectively. These regulations provide criteria at which a solid waste is considered a hazardous waste by the characteristics of toxicity, ignitability, corrosivity, and reactivity. The toxicity characteristic is evaluated by comparing concentrations detected in sample extract generated using the Toxicity Characteristic Leaching Procedure (TCLP) to RCRA-regulated levels. New York State includes PCBs on the list of materials considered hazardous waste (designated Waste Code B007) when PCB concentrations are greater than or equal to 50 ppm.

Ambient water quality criteria set forth in the USEPA document titled, *Quality Criteria for Water – 1986* (USEPA, 1986) may be potentially applicable chemical-specific SCGs for assessing water quality in connection with the remedial activities. In addition, the ambient water quality standards and guidance values for surface waters provided in the NYSDEC TOGS 1.1.1 may also be a potentially applicable chemical-specific SCG.

The NYSDEC document titled *Technical Guidance for Screening Contaminated Sediments* describes methodology for establishing sediment criteria that provide a set of chemical-specific SCGs that are potentially applicable to site sediment.

2.2.2 Action-Specific SCGs

Potentially applicable action-specific SCGs are presented in Table 2-2.

The general health and safety requirements established by the Occupational Safety and Health Administration (OSHA) for general industry under 29 CFR Part 1910, and for construction under 29 CFR Part 1926, are action-specific SCGs that may be potentially applicable to the remedial alternatives evaluated in this FS Report. Other potentially applicable action-specific SCGs pertain to handling solid wastes and protecting water quality, as indicated below.

The New York State regulations contained in 6NYCRR Part 364 for the collection, transportation, and delivery of regulated waste within New York State are potentially applicable action-specific SCGs. The National Pollution Discharge Elimination System (NPDES) and the New York State Pollution Discharge Elimination System (SPDES) regulations contained in 40 CFR Part 122 and 6NYCRR Parts 750-758, respectively, which detail specific permit requirements for the discharge of chemical constituents to United States and New York State waters, are also potentially applicable action-specific SCGs.

Another potential action-specific SCG is Section 401 of the Clean Water Act, which requires a federal license or permit for activities including, but not limited to, the construction or operation of facilities that may result in any discharge into waters of the United States (such as dredging or excavation of sediment). However, as authorized in 6NYCRR Part 375-6, a permit may not be required for remedial alternatives at the site that include the dredging of sediment, provided the activities are conducted in compliance with the substantive permitting requirements.

2.2.3 Location-Specific SCGs

Potentially applicable location-specific SCGs are presented in Table 2-3.

Examples of potential location-specific SCGs included floodplain and wetland regulations, restrictions promulgated under the National Historic Preservation Act, Endangered Species Act, and other federal acts. Location-specific SCGs also include local building permit conditions for permanent or semi-permanent structures associated with the remedial activities (if any) and influent requirements of publicly-owned treatment works (POTW) if water is treated at the site and discharged to a POTW.

As presented in the Wetland Delineation Report (included as Appendix G to the Focused RI Report), the presence of regulated wetlands in the vicinity of the site was evaluated by review of New York State Freshwater Wetlands Maps and Federal National Wetland Inventory (NWI) Maps. State wetland WD-34 (designated a Class II wetland) is a large wetland (encompassing approximately 250 acres) located approximately 500 feet west of the site and is bisected by Route 11 and the CSX right-of-way. Additionally, the NWI Map for the Potsdam quadrangle indicates that a palustrine deciduous forested wetland (PFO1E) is present at the site. Wetland PFO1E is an approximately 14 acre wetland that comprises the northern drainage area. Sediment remedial alternatives would likely require completing applications for USACE and NYSDEC permits to conduct activities in the wetlands.

3. Remedial Action Objectives

3.1 General

This section presents remedial action objectives (RAOs) for impacted media that have been identified at the site. These RAOs represent medium-specific goals that are protective of human health and the environment (USEPA, 1988). These objectives are, in general, developed by considering the results of the Focused RI and the potential SCGs identified for the project area. The purposes for developing RAOs are to specify the COCs at the project area and to assist in developing quantitative goals for cleanup of the COCs in each media that may require remediation.

3.2 Remedial Action Objectives

RAOs are medium-specific goals that result in the protection of human health and the environment. The RAOs were used to evaluate potential remedial options relative to their capacity to protect human health and the environment considering exposure pathways and applicable SCGs.

The RAOs for the site, in consideration of COCs, exposure pathways, and receptors, are presented in the following table.

Environmental Media	COCs	Remedial Action Objective
Surface and Subsurface Soil	• (PCBs • SVOCs (primarily PAHs) • Inorganics	Eliminate or mitigate, to the extent practicable and feasible: • Direct contact/inhalation of impacted soil by current site workers, future site workers, off-site receptors and trespassers. • Direct contact/inhalation of contaminants in dust generated from soils by off-site receptors/residents and trespassers. • The potential for migration of contaminants in soil to groundwater. • Off-site migration of contaminants in soil via surface water runoff. • Impacts to biota from ingestion/direct contact or bioaccumulation through the terrestrial food chain.

Environmental Media	COCs	Remedial Action Objective
Groundwater and Surface Water	• PCBs • VOCs (primarily BTEX, 1,2-Dichloroethane and vinyl chloride)	Eliminate or mitigate, to the extent practicable and feasible: • Dermal contact with impacted groundwater by site workers, site visitors and trespassers. • Ingestion of impacted groundwater by site workers and site visitors. • Off-site migration of contaminants via groundwater.
Sediment	• PCBs • SVOCs (primarily PAHs) • Inorganics	Eliminate or mitigate, to the extent practicable and feasible: • Impacts to biota from ingestion of impacted sediments or from bioaccumulation through uptake through the aquatic food chain.

4. Technology Screening and Development of Remedial Alternatives

4.1 General

This section identifies remedial alternatives to achieve the RAOs described in Section 3.3. As an initial step, general response actions (GRAs) are identified to address impacted site media. GRAs are medium-specific and describe actions that will satisfy the RAOs, and may include various actions such as treatment, containment, institutional controls, excavation, or any combination of such actions. From the GRAs, potential remedial technology types and process options were identified and screened to determine those that are the most appropriate to address the environmental concerns identified at the site. Technologies/process options that were retained following the screening were used to develop remedial alternatives. Detailed evaluations of these remedial alternatives are presented in Section 5.

According to the USEPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (USEPA, 1988), the term "technology type" refers to general categories of technologies. The term "technology process options" refers to specific processes within each technology type. A series of technology types and associated technology process options has been assembled for each GRA identified. In accordance with the USEPA's guidance document, each technology type and associated processes are briefly described and evaluated against preliminary and secondary screening criteria. This approach is used to determine if the application of a particular technology type or process option is applicable given the site-specific conditions for remediation of the impacted media. Based on this screening, remedial technology types and process options are eliminated or retained and subsequently combined into potential remedial alternatives for further, more detailed evaluation. This approach is consistent with the screening and selection process provided in the NYSDEC's TAGM 4030, *Selection of Remedial Actions at Inactive Hazardous Waste Sites* (NYSDEC, 1990).

The NYSDEC Division of Environmental Remediation's (DER's) *Presumptive/Proven Remedial Technologies* (DER-15) allows for use of the industry's experience related to remedial cleanups to focus the evaluation of technologies to those that have been proven to be both feasible and cost-effective for specific site types/or contaminants. The objective of DER-15 is to use experience gained at remediation sites and scientific and engineering evaluation of performance data to make remedy selection efficient and consistent.

4.2 Identification of Remedial Technologies

Remedial technology types that are potentially applicable for addressing the impacted media at the site were identified through a variety of sources including review of scientific journals, vendor information, engineering experience, and review of the following documents:

- NYSDEC TAGM #4030 - Selection of Remedial Actions at Inactive Hazardous Waste Sites, (NYSDEC, 1990).
- Draft DER-10 (NYSDEC, 2002).
- *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (USEPA, 1988).
- *Remediation Technologies Screening Matrix and Reference Guide* (USEPA and USAF, 1993).

According to USEPA guidance (USEPA, 1988), technology types and process options can be identified by drawing on a variety of sources, including regulatory references and standard engineering texts not specifically directed toward impacted sites. Although each former PCB site offers its own unique site characteristics, the evaluation of remedial technology types and process options that are applicable to PCB-related impacts, or have been implemented at other PCB sites, is well documented. Therefore, this collective knowledge, experience, and regulatory acceptance of previous feasibility studies performed on PCB-related sites with similar impacts, were used to reduce the universe of potentially applicable process options for the site to those with documented success in achieving similar RAOs. The identified remedial technologies for addressing impacted soil, groundwater, and sediment are presented in the following sections.

4.3 General Response Actions

Based on the RAOs identified in Section 3, the following site-specific GRAs have been established:

Soil

- No Action
- Institutional Controls
- In-Situ Containment/Control
- In-Situ Treatment
- Removal
- Ex-Situ On-Site Treatment and/or Management
- Off-Site Treatment and/or Management

Groundwater

- No Action
- Institutional Controls
- In-Situ Containment/Control
- In-Situ Treatment
- Extraction
- Ex-Situ On-Site Treatment
- Off-Site Treatment and/or Management

Sediment

- No Action
- Institutional Controls
- In-Situ Containment/Control

- In-Situ Treatment
- Removal
- Ex-Situ On-Site Treatment and/or Management
- Off-Site Treatment and/or Management

Within each of these GRAs, remedial technology types were identified for each impacted site media, as described in the following subsection.

4.4 Remedial Technology Screening

Potentially applicable technologies and technology process options associated with each of the GRAs underwent preliminary and secondary screening to select the technologies that would most-effectively achieve the RAOs identified for the site. For the purposes of the screening evaluations, technology refers to a general category of technologies, such as capping or immobilization, while the technology process is a specific process within each technology type (e.g., asphalt cap, multi-media cap, jet-grouting, shallow soil mixing). A “no-further-action” GRA has been included and retained through the screening evaluation. The no-further-action GRA will serve as a baseline for comparing the potential overall effectiveness of the other technologies.

4.4.1 Preliminary Screening

The preliminary screening was performed to reduce the number of potentially applicable technologies and technology processes based on technical implementability. This screening was based on several considerations, including: successful full-scale demonstrations of the technology; compatibility of the technology with the specific media, location, and constituent distribution; time-frame to acquire necessary permits; and area required for setup/operation. The results of the preliminary screening of soil, groundwater, and sediment technologies/technology processes are presented in Tables 4-1 through 4-3.

4.4.2 Secondary Screening

A number of potentially applicable technologies and technology processes were retained through the preliminary screening. To further reduce the technology processes to be assembled into remedial alternatives, the technology processes were subjected to a secondary screening. The objective of the secondary screening was to choose, when possible, one representative remedial technology process for each remedial technology category to simplify the subsequent development and evaluation of the remedial alternatives. A description of the screening criteria is presented below.

- *Effectiveness* – This criterion evaluates the extent to which the technology process will mitigate potential threats to public health and the environment through the reduction in toxicity, mobility, and/or volume of constituents in impacted environmental media.

- *Implementability* – This criterion evaluates the ability to construct, reliably operate, and meet technical specifications or criteria associated with each technology process. This evaluation also considers the operation and maintenance (O&M) required in the future, following completion of remedial construction.

The remedial technology processes retained for soil, groundwater, and sediment through secondary screening are summarized in Tables 4-4 through 4-6 and are listed in the following subsection.

4.5 Summary of Retained Remedial Technologies

Remedial technologies retained through secondary screening are summarized below (by media type).

<u>Soil</u>

- *No Action* – The “No Action” alternative does not achieve the RAOs for soil. However, the alternative was retained to serve as a baseline against which other remedial options may be compared to.

- *Institutional Controls* – Institutional controls will not achieve RAOs as a stand-alone technology, but were retained because institutional controls can be easily implemented in conjunction with other remedial technologies to potentially reduce exposure of current and future site workers to impacted soils.

- *Capping* – Capping would primarily limit direct contact between site personnel, biota and impacted site media that may remain at the site. Depending on the type of cap, capping can also reduce stormwater infiltration through impacted media, thereby reducing the potential for the migration of contaminants in soil to groundwater, as well as covering impacted soils to prevent migration of COCs via surface water runoff. Several types of capping media could be considered including asphalt, soil, and multi-media.

- *Excavation* – Excavation is a proven remedial technology to address impacted soil. This technology would be effective at eliminating the potential for migration of contaminants in soil to groundwater, off-site migration of contaminants in soil via surface water runoff, and impacts to biota from ingestion/direct contact.

- *On-Site Management* – This technology provides a means to manage impacted media on-site in a manner to prevent future impacts to the environment and minimize the potential for exposure to humans or biota.

- *Off-Site Management* – This technology provides a means to manage excavated materials off-site in accordance with applicable rules and regulations.

<u>Groundwater</u>

- *No Action* – The "No Action" alternative does not achieve the RAOs for groundwater. However, the alternative was retained to serve as a baseline against which other remedial options may be compared to.

- *Institutional Controls* – Institutional controls will not achieve RAOs as a stand-alone technology, but were retained because institutional controls can be easily implemented in conjunction with other remedial technologies to reduce the potential exposure of current and future on-site workers to impacted groundwater.

- *Biological Treatment* – Biological treatment in the form of natural attenuation (e.g., degradation, advection, absorption, dispersion,) that would reduce COC concentrations. This reduction in dissolved-phase concentrations would be documented via periodic sampling of monitoring wells near and downgradient from areas where dissolved-phase impacts have been previously identified in groundwater. The RAOs for groundwater may potentially be achieved over an extended period of time.

- *Chemical Treatment* – Chemical treatment processes, such as in-situ chemical oxidation, are technologies that would treat dissolved-phase VOCs is groundwater.

Sediment

- *No Action* – The "No Action" alternative does not achieve the RAOs for sediment. However, the alternative was retained to serve as a baseline against which other remedial options may be compared.

- *Institutional Controls* – Institutional controls will not achieve RAOs as a stand-alone technology, but were retained because institutional controls can be easily implemented in conjunction with other remedial technologies to potentially reduce exposure of current and future site workers to impacted sediment.

- *Excavation* – Excavation of sediment is a proven remedial technology and is technically feasible for this site. Removal of impacted sediment would eliminate the impacts to biota from ingestion of impacted sediments and from bioaccumulation.

- *On-Site Management* – This technology provides a means to manage impacted media on-site in a manner to prevent future impacts to the environment and minimize the potential for exposure to humans or biota.

- *Off-Site Management* – This technology provides a means to manage excavated materials off-site in accordance with applicable rules and regulations.

4.6 Development of Remedial Alternatives

The retained remedial technologies were combined, as appropriate, to form media-specific remedial alternatives to address the RAOs established for the site. Consideration was given to the NCP (40 CFR Part 300.430), which indicates the following range of alternatives should be developed to the extent practical:

- The "No-Action" alternative.

- Alternatives that provide protection of human health and the environment by preventing or minimizing exposure to the COCs through the use of containment options and/or institutional controls.

- Alternatives that remove COCs to the extent possible, thereby minimizing the need for long-term management.

- Alternatives that treat the COCs but vary in the degree of treatment employed and long-term management needed.

The assembly and development of remedial alternatives is presented below.

4.6.1 Soil Remedial Alternatives

Remedial alternatives that have been developed for addressing the impacted soils at the site are presented in the following subsections. As indicated above, removal is the primary retained technology for addressing soil at this site. The assembled remedial alternatives reflect various levels of removal to meet various soil cleanup objectives and the RAOs established for the site. Detailed technical descriptions of the remedial alternatives are presented in Section 5.

4.6.1.1 Alternative S1 – No Further Action

Under this alternative, no remedial activities would be completed.

4.6.1.2 Alternative S2 –Institutional Controls

This alternative would consist of implementing institutional controls in the form of deed restrictions to restrict the property to industrial use only and notifying future owners of the presence of PCBs, SVOCs, and inorganic constituents in site soil. Additionally, a chain-link fence would be installed around the perimeter of the property to restrict access.

4.6.1.3 Alternative S3 – Capping of Soil Containing COCs > Ecological SCOs with Removal of Soil Beyond WSI Property Limits

This alternative would include installation of a cap over soils within the WSI property boundary that contain COCs at concentrations greater than 6NYCRR Part 375-6 restricted use soil cleanup objectives for the protection of ecological resources (ecological SCOs). This alternative would also consist of excavating soil from beyond the WSI property boundary and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs. Following removal, the excavated areas would be backfilled, as necessary, with imported fill materials that meet ecological SCOs. Excavated soil (from beyond the WSI property boundary) containing PCBs at concentrations greater than or equal to 50 ppm and soil excavated from the vicinity of monitoring well MW-209 would be transported for off-site management. Remaining excavated soil would be consolidated on-site and covered with the cap.

4.6.1.4 Alternative S4 – Excavation of Soil (PCBs ≥ 50 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

This alternative would consist of excavating soil containing PCBs at concentrations greater than or equal to 50 ppm (i.e., material considered a TSCA-regulated/New York State hazardous waste) and transporting this material for off-site management. Similar to Alternative S3, this alternative would also consist of excavating soil beyond the WSI property boundary and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs. Soil excavated from outside the WSI property containing COCs at concentrations greater than ecological SCOs and PCBs at concentrations less than 50 ppm (not including soil removed from the vicinity of monitoring well MW-209) would be consolidated on-site (i.e., used as backfill for excavation areas within the WSI property boundary). After excavated areas are filled and graded, a cap would then be placed over remaining soils within the WSI property that contain COCs at concentrations greater than ecological SCOs.

4.6.1.5 Alternative S5 – Excavation of Soil (PCBs ≥ 25 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

This alternative would consist of excavating soil containing PCBs at concentrations greater than 25 ppm (i.e., the 6NYCRR Part 375-6 restricted use soil cleanup objectives for industrial use) and transporting this material for off-site management. Similar to Alternatives S3 and S4, this alternative would also consist of excavating soil beyond the WSI property boundary and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs. Soil excavated from outside the WSI property containing COCs at concentrations greater than ecological SCOs and PCBs at concentrations less than 25 ppm (not including soil removed from the vicinity of monitoring well MW-209) would be consolidated on-site (i.e., used as backfill for excavation areas within the WSI property boundary). After excavated areas are filled and graded, a cap would then be placed over remaining soils within the WSI property that contain COCs at concentrations greater than ecological SCOs.

4.6.1.6 Alternative S6 – Excavation of Soil (PCBs ≥ 10 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

This alternative would consist of excavating soil containing PCBs at concentrations greater than 10 ppm (i.e., TAGM 4046 subsurface soil cleanup objective for PCBs) and transporting this material for off-site management. Similar to Alternatives S3 through S5, this alternative would also consist of excavating soil beyond the WSI property boundary and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs. Soil excavated from outside the WSI property containing COCs at concentrations greater than ecological SCOs and PCBs at concentrations less than 10 ppm (not including soil removed from the vicinity of monitoring well MW-209) would be consolidated on-site (i.e., used as backfill for excavation areas within the WSI property boundary). Excavation areas within the WSI property boundary would also be backfilled with imported fill that meets ecological SCOs. After excavated areas are filled and graded, a cap would then be placed over remaining soils within the WSI property that contain COCs at concentrations greater than ecological SCOs.

4.6.1.7 Alternative S7 – Excavation of Soil Containing COCs > Unrestricted Use SCOs with Off-Site Management

This alternative would consist of excavating soil both within and beyond the WSI property boundary containing COCs at concentrations greater than 6NYCRR Part 375-6 unrestricted use soil cleanup objectives. Excavated materials would be transported for off-site management and excavated areas would be backfilled, as necessary, with imported materials.

4.6.2 Groundwater Remedial Alternatives

Remedial alternatives that have been developed for addressing impacted groundwater at the site are presented in the following subsections. Detailed technical descriptions of the groundwater remedial alternatives are presented in Section 5.

4.6.2.1 Alternative GW1 – No Further Action

Under this alternative, no remedial activities would be completed.

4.6.2.2 Alternative GW2 – Institutional Controls

This alternative would consist of implementing institutional controls in the form of deed restrictions, appropriate signage, continued annual sampling of the water supply wells, and continued supply of bottled water for potable use to prevent future use of groundwater. Environmental land use restrictions (ELURs), or other institutional controls, would be established to restrict the use of site groundwater.

4.6.2.3 Alternative GW3 – Continued Monitoring

This alternative would consist of conducting annual groundwater monitoring of up to 10 new groundwater monitoring wells installed at locations where COCs were detected at concentrations greater than NYSDEC Class GA standards and guidance values to confirm that dissolved-phase COC concentrations are attenuating through natural processes (e.g., degradation, dispersion, dilution, and metabolism). Until a time when dissolved-phase concentrations of COCs could be reduced to NYSDEC Class GA standards and guidance values, ELURs would be established to restrict future use of site groundwater. Additional institutional controls, including (but not limited to) signage and continued supply of bottled water for potable use, would also be established. Annual sampling of the water supply wells would also be continued.

4.6.2.4 Alternative GW4 – Chemical Oxidation of Dissolved-Phase VOCs

This alternative would consist of implementing in-situ chemical oxidation (ISCO) to address dissolved-phase BTEX in groundwater in the vicinity of monitoring well MW-209. Following oxidant application, new monitoring wells (installed as part of this alternative) would be periodically monitored to evaluate groundwater quality in this portion of the site. Until a time when dissolved-phase concentrations of COCs could be reduced to NYSDEC Class GA standards and guidance values, ELURs and additional institutional controls, including (but not limited to) signage and continued supply of bottled water for potable use, would be established to restrict future use of site groundwater. Annual sampling of the water supply wells would also be continued.

4.6.3 Sediment Remedial Alternatives

Remedial alternatives that have been developed for addressing the impacted sediment within the northern and southern drainage area wetlands are presented below. Detailed technical descriptions of the sediment remedial alternatives are presented in Section 5.

4.6.3.1 Alternative SD1 – No Further Action

Under this alternative, no remedial activities would be completed.

4.6.3.2 Alternative SD2 – Institutional Controls

This alternative would consist of implementing institutional controls in the form of deed restrictions to prevent or limit future development/use of the northern and southern drainage wetland areas. Environmental easements, or other institutional controls, would notify future owners of the presence of PCBs in wetland sediments. Note that the current property owner would have to agree to place a deed restriction(s) on the northern drainage area.

4.6.3.3 Alternative SD3 – Average-Based Sediment Removal to Achieve PCBs < 1 ppm with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

This remedial alternative would consist of excavating northern and southern drainage area wetland sediments to achieve an average sediment PCB concentration less than 1 ppm. Sediment removal areas (delineated and defined as described in Section 5) would be selected for excavation such that the average PCB concentration remaining in northern and southern drainage area wetland sediments would be less than 1 ppm. Excavated sediment would be managed as follows:

- Excavated sediment containing PCBs at concentrations greater than or equal to 50 ppm (i.e., material considered a TSCA-regulated/New York State hazardous waste) would be transported for off-site management.

- Excavated sediment containing PCBs at concentrations less than 50 ppm would be stabilized and consolidated within the WSI property beneath a cap or managed off-site as a non-hazardous waste.

Implementation of this alternative assumes that the selected soil remedial alternative includes construction of a cap. Following removal activities, wetland areas would be restored using appropriate imported fill materials suitable for wetland development and appropriate vegetation (i.e., wetland plantings, shrubs, and trees). Success of this remedy would be gauged based on long-term monitoring of biota in the restored wetland.

4.6.3.4 Alternative SD4 – Area-Based Sediment Removal (PCBs > 1 ppm) with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

This alternative would consist of excavating northern and southern drainage area wetland sediment containing PCBs at concentrations greater than 1 ppm. Sediment would be removed from the southern drainage areas, the drainage swale, and the northern drainage area. Excavated sediment would be managed as follows:

- Excavated sediment containing PCBs at concentrations greater than or equal to 50 ppm (i.e., material considered a TSCA-regulated/New York State hazardous waste) would be transported for off-site management.

- Excavated sediment containing PCBs at concentrations less than 50 ppm would be stabilized and consolidated beneath a cap or managed off-site as a non-hazardous waste.

Implementation of this alternative assumes that the selected soil remedial alternative includes construction of a cap. Following removal activities, wetland areas would be restored using appropriate imported fill materials suitable for wetland development and appropriate vegetation (i.e., wetland plantings, shrubs, and trees). Success of this remedy would be gauged based on long-term monitoring of biota in the restored wetland.

4.6.3.5 Alternative SD5 – Area-Based Sediment Removal (PCBs > 0.1 ppm) with Off-Site Management

This alternative would consist of excavating sediment containing PCBs at concentrations greater than 0.1. Sediment would be removed from the southern drainage areas, the drainage swale, and the northern drainage area. Excavated materials would be transported for off-site management. Following removal activities, wetland areas would be restored using appropriate imported fill materials suitable for wetland development and appropriate vegetation (i.e., wetland plantings, shrubs, and trees). Success of this remedy would be gauged based on long-term monitoring of biota in the restored wetland.

5. Detailed Evaluation of Remedial Alternatives

5.1 General

This section presents detailed descriptions of the remedial alternatives developed to achieve the RAOs for soil, groundwater, and wetland sediment at the WSI site. Each of the retained remedial alternatives are described and evaluated with respect to the criteria presented in the NYSDEC guidance for Feasibility Studies in TAGM 4030 (NYSDEC, 1990) and “Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA” (USEPA, 1988). The results of the detailed evaluation of remedial alternatives will be used to aid in the recommendation of appropriate alternatives to be implemented at the site.

5.2 Description of Evaluation Criteria

The detailed evaluation of remedial alternatives presented in this section consists of an assessment of each assembled alternative (presented in Section 4.5) against the following seven evaluation criteria:

- Short-Term Effectiveness
- Long-Term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, or Volume
- Implementability
- Compliance with SCGs
- Overall Protection of Human Health and the Environment
- Cost

These evaluation criteria encompass statutory requirements and include other gauges such as overall feasibility. Descriptions of the evaluation criteria are presented in the following sections.

Additional criteria, including public and state acceptance, will be addressed following submittal of this Feasibility Study Report.

5.2.1 Short-Term Effectiveness

The short-term effectiveness of the remedial alternative is evaluated relative to its effect on human health and the environment during implementation of the alternative. The evaluation of each alternative with respect to its short-term effectiveness will consider the following:

- Short-term impacts to which the community may be exposed during implementation of the alternative.
- Potential impacts to workers during implementation of the remedial actions and the effectiveness and reliability of protective measures.
- Potential environmental impacts of the remedial action and the effectiveness of mitigative measures to be used during implementation.
- Amount of time until protection is achieved.

Additional items to be considered when evaluating the remedial alternative relative to its short-term effectiveness are identified as specific considerations in "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (USEPA, 1988).

In addition, an evaluation of the relative contributions of greenhouse gas emissions (i.e., Carbon Footprint) is provided for each alternative, as appropriate. The carbon footprint of each alternative is compared relative to the other alternatives to understand the relative contribution to greenhouse gas emissions. The relative carbon footprint estimation considers sources such as combustion of fuels and combustion of fuels associated with excavation and transportation.

5.2.2 Long-Term Effectiveness and Permanence

The evaluation of each remedial alternative relative to its long-term effectiveness and permanence is made by considering the risks that may remain following completion of the remedial alternative. The following factors will be assessed in the evaluation of the alternative's long-term effectiveness and permanence:

- Potential environmental impacts from untreated waste or treatment residuals remaining at the completion of the remedial alternative.

- The adequacy and reliability of controls (if any) that will be used to manage treatment residuals or remaining untreated waste.

- The remedial alternative's ability to meet RAOs established for the site.

5.2.3 Reduction of Toxicity, Mobility, or Volume

This evaluation criterion addresses the degree to which the remedial alternative will permanently and significantly reduce the toxicity, mobility, or volume of the constituents present in the site media. The evaluation focuses on the following factors:

- The treatment process and the amount of materials to be treated.

- The anticipated ability of the treatment process to reduce the toxicity, mobility, or volume.

- The nature and quantity of treatment residuals that will remain after treatment.

- The relative amount of hazardous substances, pollutants, or contaminants that will be destroyed, treated, or recycled.

- The degree to which the treatment is irreversible.

5.2.4 Implementability

This criterion addresses the technical and administrative feasibility of implementing the remedial alternative, including the availability of the various services and materials required for implementation. The following factors are considered during the implementability evaluation:

- *Technical Feasibility* – This factor refers to the relative ease of implementing or completing the remedial alternative based on site-specific constraints. In addition, the remedial alternative's constructability and operational reliability are considered, as well as the ability to monitor the effectiveness of the remedial alternative.

- *Administrative Feasibility* – This factor refers to the feasibility of acquiring and the time required to obtain any necessary approvals and permits.

Specific considerations that should be evaluated for a remedial alternative relative to its implementability are identified in the USEPA's guidance (USEPA, 1988). The additional specific considerations that were considered during the evaluation included:

- Difficulties and uncertainties associated with construction
- Acquisition of permits for off-site activities, if required
- Availability and demonstrated success of technology under consideration

5.2.5 Compliance with SCGs

This criterion evaluates the remedial alternative's ability to comply with SCGs. The following items are considered during evaluation of the remedial alternative:

- Compliance with chemical-specific SCGs
- Compliance with action-specific SCGs
- Compliance with location-specific SCGs

This evaluation criterion also addresses whether the remedial alternative would be in compliance with other appropriate federal and state criteria, advisories, and guidance. Applicable chemical-, action-, and location-specific SCGs are presented in Tables 2-1 through 2-3, respectively.

5.2.6 Overall Protection of Human Health and the Environment

This criterion evaluates whether the alternative provides adequate protection of human health and the environment. This evaluation relies on the assessments conducted for other evaluation criteria, including long-term and short-term effectiveness and compliance with SCGs.

5.2.7 Cost

This criterion evaluates the estimated total cost to implement the remedial alternative. The total cost of each alternative represents the sum of the direct capital costs (materials, equipment, and labor), indirect capital costs (engineering, licenses/permits, and contingency allowances), and O&M costs. O&M costs may include operating labor, energy, chemicals, and sampling and analysis. These costs will be estimated with an anticipated accuracy between -30% to +50% in accordance with the USEPA document titled *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (USEPA, 1988). A 20% contingency factor is included to cover unforeseen costs incurred during implementation of the remedial alternative. Present-worth costs are calculated for alternatives expected to last more than 2 years. In accordance with USEPA guidance presented in OSWER Directive 9355.3-20 as superseded by OSWER 9355.0-75, a 7% discount rate (before taxes and after inflation) is used to determine the present-worth factor.

5.3 No Action Alternative

The "No Action" alternative was retained for evaluation for each of the environmental media to be addressed at the site as required by USEPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (USEPA, 1988) and NCP regulations. Because the "No Action" alternative applies to each medium, this alternative is evaluated in detail once below and applies to each of the environmental media.

The "No Action" alternative serves as the baseline for comparison of the overall effectiveness of the other remedial alternatives. The "No Action" alternative would not involve implementation of any remedial activities to address the COCs in the environmental media at the site. The site would be allowed to remain in its current condition and no effort would be made to change the current site conditions.

<u>Short-Term Effectiveness</u>

No remedial action would be implemented for the impacted environmental media at the site; therefore, there would be no short-term environmental impacts or risks posed to the community.

<u>Long-Term Effectiveness and Permanence</u>

Under the "No Action" alternative, the COCs in site media would not be addressed. As a result, this alternative would not meet the RAOs identified for the site.

<u>Reduction of Toxicity, Mobility, or Volume</u>

Under the “No Action” alternative, environmental media would not be treated (other than by natural processes), recycled, or destroyed. Therefore, the toxicity, mobility, and volume of the COCs in the impacted environmental media at the site would not be reduced through treatment.

<u>Implementability</u>

The “No Action” alternative does not require implementation of any remedial activities.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs*: Because removal or treatment is not included as part of this alternative, the chemical-specific SCGs identified for the site would not be met with this alternative.

- *Action-Specific SCGs*: This alternative does not involve implementation of any remedial activities; therefore, the action-specific SCGs are not applicable.

- *Location-Specific SCGs*: Because no remedial activities would be conducted under this alternative, the location-specific SCGs are not applicable.

<u>Overall Protection of Human Health and the Environment</u>

The “No Action” alternative does not address the impacted environmental media. Therefore, the “No Action” alternative would be ineffective and would not meet the RAOs established for environmental media at the site.

<u>Cost</u>

The “No Action” alternative does not involve implementation of any remedial activities; therefore, there are no costs associated with this alternative.

5.4 Detailed Evaluation of Soil Alternatives

This section presents the detailed analysis of each of the soil remedial alternatives previously identified in Section 4.

- Alternative S2 – Institutional Controls
- Alternative S3 – Capping of Soil Containing COCs > Ecological SCOs with Removal of Soil Beyond WSI Property Limits
- Alternative S4 – Excavation of Soil (PCBs ≥ 50 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping
- Alternative S5 – Excavation of Soil (PCBs ≥ 25 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping
- Alternative S6 – Excavation of Soil (PCBs ≥ 10 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping
- Alternative S7 – Excavation of Soil Containing COCs > Ecological SCOs with Off-Site Management

Each alternative is evaluated against the seven evaluation criteria described above (as indicated, public and state acceptance will be evaluated following submittal of this Feasibility Study Report). The “No Action” alternative was previously evaluated in Section 5.3.

5.4.1 Alternative S2 – Institutional Controls

This alternative would use environmental easements (e.g., ELURs), deed restrictions and physical constraints (e.g., fencing) to limit the potential for direct contact with impacted soil by site workers, future site workers, and trespassers. Under this alternative, impacted surface and subsurface soil would remain in place and would not be subject to remedial activities. Environmental easements and deed restrictions would be established for the WSI property and areas beyond the WSI property to limit the potential future uses of the site and restrict current and future property owners from performing intrusive activities (e.g., excavation activities that would result in exposure of site workers to surface and subsurface soils). As WSI does not own the adjacent properties, WSI would negotiate with and obtain approval from the current property owners to establish institutional controls for areas beyond the WSI property.

Additionally, WSI or future site owners would conduct an SVI investigation to evaluate potential soil vapor intrusion into any new buildings that may be constructed at the site in the future or if the use of current site buildings changes. The specific controls implemented under this alternative would be identified through consultation with NYSDEC and NYSDOH.

Security fencing with appropriate signage would be installed along the perimeter of the property to limit site access by trespassers and other unauthorized personnel. This alternative would also include preparation of a site management plan (SMP) to:

- Provide health and safety requirements for future site activities
- Identify known locations of site soils impacted with PCBs, SVOCs, and inorganic constituents
- Establish inspection and maintenance requirements for site fencing and signage

Site fencing maintenance activities would be completed, as needed, in accordance with the SMP. Additionally, periodic reports would be filed with NYSDEC and NYSDOH to document that institutional controls and site fencing are maintained and remain effective.

<u>Short-Term Effectiveness</u>

No active remediation would be implemented under this alternative. Therefore, no short-term impacts would be presented to the surrounding community, construction workers, or the environment during implementation of this alternative. Negligible additional greenhouse gas emissions (e.g., combustion of fuels) are associated with this alternative (i.e., installation of a chain-link fence).

<u>Long-Term Effectiveness and Permanence</u>

Under this alternative, potential direct contact with soils containing PCBs, SVOCs and inorganic constituents would be limited by site fencing and long-term monitoring and maintenance of the newly installed fencing. Future site workers would potentially be exposed to impacts remaining in soils during routine site operations and fence inspection and maintenance activities.

The SMP would provide health and safety requirements to protect human health and safety during routine site operations and other site construction activities (e.g., site development, utility installation, building construction, etc.). Based on the scope of future site activities, modifications to the deed restrictions and the SMP would be presented to NYSDEC and NYSDOH for review and approval, as appropriate. Both the deed restrictions and the SMP would be apparent to future site owners (if any) during due diligence activities performed in connection with property transfer.

Alternative S2 would not meet the soil RAOs of eliminating/mitigating exposure to potentially impacted soils and dust, migration of impacts in soil to groundwater and surface water runoff, and impacts to biota from ingestion/direct contact or bioaccumulation. Therefore, this alternative is not considered effective on a long-term basis.

Reduction of Toxicity, Mobility, or Volume

As indicated above, no remedial action would be implemented under this remedial alternative. Therefore, implementation of this remedial alternative would not reduce the toxicity, mobility, or volume of PCBs, SVOCs, or inorganic constituents present in site soil.

Implementability

This remedial alternative would be both technically and administratively implementable. Only minimal coordination with state agencies (i.e., NYSDEC and NYDOH) would be required to implement appropriate institutional controls. WSI Group would have to negotiate with and obtain approval from current property owners to establish institutional controls for areas beyond the WSI property. Contractors capable of installing a chain-link fence are readily available.

The anticipated time associated with the implementation of Alternative S2 would be approximately one month and long-term monitoring and maintenance has been assumed to last 30 years.

Compliance with SCGs

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. Potentially applicable chemical-specific SCGs include 6NYCRR Part 375-6 soil cleanup objectives and 40 CFR Part 761 regulations for the management of PCB-impacted materials. Site soil contains PCBs, SVOCs, and inorganic constituents at concentrations greater than the 6NYCRR Part 375-6 soil cleanup objectives. As this alternative does not include any treatment, removal, or containment of impacted soil, Alternative S2 would not achieve the chemical-specific SCGs.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include general health and safety requirements. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with action-specific SCGs would be accomplished by following an NYSDEC-approved Remedial Design/Remedial Action (RD/RA) Work Plan and a site-specific health and safety plan (HASP).

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the appropriate local and state permits and approvals prior to conducting site activities. However, as no active remediation would be conducted, permits may not be required for this alternative.

<u>Overall Protection of Human Health and the Environment</u>

Potential exposure to soil containing COCs at concentrations greater than 6NYCRR Part 375-6 soil cleanup objectives would be mitigated by new site fencing and institutional controls, which would physically limit access to the site. Exposure to COCs during implementation of this alternative would be minimal and would be mitigated by compliance with appropriate health and safety regulations. However, the RAO of eliminating long-term direct exposure of site workers to impacted soil would not be addressed, as Alternative S2 does not include treatment, removal, or containment of impacted soil. Furthermore, the RAOs related to migration of COCs in soil to groundwater, surface water runoff, and biota would not be addressed by the implementation of this alternative. Therefore, Alternative S2 is not considered protective of human health and the environment.

<u>Cost</u>

The estimated costs associated with Alternative S2 are presented in Table 5-1. The total estimated 30-year present worth cost for this alternative is approximately $390,000. The estimated capital cost, including costs for acquisition of deed restrictions and installation of site fencing, is approximately $230,000. The 30-year present worth cost of O&M activities associated with this alternative, including annual verification of institutional controls and inspection/maintenance of site fencing, is approximately $160,000.

5.4.2 Alternative S3 – Capping of Soil Containing COCs > Ecological SCOs with Removal of Soil Beyond WSI Property Limits

Under this alternative, a cap would be installed over soils within the WSI property containing COCs at concentrations greater than ecological SCOs. The cap would be constructed directly on the existing grade. The approximate extent of the proposed cap is shown on Figure 5-1. The primary performance objective of the cap would be to prevent direct exposure to impacted materials that would remain at the site and the cap would not necessarily be designed serve as a low-permeability barrier. The actual construction materials of the cap would be determined during the remedial design (RD) phase. However, for the purpose of developing this alternative, the cap is assumed to consist of the following:

- Demarcation layer – a light-weight non-woven geotextile would be placed on the existing ground surface or over consolidated material

- Base layer – 12 inches of compacted clay or other suitable material

- Top layer – 6 inches of gravel or vegetated topsoil

This remedial alternative would also consist of excavating soil beyond the WSI property boundary and soil in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs. Verification soil samples would be collected along the sidewalls and bottom of the soil excavations to confirm that soils at the limits of the excavations do not contain COCs at concentrations greater than ecological SCOs. After confirming that the soil removal objectives have been met, the excavations would be backfilled with imported soils that meet ecological SCOs. For areas that are excavated only for the presence of SVOC and/or inorganic constituents, the maximum excavation depth was assumed to be two feet bgs. This depth corresponds to the interval that is likely to contain the greatest amount of burrowing by biota. Excavation activities in the vicinity of monitoring well MW-209 would be completed to a depth of approximately six feet bgs to address impacted soil that potentially serves as a source for dissolved-phase impacts detected in groundwater samples collected from monitoring well MW-209. The extent and depth of excavation areas to address soil containing COCs at concentrations greater than ecological SCOs beyond the WSI property boundary and near monitoring well MW-209 are shown on Figure 5-1 and include approximately 5,000 cubic-yards (CY) of material.

Excavation of impacted soil would generally be conducted using conventional construction equipment such as backhoes, excavators, front-end loaders, dump trucks, etc. A stormwater pollution prevention plan (SPPP) would developed as part of the RD phase and erosion controls (i.e., silt fencing) would be placed around excavation and material staging areas to minimize soil erosion in these areas. Following removal, the excavated soil would be segregated (i.e., soil containing PCBs at concentrations greater than or equal to 50 ppm and less than 50 ppm would be staged separately) and stockpiled in an on-site staging area(s) to facilitate handling, stabilization (via gravity dewatering, and/or mixing with dryer soils or stabilizing agents), and waste characterization sampling prior to transportation for off-site management. Excavated soil containing PCBs at concentrations greater than or equal to 50 ppm (approximately 100 CY) would be transported for off-site management as a TSCA-regulated/New York State hazardous waste at a RCRA Subtitle C landfill. Soil excavated from the vicinity of monitoring well MW-209 would be transported for off-site management as a non-hazardous waste. Remaining soil would be consolidated on-site prior to installation of the site cap. For the purposes of establishing a cost estimate, it was assumed that water generated during excavation and soil dewatering activities would be temporarily stored on-site and subsequently transported off-site to an appropriate treatment facility.

Following construction of the cap, an operation, monitoring, and maintenance (OM&M) plan would be developed and implemented to monitor the cap for erosion and to repair the cap, as needed, to maintain its integrity. Similar to Alternative S2, an SMP would be developed for the site. Construction of the cap would raise the site grade. The need for additional stormwater management would be evaluated during the RD phase.

In addition, deed restrictions would be implemented to prevent current or future site owners from conducting activities that would jeopardize the integrity of the cap. Deed restrictions would also be established for the areas beyond the WSI property to limit the potential future use and restrict current and future property owners from performing intrusive activities (e.g., excavation activities that would result in exposure of site workers to surface and subsurface soils containing PCBs at concentrations less than 1 ppm). As WSI does not own the adjacent properties, WSI would negotiate with and obtain approval from the current property owners to establish institutional controls for areas beyond the WSI property.

Additionally, WSI or future site owners would conduct an SVI investigation to evaluate potential soil vapor intrusion to any new buildings that are constructed at the site in the future and if the use of any existing site buildings changes.

<u>Short-Term Effectiveness</u>

Implementation of this alternative may result in short-term exposure to the surrounding community and site workers as a result of excavation, material handling, and off-site transportation activities. Potential exposure mechanisms would include ingestion and dermal contact with impacted soil and inhalation of dust containing COCs. Potential exposure of site workers would be minimized by the use of appropriate personnel protective equipment (PPE), as specified in a site-specific HASP that would be developed as part of the RD. Air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls (e.g., use of water sprays to suppress dust, modify the rate of construction activities, etc.). Community access to the site during remedial construction would be restricted by temporary site fencing. A community air monitoring plan (CAMP) would be prepared and community air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls.

Additional worker safety concerns include working with and around large construction equipment, noise generation from operating construction equipment, and increased vehicular traffic associated with transportation of excavated material from the site and delivery of backfill. These concerns would be minimized by the use of engineering controls and appropriate health and safety practices. Off-site transportation of excavated material and importation of clean fill materials (for backfilling and cap construction) would result in approximately 2,100 tractor trailer round trips (assuming 20 CY per tractor trailer). This increase in local truck traffic would create a nuisance for the surrounding community and increase the potential for motor vehicle accidents on local roads and highways. The transportation activities would be managed to minimize en-route risks to the community.

The relative carbon footprint (as compared to the other soil alternatives) is considered minimal. This remedial alternative would be completed in approximately six months. The greatest contribution to greenhouse gases would occur as a result of heavy equipment operation during excavation, backfilling, and transportation activities.

Long-Term Effectiveness and Permanence

This remedial alternative would meet the RAO of mitigating the potential for human and/or biota exposure to impacted surface and subsurface soil. Although this alternative does not include treatment or removal of all impacted soil, installation of a physical barrier (i.e., the cap) would reduce potential exposure to impacted soil.

Capping requires monitoring and maintenance, along with use restrictions of the capped area for this alternative to remain effective and reliable over the long-term. Annual inspection of the cap would be conducted and maintenance activities would potentially include replacing removed/eroded areas of the cap. Repair and replacement of the cap would be easily accomplished as the cap would be constructed of readily available materials.

Alternative S3 meets the soil RAOs of eliminating/mitigating exposure to soil and dust containing COCs, migration of impacted materials to surface water, and impacts to biota from ingestion/direct contact or bioaccumulation. However, this alternative alone does not address the potential for migration of COCs in soil to groundwater.

Reduction of Toxicity, Mobility, or Volume

This alternative includes removal of approximately 5,000 CY of soil from beyond the WSI property boundary and in the vicinity of monitoring well MW-209 that contains PCBs, SVOCs, and/or inorganic constituents at concentrations greater than 6NYCRR Part 375-6 restricted use soil cleanup objectives for the protection of ecological resources. Other impacted soil would remain beneath the cap and would not be subject to treatment to reduce the toxicity or volume.

Implementability

This remedial alternative would be both technically and administratively implementable. Equipment and materials necessary to construct the cap are readily available, as are remediation contractors capable of installing the cap (i.e., no highly specialized equipment, materials, or personnel would be required).

Challenges associated with the implementation of this alternative would consist of the following:

- Conducting cap construction activities at the active scrap yard in high-traffic areas. Coordination of cap installation activities with ongoing daily site activities would be required to address potential conflicts.

- Excavating soil that is not within the WSI property. Access agreements with the property owner(s) would be required prior to the implementation of this alternative.

- Excavating soil in close proximity to the active railroad in the southern portion of the site. The need for excavation support near the railroad would be evaluated as part of the RD.

- Establishing institutional controls on property not owned by WSI. WSI Group would have to negotiate with the current property owners to establish institutional controls for areas beyond the WSI property.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. Potentially applicable chemical-specific SCGs include 6NYCRR Part 375-6 soil cleanup objectives and 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations for the identification and management of PCB-impacted materials.

  Site soils contain COCs at concentrations greater than the 6NYCRR Part 375-6 soil cleanup objectives. This alternative includes excavation of soil outside the limits of the WSI property and near monitoring well MW-209 that contains COCs at concentrations greater than the ecological SCOs.

  Excavated material would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations. Soil excavated during implementation of this remedial alternative would be characterized to determine appropriate off-site management requirements. If any of the materials are characterized as a hazardous waste, RCRA land disposal regulations (LDRs) would be applicable. This alternative would not meet the chemical-specific SCGs.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include health and safety requirements and regulations associated with handling impacted soil. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with these action-specific SCGs would be accomplished by following a site-specific HASP.

Soil excavated during implementation of this remedial alternative would be subject to USDOT requirements for packaging, labeling, manifesting, and transporting hazardous or regulated materials. Compliance with these requirements would be achieved by following an NYSDEC-approved RD/RA Work Plan and utilizing licensed waste transporters and properly permitted disposal facilities.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

Overall Protection of Human Health and the Environment

As indicated above, this remedial alternative would meet the RAO of mitigating the potential for human and/or biota exposure to impacted surface and subsurface soil. Although this alternative does not include treatment or removal of all impacted soil, installation of a physical barrier (i.e., the cap) would reduce potential exposure to impacted soil. This alternative would achieve the RAOs by constructing a cap and excavating impacted materials beyond the WSI property boundary. Exposure to COCs during implementation of this alternative would be mitigated by compliance with appropriate health and safety regulations. Although impacted soil would remain, this alternative would isolate remaining impacted and consolidated soils beneath a cap and reduce the potential for exposure to humans and biota.

Cost

The estimated costs associated with Alternative S3 are presented in Table 5-2. The total estimated 30-year present worth cost for this alternative is approximately \$2,900,000. The estimated capital cost, including costs for a cap, excavation and backfilling, on-site soil consolidation, and off-site soil management, is approximately \$2,700,000. The 30-year present worth cost of O&M activities associated with this alternative, including annual verification of institutional controls and inspection/maintenance of the cap, is approximately \$200,000.

5.4.3 Alternative S4 – Excavation of Soil (PCBs ≥ 50 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

This remedial alternative would consist of removing PCB-impacted soils and constructing a cap. Under this alternative, soil containing PCBs at concentrations greater than or equal to 50 ppm (i.e., material considered a TSCA-regulated/New York State hazardous waste) would be excavated, staged, and transported for off-site management. Soil excavation activities would include the removal of saturated and unsaturated soil to a maximum depth of approximately six feet below ground surface (bgs). The approximate limits of soil containing PCBs at concentrations greater than or equal to 50 ppm are shown on Figure 5-2 and include approximately 5,400 CY of PCB-impacted soil (including approximately 100 CY of soil excavated beyond the WSI property boundary).

This remedial alternative would also consist of excavating approximately 5,000 CY of soil from beyond the WSI property boundary and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs. Verification soil samples would be collected along the sidewalls and bottom of the soil excavations to confirm that soils at the limits of the excavations do not contain COCs at concentrations greater than ecological SCOs. For areas that are excavated only for the presence of SVOC and/or inorganic constituents, the maximum excavation depth was assumed to be two feet bgs. This depth corresponds to the interval that is likely to contain the greatest amount of burrowing by biota. Excavation activities in the vicinity of monitoring well MW-209 would be completed to a depth of six feet bgs to address impacted soil that serves as a source for dissolved-phase impacts detected in groundwater samples collected from monitoring well MW-209. The extent and depth of excavation areas to address soils containing COCs at concentrations greater than ecological SCOs beyond the WSI property boundary are shown on Figure 5-2.

Excavation of impacted soil would be completed with the same equipment and methods as described under Alternative S3. Following removal, the excavated soil would be segregated (i.e., soil containing PCBs at concentrations greater than or equal to 50 ppm and less than 50 ppm would be staged separately) and stockpiled in an on-site staging area(s) to facilitate handling, stabilization (via gravity dewatering, and/or mixing with dryer soils or stabilizing agents), and waste characterization sampling for off-site management. Excavated soil would be managed as described under Alternative S3. For the purposes of establishing a cost estimate, it was assumed that water generated during excavation and soil dewatering activities would be temporarily stored on-site and subsequently transported off-site to an appropriate treatment facility.

Soil excavated from beyond the WSI property boundary that contains PCBs at concentrations less than 50 ppm would be consolidated on-site (i.e., used as backfill for excavations areas within the WSI property boundary). Excavation areas beyond the WSI property boundary would be backfilled with imported soil that would meet ecological SCOs. A cap would be installed over remaining soils and consolidated material containing COCs at concentrations greater than ecological SCOs. Similar to Alternative S3, the primary performance objective of the cap would be to prevent direct exposure to impacted materials that would remain at the site and the cap would not necessarily be designed serve as a low-permeability barrier. The actual construction materials of the cap would be determined during the RD. However, for the purpose of developing this alternative, the cap is assumed to consist of the following:

- Demarcation layer – a light-weight non-woven geotextile would be placed on the existing groundwater surface or over consolidated material

- Base layer – 12 inches of compacted clay or other suitable material

- Top layer – 6 inches of gravel or vegetated topsoil

The need for additional stormwater management would be evaluated during the RD phase. Following construction of the cap, an OM&M plan would be developed and implemented to monitor the cap for erosion. Similar to other soil alternatives, an SMP would be developed for the site.

This alternative would also require preparation of deed restrictions to limit future use of the site, as well as provide protocols for conducting invasive activities (e.g., excavation) and handling and managing soil generated during these activities. Deed restrictions would also be established for the areas beyond the WSI property to limit the potential future use and restrict current and future property owners from performing intrusive activities (e.g., excavation activities that would result in exposure of site workers to surface and subsurface soils containing PCBs at concentrations less than 1 ppm). As WSI does not own the adjacent properties, WSI would negotiate with and obtain approval from the current property owners to establish institutional controls for areas beyond the WSI property.

Additionally, WSI or future site owners would conduct an SVI investigation to evaluate potential soil vapor intrusion to any new buildings that are constructed at the site in the future and if the use of any existing site buildings changes.

Short-Term Effectiveness

Implementation of this alternative may result in short-term exposure to the surrounding community and site workers as a result of excavation, material handling, and off-site transportation activities. Potential exposure mechanisms would include ingestion and dermal contact with impacted soil and inhalation of dust containing COCs. Potential exposure of site workers to these impacted media during remedial construction would be minimized by the use of appropriate PPE, as specified in a site-specific HASP that would be developed as part of the RD. Air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls (e.g., use of water sprays to suppress dust, modify the rate of construction activities, etc.). Community access to the site during remedial construction would be restricted by temporary site fencing. A site-specific CAMP would also be prepared and community air monitoring would be performed during implementation of this alternative.

Additional worker safety concerns include working with and around large construction equipment, noise generation from operating construction equipment and increased vehicular traffic associated with transportation of excavated material from the site and delivery of backfill. These concerns would be minimized by the use of engineering controls and appropriate health and safety practices. Off-site transportation of excavated material and importation of clean fill materials (for backfilling and cap construction) would result in approximately 2,400 tractor trailer round trips (assuming 20 CY per tractor trailer). This increase in local truck traffic would create a nuisance for the surrounding community and increase the potential for motor vehicle accidents on local roads and highways. The transportation activities would be managed to minimize en-route risks to the community.

The relative carbon footprint (as compared to the other soil alternatives) is considered low. This remedial alternative would be completed in approximately seven months. The greatest contribution to greenhouse gases would occur as a result of heavy equipment operation during excavation, backfilling, and transportation activities.

Long-Term Effectiveness and Permanence

This remedial alternative would meet the RAO of mitigating the potential for human and/or biota exposure to impacted surface and subsurface soil. Alternative S4 includes excavation, on-site consolidation and off-site management of excavated soil, and installation of a physical barrier (i.e., a cap) that would prevent the potential for exposure of humans and biota to impacted soil that would remain at the site.

Excavation is an irreversible process and capping requires monitoring and maintenance, along with use restrictions of the capped area for this alternative to remain effective and reliable over the long-term. Annual inspection of the integrity of the cap would be conducted and maintenance activities would potentially include replacing removed/eroded areas of the cap. Repair and replacement of the cap would be easily accomplished as the cap would be constructed of readily available materials.

This alternative meets the soil RAOs of eliminating/mitigating exposure to soil and dust containing COCs, migration of impacts to surface water, and impacts to biota from ingestion/direct contact or bioaccumulation. The soil RAO of eliminating/mitigating the migration of impacts to groundwater would be somewhat addressed as the soils containing the highest concentration of PCBs would be permanently removed. However, soil containing PCBs at concentrations less than 50 ppm and SVOCs and inorganic constituents at concentrations greater than ecological SCOs would remain beneath the cap.

<u>Reduction of Toxicity, Mobility, or Volume</u>

This alternative includes excavation and off-site management of approximately 5,400 CY of soil containing PCBs at concentrations greater than or equal to 50 ppm (including 100 CY of soil removed beyond the WSI property boundary) and 500 CY of soil containing COCs at concentrations greater than ecological SCOs from the vicinity of monitoring well MW-209 and on-site consolidation of 4,400 CY of soil containing COCs at concentrations greater than ecological SCOs excavated from beyond the WSI property boundary. Other impacted soil would remain beneath the cap and would not be subject to treatment to further reduce the toxicity or volume.

<u>Implementability</u>

This remedial alternative would be both technically and administratively implementable. Equipment and materials necessary to excavate soil and construct the cap are readily available, as are remediation contractors capable of performing these remedial activities (i.e., no highly specialized equipment, materials, or personnel would be required).

Challenges associated with the implementation of this alternative would consist of the following:

- Conducting soil excavation/backfilling and cap construction activities at the active scrap yard in high-traffic areas. Coordination of excavation and cap installation activities with ongoing daily site activities would be required to address potential conflicts.

- Excavating soil that is not within the WSI property. Access agreements with the property owner(s) would be required prior to the implementation of this alternative.

- Excavating soil in close proximity to the active railroad in the southern portion of the site. The need for excavation support near the railroad would be evaluated as part of the RD.

- Establishing institutional controls on property not owned by WSI. WSI Group would have to negotiate with and receive approval from the current property owners to establish institutional controls for areas beyond the WSI property.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. Potentially applicable chemical-specific SCGs include 6NYCRR Part 375-6 soil cleanup objectives and 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations for the identification and management of PCB-impacted materials.

  Site soil contains PCBs, SVOCs, and inorganic constituents at concentrations greater than the 6NYCRR Part 375-6 soil cleanup objectives. This alternative includes excavation of soil from beyond the WSI property and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs and soil within the WSI property containing PCBs at concentrations greater than or equal to 50 ppm. Remaining soil containing COCs at concentrations greater than ecological SCOs would be capped.

  Excavated material containing PCBs at concentrations greater than or equal to 50 ppm would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations. Soil excavated during implementation of this remedial alternative would be characterized to determine appropriate off-site management requirements. If any of the materials are characterized as a hazardous waste, RCRA LDRs could be applicable.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include health and safety requirements and regulations associated with handling impacted soil. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with these action-specific SCGs would be accomplished by following a site-specific HASP.

  Soil excavated during implementation of this remedial alternative would be subject to USDOT requirements for packaging, labeling, manifesting, and transporting hazardous or regulated materials. Compliance with these requirements would be achieved by following an NYSDEC-approved RD/RA Work Plan and utilizing licensed waste transporters and properly permitted disposal facilities.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

<u>Overall Protection of Human Health and the Environment</u>

As indicated above, this alternative meets the soil RAOs of eliminating/mitigating exposure to soil and dust containing COCs, migration of impacts to surface water, and impacts to biota from ingestion/direct contact or bioaccumulation. Under Alternative S4, potential exposures to soil containing COCs at concentrations greater than 6NYCRR Part 375-6 soil cleanup objectives would be mitigated by excavating soil containing PCBs at concentrations greater than or equal to 50 ppm, excavating soil beyond the WSI property boundary, consolidating excavated materials containing PCBs at concentrations less than 50 ppm on-site, constructing a cap over the consolidated materials and remaining soil exceeding ecological SCOs, and transporting excavated material containing PCBs at concentrations greater than 50 ppm and soil excavated from the vicinity of monitoring MW-209 for off-site management. Exposure to COCs during implementation of this alternative would be mitigated by compliance with appropriate health and safety regulations. Although impacted soil would remain, soil containing PCBs at concentrations greater than or equal to 50 ppm would be permanently removed and transported for off-site management. Additionally, this alternative would isolate remaining impacted and consolidated soils beneath a cap and reduce the potential for human and/or ecological exposure.

Cost

The estimated costs associated with Alternative S4 are presented in Table 5-3. The total estimated 30-year present worth cost for this alternative is approximately $4,600,000. The estimated capital cost, including costs for a cap, excavation and backfilling, on-site soil consolidation, and off-site soil management, is approximately $4,400,000. The 30-year present worth cost of O&M activities associated with this alternative, including annual verification of institutional controls and inspection/maintenance of the cap, is approximately $200,000.

5.4.4 Alternative S5 – Excavation of Soil (PCBs ≥ 25 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

This remedial alternative would consist of removing PCB-impacted soils and constructing a cap. Under this alternative, soil containing PCBs at concentrations greater than 25 ppm (i.e., 6NYCRR Part 375-6 restricted use soil cleanup objective for industrial site use) would be excavated, staged, and transported for off-site management. The approximate limits of soil containing PCBs at concentrations greater than 25 ppm are shown on Figure 5-3 and include approximately 6,700 CY of PCB-impacted soil, (including 5,400 CY of soil containing PCBs at concentrations greater than or equal to 50 ppm).

Excavation of impacted soil would be completed with the same equipment and methods as described under Alternatives S3 and S4. Excavated soil would be segregated, staged, and managed as described under Alternative S4. Excavated soil containing PCBs at concentrations less than 50 ppm (and greater than or equal to 25 ppm) and soil excavated from the vicinity of monitoring well MW-209 would be transported for off-site management as a non-hazardous waste. For the purposes of establishing a cost estimate, it was assumed that water generated during excavation and soil dewatering activities would be temporarily stored on-site and subsequently transported off-site to an appropriate treatment facility.

This remedial alternative would also consist of excavating approximately 5,000 CY of soil from beyond the WSI property boundary and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs. Verification soil samples would be collected along the sidewalls and bottom of the soil excavations to confirm that soils at the limits of the excavations do not contain COCs at concentrations greater than ecological SCOs. Similar to Alternatives S3 and S4, areas beyond the WSI property boundary to be excavated for the presence of SVOC and/or inorganic constituents only would be excavated to a maximum depth of two feet bgs. This depth corresponds to the interval that is likely to contain the greatest amount of burrowing by biota. Excavation activities in the vicinity of monitoring well MW-209 would be completed to a depth of six feet bgs to address impacted soil that serves as a source for dissolved-phase impacts detected in groundwater samples collected from monitoring well MW-209. Excavation areas beyond the WSI property boundary and associated depths are shown on Figure 5-3.

Soil excavated from beyond the WSI property boundary that contains PCBs at concentrations less than 25 ppm and SVOC and inorganic constituents at concentration greater than ecological SCOs would be consolidated on-site (i.e., used as backfill for excavations areas within the WSI property boundary). Excavation areas beyond the WSI property boundary would be backfilled with imported soil that meets ecological SCOs. A cap would be installed over remaining soils and consolidated materials that contain COCs at concentrations greater than ecological SCOs. Similar to Alternatives S3 and S4, the primary performance objective of the cap would be to prevent direct exposure to impacted materials that would remain at the site. The cap would not necessarily be designed serve as a low-permeability barrier. The actual construction materials of the cap would be determined during the RD. However, for the purpose of developing this alternative, the cap is assumed to consist of the following:

- Demarcation layer – a light-weight non-woven geotextile would be placed on the existing ground surface or over consolidated material

- Base layer – 12 inches of compacted clay or other suitable material

- Top layer – 6 inches of gravel or vegetated topsoil

The need for additional stormwater management would be evaluated during the RD phase. Following construction of the cap, an OM&M plan would be developed and implemented to monitor the cap for erosion. Similar to other soil alternatives, an SMP would be developed for the site.

This alternative would also require preparation of deed restrictions to limit future use of the site as well as provide protocols for conducting intrusive activities (e.g., excavation) and handling and managing soil generated during these activities. Deed restrictions would also be established for the areas beyond the WSI property to limit the potential future use and restrict current and future property owners from performing intrusive activities (e.g., excavation activities that would result in exposure of site workers to surface and subsurface soils containing PCBs at concentrations less than 1 ppm). As WSI does not own the adjacent properties, WSI would negotiate with and obtain approval from the current property owners to establish institutional controls for areas beyond the WSI property.

Additionally, WSI or future site owners would conduct an SVI investigation to evaluate potential soil vapor intrusion to any new buildings that are constructed at the site in the future and if the use of any existing site buildings changes.

Short-Term Effectiveness

Implementation of this alternative may result in short-term exposure to the surrounding community and site workers as a result of excavation, material handling, and off-site transportation activities. Potential exposure mechanisms would include ingestion and dermal contact with impacted soil and inhalation of dust containing COCs. Potential exposure of site workers to these impacted media during remedial construction would be minimized by the use of appropriate PPE, as specified in a site-specific HASP that would be developed as part of the RD. Air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls (e.g., use of water sprays to suppress dust, modify the rate of construction activities, etc.). Community access to the site during remedial construction would be restricted by temporary site fencing. A site-specific CAMP would be prepared and community air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls.

Additional worker safety concerns include working with and around large construction equipment, noise generation from operating construction equipment and increased vehicular traffic associated with transportation of excavated material from the site and delivery of backfill. These concerns would be minimized by the use of engineering controls and appropriate health and safety practices. Off-site transportation of excavated material and importation of clean fill materials (for backfilling and cap construction) would result in approximately 2,500 tractor trailer round trips (assuming 20 CY per tractor trailer). This increase in local truck traffic would create a nuisance for the surrounding community and increase the potential for motor vehicle accidents on local roads and highways. The transportation activities would be managed to minimize en-route risks to the community.

The relative carbon footprint (as compared to the other soil alternatives) is considered moderate. This remedial alternative would be completed in approximately seven months. The greatest contribution to greenhouse gases would occur as a result of heavy equipment operation during excavation, backfilling, and transportation activities.

Long-Term Effectiveness and Permanence

This remedial alternative would meet the RAOs of mitigating the potential for human and/or biota exposure to impacted surface and subsurface soil. Alternative S5 includes excavation, on-site consolidation and off-site management of excavated soil, and installation of a physical barrier (i.e., a cap) that would prevent the potential for exposure of humans and biota to impacted soil that would remain at the site. The 25 ppm soil cleanup objective is consistent with the 6NYCRR Part 375-6 restricted use soil cleanup objective for industrial site use. The site currently operates (and will continue to operate for the foreseeable future) as an active scrap yard, which is considered an industrial use. Additionally, institutional controls, including deed restrictions, would be implemented as part of this remedy to restrict future site use. Remaining impacted soils (containing PCBs at concentrations less than 25 ppm) would be capped through implementation of this alternative.

Excavation is an irreversible process and capping requires monitoring and maintenance, along with use restrictions of the capped area, for this alternative to remain effective and reliable over the long-term. Annual inspection of the integrity of the cap would be conducted and maintenance activities would potentially include replacing removed/eroded areas of the cap. Repair and replacement of the cap would be easily accomplished as the cap would be constructed of readily available materials.

This alternative meets the soil RAOs of eliminating/mitigating exposure to soil and dust containing COCs, migration of impacts to surface water, and impacts to biota from ingestion/direct contact or bioaccumulation. The soil RAO of eliminating/mitigating the migration of impacts to groundwater would be somewhat addressed as the soil containing the highest concentrations of PCBs would be permanently removed. However, the soil containing PCBs at concentrations less than 25 ppm and SVOC and inorganic constituents at concentrations greater than ecological SCOs would remain beneath the cap.

Reduction of Toxicity, Mobility, or Volume

This alternative includes excavation and off-site management of approximately 6,700 CY of soil from within the WSI property and approximately 500 CY of soil from beyond the WSI property containing PCBs at concentrations greater than 25 ppm and approximately 500 CY of soil from the vicinity of monitoring well MW-209 and on-site consolidation of approximately 4,000 CY of soil excavated from beyond the WSI property that contains COCs at concentrations greater than ecological SCOs. All other impacted soil would remain beneath the cap and would not be subject to treatment to further reduce the toxicity or volume.

<u>Implementability</u>

This remedial alternative would be both technically and administratively implementable. Equipment and materials necessary to excavate site soil and construct the cap are readily available, as are remediation contractors capable of performing these remedial activities (i.e., no highly specialized equipment, materials, or personnel would be required).

Challenges associated with the implementation of this alternative would consist of the following:

- Conducting soil excavation/backfilling and cap construction activities at the active scrap yard in high-traffic areas. Coordination of excavation and cap installation activities with ongoing daily site activities would be required to address potential conflicts.

- Excavating soil that is not within the WSI property. Access agreements with the property owner(s) would be required prior to the implementation of this alternative.

- Excavating soil in close proximity to the active railroad in the southern portion of the site. The need for excavation support near the railroad would be evaluated as part of the RD.

- Establishing institutional controls on property not owned by WSI. WSI Group would have to negotiate with and obtain approval from the current property owners to establish institutional controls for areas beyond the WSI property.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. Potentially applicable chemical-specific SCGs include 6NYCRR Part 375-6 soil cleanup objectives and 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations for the identification and management of PCB-impacted materials..

Site soil contains PCBs, SVOCs, and inorganic constituents at concentrations greater than the 6NYCRR Part 375-6 soil cleanup objectives. This alternative includes excavation of soil from beyond the WSI property and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs and soil within the WSI property containing PCBs at concentrations greater than 6NYCRR Part 375-6 restricted use soil cleanup objective for industrial site use (i.e., 25 ppm). Remaining soil containing COCs at concentrations greater than ecological SCOs would be capped.

Excavated material containing PCBs at concentrations greater than or equal to 50 ppm would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations. Soil containing PCBs at concentrations less than 50 ppm that are excavated during implementation of this remedial alternative would be characterized to determine appropriate off-site management requirements. If any of the materials are characterized as a hazardous waste, RCRA LDRs could be applicable.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include health and safety requirements and regulations associated with handling impacted soil. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with these action-specific SCGs would be accomplished by following a site-specific HASP.

  Soil excavated during implementation of this remedial alternative would be subject to USDOT requirements for packaging, labeling, manifesting, and transporting hazardous or regulated materials. Compliance with these requirements would be achieved by following an NYSDEC-approved RD/RA Work Plan and utilizing licensed waste transporters and properly permitted disposal facilities.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

Overall Protection of Human Health and the Environment

As indicated above, this alternative meets the soil RAOs of eliminating/mitigating exposure to soil and dust containing COCs, migration of impacts to surface water, and impacts to biota from ingestion/direct contact or bioaccumulation. Under Alternative S5, potential exposures to soil containing COCs at concentrations greater than 6NYCRR Part 375-6 soil cleanup objectives would be mitigated by excavating soil containing PCBs at concentrations greater than or equal to 25 ppm, excavating soil beyond the WSI property boundary, consolidating excavated materials containing PCBs at concentrations less than 25 ppm on-site, constructing a cap over the consolidated materials and remaining soil exceeding ecological SCOs, and transporting excavated material containing PCBs at concentrations greater than 25 ppm and soil excavated from the vicinity of monitoring MW-209 for off-site management. Exposure to COCs during implementation of this alternative would be mitigated by compliance with appropriate health and safety regulations. Although impacted soil would remain, soil containing the greatest concentrations of PCBs would be permanently removed and transported for off-site management. Additionally, this alternative would isolate consolidated and remaining impacted soils containing lesser concentrations of COCs and reduce the potential for human and/or ecological exposure.

Cost

The estimated costs associated with Alternative S5 are presented in Table 5-4. The total estimated 30-year present worth cost for this alternative is approximately $4,800,000. The estimated capital cost, including costs for a cap, excavation and backfilling, on-site consolidation, and off-site soil management, is approximately $4,600,000. The 30-year present worth cost of O&M activities associated with this alternative, including annual verification of institutional controls and inspection/maintenance of the cap, is approximately $200,000.

5.4.5 Alternative S6 – Excavation of Soil (PCBs ≥ 10 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

This remedial alternative would consist of removing PCB-impacted soils and constructing a cap. Under this alternative, soil containing PCBs at concentrations greater than 10 ppm (i.e., the TAGM 4046 subsurface soil cleanup objective for PCBs) would be excavated, staged, and transported for off-site management. The approximate limits of soil containing PCBs at concentrations greater than 10 ppm are shown on Figure 5-4 and include the approximately 14,200 CY of PCB-impacted soil (including 5,400 CY of soil containing PCBs at concentrations greater than or equal to 50 ppm).

This remedial alternative would also consist of excavating approximately 5,000 CY of soil from beyond the WSI property boundary and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs. Verification soil samples would be collected along the sidewalls and bottom of the soil excavations to confirm that soils at the limits of the excavations do not contain COCs at concentrations greater than ecological SCOs. Similar to the other soil alternatives, areas beyond the WSI property boundary to be excavated for the presence of SVOC and/or inorganic constituents only would be excavated to a maximum depth of two feet bgs. This depth corresponds to the interval that is likely to contain the greatest amount of burrowing by biota. Excavation activities in the vicinity of monitoring well MW-209 would be completed to a depth of six feet bgs to address impacted soil that serves as a source for dissolved-phase impacts detected in groundwater samples collected from monitoring well MW-209. Excavation areas beyond the WSI property boundary and associated depths are shown on Figure 5-4.

Excavation of impacted soil would be completed with the same equipment and methods as described under the other soil alternatives. Excavated soil would be segregated, staged, and managed as described under the previously discussed soil alternatives. Excavated soil containing PCBs at concentrations less than 50 ppm (and greater than or equal to 10 ppm) and soil excavated from the vicinity of monitoring well MW-209 would be transported for off-site management as a non-hazardous waste. For the purposes of establishing a cost estimate, it was assumed that water generated during excavation and soil dewatering activities would be temporarily stored on-site and subsequently transported off-site to an appropriate treatment facility.

Excavation areas within the limits of the WSI property would be backfilled with excavated soil (from beyond the WSI property boundary) that may contain PCBs at concentrations less than 10 ppm and SVOC and inorganic constituents at concentrations greater than ecological SCOs. Excavation areas beyond the WSI property boundary would be backfilled with imported soil that would meet ecological SCOs. A cap would be installed over remaining soils and consolidated materials that contain COCs at concentrations greater than ecological SCOs. Similar to the other soil alternatives, the primary performance objective of the cap would be to prevent direct exposure to impacted materials that would remain at the site and cap would not be designed serve as an impermeable barrier. The actual construction materials of the cap would be determined during the RD. However, for the purpose of developing this alternative, the cap is assumed to consist of the following:

- Demarcation layer – a light-weight non-woven geotextile would be placed on the existing groundwater surface or over consolidated material
- Base layer – 12 inches of compacted clay or other suitable material
- Top layer – 6 inches of gravel or vegetated topsoil

The need for additional stormwater management would be evaluated during the RD phase. Following construction of the cap, an OM&M plan would be developed and implemented to monitor the cap for erosion. Similar to other soil alternatives, an SMP would be developed for the site.

This alternative would also require preparation of deed restrictions to limit future use of the site, as well as provide protocols for conducting invasive activities (e.g., excavation) and handling and managing soil generated during these activities. Deed restrictions would also be established for the areas beyond the WSI property to limit the potential future use and restrict current and future property owners from performing intrusive activities (e.g., excavation activities that would result in exposure of site workers to surface and subsurface soils containing PCBs at concentrations less than 1 ppm). As WSI does not own the adjacent properties, WSI would negotiate with and obtain approval from the current property owners to establish institutional controls for areas beyond the WSI property.

Additionally, WSI or future site owners would conduct an SVI investigation to evaluate potential soil vapor intrusion to any new buildings that are constructed at the site in the future and if the use of any existing site buildings changes.

<u>Short-Term Effectiveness</u>

Implementation of this alternative may result in short-term exposure to the surrounding community and site workers as a result of excavation, material handling, and off-site transportation activities. Potential exposure mechanisms would include ingestion and dermal contact with impacted soil and inhalation of dust containing COCs. Potential exposure of site workers would be minimized by the use of appropriate PPE, as specified in a site-specific HASP that would be developed as part of the RD. Air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls (e.g., use of water sprays to suppress dust, modify the rate of construction activities, etc.). Community access to the site during remedial construction would be restricted by temporary site fencing. A site-specific CAMP would be prepared and community air monitoring would also be performed during implementation of this alternative.

Additional worker safety concerns include working with and around large construction equipment, noise generation from operating construction equipment and increased vehicular traffic associated with transportation of excavated material from the site and delivery of backfill. These concerns would be minimized by the use of engineering controls and appropriate health and safety practices. Off-site transportation of excavated material and importation of clean fill materials (for backfilling and cap construction) would result in approximately 2,800 tractor trailer round trips (assuming 20 CY per tractor trailer). This increase in local truck traffic would create a nuisance for the surrounding community and increase the potential for motor vehicle accidents on local roads and highways. The transportation activities would be managed to minimize en-route risks to the community.

The relative carbon footprint (as compared to the other soil alternatives) is considered moderate. This remedial alternative would be completed in approximately nine months. The greatest contribution to greenhouse gases would occur as a result of heavy equipment operation during excavation, backfilling, and transportation activities.

<u>Long-Term Effectiveness and Permanence</u>

This remedial alternative would meet the RAOs of mitigating the potential for human and/or biota exposure to impacted surface and subsurface soil. Alternative S6 includes excavation, on-site consolidation and off-site management of excavated soil, and installation of a physical barrier (i.e., a cap) that would prevent the potential for exposure of humans and biota to impacted soil that would remain at the site. The 10 ppm soil cleanup objective is consistent with the TAGM 4046 subsurface soil cleanup objective (as the site would be covered with a cap).

Excavation is an irreversible process and capping requires monitoring and maintenance, along with use restrictions of the capped area, for this alternative to remain effective and reliable over the long-term. Annual inspection of the integrity of the cap would be conducted and maintenance activities would potentially include replacing removed/eroded areas of the cap. Repair and replacement of the cap would be easily accomplished as the cap would be constructed of readily available materials.

This alternative meets the soil RAOs of eliminating/mitigating exposure to soil and dust containing COCs, migration of impacts to surface water, and impacts to biota from ingestion/direct contact or bioaccumulation. The soil RAO of eliminating/mitigating the migration of impacts to groundwater would be somewhat addressed as soil containing PCBs at concentrations greater than 10 ppm would be permanently removed from the site.

<u>Reduction of Toxicity, Mobility, or Volume</u>

This alternative includes excavation and off-site management of approximately 14,200 CY of soil within the WSI property and approximately 700 CY of soil beyond the WSI property containing PCBs at concentrations greater than 10 ppm and approximately 500 CY of soil excavated from the vicinity of monitoring well MW-209 and on-site consolidation of approximately 3,800 CY of soil excavated from beyond the WSI property boundary and near monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs. All other impacted soil would remain beneath the cap and would not be subject to treatment to further reduce the toxicity or volume.

<u>Implementability</u>

This remedial alternative would be both technically and administratively implementable. Equipment and materials necessary to excavate site soil and construct the cap are readily available, as are remediation contractors capable of performing these remedial activities (i.e., no highly specialized equipment, materials, or personnel would be required).

Challenges associated with the implementation of this alternative would consist of the following:

- Conducting soil excavation/backfilling and cap construction activities at the active scrap yard in high-traffic areas. Coordination of excavation and cap installation activities with ongoing daily site activities would be required to address potential conflicts.

- Excavating soil that is not within the WSI property. Access agreements with the property owner(s) would be required prior to the implementation of this alternative.

- Excavating soil in close proximity to the active railroad in the southern portion of the site. The need for excavation support near the railroad would be evaluated as part of the RD.

- Establishing institutional controls on property not owned by WSI. WSI Group would have to negotiate with and obtain approval from the current property owners to establish institutional controls for areas beyond the WSI property.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. Potentially applicable chemical-specific SCGs include 6NYCRR Part 375-6 soil cleanup objectives and 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations for the identification and management of PCB-impacted materials.

  Site soil contains PCBs, SVOCs, and inorganic constituents at concentrations greater than the 6NYCRR Part 375-6 soil cleanup objectives. This alternative includes excavation of soil from beyond the WSI property and near monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs and soil within the WSI property containing PCBs at concentrations greater than 10 ppm followed by capping of remaining soil containing PCBs at concentrations greater than or equal to 1 ppm (which is consistent with TAGM 4046). Remaining soil and consolidated material containing COCs at concentrations greater than ecological SCOs would be capped.

  Excavated material containing PCBs at concentrations greater than 50 ppm would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations. Excavated soil containing PCBs at concentrations less than 50 would be characterized to determine appropriate off-site management requirements. If any of the materials are characterized as a hazardous waste, RCRA LDRs could be applicable.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include health and safety requirements and regulations associated with handling impacted soil. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with these action-specific SCGs would be accomplished by following a site-specific HASP.

Soil excavated during implementation of this remedial alternative would be subject to USDOT requirements the packaging, labeling, manifesting, and transporting hazardous or regulated materials. Compliance with these requirements would be achieved by following an NYSDEC-approved RD/RA Work Plan and utilizing licensed waste transporters and properly permitted disposal facilities.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

Overall Protection of Human Health and the Environment

As indicated above, this alternative meets the soil RAOs of eliminating/mitigating exposure to soil and dust containing COCs, migration of impacts to surface water, and impacts to biota from ingestion/direct contact or bioaccumulation. Under Alternative S6, potential exposures to soil containing COCs at concentrations greater than 6NYCRR Part 375-6 soil cleanup objectives would be mitigated by excavating soil containing PCBs at concentrations greater than or equal to 10 ppm, excavating soil beyond the WSI property boundary, consolidating excavated materials containing PCBs at concentrations less than 10 ppm on-site, constructing a cap over the consolidated materials and remaining soil exceeding ecological SCOs, and transporting excavated material containing PCBs at concentrations greater than 10 ppm and soil from the vicinity of monitoring well MW-209 for off-site management. Exposure to COCs during implementation of this alternative would be mitigated by compliance with appropriate health and safety regulations. Although impacted soil would remain, soil containing the highest concentrations of PCBs would be permanently removed and transported for off-site management. Additionally, this alternative would isolate consolidated and remaining impacted soils containing lesser concentrations of COCs and reduce the potential for human and/or ecological exposure.

Cost

The estimated costs associated with Alternative S6 are presented in Table 5-5. The total estimated 30-year present worth cost for this alternative is approximately $6,200,000. The estimated capital cost, including costs for a cap, excavation and backfilling, on-site consolidation, and off-site soil management, is approximately $6,000,000. The 30-year present worth cost of O&M activities associated with this alternative, including annual verification of institutional controls and inspection/maintenance of the cap, is approximately $200,000.

5.4.6 Alternative S7 – Excavation of Soil Containing COCs > Unrestricted Use SCOs with Off-Site Management

This remedial alternative would consist of excavating soil containing COCs at concentrations greater than the 6NYCRR Part 375-6 unrestricted use soil cleanup objectives. As indicated in Section 1.6.3.1, the existing site characterization does not provide a definitive demarcation (laterally or vertically) of COCs concentrations to the 6NYCRR Part 375-6 unrestricted use soil cleanup objectives. Conservative assumptions regarding the extent of COCs were made to support the development of this remedial alternative. For the purpose of proceeding with the FS, a conservative assumption was made that COC concentrations decrease by one order of magnitude for each two-foot downward vertical interval. Additionally, based on the location of historical operations at the site (which did not extended beyond the tree line) and the minimal potential for horizontal migration of COC-impacted soil beyond the tree line, it was assumed that COCs are not present in (surface or) subsurface soil at concentrations greater than ecological SCOs beyond the following boundary conditions:

- The tree line surrounding the site where sampling was not conducted beyond the tree line.

- An implied boundary 30 feet beyond the soil sampling locations where soil sampling results were available beyond the tree line (note that samples were collected beyond the treat line in areas were scrap equipment and drums were located).

- The railroad right-of-way to the south of the main operations area, with the exception of the main access to the site and 200 feet south of the railroad located near the main site access.

The approximate limits of soil containing COCs at concentrations greater than unrestricted use SCOs are shown on Figure 5-5 and include the approximately 90,800 CY of impacted soil (including 5,400 CY of soil containing PCBs at concentrations greater than or equal to 50 ppm). Excavated soil would be staged and transported for off-site management. Verification soil samples would be collected along the sidewalls and bottom of the soil excavations to confirm that soils at the limits of the excavations do not contain COCs at concentrations greater than unrestricted use SCOs. After confirming that the soil removal objectives have been met, the excavations would be backfilled with clean imported general fill material to meet the pre-existing grade.

Excavation of impacted soil would be completed with the same equipment and methods as described for the other soil alternatives. Excavated soil would be segregated, staged, and managed as described for the previously discussed soil alternatives. For the purposes of establishing a cost estimate, it was assumed that water generated during excavation and soil dewatering activities would be treated via an on-site temporary treatment system and discharged to the local POTW.

Unlike the other remedial alternatives, construction of a cap and implementation of a long-term maintenance and monitoring plan would not be required for Alternative S7. The need for additional stormwater management would be evaluated during the RD phase.

Short-Term Effectiveness

Implementation of this alternative may result in short-term exposure to the surrounding community and site workers as a result of excavation, material handling, and off-site transportation activities. Potential exposure mechanisms would include ingestion and dermal contact with impacted soil and inhalation of dust containing COCs. Potential exposure of on-site workers would be minimized by the use of appropriate PPE, as specified in a site-specific HASP that would be developed as part of the RD. Air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls (e.g., use of water sprays to suppress dust, modify the rate of construction activities, etc.). Community access to the site during remedial construction would be restricted by temporary site fencing. A site-specific CAMP would be prepared and community air monitoring would also be performed during implementation of this alternative.

Additional worker safety concerns include working with and around large construction equipment, noise generation from operating construction equipment and increased vehicular traffic associated with transportation of excavated material from the site and delivery of backfill. These concerns would be minimized by the use of engineering controls and appropriate health and safety practices. Off-site transportation of excavated material and importation of clean fill materials (for backfilling and cap construction) would result in approximately 9,100 tractor trailer round trips (assuming 20 CY per tractor trailer). This increase in local truck traffic would create a nuisance for the surrounding community and increase the potential for motor vehicle accidents on local roads and highways. The transportation activities would be managed to minimize en-route risks to the community.

The relative carbon footprint (as compared to the other soil alternatives) is considered significant, as this alternative includes the greatest amount of excavation and backfilling activities. This remedial alternative would be completed in approximately 22 months. The greatest contribution to greenhouse gases would occur as a result of heavy equipment operation during excavation, backfilling, and transportation activities.

Long-Term Effectiveness and Permanence

This remedial alternative would mitigate the potential for human and/or biota exposure to impacted surface and subsurface soil. Alternative S7 includes permanent removal and off-site management of soil containing COCs at concentrations greater than unrestricted use SCOs. This remedial alternative is irreversible.

No long-term monitoring or maintenance activities would be required under this remedial alternative. No soils would remain at the site at concentrations greater than the 6NYCRR Part 375-6 unrestricted use soil cleanup objective.

This alternative meets the soil RAOs of eliminating/mitigating exposure to soil and dust containing COCs, migration of impacts to groundwater and surface water, and impacts to biota from ingestion/direct contact or bioaccumulation. This alternative is considered effective on a long-term basis as excavation and off-site management is an irreversible process.

Reduction of Toxicity, Mobility, or Volume

This alternative includes excavation and off-site management of approximately 90,800 CY of soil to address soil containing COCs at concentrations greater than 6NYCRR Part 375-6 unrestricted use soil cleanup objectives.

Implementability

This remedial alternative would be both technically and administratively implementable. Equipment and materials necessary to excavate site soil are readily available, as are remediation contractors capable of performing these remedial activities (i.e., no highly specialized equipment, materials, or personnel would be required).

Challenges associated with the implementation of this alternative would consist of the following:

- Conducting soil excavation/backfilling activities at the active scrap yard in high-traffic areas. Coordination of remedial activities with ongoing daily site activities would be required to address potential conflicts.

- Excavating soil that is not within the WSI property. Access agreements with the property owner(s) would be required prior to the implementation of this alternative.

- Excavating soil in close proximity to the active railroad in the southern portion of the site. The need for excavation support near the railroad would be evaluated as part of the RD.

- Managing the anticipated volume of soil. Use of on-site material staging areas and coordination with off-site disposal facilities would be required to balance the removal, transportation, and off-site management activities associated with this alternative.

- Obtaining and transporting approximately 90,800 CY of clean fill materials to the site. Backfilling activities would have to be coordinated with multiple clean fill providers to obtain the amount of material required to return the site to the existing grade.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. Potentially applicable chemical-specific SCGs include 6NYCRR Part 375-6 soil cleanup objectives and 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations for the identification and management of PCB-impacted materials.

  Site soil contains COCs at concentrations greater than the 6NYCRR Part 375-6 soil cleanup objectives. This alternative includes excavation of all site soil containing COCs at concentrations greater than the 6NYCRR Part 375-6 unrestricted use soil cleanup objective.

  Excavated material containing PCBs at concentrations greater than or equal to 50 ppm would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations. Excavated soil containing PCBs at concentrations less than 50 ppm would be characterized to determine appropriate off-site management requirements. If any of the materials are characterized as a hazardous waste, RCRA LDRs could be applicable.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include health and safety requirements and regulations associated with handling impacted soil. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with these action-specific SCGs would be accomplished by following a site-specific HASP.

  Soil excavated during implementation of this remedial alternative would be subject to USDOT requirements for packaging, labeling, manifesting, and transporting hazardous or regulated materials. Compliance with these requirements would be achieved by following an NYSDEC-approved RD/RA Work Plan and utilizing licensed waste transporters and properly permitted disposal facilities.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

<u>Overall Protection of Human Health and the Environment</u>

As indicated above, this alternative meets the soil RAOs of eliminating/mitigating exposure to soil and dust containing COCs, migration of impacts to groundwater and surface water, and impacts to biota from ingestion/direct contact or bioaccumulation. Under Alternative 7, potential exposures to soil containing COCs at concentrations greater than 6NYCRR Part 375-6 soil cleanup objectives would be eliminated by excavating soil containing COCs at concentrations greater than the unrestricted use SCOs. Exposure to COCs during implementation of this alternative would be mitigated by compliance with appropriate health and safety regulations. This alternative would effectively meet the RAOs for site soil and the potential for human and biota exposure to impacted material would be eliminated, as excavated soil containing COCs at concentrations greater than 6NYCRR Part 375-6 unrestricted use soil cleanup objectives would be permanently removed and the site would be restored with clean backfill materials.

<u>Cost</u>

The estimated costs associated with Alternative S7 are presented in Table 5-6. The total estimated 30-year present worth cost for this alternative is approximately $18,400,000, including capital costs for excavation, backfilling, and off-site soil management. No future site activities are associated with Alternative S7.

5.5 Detailed Evaluation of Groundwater Remedial Alternatives

This section presents the detailed analysis of each groundwater remedial alternative previously identified in Section 4.

- Alternative GW2 – Institutional Controls
- Alternative GW3 – Continued Monitoring
- Alternative GW4 – Chemical Oxidation of Dissolved-Phase VOCs

Each alternative is evaluated against the seven NCP evaluation criteria described in Section 5.2. The “No Action” alternative was previously evaluated in Section 5.3.

5.5.1 Alternative GW2 – Institutional Controls

Under this alternative, institutional controls would consist of environmental easements (e.g., ELURs), appropriate signage to deter site workers or visitors from utilizing site water for potable purposes, continued supply of bottled water for drinking, and deed restrictions to mitigate (to the extent possible) ingestion of and/or direct contact by site workers with groundwater containing VOCs at concentrations greater than NYSDEC Class GA standards and guidance values.

Neither groundwater nor surface water is used for potable purposes at the site. However, as indicated in Section 1, two on-site water supply wells currently provide sanitary water and water for hand washing (i.e., non-potable water). The site groundwater would be allowed to remain in its current condition, and no active effort would be made to change the current conditions. WSI would continue annual sampling of the water supply wells to monitor water quality. This alternative would include annual inspections of institutional controls and submittal of notifications to the NYSDEC to verify that the institutional controls are being maintained and remain effective.

Short-Term Effectiveness

No remedial action would be implemented under this alternative. Therefore, no short-term impacts would be presented to the surrounding community, construction workers, or the environment during implementation of this alternative. As compared to the other groundwater alternatives, no additional greenhouse gas emissions are associated with this alternative.

Long-Term Effectiveness and Permanence

Based on the scope of future site activities, modifications to the ELURs would be presented to NYSDEC and NYSDOH for review and approval, as appropriate. The ELURs would be apparent to future site owners (if any) during comprehensive due diligence activities performed in connection with property transfer.

Routine site operations do not include exposure to site groundwater. Bottled water is currently supplied and would continue to be supplied to reduce the potential for exposure to impacted groundwater. Additionally, WSI would continue annual sampling of the water supply wells to monitor water quality. Through the implementation of this alternative, dermal contact and ingestion of impacted site groundwater would be mitigated. Under this alternative, VOCs in site groundwater will degrade via natural processes (which are permanent). Additionally, impacted soil that serves as a source for dissolved-phase impacts detected in groundwater samples collected from monitoring well MW-209 would be removed as part of Alternatives S3 through S7. However, this alternative does not include any means to verify that dissolved-phase concentrations are being reduced and/or the extent of impacted groundwater is not expanding.

Reduction of Toxicity, Mobility, or Volume

As indicated above, no remedial action would be implemented under this alternative. Therefore, implementation of this alternative does not reduce the toxicity, mobility, or volume (other than through natural attenuation) of groundwater containing VOCs at concentrations greater than NYSDEC Class GA standards and guidance values.

Implementability

This remedial alternative would be both technically and administratively implementable. Only minimal coordination with state agencies (i.e., NYSDEC and NYDOH) would be required to implement appropriate institutional controls.

The anticipated time associated with the implementation of Alternative GW2 would be less than one month and long-term monitoring and maintenance has been assumed to last 30 years.

Compliance with SCGs

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. Potentially applicable chemical-specific SCGs include NYSDEC Class GA standards and guidance values. Site groundwater contains VOCs at concentrations greater than these SCGs. This alternative does not include any treatment, removal, or containment of impacted groundwater. Although VOC concentrations may meet the SCGs over time via natural degradation, no monitoring program is included under this alternative. Alternative GW2 is not considered comply with the chemical-specific SCGs.

- *Action-Specific SCGs:* Alternative GW2 does not include implementation of remedial actions. Therefore the action-specific SCGs identified in Table 2-2 are not applicable.

- *Location-Specific SCGs:* Alternative GW2 does not include implementation of remedial actions. Therefore the location-specific SCGs identified in Table 2-3 are not applicable.

Overall Protection of Human Health and the Environment

Potential exposure to groundwater containing VOCs at concentrations greater than NYSDEC Class GA standards and guidance values would be mitigated by institutional controls. Although dermal contact and ingestion of impacted groundwater is unlikely for site personnel under current site conditions, ELURs would be implemented to further reduce the potential for site worker dermal contact and ingestion of impacted groundwater. This alternative does not include any means to verify that dissolved-phase concentrations of VOCs are being reduced or that impacted groundwater is not migrating.

Cost

The estimated costs associated with Alternative GW2 are presented in Table 5-7. The total estimated 30-year present worth cost for this alternative is approximately $135,000. The estimated capital cost, including costs for acquisition of deed restrictions, is approximately $60,000. The 30-year present worth cost of O&M activities associated with this alternative, including annual verification of institutional controls, is approximately $75,000.

5.5.2 Alternative GW3 – Continued Monitoring

This remedial alternative would consist of conducting annual groundwater monitoring and establishing institutional controls (as described for Alternative GW2). This alternative assumes that existing groundwater monitoring wells would be abandoned prior to any soil excavation activities and a new monitoring well network, consisting of up to 10 new groundwater monitoring wells, would be installed at locations both upgradient and downgradient from areas at the site where dissolved-phase COCs were detected during the Focused RI (note that well locations would be finalized during the RD phase). Monitoring activities would consist of collecting samples for laboratory analysis from the new monitoring wells. Groundwater samples would be submitted for laboratory analysis of BTEX, select SVOCs, and PCBs that were detected in groundwater during the Focused RI activities.

The results of the monitoring activities would be summarized and presented to the NYSDEC in an annual report to document the potential reduction in COC concentrations as a result of natural attenuation (e.g., biodegradation, dispersion, dilution, sorption, volatilization, etc.) occurring at the site. Based on the results of the monitoring activities, the WSI Group may request to modify the monitoring program and/or to conduct monitoring activities less frequently or cease monitoring altogether at the site. For the purpose of providing a cost estimate, it has been assumed that the monitoring and reporting activities associated with this remedial alternative would be conducted for 30 years.

Neither groundwater nor surface water is used for potable purposes at the site. However, as indicated in Section 1, two on-site water supply wells provide sanitary water and water for hand washing (i.e., non-potable water). Under this alternative, WSI would continue annual sampling of the water supply wells to monitor water quality. Currently, there is not an alternative water supply available to the site (e.g., municipal supply). Bottled water is supplied for potable purposes. If an alternative water supply becomes available, the on-site water supply wells would be abandoned. However, abandonment of these wells has not been included as a component of this remedial alternative.

Short-Term Effectiveness

Implementation of this alternative may result in the exposure of field personnel to impacted groundwater during groundwater monitoring activities. Potential exposure mechanisms would include ingestion or dermal contact with impact groundwater and/or inhalation of volatile organic vapors. Potential exposure to field personnel would be minimized through the use of appropriately trained field personnel and appropriate PPE, as specified in a site-specific HASP that would be developed during the RD. Air monitoring would be performed during implementation of this alternative to confirm that volatile organic vapors are within acceptable levels, as specified in a site-specific HASP.

Under this alternative, there would be no contact with impacted groundwater, with the exception of groundwater sampling activities associated with periodic monitoring. Additionally, soil would not be disturbed during the groundwater monitoring. Therefore, no short-term environmental impacts or risks would be posed to the surrounding community.

The relative carbon footprint (as compared to the other groundwater alternatives) is considered negligible. This remedial alternative could be implemented in less than one month and monitoring would be conducted over an assumed 30-year period. The greatest contribution to greenhouse gases would occur as a result of additional vehicles on-site for periodic monitoring activities.

Long-Term Effectiveness and Permanence

Under this alternative, impacted groundwater would not be addressed through active treatment. Routine site operations do not include contact with or exposure to site groundwater and establishing/maintaining institutional controls would further reduce the potential for exposure to impacted groundwater. Additionally, WSI would continue annual sampling of the water supply wells to monitor water quality and bottled water would continued to be supplied to site workers. Through the implementation of this alternative, dermal contact and ingestion of impacted site groundwater would be mitigated. However, if VOC concentrations are reduced via natural processes, the process is permanent and irreversible. Additionally, impacted soil that serves as a source for dissolved-phase impacts detected in groundwater samples collected from monitoring well MW-209 would be removed as part of Alternatives S3 through S7. The groundwater RAOs may be achieved over an extended period of time.

Reduction of Toxicity, Mobility, or Volume

This alternative does not include direct treatment or containment of impacted groundwater. However, monitoring may indicate that concentrations of VOCs in groundwater (and therefore the toxicity and volume) are being reduced via natural processes.

Implementability

This remedial alternative would be both technically and administratively implementable, as this alternative does not require implementation of any remedial activities. Equipment and personnel qualified to conduct groundwater monitoring activities, and analytical laboratories capable of performing the required analyses, are readily available.

Compliance with SCGs

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. Potentially applicable chemical-specific SCGs include NYSDEC Class GA standards and guidance values. Site groundwater contains VOCs at concentrations greater than these SCGs. Depending on the reduction of the concentrations of VOCs in site groundwater as a result of natural attenuation, this alternative could potentially meet these SCGs over an extended period of time.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs are associated with general health and safety requirements. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with action-specific SCGs would be accomplished by following a site-specific HASP.

- *Location-Specific SCGs:* Alternative GW3 does not include implementation of remedial actions. Therefore the location-specific SCGs identified in Table 2-3 are not applicable.

Overall Protection of Human Health and the Environment

Potential exposure to groundwater containing VOCs at concentrations greater than NYSDEC Class GA standards and guidance values would not be actively addressed by this remedial alternative. The groundwater monitoring activities associated with this alternative could document the reduction of VOCs in groundwater via natural processes (e.g., biodegradation, dispersion, dilution, sorption, volatilization, etc.). Additionally, establishment of institutional controls would further reduce the potential for exposure to impacted groundwater and WSI would continue annual sampling of the water supply wells to monitor water quality. Exposure to COCs in groundwater during monitoring activities would be prevented by using appropriately trained field personnel and complying with appropriate health and safety regulations. There is low potential for biota to be exposed to impacted groundwater due to accessibility. Additionally, this alternative provides for periodic monitoring to verify that groundwater containing dissolved-phase VOCs is not migrating further downgradient and that the dissolved-phase concentrations of VOCs are being reduced.

Cost

The estimated costs associated with Alternative GW3 are presented in Table 5-8. The total estimated 30-year present worth cost for this alternative is approximately $530,000. The estimated capital cost, including costs for abandoning existing monitoring wells, installing new monitoring wells, and one year of annual groundwater monitoring, is approximately $180,000. The 30-year present worth cost of O&M activities associated with this alternative, including annual groundwater monitoring for a 30-year period, is approximately $350,000.

5.5.3 Alternative GW4 – Chemical Oxidation of Dissolved-Phase VOCs

This remedial alternative would consist of the in-situ chemical oxidation of dissolved-phase VOCs in groundwater northwest of the main office building (near monitoring well MW-209) and (as described above) establishing institutional controls (similar to Alternatives GW2 and GW3).

Neither groundwater nor surface water is used for potable purposes at the site. However, as indicated in Section 1, two on-site water supply wells currently provide sanitary water and water for hand washing (i.e., non-potable water). Under this alternative, WSI would continue annual sampling of the water supply wells to monitor water quality. Currently, there is not an alternative water supply available to the site (e.g., municipal supply) and bottled water is supplied for potable purposes. If an alternative water supply becomes available, the on-site water supply wells would be abandoned. However, abandonment of these wells has not been included as a component of this remedial alternative.

In-situ chemical oxidation is a remedial technology that involves the introduction of oxidizing agents (e.g., persulfate, zero-valent iron [ZVI], oxygen releasing compounds, etc.) into the subsurface to degrade BTEX compounds and PAHs to less-toxic byproducts. Under this remedial alternative, the oxidizing agent would be delivered in one-time or pulsed applications (via air/gas mixtures or water suspensions) to the impacted groundwater in the immediate vicinity of monitoring well MW-209. For the purpose of developing a cost estimate, this alternative assumes ozone will be generated on-site and applied to the subsurface via injection wells during a one-month pulses application. Security fencing would be installed in the vicinity of the application area to prevent access by unauthorized personnel.

Similar to Alternative GW3, this alternative assumes that existing monitoring wells would be abandoned and up to 10 new monitoring wells would be installed at locations both upgradient and downgradient from areas at the site where dissolved-phase COCs were detected during the RI. Following oxidant application, groundwater monitoring would be conducted at the 10 new monitoring wells on a quarterly basis for the first year and then annual for the next 30 years. The monitoring activities would be consistent with those described for Alternative GW3. Groundwater samples would be submitted for laboratory analysis of BTEX, select SVOCs, and PCBs. The results of the monitoring activities would be summarized and presented to the NYSDEC in an annual report.

Short-Term Effectiveness

Implementation of this alternative may result in the exposure of on-site workers to chemical constituents in soil and groundwater by ingestion, dermal contact, and/or inhalation. Implementation of this alternative may also result in the potential exposure of on-site workers to highly reactive oxidizing agents (that may potentially be injected under pressure).

Potential exposure of on-site workers to chemical constituents and operational hazards would be minimized by the use of PPE and through equipment and material handling procedures to be specified in a site-specific HASP that would be developed during the RD phase. Air monitoring would be performed during implementation of this alternative to determine the need for additional engineering controls (e.g., use of water sprays to suppress dust/vapors/odors, modifying the rate of construction activities, etc.) are needed during drilling activities and to confirm that dust or volatilized organic vapors are within acceptable levels, as specified in the site-specific HASP. In addition, in-situ monitoring would be conducted under this alternative during application of oxidizing agents to confirm that subsurface conditions do not become reactive or potentially explosive.

Access to the application area would be restricted by temporary fencing. Risks to the community would also be minimized by providing security at the site and implementing a CAMP to minimize potential migration of volatile organic vapors or fugitive dust from the site.

<u>Long-Term Effectiveness and Permanence</u>

This remedial alternative would permanently treat (via chemical oxidation) VOC-impacted groundwater in the vicinity of the former AST area. This alternative would be effective at addressing the RAOs established for site groundwater by oxidizing dissolved phase VOC in the groundwater. A long-term groundwater monitoring program would be conducted using new monitoring wells to evaluate the effectiveness of the in-situ chemical oxidation treatment, as well as reduction of non-VOC COCs via natural attenuation.

<u>Reduction of Toxicity, Mobility, or Volume</u>

This alternative would directly reduce the toxicity, mobility, and volume of impacted groundwater. The oxidation process would oxidize the VOCs, thereby permanently and irreversibly treating site groundwater. Additional reduction of non-VOC COCs via natural attenuation is likely, which is also permanent.

<u>Implementability</u>

Chemical oxidation would be both technically and administratively implementable. The oxidizing agent would be generated on-site or obtained from vendors and delivered to the subsurface via injection wells, air sparging wells, or soil borings. Equipment and materials associated with the implementation and application of in-situ oxidation are available.

Challenges associated with the implementation of this alternative would consist of the following:

- Conducting in-situ chemical oxidation activities at the active scrap yard. Coordination of remedial activities with ongoing daily site activities would be required to address potential conflicts.

- Design related details of the in-situ chemical oxidation system including:

  - The radius of influence surrounding individual injection/application locations.

  - Potential short-circuiting due to a leaky seal at an injection/application point may allow oxidant (if applied via a gas mixture) to move directly up the well annulus to the unsaturated zone instead of being forced into the impacted groundwater zone.

  - Parameters such as oxidant concentrations and injection/application rates and pressures, etc.

These uncertainties would be evaluated during the RD phase to assess feasibility, effectiveness, and appropriate design parameters necessary to successfully complete oxidation of impacted groundwater.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. Potentially applicable chemical-specific SCGs include NYSDEC Class GA standards and guidance values. Site groundwater contains VOCs at concentrations greater than these SCGs. This alternative includes treatment of VOCs in groundwater via in-situ chemical oxidation, which would likely achieve chemical-specific SCGs for site groundwater.

  Process residuals generated during the implementation of this alternative (e.g., drilling waste from well installation) would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations. Process residuals would be characterized to determine appropriate off-site management requirements. If any of the materials are characterized as a hazardous waste, RCRA LDRs could be applicable.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs are associated with installation and operation of the oxidant injection/application system, monitoring requirements, and general health and safety requirements. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with action-specific SCGs would be accomplished by following an NYSDEC-approved RD/RA Work Plan and a site-specific HASP.

  The implementation of this alternative may potentially result in the generation of air emissions. The SCGs applicable to air emissions include all relevant requirements under the Clean Air Act contained in 40 CFR Parts 1-99. Additionally, NYS regulations regarding air emissions would also apply. To comply with these SCGs, a treatment system would be designed and operated such that air emission limits would not be exceeded and the system would comply with all federal and state air emission requirements.

  Process residuals generated during the implementation of this alternative would be subject to USDOT requirements for packaging, labeling, manifesting, and transporting hazardous or regulated materials. Compliance with these requirements would be achieved by following an NYSDEC-approved RD/RA Work Plan and utilizing licensed waste transporters and properly permitted disposal facilities.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

<u>Overall Protection of Human Health and the Environment</u>

Potential exposure to groundwater containing VOCs at concentrations greater than NYSDEC Class GA standards and guidance values would be addressed by this remedial alternative. In-situ chemical oxidation would provide an effective means of permanently treating VOCs in groundwater, thereby eliminating human and biota exposures. Additional dissolved-phase COCs would be addressed via natural attenuation and establishment of institutional controls. Exposure to impacted groundwater and oxidizing agents during implementation of this alternative would be mitigated by compliance with appropriate health and safety regulations.

Cost

The estimated costs associated with Alternative GW4 are presented in Table 5-9. The total estimated 30-year present worth cost for this alternative is approximately \$820,000. The estimated capital cost, including costs for abandoning existing monitoring wells, installing new monitoring wells, and constructing and operating a chemical oxidant application system, is approximately \$430,000. The 30-year present worth cost of O&M activities associated with this alternative, including annual groundwater monitoring, is approximately \$390,000.

5.6 Detailed Evaluation of Sediment Remedial Alternatives

This section presents the detailed analysis of each of the sediment remedial alternatives previously identified in Section 4.

- Alternative SD2 – Institutional Controls
- Alternative SD3 – Average-Based Sediment Removal to Achieve PCBs < 1 ppm with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring
- Alternative SD4 – Area-Based Sediment Removal (PCBs > 1 ppm) with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring
- Alternative SD5 – Area-Based Sediment Removal (PCBs > 0.1 ppm) with Off-Site Management and Long-Term Biota Monitoring

Each alternative is evaluated against the seven evaluation criteria described above (as indicated, public and state acceptance will be evaluated following submittal of this Feasibility Study Report). The “No Action” alternative was previously evaluated in Section 5.3.

5.6.1 Alternative SD2 – Institutional Controls

Under Alternative SD2, no active remediation would be implemented to remove, treat, or contain impacted sediment in the southern drainage areas, the drainage swale that conveys surface water and stormwater runoff to the northern drainage area, and sediment within the northern drainage area itself. This remedial alternative would use environmental easements (e.g., ELURs) and deed restrictions (upon approval from the current northern drainage area property owner) to mitigate (to the extent possible) direct contact with impacted sediment by site workers, site visitors and trespassers. Under this alternative, environmental easements and deed restrictions would be established to restrict current and future property owners from performing intrusive activities that may result in exposure to PCB-impacted sediments. The specific controls implemented under this alternative would be identified through consultation with NYSDEC and NYSDOH.

The northern drainage area and portions of the drainage swale are not currently owned by WSI. Note that negotiations would have to be conducted with the current property owner to place deed restrictions on the wetlands.

Additionally, a locked chain-link fence would be installed around the perimeter of the northern drainage area to limit site access to unnecessary personnel and surrounding wildlife. This alternative would also include preparation of an SMP that would:

- Provide health and safety requirements for future site activities
- Identify known locations of sediments impacted with PCBs, SVOCs, and inorganic constituents
- Establish inspection and maintenance requirements for site fencing and signage

Site fencing maintenance activities would be completed, as needed, in accordance with the SMP. Additionally, periodic reports would be filed with NYSDEC and NYSDOH to document that institutional controls and site fencing are maintained and remain effective.

<u>Short-Term Effectiveness</u>

No active remediation would be implemented under this alternative. Therefore, no short-term impacts would be presented to the surrounding community, construction workers, or the environment during implementation of this alternative. As compared to the other sediment alternatives, negligible additional greenhouse emissions (e.g., on-site combustion of fuels) are associated with this alternative (i.e., installation of a chain-link fence).

Long-Term Effectiveness and Permanence

Under this alternative, potential direct contact to site workers with sediment containing PCBs, SVOCs and inorganic constituents would be potentially mitigated by site fencing and long-term monitoring and maintenance of the newly installed fencing. Though future work in the wetlands areas is unlikely based on the nature of the wetlands, future site workers would potentially be exposed to impacts remaining in sediments during fence inspection and maintenance activities. This alternative does not address potential exposure of biota to impacted sediment.

The SMP would provide health and safety requirements to protect human health and safety during fence inspection and maintenance activities. As indicated above, future site work in the wetlands is unlikely. However, based on the scope of future site activities, modifications to the deed restrictions and the SMP would be presented to NYSDEC and NYSDOH for review and approval, as appropriate. Both the deed restrictions and the SMP would be apparent to possible future site owners during comprehensive due diligence activities performed in connection with property transfer.

Alternative SD2 would not meet the sediment RAO of eliminating/mitigating impacts to biota through ingestion or bioaccumulation. Therefore, this alternative is not considered effective on a long-term basis.

Reduction of Toxicity, Mobility, or Volume

As indicated above, no active treatment, removal, or containment would be implemented under this remedial alternative. Therefore, implementation of this remedial alternative would not reduce the toxicity, mobility, or volume of COCs present in northern and southern drainage area wetland sediment.

Implementability

This remedial alternative would be both technically and administratively implementable. Only minimal coordination with state agencies (i.e., NYSDEC and NYDOH) would be required to implement appropriate institutional controls.

The anticipated time associated with the implementation of Alternative SD2 would be less than one month and long-term monitoring and maintenance has been assumed to last 30 years.

Compliance with SCGs

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. As indicated in Section 2.2.1, potential chemical-specific SCGs for sediment are detailed in the NYSDEC document titled *Technical Guidance for Screening Contaminated Sediments*. Regulations for the identification and management of PCB-impacted materials, as detailed in 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 would also potentially be applicable. As this alternative does not include any treatment, removal, or containment of impacted soil, Alternative SD2 would not meet the chemical-specific SCGs.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include general health and safety requirements. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with action-specific SCGs would be accomplished by following an NYSDEC-approved RD/RA Work Plan and a site-specific HASP.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

Overall Protection of Human Health and the Environment

Potential exposure to sediment containing COCs would be mitigated by institutional controls, which would discourage use of the northern drainage area. Potential for exposure to COCs during implementation of this alternative would be minimal and would be mitigated by compliance with appropriate health and safety regulations. Although future site work within the wetlands is unlikely, long-term direct exposure of site workers to impacted sediment would not be mitigated, as Alternative SD2 does not include treatment, removal, or containment of sediment. Therefore, Alternative SD2 is not considered protective of human health and the environment.

<u>Cost</u>

The estimated costs associated with Alternative SD2 are presented in Table 5-10. The total estimated 30-year present worth cost for this alternative is approximately $135,000. The estimated capital cost, including costs for the acquisition of deed restrictions, is approximately $60,000. The present worth cost of O&M activities associated with this alternative, including annual verification of institutional controls, is approximately $75,000.

5.6.2 Alternative SD3 – Average-Based Sediment Removal to Achieve PCBs < 1 ppm with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

This remedial alternative would consist of excavating sediment to achieve an average PCB concentration in sediment of less than a 1 ppm site-specific sediment cleanup objective.

The concept of an area average removal for addressing impacted material is a risk-based approach (along with the not-to-exceed approach covered by Alternative SD4) accepted by the USEPA. The USEPA guidance document entitled, *Guidance for Surface Soil Cleanup at Hazardous Waste Sites: Implementing Cleanup Levels* (USEPA, 2005b) describes the distinction and justification between a not-to-exceed and an area average approach. As indicated in the document:

> *The not-to-exceed option typically entails treating or removing all soil with contaminant concentrations exceeding the cleanup level. The area average option typically involves treating or removing soils with the highest contaminant concentrations such that the average (usually the upper confidence limit on the average) concentration remaining onsite after remediation is at or below the cleanup level (USEPA, 2005b).*

At most sites, unless there is site-specific information to the contrary, it is reasonable to assume that individuals are randomly exposed within the exposure unit over the long-term (USEPA, 2002; 2005b). USEPA recommends using the average concentration to represent “a reasonable estimate of the concentration likely to be contacted over time” (USEPA, 1989).

The post-removal range of PCB concentrations that would remain following the average-based removal to achieve an average PCB concentration less than 1 ppm is summarized in the following table.

Wetland Area	Post Removal PCB Concentration Range of Remaining Sediment	Post-Removal PCB Average Sediment Concentration
Southern Drainage Area SDA-3	0.01 to 8.8 ppm	0.98 ppm
Northern Drainage Area	0.01 to 9.3 ppm	0.74 ppm

Sediment would be removed to the depth of the underlying native soil (approximately 2.5 feet below sediment surface on average based on sediment probing complete during the RI). Sediment removal areas were determined using the following process:

- The total surface area of the Thiessen polygons formed for the sediment investigation was determined (Area - "A").
- The surface area for each individual Thiessen polygon was multiplied by the PCB concentration detected in the associated sediment sample for that polygon (Area Concentration - "C").
- The individual Area Concentrations were summed to obtain the Total Area Concentration ("TC")
- Total Area Concentration was then divided by the total surface area (TC/A) to obtain the average PCB concentration to obtain Total Average Concentration (TAC).
- Individual polygons could then be assumed to be "removed" to lower the TAC to less than 1 ppm.

The following hierarchy was used to select individual polygons for removal to achieve the less than 1 ppm average PCB concentration objective:

- PCBs greater than 50 ppm
- PCBs greater than 10 ppm
- Largest polygon area with PCBs greater than 1 ppm and less than 10 ppm

Polygons were successively selected until the resulting average concentration of PCBs in the remaining sediment was less than 1 ppm. The approximate limits of sediment removal to achieve this objective (approximately 14,700 CY of sediment) are shown on Figure 5-6.

Sediment excavation activities would be completed using conventional construction equipment. A stormwater pollution prevention plan would developed as part of RD and erosion controls (i.e., silt fencing) would be placed around excavation and material staging areas to minimize soil erosion in these areas. Temporary earthen berms, diversion ditches, and/or temporary bypass pumping would be used to facilitate dewatering/decanting of water in wetland areas. As part of sediment excavation activities, a silt dam would be installed at the downstream drainage ditch (i.e., the wetland discharge point). Surface water downstream of the silt dam would be monitored daily to verify that turbidity requirements are not exceeded.

Stabilized/dewatered sediment containing PCBs at concentrations greater than or equal to 50 ppm (approximately 4,900 CY) would be segregated and transported for off-site management as a TSCA-regulated New York State hazardous waste at a RCRA Subtitle C landfill. Stabilized/dewatered sediment containing PCBs at concentrations less than 50 ppm would be transported for off-site management as a non-hazardous waste and/or on-site consolidation prior to capping as part of the selected soil remedial alternative. Sediment stabilization would consist of the addition of an appropriate stabilizing agent (e.g., woodchips, Portland cement, dry soil) so that no free liquids are present, as determined by a Paint Filter Test (SW846 9095).

Sediment that does not contain COCs at concentrations greater than the soil cleanup objective will be consolidated on-site with soil excavated from beyond the WSI property boundary and used as backfill for excavation areas within the WSI property limits. If the volume of consolidated sediment and soil is greater than the volume of soil excavated from within the WSI property, the remainder of the material would be evenly distributed across the WSI property boundary within the limits of the area to be capped. Following on-site consolidation, the materials would be capped as described in Alternatives S3 through S6. For the purpose of preparing a cost for this FS, a soil removal objective of 50 ppm is assumed (i.e., Alternative S4). However, sediment alternative costs associated with soil removal objectives of 25 and 10 ppm (i.e., Alternatives S5 and S6, respectively) are included in a sub-table under Note 8 within Table 5-11 to indicate the costs for this sediment alternative when paired with Alternatives S5 or S6. The cost estimate for this sediment remedial alternative does not include construction of a cap, as these costs are covered under the soil alternatives.

Following excavation activities, wetlands would be restored. The hummock and hollow topography (knolls and depressions) of the existing northern drainage area wetlands would be restored via the importation and placement of appropriate fill material (to be determined as part of the remedial design) and a surface layer of a minimum of 6 inches of topsoil. Fill material and wetland topsoil would consist of materials that closely match the physical characteristics of the existing wetland materials to maintain the hydraulic interaction of the water table and the wetlands. Restoration activities would utilize post-excavation ground elevations to restore hummocks (via importation of clean materials) and hollows (excavation areas) with imported materials. Existing wetland habitats would be restored with wetland seed mixtures, shrubs, and trees that best match post-excavation hydraulic conditions. Shallow wetlands (less than two feet of water) may require the placement of aquatic plant plugs to facilitate aquatic vegetation establishment.

Southern drainage area wetlands would be backfilled with materials (i.e., riprap stone instead of general fill, topsoil, and vegetation) not suitable for vegetation re-establishment or wildlife habitat to discourage wildlife habitation. As indicated in Section 1.6.2.2, the portion of the drainage ditch/culvert within the WSI property may potentially be serving as a groundwater drain. Therefore, this portion of the drainage ditch/culvert would be replaced with a covered perforated drainpipe as to minimize potential changes to site hydrogeology. Specifications of the drainpipe would be evaluated as part of the remedial design.

A wetland vegetation restoration plan, including existing soil characterization, would be developed prior to the implementation of remedial activities. Additionally, wetland and biota monitoring plan would be prepared and implemented following completion of the remedial activities. Biennial biota monitoring would include collecting samples (e.g., minnows, fish, frogs, etc.) for laboratory analysis for PCBs and lipids content. Laboratory results would be utilized to assess the effectiveness of the remedial actions.

<u>Short-Term Effectiveness</u>

Implementation of this alternative may result in short-term exposure to the surrounding community and site workers as a result of excavation, material handling, and off-site transportation activities. Potential exposure mechanisms would include ingestion and dermal contact with impacted sediment. Potential exposure of site workers would be minimized by the use of appropriate PPE, as specified in a site-specific HASP that would be developed as part of the RD. Air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls. Community access to the wetlands would be restricted by temporary site fencing. A site-specific CAMP would be prepared and community air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls.

Additional worker safety concerns include working with and around large construction equipment, noise generation from operating construction equipment and increased vehicular traffic associated with transportation of excavated material from the site and delivery of backfill. These concerns would be minimized by the use of engineering controls and appropriate health and safety practices. Off-site transportation of excavated material and importation of clean fill materials (for wetland restoration) would result in at least 750 tractor trailer round trips (assuming 20 CY per tractor trailer). This increase in local truck traffic would create a nuisance for the surrounding community and increase the potential for motor vehicle accidents on local roads and highways. The transportation activities would be managed to minimize en-route risks to the community.

The relative carbon footprint (as compared to the other sediment alternatives) is considered moderate. This remedial alternative would be completed in approximately six months (assuming no overlap with soil excavation and site capping activities). The greatest contribution to greenhouse gases would occur as a result of heavy equipment operation during excavation, backfilling, and transportation activities.

Long-Term Effectiveness and Permanence

This remedial alternative would mitigate the potential for biota exposure to impacted sediment. Alternative SD3 includes excavation, on-site consolidation and off-site management of PCB-impacted sediment (such that the average remaining wetland PCB concentration is less than 1 ppm), and installation of physical barriers (i.e., the cap) that would minimize potential future exposure to impacted sediment.

As indicated above, a portion of the excavated sediment would be consolidated on-site beneath a cap. Appropriate management and maintenance of the cap, along with use restrictions of the capped area, would be required for this alternative to remain effective and reliable over the long-term. As described for the soil alternatives, annual inspection of the integrity of the cap would be conducted and maintenance activities would potentially included replacing eroded areas of the cap.

Long-term wetland biota and vegetation monitoring would be conducted to document that the northern drainage area wetlands have been re-established and are capable of supporting the aquatic and terrestrial wildlife that is present in the wetlands prior to the implementation of any remedial action.

This alternative meets the sediment RAO of eliminating/mitigating exposure to biota from ingestion of impacted sediments of through bioaccumulation via uptake through the aquatic food chain. However, the actual effectiveness would be gauged based on the findings of annual wetland and biota monitoring.

Reduction of Toxicity, Mobility, or Volume

This alternative includes removal of material such that the average PCB concentration in northern and southern drainage area wetland sediment is less than 1 ppm. Approximately 4,900 CY of sediment containing PCBs at concentrations greater than or equal to 50 ppm would permanently removed and transported for off-site management. Approximately 9,800 CY of excavated sediment containing PCBs at concentrations less 50 ppm would be managed off-site and/or consolidated beneath a cap (dependent on the selection of the soil alternative).

Implementability

This remedial alternative would be both technically and administratively implementable. Equipment and materials necessary to excavate wetland sediment are readily available, as are remediation contractors capable of performing these remedial activities (i.e., no highly specialized equipment, materials, or personnel would be required).

An access agreement has been executed with the current owners of the former Potsdam Hardwoods property (which includes the portions of the drainage swage and the northern drainage area) located east of the WSI property.

Challenges associated with the implementation of this alternative would consist of the following:

- Managing surface water that is conveyed to the northern drainage area via the drainage swale. Water management (e.g., temporary diversion ditches, bypass pumping) would be required to convey surface water runoff to the northern drainage area during excavation of drainage swale sediment.

- Water management (e.g., earthen berms, temporary diversion ditches, bypass pumping) during sediment excavation within the northern drainage area would be required to dewater wetland sediment prior sediment removal. Removal activities would be preferred to be completed in the dry to minimize the amount of water requiring treatment and management.

- Managing water generated from sediment excavation and dewatering activities. Although dewatering activities would be conducted prior to sediment excavation, remedial activities associated with this alternative are still anticipated to generate a large amount of water. For the purpose of developing this remedial alternative, it has been assumed that water would be treated on-site and discharged to the northern drainage area wetland.

- Restoring wetlands following completion of sediment excavation activities. A wetland restoration plan would be developed to document wetland conditions and detail post-excavation vegetation restoration requirements.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. As indicated in Section 2.2.1, potential chemical-specific SCGs for sediment are detailed in the NYSDEC document titled *Technical Guidance for Screening Contaminated Sediments*. Regulations for the identification and management of PCB-impacted materials, as detailed in 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371, would also potentially be applicable.

  This alternative includes excavation of on-site and off-site sediment such that the average remaining wetland PCB concentration is less than 1 ppm. Excavated material containing PCBs at concentrations greater than 50 ppm would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations. Sediment excavated during implementation of this remedial alternative would be characterized to determine appropriate off-site management requirements. If any of the materials are characterized as a hazardous waste, RCRA LDRs could be applicable. Excavated sediment containing PCBs at concentrations less than 50 ppm would be managed off-site and/or consolidated on-site beneath a cap.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include health and safety requirements and regulations associated with handling impacted sediment. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with these action-specific SCGs would be accomplished by following a site-specific HASP.

Sediment excavated during implementation of this remedial alternative would be subject to USDOT requirements for the packaging, labeling, manifesting, and transporting hazardous or regulated materials. Compliance with these requirements would be achieved by following an NYSDEC-approved RD/RA Work Plan and utilizing licensed waste transporters and properly permitted disposal facilities.

Additionally, permitting and approvals with the NYSDEC and Army Corp of Engineers would potentially be required to conduct remedial activities within the wetlands.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

<u>Overall Protection of Human Health and the Environment</u>

Under Alternative SD3, potential exposures to sediment containing PCBs, SVOCs, and inorganic constituents would be mitigated by excavating sediment such that the average remaining wetland PCB concentration is less than 1 ppm, transporting excavated material for off-site management, and consolidating excavated material beneath the on-site cap. Exposure to COCs during implementation of this alternative would be mitigated by compliance with appropriate health and safety regulations.

Sediment containing PCBs (at concentrations greater than or equal to 50 ppm) would be permanently removed from the site and excavated sediment containing PCBs at concentrations less than 50 ppm would be transported for off-site management and/or consolidated on-site and capped (depending on the soil remedial alternative selected for the site).

Cost

The estimated costs associated with Alternative SD3 are presented in Table 5-11. The total estimated 30-year present worth cost for this alternative ranges from approximately $5,700,000 to $6,400,000 depending on the associated soil alternative selected as part of the site-wide remedy. The estimated capital cost, including costs for a sediment excavation, wetland restoration, on-site sediment consolidation, and/or off-site sediment management, ranges from approximately $5,300,000 to $6,000,000. Note that costs for construction of a cap would be accounted for under the appropriate soil alternative. The present worth cost of O&M activities associated with this alternative, including wetland and biota monitoring, is approximately $400,000.

5.6.3 Alternative SD4 – Area-Based Sediment Removal (PCBs > 1 ppm) with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

This remedial alternative would consist of excavating sediment containing PCBs at concentrations greater than a 1 ppm site-specific sediment cleanup objective. The 1 ppm cleanup objective was selected based on cleanup objectives established at similar PCB-impacted sediment sites in New York State. This includes sediment located within the southern drainage areas, the drainage swale that flows to the northern drainage area, and the northern drainage area itself. The approximate limits of sediment containing PCBs at concentrations greater than 1 ppm (approximately 21,300 CY of sediment) are shown on Figure 5-9.

Sediment excavation, handling, stabilization/dewatering, and waste characterization activities would be completed as described for the previously discussed sediment alternatives. It has been assumed that water generated during excavation and dewatering activities would be treated (i.e., solids removal followed by carbon filtration) via an on-site temporary treatment system and subsequently discharged back into the northern drainage area wetlands. Stabilized/dewatered sediment containing PCBs at concentrations greater than or equal to 50 ppm (approximately 4,900 CY) would be segregated for transportation and off-site management as a TSCA-regulated/New York State hazardous waste at a RCRA Subtitle C landfill. Stabilized/dewatered sediment containing PCBs at concentrations less than 50 ppm would be transported for off-site management as a non-hazardous waste and/or on-site consolidation prior to capping as part of the selected soil remedial alternative. Similar to Alternative SD3, the excavated sediment would be consolidated with soil excavated from beyond the WSI property boundary and used as backfill for excavation areas within the WSI property. If the volume of consolidated sediment and soil is greater than the volume of soil excavated from within the WSI property, the remainder of the material would be evenly distributed across the WSI property boundary within the limits of the area to be capped.

Following excavation activities, site wetlands would be restored as described for Alternative SD3. As indicated in Section 1.6.2.2, the portion of the drainage ditch/culvert within the WSI property may potentially be serving as a groundwater drain. Therefore, this portion of the drainage ditch/culvert would be replaced with a covered perforated drainpipe as to minimize potential changes to site hydrogeology. Specifications of the drainpipe would be evaluated as part of the remedial design.

A wetland vegetation and biota monitoring plan would be prepared and implemented following completion of the remedial activities. Biennial biota monitoring would include collecting samples (e.g., minnows, fish, frogs, etc.) for laboratory analysis for PCBs and lipids content. Laboratory results would be utilized to assess the effectiveness of the remedial actions. A detailed biota monitoring plan will be prepared as part of the RD.

<u>Short-Term Effectiveness</u>

Implementation of this alternative may result in short-term exposure to the surrounding community and site workers as a result of excavation, material handling, and off-site transportation activities. Potential exposure mechanisms would include ingestion and dermal contact with impacted sediment. Potential exposure of site workers would be minimized by the use of appropriate PPE, as specified in a site-specific HASP that would be developed as part of the RD. Air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls. Community access to the wetlands during remedial construction would be restricted by temporary site fencing. A site-specific CAMP would be prepared and community air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls.

Additional worker safety concerns include working with and around large construction equipment, noise generation from operating construction equipment and increased vehicular traffic associated with transportation of excavated material from the site and delivery of backfill. These concerns would be minimized by the use of engineering controls and appropriate health and safety practices. Off-site transportation of excavated material and importation of clean fill materials (for wetland restoration) would result in at least 2,150 tractor trailer round trips (assuming 20 CY per tractor trailer). This increase in local truck traffic would create a nuisance for the surrounding community and increase the potential for motor vehicle accidents on local roads and highways. The transportation activities would be managed to minimize en-route risks to the community.

The relative carbon footprint (as compared to the other sediment alternatives) is considered moderate. This remedial alternative would be completed in approximately eight months (assuming no overlap with soil excavation activities). The greatest contribution to greenhouse gases would occur as a result of heavy equipment operation during excavation, backfilling, and transportation activities.

Long-Term Effectiveness and Permanence

This remedial alternative would mitigate the potential for biota exposure to impacted sediment. Alternative SD4 includes permanent removal and off-site management of sediment containing PCBs at concentrations greater than 1 ppm (which is irreversible). The 1 ppm soil cleanup objective is consistent with site-specific sediment cleanup objectives established for similar sites in New York State.

Long-term wetland biota and vegetation monitoring would be conducted to document that the northern drainage area wetlands have been re-established and are capable of supporting the aquatic and terrestrial wildlife that is present in the wetlands prior to the implementation of any remedial action.

This alternative meets the sediment RAO of eliminating/mitigating exposure to biota from ingestion of impacted sediments through bioaccumulation via uptake through the aquatic food chain. However, the actual effectiveness would be gauged based on the findings of annual wetland and biota monitoring.

Reduction of Toxicity, Mobility, or Volume

This alternative includes excavation and off-site management and/or on-site consolidation of approximately 21,300 CY of sediment containing PCBs at concentrations greater than 1 ppm.

Implementability

This remedial alternative would be both technically and administratively implementable. Equipment and materials necessary to excavate wetland sediment are readily available, as are remediation contractors capable of performing these remedial activities (i.e., no highly specialized equipment, materials, or personnel would be required).

An access agreement has been executed with the current owners of the former Potsdam Hardwoods property (which includes the portions of the drainage swale and the northern drainage area) located east of the WSI property.

Difficulties and uncertainties associated with the implementation of this alternative would consist of the following:

- Managing surface water that is conveyed to the northern drainage area via the drainage swale. Water management (e.g., temporary diversion ditches, bypass pumping) would be required to convey surface water runoff to the northern drainage area during excavation of drainage swale sediment.

- Water management (e.g., earthen berms, temporary diversion ditches, bypass pumping) during sediment excavation within the northern drainage area would be required to dewater wetland sediment prior sediment removal. Removal activities would be preferred to be completed in the dry to minimize the amount of water requiring treatment and management.

- Managing water generated from sediment excavation and dewatering activities. Although dewatering activities would be conducted prior to sediment excavation, remedial activities associated with this alternative are still anticipated to generate a large amount of water. For the purpose of developing this remedial alternative, it has been assumed that water would be treated on-site and discharged to the northern drainage area wetlands.

- Restoring wetlands following completion of sediment excavation activities. A wetland restoration plan would be developed to document wetland conditions and detail post-excavation vegetation restoration requirements.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. As indicated in Section 2.2.1, potential chemical-specific SCGs for sediment are detailed in the NYSDEC document titled *Technical Guidance for Screening Contaminated Sediments*. Regulations for the identification and management of

PCB-impacted materials, as detailed in 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371, would also potentially be applicable.

This alternative includes excavation of northern and southern drainage area wetland sediment containing PCBs at concentrations greater than a 1 ppm site-specific sediment cleanup objective. Excavated material containing PCBs at concentrations greater than or equal to 50 ppm would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations. Sediment containing PCBs at concentrations less than 50 ppm that is excavated during implementation of this remedial alternative would be characterized to determine appropriate off-site management requirements. If any of the materials are characterized as a hazardous waste, RCRA LDRs would be applicable.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include health and safety requirements and regulations associated with handling impacted sediment. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with these action-specific SCGs would be accomplished by following a site-specific HASP.

  Sediment excavated during implementation of this remedial alternative would be subject to USDOT requirements for the packaging, labeling, manifesting, and transporting hazardous or regulated materials. Compliance with these requirements would be achieved by following an NYSDEC-approved RD/RA Work Plan and utilizing licensed waste transporters and properly permitted disposal facilities.

  Additionally, permitting and approvals with the NYSDEC and Army Corp of Engineers would potentially be required to conduct remedial activities within the wetlands.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

Overall Protection of Human Health and the Environment

Under Alternative SD4, potential exposures to sediment containing PCBs, SVOCs, and inorganic constituents would be mitigated by excavating sediment containing PCBs at concentrations greater than 1 ppm and transporting excavated material for off-site management and/or on-site consolidation beneath a cap. Exposure to COCs during implementation of this alternative would be mitigated by compliance with appropriate health and safety regulations. Potential human and biota exposures would be significantly reduced by the permanent removal of sediment containing PCBs at concentrations greater than 1 ppm.

Cost

The estimated costs associated with Alternative SD4 are presented in Table 5-12. The total estimated 30-year present worth cost for this alternative ranges from approximately $7,000,000 to $7,600,000 depending on the associated soil alternative selected as part of the site-wide remedy. The estimated capital cost, including costs for a sediment excavation, wetland restoration, and off-site sediment management and/or on-site consolidation, ranges from approximately $6,400,000 to $7,200,000. The present worth cost of O&M activities associated with this alternative, including biota and wetland monitoring, is approximately $400,000.

5.6.4 Alternative SD5 – Area-Based Sediment Removal (PCBs > 0.1 ppm) with Off-Site Management and Long-Term Biota Monitoring

This remedial alternative would consist of excavating sediment containing PCBs at concentrations greater than a 0.1 ppm site-specific sediment cleanup objective. This includes sediment located within the southern drainage areas, the drainage swale, and the northern drainage area. The approximate limits of sediment containing PCBs at concentrations greater than 0.1 ppm (approximately 37,800 CY of sediment) are shown on Figure 5-10.

Sediment excavation, handling, stabilization/dewatering, and waste characterization activities would be completed as described for the previously discussed sediment alternatives. It has been assumed that water generated during excavation and dewatering activities would be treated (i.e., solids removal followed by carbon filtration) via an on-site temporary treatment system and subsequently discharged back into the northern drainage area wetlands. Stabilized/dewatered sediment containing PCBs at concentrations greater than or equal to 50 ppm (approximately 4,900 CY) would be segregated for transportation and off-site management as a TSCA-regulated/New York

State hazardous waste at a RCRA Subtitle C landfill. Stabilized/dewatered sediment containing PCBs at concentrations less than 50 ppm would be transported for off-site management as a non-hazardous waste.

Following excavation activities, site wetlands would be restored as described for the other sediment alternatives. As indicated in Section 1.6.2.2, the portion of the drainage ditch/culvert within the WSI property may be serving as a groundwater drain. Therefore, this portion of the drainage ditch/culvert would be replaced with a covered perforated drainpipe as to minimize potential changes to site hydrogeology. Specifications of the drainpipe would be evaluated as part of the remedial design.

A wetland vegetation and biota monitoring plan would be prepared and implemented following completion of the remedial activities. Biennial biota monitoring would include collecting samples (e.g., minnows, fish, frogs, etc.) for laboratory analysis for PCBs and lipids content. Laboratory results would be utilized to assess the effectiveness of the remedial actions. A biota monitoring plan would be prepared as part of the RD.

<u>Short-Term Effectiveness</u>

Implementation of this alternative may result in short-term exposure to the surrounding community and site workers as a result of excavation, material handling, and off-site transportation activities. Potential exposure mechanisms would include ingestion and dermal contact with impacted sediment. Potential exposure of site workers would be minimized by the use of appropriate PPE, as specified in a site-specific HASP that would be developed as part of the RD. Air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls. Community access to the wetlands during remedial construction would be restricted by temporary site fencing. A site-specific CAMP would be prepared and community air monitoring would be performed during implementation of this alternative to evaluate the need for additional engineering controls.

Additional worker safety concerns include working with and around large construction equipment, noise generation from operating construction equipment and increased vehicular traffic associated with transportation of excavated material from the site and delivery of backfill. These concerns would be minimized by the use of engineering controls and appropriate health and safety practices. Off-site transportation of excavated material and importation of clean fill materials (for wetland restoration) would result in approximately 3,800 tractor trailer round trips (assuming 20 CY per tractor trailer). This increase in local truck traffic would create a nuisance for the surrounding community and increase the potential for motor vehicle accidents on local roads and highways. The transportation activities would be managed to minimize en-route risks to the community.

The relative carbon footprint (as compared to the other sediment alternatives) is considered significant. This remedial alternative would be completed in approximately 12 months (assuming no overlap with soil excavation and cap construction activities). The greatest contribution to greenhouse gases would occur as a result of heavy equipment operation during excavation, backfilling, and transportation activities.

Long-Term Effectiveness and Permanence

This remedial alternative would mitigate the potential for biota exposure to impacted sediment. Alternative SD5 includes permanent removal and off-site management of sediment containing PCBs at concentrations greater than 0.1 ppm.

Excavation of impacted sediment is an irreversible process and long-term wetland biota and vegetation monitoring would be conducted to document that northern drainage area wetlands have been re-established and are capable of supporting the aquatic and terrestrial wildlife that is present in the wetlands prior to the implementation of any remedial action.

This alternative meets the sediment RAO of eliminating/mitigating exposure to biota from ingestion of impacted sediments through bioaccumulation via uptake through the aquatic food chain. This alternative is considered effective on a long-term basis. However, an indicated above, the actual effectiveness would be gauged based on the findings of annual wetland and biota monitoring.

Reduction of Toxicity, Mobility, or Volume

This alternative includes excavation and off-site management of approximately 37,800 CY of wetland sediment containing PCBs at concentrations greater than 0.1 ppm.

Implementability

This remedial alternative would be both technically and administratively implementable. Equipment and materials necessary to excavate wetland sediment are readily available, as are remediation contractors capable of performing these remedial activities (i.e., no highly specialized equipment, materials, or personnel would be required).

An access agreement has been executed with the current owners of the former Potsdam Hardwoods property (which includes the portions of the drainage swale and the northern drainage area) located east of the WSI property.

Difficulties and uncertainties associated with the implementation of this alternative would consist of the following:

- Managing surface water that is conveyed to northern drainage area via the drainage swale. Water management (e.g., temporary diversion ditches, bypass pumping) would be required to convey surface water runoff to the northern drainage area during excavation of drainage swale sediment.

- Water management (e.g., earthen berms, temporary diversion ditches, bypass pumping) during sediment excavation within the northern drainage area would be required to dewater wetland sediment prior sediment removal. Removal activities would be preferred to be completed in the dry to minimize the amount of water requiring treatment and management.

- Managing water generated from sediment excavation and dewatering activities. Although dewatering activities would be conducted prior to sediment excavation, remedial activities associated with this alternative are still anticipated to generate a large amount of water. For the purpose of developing this remedial alternative, it has been assumed that water would be treated on-site and discharged to the northern drainage area wetlands.

- Obtaining and transporting approximately 37,800 CY of clean fill materials to the site. Backfilling activities would have to be coordinated with multiple clean fill providers to obtain the amount of material required to restore the wetlands.

- Restoring wetlands to following completion of sediment excavation activities. A wetland restoration plan would be developed to document wetland conditions and detail post-excavation vegetation restoration requirements.

<u>Compliance with SCGs</u>

- *Chemical-Specific SCGs:* Chemical-specific SCGs are presented in Table 2-1. As indicated in Section 2.2.1, potential chemical-specific SCGs for sediment are detailed in the NYSDEC document titled *Technical Guidance for Screening Contaminated Sediments*. Regulations for the management of PCB-impacted materials, as detailed in 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371, would also potentially be applicable.

  This alternative includes excavation of all site sediment containing PCBs at concentrations greater than 0.1 ppm. Excavated material containing PCBs at concentrations greater than or equal to 50 ppm would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations. Sediment containing PCBs at concentrations less than 50 ppm that is excavated during implementation of this remedial alternative would be characterized to determine appropriate off-site management requirements. If any of the materials are characterized as a hazardous waste, RCRA LDRs could be applicable.

- *Action-Specific SCGs:* Action-specific SCGs are presented in Table 2-2. Potentially applicable action-specific SCGs include health and safety requirements and regulations associated with handling impacted sediment. Workers and work activities would be conducted in accordance with OSHA requirements that specify general industry standards, safety equipment and procedures, and recordkeeping and reporting. Compliance with these action-specific SCGs would be accomplished by following a site-specific HASP.

  Sediment excavated during implementation of this remedial alternative would be subject to USDOT requirements for the packaging, labeling, manifesting, and transporting hazardous or regulated materials. Compliance with these requirements would be achieved by following an NYSDEC-approved RD/RA Work Plan and utilizing licensed waste transporters and properly permitted disposal facilities.

  Additionally, permitting and approvals with the NYSDEC and Army Corp of Engineers would potentially be required to conduct remedial activities within the wetlands.

- *Location-Specific SCGs:* Location-specific SCGs are presented in Table 2-3. Potentially applicable location-specific SCGs generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

Overall Protection of Human Health and the Environment

Under Alternative SD5, potential exposure to sediment containing COCs would be eliminated by excavating sediment containing PCBs at concentrations greater than 0.1 ppm. Exposure to COCs during implementation of this alternative would be mitigated by compliance with appropriate health and safety regulations. This alternative would effectively meet the RAO for wetland sediment and the potential for human and biota exposure to impacted material would be eliminated, as excavated sediment containing PCBs at concentrations greater than the site-specific 0.1 ppm sediment cleanup objective would be permanently removed from the site and the site would be restored with clean backfill materials.

Cost

The estimated costs associated with Alternative SD5 are presented in Table 5-13. The total estimated 30-year present worth cost for this alternative is approximately $11,800,000. The estimated capital cost, including costs for a sediment excavation, wetland restoration, and off-site sediment management, is approximately $11,400,000. The present worth cost of O&M activities associated with this alternative, including biota and wetland monitoring, is approximately $400,000.

6. Comparative Analysis of Alternatives

6.1 General

This section presents the comparative analysis of each remedial alternative using the seven evaluation criteria identified in Section 5.2. The comparative analysis identifies the advantages and disadvantages of each alternative relative to each other and with respect to the seven evaluation criteria.

6.2 Comparative Analysis of Soil Alternatives

This section provides a comparative analysis of the soil remedial alternatives with respect to the seven evaluation criteria identified in Section 5.2. The soil alternatives evaluated in Section 5 consist of the following:

- Alternative S1 – No Action
- Alternative S2 – Institutional Controls
- Alternative S3 – Capping of Soil Containing COCs > Ecological SCOs with Removal of Soil Beyond WSI Property Limits
- Alternative S4 – Excavation of Soil (PCBs ≥ 50 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping
- Alternative S5 – Excavation of Soil (PCBs ≥ 25 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping
- Alternative S6 – Excavation of Soil (PCBs ≥ 10 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping
- Alternative S7 – Excavation of Soil Containing COCs > Unrestricted Use SCOs with Off-Site Management

6.2.1 Short-Term Effectiveness

The short-term effectiveness comparison includes an evaluation of potential human and environmental impacts (i.e., site workers and the surrounding community) during implementation of the alternative, the effectiveness of measures used to mitigate the short-term impacts, and the relative time frame for implementation.

Alternative S1 does not include the implementation of active remedial measures and Alternative S2 only includes installation of site fencing as an active remedial measure. Therefore, these alternatives do not present potential short-term impacts to site-workers, the community, or the environment. These alternatives could be implemented in the shortest amount of time and have little to no additional greenhouse gas emissions being generated at the site.

Alternatives S3 though S7 all consist of excavation, off-site transportation of impacted material and importation of clean fill materials. Therefore, each alternative includes potential short-term exposures to site workers and the surrounding community. Short-term impacts include operation of large construction equipment, noise, dust, and vehicle traffic. Potential exposures would be mitigated, to the extent practicable, by the use of PPE, air monitoring, proper planning, and implementation of engineering controls.

Each subsequent alternative (i.e., proceeding from Alternative S3 through S7) includes excavation of a larger volume of impacted soil, and each alternative requires more time to implement than the previous. Alternatives S3 through S6 each require the importation of an equivalent volume of clean fill materials (for backfilling excavations completed beyond the WSI property boundary and construction of the cap). Alternative S7 requires the importation of the largest volume of clean fill as it requires excavation of the largest volume of impacted soil. Alternatives that include excavation and importation of large volumes of impacted soil and clean fill have associated short-term impacts including increased vehicle traffic and greater contribution to greenhouse gas emissions. Estimated durations of the remedial activities and tractor-trailer round trips for each alternative as summarized below.

- Alternative S3 – 6 months and 2,100 truck trips
- Alternative S4 – 7 months and 2,400 truck trips
- Alternative S5 – 7 months and 2,500 truck trips
- Alternative S6 – 9 months and 2,800 truck loads
- Alternative S7 – 22 months and 9,100truck trips

As Alternative S7 requires the excavation and importation of the greatest volume of soil, this alternative requires the longest time to implement, the largest disruption to the surrounding community, the greatest contribution to greenhouse gas emissions, and therefore, the lowest level of short-term effectiveness (i.e., the highest potential for exposure to impacted materials during remedial construction).

6.2.2 Long-Term Effectiveness and Permanence

The long-term effectiveness comparison includes an evaluation of the risks remaining at the site after the remedial objectives have been met, as well as the effectiveness of the controls implemented to manage the remaining risks (if any).

Alternatives S3 through S6 are equivalent in terms of the area and volume of soil removed from beyond the WSI property boundary and the area covered by a cap. These alternatives only differ in the PCB concentrations remaining in soil beneath the cap, and theoretically would have the same long-term effectiveness. Therefore, the only potential increase in long-term effectiveness (given similar levels of cap monitoring and maintenance) would be the potential for migration of COCs from impacted material under the cap to groundwater or under a scenario where the cap is breached and the potential for exposure is present. Under these cases, long-term effectiveness would increase as the soil cleanup objective becomes more stringent (i.e., long-term effectiveness increases for Alternatives S3 through S6).

Alternative S7 (which would achieve the 0.1 ppm 6NYCRR Part 375-6 unrestricted use soil cleanup objective) would meet all soil RAOs, as a vast majority of PCB-impacted soil would be permanently removed from the site. However, based on the current and anticipated future use of the site as a scrap yard, Alternative S7 is not appropriate for the site. The soil cleanup objectives and cap components for Alternatives S4 through S6 are both considered equally effective at achieving the soil RAOs on a long-term basis when compared to Alternative S7.

6.2.3 Reduction of Toxicity, Mobility, or Volume

The comparative analysis of the reduction, toxicity, or volume includes the ability of the treatment process to address the impacted material, the mass of material destroyed or treated, the irreversibility of the processes employed, and the nature of the remaining residuals.

Alternatives S1 and S2 would not actively treat, remove, recycle, or destroy impacted materials and therefore are considered the least effective for this criterion. As indicated above, each subsequent alternative includes excavation of a larger volume of impacted soil. Alternatives S4 through S6 include the permanent off-site management of PCB-impacted material and therefore, are consider more effective for the reduction of toxicity, mobility, and volume relative to Alternatives S2 and S3. Alternative S7 includes the excavation and permanent off-site management of the greatest volume of PCB-impact soil.

6.2.4 Implementability

The implementability comparison includes an evaluation of the technical and administrative feasibility of implementing the remedial alternative.

Alternatives S1 through S6 require the implementation of institutional controls in the form of environmental easements and deed restrictions, which are readily implementable. As WSI does not own the adjacent properties, WSI would negotiate with and obtain approval from the current property owners to establish institutional controls for areas beyond the WSI property. Alternatives S1 and S2 would be the most easily implementable, as the alternatives require no or little active site work.

Implementability concerns associated with Alternatives S3 through S7 include coordinating the remedial construction activities with daily activities at the active scrap yard, excavation of soil from property not owned by WSI, and excavation of soil near the active railroad in the southern portion of the site. Alternative S7 is considered less implementable based on the large volume of material excavated from the site. Significant coordination/planning would be required with appropriate facilities to accept the large volume of soil destined for off-site management. Additionally, multiple borrow sources would have to be identified to provide enough clean fill material to restore the site following excavation activities.

6.2.5 Compliance with SCGs

- *Chemical-Specific SCGs*: Alternatives S1 and S2 do not include the implementation of removal, treatment, or containment remedial actions and therefore, do not achieve chemical-specific SCGs. Alternatives S3 and S4 do not achieve chemical-specific SCGs, as these alternatives do not include removal of soil containing PCBs at concentrations greater than 6NYCRR Part 375-6 soil cleanup objectives. Alternatives S5 includes removal of soil containing PCBs at concentrations greater than the 25 ppm 6NYCRR Part 375-6 restricted use soil cleanup objective for industrial use. Alternative S6 includes removal of soil containing PCBs at concentrations greater than 10 ppm followed by capping of remaining soil containing PCBs at concentrations greater than or equal to 1 ppm (consistent with TAGM 4046). Alternative S7 includes removal of soil containing PCBs at concentrations greater than the 0.1 ppm 6NYCRR Part 375-6 unrestricted use soil cleanup objective. These chemical-specific SCGs would be achieved under each respective alternative. Additionally, excavated material would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations under each remedial alternative.

- *Action-Specific SCGs*: Alternative S1 does not include the implementation of removal, treatment, or containment remedial actions and therefore, the action-specific SCGs identified in Table 2-2 are not considered applicable. Under Alternatives S2 through S7, health and safety based SCGs would be addressed by following a site-specific HASP during remedial activities completed at the site.

  Additionally, SCGs related to the handling of hazardous wastes (including packaging, labeling, manifesting, and transporting requirements) would be addressed for each alternative by following procedures established in an RD/RA Work Plan that would be prepared prior to the implementation any remedial action.

- *Location-Specific SCGs*: Alternative S1 does not include the implementation of removal, treatment, or containment remedial actions and therefore, the location-specific SCGs identified in Table 2-3 are not considered applicable. As indicated in Section 5, potentially applicable location-specific SCGs for Alternatives S2 through S7 generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

6.2.6 Overall Protection of Human Health and the Environment

Alternatives S1 and S2 would provide minimal protection to human health and the environment through implementation of institutional controls and site fencing, respectively. Through construction of a cap, Alternatives S3 through S6 all achieve the soil RAOs of eliminating/mitigating exposure to soil and dust and migration of impacts to surface water and biota. Although the potential for migration of COCs in groundwater is reduced as the soil cleanup objective becomes more stringent, based on the sorptive nature and low solubility of PCBs, the soil RAO of eliminating/mitigating the migration of impacts to groundwater should be similar for Alternatives S4 through S7. Alternative S7 includes the removal and permanent off-site management of a vast majority of PCB-impacted soil. Considering the current and anticipated future use of the site as a scrap yard, Alternative S7 is not an appropriate remedy for the site. Based on the soil cleanup objectives, the nature of the COCs, and the cap component, Alternatives S4 through S6 are considered equally protective of human health and the environment compared to Alternative S7.

6.2.7 Cost

The following table summarizes the estimated costs associated with each of the soil remedial alternatives.

Alternative	Estimated Capital Cost	Estimated Present Worth of O&M Cost	Total Estimated Cost
S1	$0	$0	$0
S2	$230,000	$160,000	$390,000
S3	$2,700,000	$200,000	$2,900,000
S4	$4,400,000	$200,000	$4,600,000
S5	$4,600,000	$200,000	$4,800,000
S6	$6,000,000	$200,000	$6,200,000
S7	$18,400,000	$0	$18,400,000

As indicated in the table above, Alternative S7 would have the greatest cost associated with implementing the remedial alternative.

6.3 Comparative Analysis of Groundwater Alternatives

This section provides a comparative analysis of the groundwater remedial alternatives with respect to the seven evaluation criteria identified in Section 5.2. The groundwater alternatives evaluated in Section 5 consist of the following:

- Alternative GW1 – No Action

- Alternative GW2 – Institutional Controls
- Alternative GW3 – Continued Monitoring
- Alternative GW4 – Chemical Oxidation of Dissolved-Phase VOCs

6.3.1 Short-Term Effectiveness

Alternatives GW1 and GW2 do not include the implementation of active remedial measures and therefore, no short-term impacts to site-workers, the environment, or the surrounding community are associated with these alternatives.

Alternative GW3 includes potential short-term impacts to field personnel and site workers during groundwater monitoring activities. Although exposure to impacted groundwater during groundwater monitoring activities would be minimal, exposures would be mitigated through the use of appropriate PPE, work space monitoring, and engineering controls.

The greatest potential for short-term impacts would occur under Alternative GW4. Highly reactive oxidizing agents would be stored and/or operated on-site during implementation of this alternative. Potential exposure to these chemicals would be mitigated by following a site-specific HASP and installing temporary fencing around the in-situ chemical oxidation application area and equipment.

6.3.2 Long-Term Effectiveness and Permanence

Alternative GW1 is not considered effective on a long-term basis, as this alternative does not include the implementation of active remedial measures or groundwater monitoring and therefore, does not meet the groundwater RAOs or assess the ongoing groundwater quality at the site. Alternatives GW2, GW3, and GW4 would meet the groundwater RAOs of eliminating/mitigating dermal contact and ingestion of impacted groundwater through the use of institutional controls and continued annual sampling of the water supply wells to monitor water quality. Additionally, groundwater is not used for potable purposes at the site and bottled water would continue to be supplied to site workers.

As presented above, groundwater impacts are localized and potential source materials for groundwater impacts would likely be removed by soil remediation (or have been removed by closure of the former USTs and ASTs). Alternative GW3 includes long-term monitoring to document potential reduction of groundwater impacts (i.e., VOCs in the vicinity of the former AST area and SVOCs and PCBs in areas where constituents were previously detected during the RI) by natural processes (e.g., biodegradation, dispersion, dilution, sorption, volatilization, etc.). The in-situ chemical oxidation to be implemented under Alternative GW4 would permanently address VOCs in site groundwater. Oxidation of VOCs is an irreversible process that would address impacted groundwater in a much shorter time frame, as compared to the natural processes that would be documented as part of Alternative GW3. However, the extent of dissolved-phase impacted groundwater is limited and the potential for exposure is negligible. Additionally, impacted soil that serves as a source for dissolved-phase impacts detected in groundwater samples collected from monitoring well MW-209 would be removed as part of Alternatives S3 through S7. Therefore, continued monitoring is likely to effectively control potential exposure over the long-term until the COCs naturally degrade to concentrations below groundwater standards and guidance values.

6.3.3 Reduction of Toxicity, Mobility, or Volume

As indicated previously, Alternatives GW1 and GW2 do not include active remedial measures. Therefore, implementation of these alternatives does not reduce the toxicity, mobility, or volume of groundwater containing VOCs at concentrations greater than NYSDEC Class GA standards and guidance values. Alternative GW3 does not include active remedial measures, however; the groundwater monitoring activities that would be conducted under this alternative would document the potential long-term reduction of COCs in site groundwater and impacted soil in the vicinity of monitoring MW-209 would be removed (assuming one of Alternatives S3 through S7 are implemented). Under Alternative GW4, VOCs would be oxidized and concentrations of non-VOC COCs would be reduced by natural processes, thereby permanently treating impacted groundwater.

6.3.4 Implementability

Alternatives GW1 through GW3 are all considered technically and administratively implementable. Alternatives GW2, GW3, and GW4 all include implementation of institutional controls in the form of environmental easements, deed restrictions, groundwater use restrictions, and continued supply of bottled water. These activities are considered readily implementable. Additionally, the groundwater monitoring that would be conducted under Alternative GW3 does not require highly specialized equipment or personnel. New groundwater monitoring wells would be installed at and downgradient from areas where impacted groundwater has been encountered.

Alternative GW4 is considered the least implementable groundwater alternative. Potential difficulties associated with Alternative GW4 include selecting/dosing oxidizing agents and design parameters associated with oxidant delivery to the subsurface. These difficulties, and the implementability of an appropriate in-situ chemical oxidation system, would require evaluation during the remedial design.

6.3.5 Compliance with SCGs

- *Chemical-Specific SCGs*: Potentially applicable chemical-specific SCGs include NYSDEC Class GA standards and guidance values. Alternatives GW1 through GW3 do not include any treatment, removal, or containment of impacted groundwater. Therefore these alternatives would rely on natural processes to potentially achieve the chemical-specific SCGs. Assuming that the source of the dissolved-phase impacts will be or have been removed, it is possible that natural process would reduce VOCs concentrations over an extended period of time. This reduction would be documented through implementation of Alternative GW3. Alternative GW4 would actively treat VOCs in groundwater through in-situ chemical oxidation and non-VOC COCs through natural processes. These reductions in dissolved-phase COC concentrations would be verified through post-treatment monitoring, and therefore, this alternative is anticipated to achieve chemical-specific SCGs.

- *Action-Specific SCGs*: Alternative GW1 does not include the implementation of remedial activities, and therefore the action-specific SCGs identified in Table 2-2 are not applicable. As indicated in Section 5, potentially applicable action-specific SCGs associated with Alternatives GW2, GW3, and GW4 include general health and safety requirements. These alternatives would address action-specific SCGs by following a site-specific HASP and RD/RA Work Plan.

- *Location-Specific SCGs*: Alternatives GW1 through GW3 do not include the implementation of removal, treatment, or containment remedial actions and therefore, the location-specific SCGs identified in Table 2-3 are not considered applicable. As indicated in Section 5, potentially applicable location-specific SCGs for Alternatives GW4 generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

6.3.6 Overall Protection of Human Health and the Environment

Alternative GW1 does not include any remedial activities and is therefore not considered protective of human health and the environment. Alternatives GW2, GW3 and GW4 include institutional controls to prevent future site activities that would lead to site worker exposure to impacted groundwater. VOCs in site groundwater would be permanently treated through oxidation as part of Alternative GW4. COC concentrations in site groundwater would be periodically monitored as part of Alternatives GW3 and GW4 to document potential reduction of COC concentrations by natural processes. Based on the lack of potential receptors, limited extent of impacted groundwater, the removal of soil in the vicinity of monitoring well MW-209 as part of the soil alternatives, and continued monitoring component, Alternative GW3 is considered equally protective of human health and the environment, as compared to Alternative GW4.

6.3.7 Cost

The following table summarizes the estimated costs associated with each of the groundwater remedial alternatives.

Alternative	Estimated Capital Cost	Estimated Present Worth of O&M Cost	Total Estimated Cost
GW1	$0	$0	$0
GW2	$60,000	$75,000	$135,000
GW3	$180,000	$350,000	$530,000
GW4	$370,000	$350,000	$720,000

6.4 Comparative Analysis of Sediment Alternatives

This section provides a comparative analysis of the sediment remedial alternatives with respect to the seven evaluation criteria identified in Section 5.2. The sediment alternatives evaluated in Section 5 consist of the following:

- Alternative SD1 – No Action

- Alternative SD2 – Institutional Controls

- Alternative SD3 – Average-Based Sediment Removal to Achieve PCBs < 1 ppm with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

- Alternative SD4 – Area-Based Sediment Removal (PCBs > 1 ppm) with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

- Alternative SD5 – Area-Based Sediment Removal (PCBs > 0.1 ppm) with Off-Site Management and Long-Term Biota Monitoring

6.4.1 Short-Term Effectiveness

Alternatives SD1 and SD2 do not include the implementation of active remedial measures. Therefore, these alternatives do not present potential short-term impacts to site-workers, the community, or the environment. These alternatives could be implemented in the shortest amount of time and have no additional greenhouse gas emissions being generated at the site.

Alternatives SD3 though SD5 all consist of sediment excavation, transportation for off-site management of (all or portions of) excavated sediment, importation of clean fill materials, and wetland restoration. Therefore, each of these alternatives includes potential short-term exposures to site workers and the surrounding community during excavation, material handling, and off-site transportation activities. Short-term impacts include operation of large construction equipment, noise, and vehicle traffic. Potential exposures would be mitigated, to the extent practicable, by the use of PPE, air monitoring, proper planning, and implementation of engineering controls.

In general, alternatives that consist of excavating larger volumes of impacted sediment require more time to implement. Similarly, alternatives that consist of excavating larger volumes of impacted sediment require the importation of a larger volume of clean fill materials, and therefore, are associated with increased vehicle traffic and a greater contribution to greenhouse gas emissions. Estimated durations of the remedial activities and tractor-trailer truck round trips for each sediment alternative are summarized below.

- Alternative SD3 – 6 months and 750 truck trips

- Alternative SD4 – 8 months and 1,100 truck trips

- Alternative SD5 – 12 months and 3,800 truck trips

Alternative SD5 requires the excavation and importation of the greatest volume of sediment and fill materials, respectively. This alternative requires the longest time to implement, the largest disruption to the surrounding community, and the greatest contribution to greenhouse gas emissions.

6.4.2 Long-Term Effectiveness and Permanence

Alternatives SD1 and SD2 would not meet the sediment RAO established for site and therefore would not be effective on a long-term basis. Alternatives SD3 through SD5 are considered effective on a long-term basis, to varying degrees. Alternatives SD3 and SD4 both include excavation of the majority of PCB-impacted sediment from the southern drainage areas, drainage swale, and northern drainage area. As indicated in Section 5, each of these alternatives, along with Alternative SD5, include long-term wetland biota and vegetation monitoring to document that northern drainage area wetlands have been re-established and are capable of supporting the aquatic and terrestrial wildlife that is present in the wetlands prior to the implementation of these remedial alternatives.

Under Alternatives SD3 and SD4, sediment containing PCBs at concentrations less than the soil cleanup objectives would be consolidated on-site and capped as part of the soil remedy. Alternative SD5 (based on the 0.1 ppm site-specific sediment cleanup objective) would also meet the sediment RAO, as no sediment containing PCBs at concentrations greater than 0.1 ppm would remain in the wetlands. However, as indicated in Section 5.6.2, the sediment excavation activities that would be completed as part of Alternative SD3 would remove a majority of PCB-impacted sediment. The average PCB concentration in remaining sediment within the northern draining area would be 0.98 ppm. However, a grab sample collected within the northern drainage area could contain PCBs at concentrations ranging from 0.01 to 8.8 ppm (based on available Focused RI sampling results). Likewise for the southern drainage areas the average PCB concentration would be 0.74 ppm, whereas individual grab samples may contain PCBs at concentrations up to 9.3 ppm (based on available RI sampling results). Therefore, based on the average remaining PCB concentrations in the wetlands and long-term wetland biota monitoring to confirm that PCB concentrations are decreasing in wetland biota, Alternatives SD3 and SD4 are considered equally effective remedies to meet the sediment RAOs on a long-term basis when compared to Alternative SD5.

6.4.3 Reduction of Toxicity, Mobility, or Volume

Alternatives SD1 and SD2 would not actively treat, remove, recycle, or destroy impacted sediment, and therefore, are considered the least effective for this criterion. As indicated above, each alternative includes the excavation of a different volume of impacted sediment. Under Alternatives SD3 and SD4, PCB-impacted sediment containing PCBs at concentrations less than the soil cleanup objectives would be consolidated on-site beneath a cap. Consolidation and placement under a cap greatly reduces the potential mobility of COCs in these materials and both alternatives consist of addressing a large percentage of the PCB-impacted sediment. Alternative SD5 includes the excavation and permanent off-site management of the greatest volume of PCB-impacted sediment and therefore, is considered the most effective for the reduction of toxicity, mobility, and volume.

6.4.4 Implementability

Alternatives SD1 through SD5 require the implementation of institutional controls in the form of environmental easements and deed restrictions, which are readily implementable. Alternatives SD1 and SD2 would be the most easily implementable, as the alternatives require no active site work.

Implementability concerns associated with Alternatives SD3 through SD5 include managing surface water that discharges to the northern drainage area, water management (e.g., berms, diversions, bypassing) during excavation activities to remove sediment in the dry, sediment dewatering following excavation of impacted material, and restoring the wetlands following excavation activities. Alternative SD5 is considered less implementable (relative to the other sediment alternatives) based on the large volume of sediment excavated from the wetlands. Significant coordination/planning would be required with appropriate facilities to accept the large volume of sediment destined for off-site management. Additionally, multiple borrow sources and wetland vegetation providers would have to be identified to provide enough material to restore the northern drainage area following excavation activities.

6.4.5 Compliance with SCGs

- *Chemical-Specific SCGs*: As indicated in Section 5, potential chemical-specific SCGs for sediment are included in the NYSDEC document entitled *Technical Guidance for Screening Contaminated Sediment*. However, this FS has been completed utilizing site-specific sediment cleanup objectives of 1 (average- and area-based) and 0.1 ppm (area-based). Alternatives SD1 and SD2 do not include the implementation of removal, treatment, or containment remedial actions and therefore, do not achieve chemical-specific SCGs. Alternative SD3 includes excavation of PCB-impacted sediment such that the average PCB concentration in remaining the northern and southern drainage area wetland sediment is less than the 1 ppm site-specific sediment cleanup objective. Alternative SD4 includes excavation of sediment containing PCBs at concentrations greater than the 1 ppm site-specific sediment cleanup objective. Alternative SD5 includes excavation of sediment containing PCBs at concentrations greater than the 0.1 site-specific sediment cleanup objective. Additionally, excavated material would be managed in accordance with 40 CFR Part 761, 40 CFR Part 261, and 6NYCRR Part 371 regulations under each remedial alternative.

- *Action-Specific SCGs*: Alternative SD1 does not include the implementation of removal, treatment, or containment remedial actions and therefore, the action-specific SCGs identified in Table 2-2 are not considered applicable. Under Alternatives SD2 through SD5, health and safety based SCGs would be addressed by following a site-specific HASP during remedial activities completed at the site.

  SCGs related to the handling of hazardous wastes (including packaging, labeling, manifesting, and transporting requirements) would be addressed for each alternative by following procedures established in RD/RA Work Plan that would be prepared prior to the implementation any remedial action. Additionally, permitting and approvals with NYSDEC and Army Corp of Engineers would be obtained prior to the implementation of any remedial activities conducted in the northern and southern drainage areas.

- *Location-Specific SCGs*: Alternative SD1 does not include the implementation of removal, treatment, or containment remedial actions and therefore, the location-specific SCGs identified in Table 2-3 are not considered applicable. As indicated in Section 5, potentially applicable location-specific SCGs for Alternatives SD2 through SD5 generally include regulations on construction activities conducted on flood plains or in wetlands. Compliance with location-specific SCGs would be achieved by obtaining the proper local and state permits and approvals prior to conducting site activities.

6.4.6 Overall Protection of Human Health and the Environment

Alternatives SD1 and SD2 would provide minimal protection to human health and the environment through implementation of institutional controls and site fencing, respectively. Through removal of impacted sediment in the wetlands, Alternatives SD3 through SD5 all should achieve the sediment RAO of eliminating/mitigating exposure to biota from ingestion of impacted sediments of through bioaccumulation via uptake through the aquatic food chain. However, the actual effectiveness of each alternative would be gauged based on the findings of wetland and biennial biota monitoring.

Alternative SD5 includes the removal and permanent off-site management of sediment containing PCBs at concentrations greater than 0.1 ppm. However, Alternative SD3 and SD4 include removal and off-site management/on-site consolidation and capping of a majority of PCB-impact sediment. Therefore, Alternatives SD3 and SD4 would be considered equally protective (relative to Alternative SD5) of human health and the environment.

6.4.7 Cost

The following table summarizes the estimated costs associated with each of the sediment remedial alternatives.

Alternative	Estimated Capital Cost	Estimated Present Worth of O&M Cost	Total Estimated Cost
SD1	$0	$0	$0
SD2	$60,000	$75,000	$135,000
SD3	$5,300,000 to $6,000,000	$400,000	$5,700,000 to $6,400,000
SD4	$6,600,000 to $7,200,000	$400,000	$7,000,000 to $7,600,000
SD5	$11,400,000	$400,000	$11,800,000

As indicated in the table above, Alternative SD5 would have the greatest cost associated with implementing the remedial alternative. Costs for constructing a cap have been included in the cost estimates for soil Alternatives S4 through S6. Note that Alternatives SD3 and SD4 contain a range of costs as these alternatives may be paired with Alternatives S4, S5, or S6, which are each associated with a different soil cleanup objective. Based on these different soil cleanup objectives, the volumes of excavated sediment that can be consolidated/capped on-site and that would be managed off-site will vary, which will in turn impact the cost estimate for implementing these sediment alternatives.

7. Preferred Site-Wide Remedy

7.1 General

The evaluation of the remedial alternatives for remediation of soil, groundwater, and wetland sediment at the WSI site was completed in accordance with the procedures outlined in NYSDEC TAGM 4030, as well as USEPA guidance for the completion of feasibility studies in accordance with CERCLA and the NCP.

Based on the comparative analyses presented in Section 6, the preferred site-wide remedy is presented below.

7.2 Summary of the Preferred Site-Wide Remedy

Based on the comparative analysis of the soil, groundwater, and sediment alternatives presented in Section 6, the preferred site-wide remedy consists of Alternatives S4, GW3, and SD3. This site-wide remedy would cost-effectively achieve the best balance of the seven NYSDEC evaluation criteria and would achieve the site-specific RAOs in a reasonable time frame. This remedy represents a permanent reduction in the toxicity, mobility, and volume of soil and sediment containing elevated concentrations of PCBs; mitigates potential exposure to remaining material containing PCBs through construction of a cap; and documents potential permanent reduction (via natural processes) in the toxicity, mobility, and volume of VOCs in site groundwater.

As detailed in respective subsections of Section 5, the primary components of the preferred site-wide remedy consist of the following:

- Excavating approximately 5,000 CY of soil from beyond the WSI property boundary and in the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs and backfilling excavation areas with imported material that meets those soil cleanup objectives.

- Excavating approximately 5,300 CY of soil containing PCBs at concentrations greater than 50 ppm within the WSI property boundary.

- Excavating approximately 14,700 CY of sediment such that the average PCB concentration in remaining sediments is less than 1 ppm.

- Managing approximately 5,400 CY of soil containing PCBs at concentrations greater than or equal to 50 ppm as a TSCA-regulated/NYS hazardous waste at an off-site RCRA Subtitle C Landfill.

- Managing approximately 500 CY of soil excavated from the vicinity of monitoring well MW-209 that contains COCs at concentrations greater than ecological SCOs as a non-hazardous waste at a solid waste landfill.

- Managing approximately 4,900 CY of sediment containing PCBs at concentrations greater than or equal to 50 ppm as a TSCA-regulated/NYS hazardous waste at an off-site RCRA Subtitle C Landfill.

- Consolidating approximately 4,400 CY of soil containing PCBs at concentrations less than 50 ppm on-site and approximately 9,800 CY of sediment containing PCBs at concentrations less than 50 ppm on-site. Consolidated soil and sediment would be used as backfill for excavation areas within the WSI property and the remainder of the material (if any) would be evenly distributed across the WSI property within the limits of the area to be capped.

- Constructing a cap over consolidated materials and remaining impacted soils containing PCBs at concentrations greater than ecological SCOs. The actual cap construction materials would be determined during the remedial design, however, the cap is assumed to consist of the following:

  - Demarcation layer – a light-weight non-woven geotextile would be placed on the existing ground surface or over consolidated material

  - Base layer – 12 inches of compacted clay or other suitable material

  - Top layer – 6 inches of gravel or vegetated topsoil

- Abandoning existing monitoring wells and installing up to 10 new groundwater monitoring wells at locations both upgradient and downgradient from areas at the site where dissolved-phase COCs were detected during the RI.

- Backfilling the southern drainage areas with rip-rap stone to prevent (to the extent practicable) vegetation re-establishment or wildlife habitation.

- Restoring the northern drainage area via the importation and placement of appropriate fill materials, topsoil, wetland seed mixtures, shrubs, and trees.

- Implementing institutional controls in the form of deed restrictions to prevent current or future site owners from conducting activities that would potentially jeopardize the integrity of the cap. Deed restrictions would also be established for the areas beyond the WSI property to limit the potential future use and restrict current and future property owners from performing intrusive activities (e.g., excavation activities that would result in exposure of site workers to surface and subsurface soils containing PCBs at concentrations less than 1 ppm). Additionally, institutional controls will include implementation of investigation efforts to evaluate potential soil vapor intrusion for any new buildings constructed at the site or if the current use of existing site buildings changes.

- Implementing institutional controls in the form of deed restrictions, groundwater use restrictions, continuing annual sampling of the water supply wells to monitor water quality, and continued supply of bottled water for potable use to limit the use of site groundwater.

- Implementing institutional controls in the form of deed restrictions to prevent current or future site owners from conducting activities that result in exposure to remaining PCB-impacted sediment.

- Conducting annual inspections to monitor the cap for erosion or other damage and repairing of the cap, as needed.

- Conducting annual groundwater monitoring to document the reduction of COC concentrations in site groundwater and to verify impacted groundwater is not migrating further downgradient.

- Conducting annual wetland vegetation monitoring to document that wetlands have been re-established and the northern drainage area is capable of supporting the aquatic and terrestrial wildlife that is present prior to the implementation of the remedial alternative.

- Conducting biennial biota monitoring that includes submitting biota samples for PCBs and lipids content to assess the effectiveness of this remedial alternative.

The total estimated cost associated with implementation of the preferred site-wide remedy is summarized in the following table.

Cost	Estimated Amount
Estimated Capital Cost	$9,880,000
Estimated 30-Year Present Worth of O&M Cost	$950,000
Total Estimated Present Worth Cost	**$10,830,000**

8. References

ARCADIS, 2003. *Focused Remedial Investigation Report*, Waste-Stream, Inc. Site, Prepared for the WSI Group, Potsdam, New York (October, 2003).

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Tables

Table 2-1
Potential Chemical-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
Identification and Listing of Hazardous Wastes	40 CFR Part 261 (Federal) 6 NYCRR Part 371 (New York State)	Outlines criteria for determining if a solid waste is a hazardous waste and is subject to regulation under 40 CFR Parts 260-266 and 6 NYCRR Parts 371-376.	Applicable to use for determining if soil at the site is a hazardous waste by characteristic. These regulations do not set cleanup standards, but are considered when establishing remedial action objectives.
Groundwater Quality Standards	6 NYCRR Parts 700-705	Establishes quality standards for groundwater.	These criteria are applicable in evaluating groundwater quality.
Universal Treatment Standards/Land Disposal Restrictions (UTS/LDRs)	40 CFR Part 268	Identifies hazardous wastes for which land disposal is restricted and provides a set of numerical constituents concentration criteria at which hazardous waste is restricted from land disposal.	Applicable if waste determined to be hazardous. These regulations will be used for remedial alternatives utilizing offsite land disposal.
Toxic Substances Control Act (TSCA)	40 CFR Part 761	Provides regulations for storage, handling, and management of materials containing PCBs.	Applicable to remedial alternatives that include removal and management of materials that exhibit PCBs.
NYSDEC Environmental Remediation Program	6 NYCRR Part 375 (December, 2006)	Provides a basis and procedures to determine soil cleanup levels, as appropriate, for site when cleanup to pre-disposal conditions is not possible or feasible. Contains soil cleanup objectives based on site use.	These guidance values are to be consider, as appropriate, in evaluation soil quality.
NYSDEC Ambient Water Quality Standards and Guidance Values	Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 (June, 1998)	Provides a compilation of ambient water quality standards and guidance values for toxic and non-conventional pollutants for use in the NYSDEC programs.	These standards are applicable in evaluating groundwater quality.
NYSDEC Technical Guidance for Screening Contaminated Sediments	Division of Fish, Wildlife and Marine Resources (January 1999)	Describes methodology for establishing sediment criteria for the purpose of identifying sediment that potentially may impact marine and aquatic ecosystems.	These criteria are applicable in sediment groundwater quality.
Air Quality Standards	6 NYCRR Part 257	Establishes quality standards for air.	These criteria are applicable in evaluating air quality and will be considered in the preparation of the site-specific HASP and Community Air Monitoring Plans.

Table 2-2
Potential Action-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
OSHA - General Industry Standards	29 CFR Part 1910	These regulations specify the 8-hour time-weighted average concentration for worker exposure to various organic compounds. Training requirements for workers at hazardous waste operations are specified in 29 CFR Part 1910.120.	Proper respiratory equipment will be worn if it is not possible to maintain the work atmosphere below these concentrations.
OSHA - Safety and Health Standards	29 CFR Part 1926	These regulations specify the type of safety equipment and procedures to be followed during site remediation.	Appropriate safety equipment will be on site and appropriate procedures will be followed during remedial activities.
OSHA - Recordkeeping, Reporting, and Related Regulations	29 CFR Part 1904	These regulations outline recordkeeping and reporting requirements for an employer under OSHA.	These regulations apply to the company(ies) contracted to install, operate, and maintain remedial actions at hazardous waste sites.
RCRA - Preparedness and Prevention	40 CFR Parts 264.30 - 264.31	These regulations outline requirements for safety equipment and spill control.	Safety and communication equipment will be installed at the site as necessary. Local authorities will be familiarized with the site.
RCRA - Contingency Plan and Emergency Procedures	40 CFR Parts 264.50 - 264.56	Provides requirements for outlining emergency procedures to be used following explosions, fires, etc.	Plans will be developed and implemented during remedial design. Copies of the plan will be kept on site.
Clean Water Act (CWA) - Discharge to Water of United States	40 CFR Parts 122, 125, 403, 230, and 402 CWA Section 401	Establishes site-specific pollutant limitations and performance standards which are designated to protect surface water quality. Types of discharges regulated under CWA include: discharge to surface water or ocean, indirect discharge to a POTW, and discharge of dredged or fill material into waters of the United States.	May be relevant and appropriate for remediation alternatives which discharge water back to the Creek or that include dredging/filling.
Use and Protection of Waters	6 NYCRR Part 608	This regulation presents the NYS Stream Protection Program. Applicable sections include excavation and placement of fill in navigable waters.	Would be relevant during remedial activities to address Schermerhorn Creek.

Table 2-2
Potential Action-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
National Pollution Discharge Elimination System (NPDES)	40 CFR Part 122	These regulations detail the specific permit requirements for the discharge of pollutants to the waters of the United States.	Any water discharged from the site would be treated and discharged in accordance with NPDES permit requirements.
New York State Pollution Discharge Elimination System (SPDES)	6 NYCRR Parts 750-758	These regulations detail the specific permit requirements for the discharge of pollutants to the waters of New York State.	Any water discharged from the site would be treated and discharged in accordance with NYSDEC SPDES permit requirements.
Land Disposal Facility Notice in Deed	40 CFR Parts 264/265 116-119(b)(1)	Established provisions for a deed notation for closed hazardous waste disposal units to prevent land disturbance by future owners.	The regulations are potentially applicable because closed soil management units may be similar to closed RCRA units.
Land Disposal Regulations	6 NYCRR Part 376	Land Disposal Restrictions	Identifies wastes that are restricted from land disposal and defines those circumstances under which an otherwise prohibited waste may be land disposed.
New York State Air Quality Classification System	6 NYCRR Part 265	Outlines the air quality classifications for different land uses and population densities.	Air quality classification system will be referenced during the treatment process design.
National Emission Standards for Hazardous Air Pollutants	40 CFR Part 61	Provides emission standards for hazardous air pollutants.	Proper design on air emission controls will be implemented to meet these regulations.
New Source Performance Standards	40 CFR Part 60.52	Provides particulate emission limits for incinerators.	Particulate emission limits should be specified for compliance.
Clean Air Act - National Ambient Air Quality Standards (CAA - NAAQS)	40 CFR Parts 1-99	Applies to major stationary sources, such as treatment units, that have the potential to emit significant amounts of pollutants. Regulations under CAA do not specifically regulate emissions from LTTD units, but prevention of significant deterioration (PSD) provisions may apply to an onsite treatment facility.	The treatment system will be designed to meet these emission limits. If required, PSD procedures will be included in the remedial design/remedial action (RD/RA) process.

Table 2-2
Potential Action-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
New York Permits and Certificates	6 NYCRR Part 201	Gives instructions and regulations for obtaining a permit to operating air emission source. Also gives instructions on what do to in case of malfunction.	Permits are not required for remedial actions taken at hazardous waste sites; however, documentation for relevant and appropriate permit conditions would be provided to the NYSDEC prior to and during implementation of this alternative.
New York Emissions Testing, Sampling, and Analytical Determinations	6 NYCRR Part 202	Outlines requirements for emissions testing for air emission sources. States that independent emission tests can be ordered by the Commissioner of the NYSDEC.	Emissions from the treatment procedure must be analyzed.
New York Regulations for General Process Emission Sources	6 NYCRR Part 212	Outlines the procedure of environment rating. The Commissioner determines a rating of emissions based on sampling.	The Commissioner will issue an environmental rating for emissions based on this regulation.
Prevention of Significant Deterioration of Air Quality	40 CFR Part 51.2	New major stationary sources may be subject to PSD review [i.e., require best available control technology (BACT), lowest achievable emission limit (LAEL), and/or emission off-sets].	If necessary, PSD procedures will be included in the RD/RA process. The procedures could be expanded to BACT and LAEL evaluations.
New York Hazardous Waste Management Facilities	6 NYCRR Part 373-2.15	Provides requirements for the operation of a thermal treatment unit, including information about monitoring, inspections, closure, and hazardous waste constituents.	Operational requirements must be followed during thermal treatment.
New York Hazardous Waste Management Facilities	6 NYCRR Part 373-2.16	Outlines requirements for the operation of a thermal treatment unit, including information about waste analysis, general operating requirements, closure, and standards for particular hazardous wastes.	Operational requirements must be followed during thermal treatment.
New York Requirements Specific to Thermal Treatment	6 NYCRR Part 373-3.16	Outlines requirements for the operation of a thermal treatment unit, including information about waste analysis, general operating requirements, closure, and standards for particular hazardous wastes.	Operational requirements must be followed during thermal treatment.

Table 2-2
Potential Action-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
New York Air Resources Regulations - General Provisions	6 NYCRR Part 200	Provides definitions and general provisions of New York State Air Resources regulations. Lists references used in developing these laws.	This regulation may serve as a reference during thermal treatment.
New York General Prohibitions	6 NYCRR Part 211	Lists restricted pollution activities.	No restricted activities will occur at the site.
New York Air Quality Standards	6 NYCRR Part 257	Provides air quality standards for different chemicals (including those found at the site), particles, and processes.	Emissions from the treatment process will meet the air quality standards.
Identification and Listing of Hazardous Wastes	6 NYCRR Part 371	Establishes procedures for identifying solid wastes that are subject to regulation as hazardous wastes.	Materials excavated/removed from the site will be handled in accordance with RCRA and New York State hazardous waste regulations, if appropriate.
Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities	6 NYCRR Part 372	Provides guidelines relating to the use of the manifest system and its recordkeeping requirements. It applies to generators, transporters, and facilities in New York State.	This regulation will be applicable to any company contracted to do treatment work at the site or to transport hazardous material from the site.
Standards Applicable to Transporters of Applicable Hazardous Waste - RCRA Section 3003	40 CFR Parts 262 and 263 40 CFR Parts 170-179	Establishes the responsibility of off-site transporters of hazardous waste in the handling, transportation, and management of the waste. Requires manifesting, recordkeeping, and immediate action in the event of a discharge.	This regulation will be applicable to any company contracted to transport hazardous material from the site.
New York State Department of Transportation (NYSDOT) Rules for Transportation of Hazardous Materials	49 CFR Parts 107, 171.1 - 172.558	Outlines procedures for the packaging, labeling, manifesting, and transporting of hazardous waste.	Any company contracted to transport hazardous material from the site will be required to follow these regulations.

Table 2-2
Potential Action-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
New York Regulations for Transportation of Hazardous Waste	6 NYCRR Part 372.3 a-d	Outlines procedures for the packaging, labeling, manifesting, and transporting of hazardous waste.	These requirements will be applicable to any company contracted to transport hazardous materials from the site.
Waste Transporter Permits	6 NYCRR Part 364	Governs the collection, transport, and delivery of regulated waste within New York	Properly permitted haulers will be used if any waste materials are transported off site.
New York Regulations for Hazardous Waste Management Facilities	6 NYCRR Parts 373 - 1.1 - 373 - 1.8	Provides requirements and procedures for obtaining a permit to operate a hazardous waste Treatment, Storage, Disposal Facility (TSDF). Also lists contents and conditions of permits.	Any offsite facility accepting waste from the site must be properly permitted.
USEPA - Administered Permit Program: The Hazardous Waste Permit Program	RCRA Section 3005 40 CFR Part 270.124	Covers the basic permitting, application, monitoring, and reporting requirements for off-site hazardous waste management facilities.	Any offsite facility accepting waste from the site must be properly permitted. Implementation of the site remedy will include consideration of these requirements.
New York Hazardous Waste Management System - General	6 NYCRR Part 370	Provides definitions, terms, and general instructions for the Part 370 series of hazardous waste management.	Hazardous waste is to be managed according to this regulation.
New Discharges to Publicly Owned Treatment Works (POTW)	TOGS 1.3.8	Focuses on the effects of a new, increased, or changed discharge to a POTW and the potential effects on the POTW's SPDES permit and pre-treatment program.	Would be applicable for discharge of treated groundwater or other waste waters generated during the remedial activities that are discharged to a POTW.
RCRA - General Standards	40 CFR Part 264.111	General performance standards requiring minimization of need for further maintenance and control; minimization or elimination of post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous decomposition products. Also requires decontamination or disposal of contaminated equipment, structures, and soils.	Proper design considerations will be implemented to minimize the need for future maintenance. Decontamination activities and facilities will be included.

Table 2-2
Potential Action-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
CAA-NAAQS	40 CFR Part 50	Establishes ambient air quality standards for protection of public health.	Remedial operations will be performed in a manner that minimizes the production of benzene and particulate matter.
Clean Waters Act (CWA) Section 404	40 CFR Parts 230 - 231, 33 CFR parts 320 - 329	These regulations detail requirements associated with all existing, proposed, and potential sites for discharges of dredged or fill materials into the waters of the U.S.	Potentially applicable for remedial alternatives that would include removal, capping, and/or discharges of dredged or fill materials.

Table 2-3
Potential Location-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
Floodplains Management	40 CFR Appendix A to Part 6	Procedures on floodplain management and wetlands protection.	Activities taking place within floodplains must be done to avoid adverse impacts and preserve beneficial values in floodplains.
Hazardous Waste Facility Located on a Floodplain	40 CFR Part 264.18(b)	Requirements for a Treatment, Storage, Disposal Facility (TSDF) within a 100-year floodplain.	Hazardous waste TSDF activities must be designed and operated to avoid washout.
National Historic Preservation Act	36 CFR Part 800	Requirements for preservation of historic properties.	Activities taking place on a site on or under consideration for placement on the National Register of Historic Places must be planned to preserve the historic property and minimize harm.
Preservation of Area Containing Artifacts	36 CFR Part 65	Requirements for preservation of historical/ archeological artifacts.	Activities must be done to identify, preserve, and recover artifacts if the site has been identified as containing a significant historical artifact.
New York Hazardous Facility Located on Floodplain	6 NYCRR Part 373-2.14	Requirements for a TSDF within 100-year floodplain.	Hazardous waste TSDF activities must be designed and operated to avoid washout.
New York Preservation of Historic Structures or Artifacts	Section 14.09	Requirements for preservation of historical/ archeological artifacts.	Activities must be done to identify, preserve, and recover artifacts if the site has been identified as containing a significant historical artifact.
Discharge of Dredge or Fill Material into Waters of the United States	40 CFR Part 230	Requirements for discharge of fill material or dredge material into waters of the United States.	Activities resulting in the discharge of fill material or dredge material to Schermerhorn Creek must be done under a permit from the United States Army Corps of Engineers.
Modifications to Waterways that Affect Fish or Wildlife	40 CFR Part 6.302	Requirements for protecting fish or wildlife when diverting, channeling, or otherwise modifying a stream or river.	If activities result in the modification of Schermerhorn Creek, measures must be taken to protect fish or wildlife.

Table 2-3
Potential Location-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
National Environmental Policy Act	40 CFR Part 6.302 40 CFR Part 6, App. A	USEPA - two executive orders: 11988 - Floodplain Management - Requires federal agencies, where possible, to avoid or minimize adverse impacts of federal actions upon wetlands/floodplains and enhance natural values of such.	Executive orders may be considered if work conducted will affect floodplains.
Rivers and Harbors Act	33 CFR Parts 320-330	Prohibits unauthorized obstruction or alteration of any navigable water in the U.S. (dredging, fill, cofferdams, piers, etc.). Requirements for permits affecting "navigable waters of the U.S."	Remedial activities may include dredging, damming, and/or armoring. If dredging and/or armoring is performed, a permit may be required for work in "navigable waters of the U.S."
CWA - Discharge to Waters of the U.S.	Section 404	Types of discharges regulated under CWA include: discharge to surface water or ocean, indirect discharge to a POTW, and discharge of dredged or fill material into waters of the U.S. (including wetlands).	May be relevant and appropriate for remediation alternatives which discharge water back to the Creek or include dredging/filling.
Protection of Waters Program	6 NYCRR Part 608	Protection of waters permit program regulates: 1) any disturbance of the bed or banks of a protected stream or water course; 2) construction and maintenance of dams; and 3) excavation or fill in waters of the state.	Remedial actions involving disturbance of a protected water course or excavation fill in waters of the state would require a permit issued by the NYSDEC.
Endangered Species Act	16 USC 1531 et seq. 50 CFR Part 200 50 CFR Part 402	Requires federal agencies to ensure that the continued existence of any endangered or threatened species and their habitat will not be jeopardized by a site action.	The Fish and Wildlife Impact Analysis conducted during the Remedial Investigation does not indicate the presence of endangered species on the site.
Floodplain Management Criteria for State Projects	6 NYCRR Part 502	Establishes floodplain management practices for projects involving state-owned and state-financed facilities.	Remedial activities involving placement of fill in the 100-year floodplain should consider these management practices.
Local Building Permits	No Available	Local authorities may require a building permit for any permanent or semi-permanent structure (e.g., an on-site water treatment system building).	If remedial activities require construction of permanent or semi-permanent structures, necessary permits will be obtained.

Table 2-3
Potential Location-Specific SCGs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Regulation	Citation	Summary of Requirements	Considerations in Remedial Process/Action for Attainment
New York State Freshwater Wetlands Law	6NYCRR Parts 662-665	Details procedural requirements for conducting select activities within and adjacent to freshwater wetlands, and provides standards that govern the issuance of permits to alter freshwater wetlands.	Activities within and adjacent to freshwater wetlands would be planned and conducted to meet the substantive requirements of these regulations.
Policy on Floodplains and Wetland Assessments for CERCLA Actions	OSWER Directive 9280.0-02	Discusses situations under Section 104 or 106 of CERCLA that require preparation of floodplains and/or wetlands assessments, and factors to consider when preparing such an assessment.	To be considered in the event a floodplain or wetland assessments is prepared.

Table 4-1
Preliminary Remedial Technology Screening Evaluation for Soil

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
No Action	No Action	No Action	Alternative would not include any remedial action.	Technically feasible.
Institutional Controls	Institutional Controls	Deed restrictions	Deeds for the property would include restrictions on future site use and subsurface construction or maintenance activities.	Potentially applicable. Can be effective when implemented in combination with other technologies.
In-Situ Containment/ Control	Capping	Clay/Soil Cap	Placing and compacting clay material or soil material over impacted soil areas.	Technically feasible.
		Asphalt/Concrete Cap	Application of a layer of asphalt or concrete over impacted soil areas.	Technically feasible.
		Multi-Media Cap	Application of clay material and a synthetic membrane over impacted soil areas.	Technically feasible.
	Containment	Water-tight Steel Sheet Piling	Steel sheet piles are driven into the subsurface to contain impacted soil and control potential off-site migration of impacted groundwater. The sheet pile wall is typically keyed into a confining unit.	Not retained. Installation of sheet pile or a slurry wall to confining unit is not practical considering horizontal extent. Additionally, the primary transport mechanism for PCBs at the site appears to be via infiltration and suspended solids in surface water and stormwater runoff, which would not be addressed by containment.
		Slurry Wall	Involves excavating a trench and adding a slurry (e.g., soil/cement-bentonite mixture) to contain impacted soil and control potential off-site migration of impacted groundwater. Slurry walls are typically keyed into a confining unit.	
In-Situ Treatment	Immobilization	Stabilization/ Solidification	Treatment process that immobilizes constituents of concern within a solid mass (monolith). A solid monolith is formed by injecting and/or mixing an immobilization agent (e.g., Portland cement, lime, polymerics, proprietary agents) into the media. Several technologies, including large-diameter auger/mixing and jet-grouting, are available.	Technically feasible. Requires bench-scale testing to identify optimal mixture of immobilization components to match site conditions.
		Vitrification	Immobilizes or destroys constituents by melting the media utilizing electrical currents. The melted media then solidifies to form a glass-like monolith.	Not retained. This process is not technically practicable for surface and shallow subsurface impacts. Limited data available on long-term effectiveness.

Table 4-1
Preliminary Remedial Technology Screening Evaluation for Soil

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
In-Situ Treatment (cont'd)	Extraction	Steam Stripping	Steam is used to remove VOCs from the media. The removed COCs are collected, recondensed, and treated.	Not retained. Processes are not effective on PCBs.
		Soil Vapor Extraction (SVE)	A vacuum is created to extract volatile and some semi-volatile contaminants (VOCs and SVOCs) from the soil. The gas leaving the soil may be treated or destroyed.	
		Six-Phase Soil Heating	Electricity is applied to six subsurface electrodes to promote electrical resistive heating of soil and groundwater. This process is conducted in conjunction with SVE to extract organic compounds volatilized by the heating process.	
		Dynamic Underground Stripping and Hydrous Pyrolysis/Oxidation (DUS/HPO)	Steam is injected into the subsurface to mobilize contaminants. The mobilized contaminants are captured and constituents are recondensed, collected, and treated. In addition, HPO can degrade contaminants in subsurface heated zones. In most cases, this technology requires long-term operation and maintenance of onsite injection, collection, and/or treatment systems.	
		Soil Flushing	Groundwater is extracted via extraction wells, passed through a treatment system (if necessary), extraction media is introduced into the water, and the water is then reinjected into the source areas to flush constituents from the impacted soil.	

Table 4-1
Preliminary Remedial Technology Screening Evaluation for Soil

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
In-Situ Treatment (cont'd)	Biodegradation	Enhanced Biodegradation	COCs in soil are degraded by naturally occurring organisms in the soil in an aerobic or anaerobic environment. Typically, oxygen and/or nutrients are added to the impacted materials to stimulate the biodegradation process.	Not retained. Process has not been demonstrated at full-scale PCBs.
		In-situ Anaerobic Biodegradation	Degradation of constituents by utilizing micro-organisms in an anaerobic environment.	Not retained. Nitrate (a regulated compound) injection would be required which may impact groundwater quality.
Removal	Excavation	Excavation	Physical removal of media containing constituents of concern to prevent future migration and exposure. Typical excavation equipment includes backhoes, loaders, and/or bulldozers.	Technically feasible.
Ex-Situ On-Site Treatment and/or Management	Recycle/Reuse	On-Site Asphalt Batching (Cold-Mix/Hot-Mix)	Impacted soil is excavated and mixed at the site with a heated asphalt emulsion and Portland cement to stabilize the soil. The end product material may be used as structural fill above the groundwater table.	Not retained. Process is not applicable for site media impacted with PCBs.
	Extraction	Solvent Extraction	Impacted soil and solvent are mixed in an extractor. The extracted solution is placed in a separator, where the contaminants and extract are separated for further treatment.	Not retained. PCBs may not readily dissolve. Solvent could remain in treated soil and may add to subsurface issues.
		Low-Temperature Thermal Desorption (LTTD)	Process by which soils are heated to temperatures less than 800^{o}F and the organic compounds are desorbed from the soils into an induced airflow. The resulting gas is treated either by condensation and filtration or by thermal destruction.	Not retained. High temperatures are required to treat media impacted with PCBs.
		Steam Stripping	Steam is used to remove VOCs from the media. The removed COCs are collected, recondensed, and treated.	Not retained. Process is not as effective on PCBs and PAHs.

Table 4-1
Preliminary Remedial Technology Screening Evaluation for Soil

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
Ex-Situ On-Site Treatment and/or Management (cont'd)	Thermal Destruction	Incineration	Use of a mobile incineration unit installed on-site for high-temperature thermal destruction of the organic compounds present in the media.	Technically feasible.
	Biodegradation	Bioreactor	An aqueous slurry is created by combining soil, sediment, or sludge with water and other additives. The slurry is mixed to keep solids suspended and micro-organisms in contact with the soil contaminants. Upon completion of the process, the slurry is dewatered and the treated soil is management.	Not retained. Processes are not applicable for site media impacted with PCBs.
		Biopile	Air and amendments are circulated throughout an engineered pile of impacted material to enhance degradation of organic compounds.	
		Land Farming	Media is typically mixed with moisture, nutrients, and oxygen to enhance aerobic biodegradation of organic compounds.	
		Composting	Piles of media are created to enable oxygen, moisture, and nutrient amendments to be added in order to enhance degradation by aerobic micro-organisms.	
	Chemical Treatment	Chemical Oxidation	Addition of oxidizing agents to degrade organic constituents to less-toxic by-products.	Not retained. Process is not applicable for site media impacted with PCBs.
	On-Site Management	RCRA Landfill	Construction of a landfill that would meet RCRA requirements.	Not retained. Hazardous waste would still remain on-site.
		Soil Management Cell	Construction of an on-site soil management cell that would meet NYSDEC solid waste management requirements.	Technically feasible.

Table 4-1
Preliminary Remedial Technology Screening Evaluation for Soil

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
Off-Site Treatment and/or Management	Recycle/Reuse	Off-Site Asphalt Batching (Cold-Mix/Hot-Mix)	Impacted soil is excavated and mixed at an off-site facility with a heated asphalt emulsion and Portland cement to stabilize the VOCs in the soil. The end product material may be used as structural fill above the groundwater table.	Not retained. Processes are not applicable for site media impacted with PCBs.
		Brick/Concrete Manufacture	Soil is used as a raw material in manufacture of bricks or concrete. Heating in ovens during manufacture volatilizes organics and some inorganics. Other inorganics are bound into the product.	
		Fuel Blending/Co-Burn in Utility Boiler	Soil is blended with feed coal to fire a utility boiler used to generate steam. Organics are destroyed.	
	Extraction	Low-Temperature Thermal Desorption (LTTD)	Process by which soils are heated to temperatures less than 800°F and the organic compounds are desorbed from the soils into an induced airflow. The resulting gas is treated either by condensation and filtration or by thermal destruction.	Not retained. High temperatures are required to treat media impacted with PCBs.
	Thermal Destruction	Incineration	Process which uses high temperatures to thermally destruct organic compounds present in media.	Technically feasible.
	Off-Site Management	RCRA Landfill	Management of media in an existing RCRA permitted landfill.	Technically feasible.
		Solid Waste Landfill	Management of media in an existing permitted non-hazardous landfill.	Technically feasible.

Note:
1. Shading indicates that technology process has not been retained for development of a remedial alternative.

Table 4-2
Preliminary Remedial Technology Screening Evaluation for Groundwater

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
No Action	No Action	No Action	Alternative would not include any remedial action.	Technically feasible.
Institutional Controls	Institutional Controls	Deed Restrictions/ Groundwater Use Restrictions	Deeds for the property may include restrictions on use of groundwater.	Potentially applicable. Can be effective when implemented in combination with other technologies.
In-Situ Containment/ Control	Capping/Infiltration Control	Clay/Soil Cap	Placing and compacting clay material or soil material to minimize infiltration of storm water.	Technically feasible.
		Asphalt/Concrete Cap	Application of a layer of asphalt or concrete to minimize infiltration of storm water.	Technically feasible.
		Multi-Media Cap	Application of clay material and a synthetic membrane over impacted soil areas.	Technically feasible.
	Hydraulic Containment	Water-tight Steel Sheet Piling	Water-tight steel sheet piles are driven to the depth of a confining geologic unit to limit off-site migration of groundwater. Sheet piling is typically driven into a confining unit.	Not retained. Limited extent of impacted groundwater does not make containment a logical alternative.
		Polyethylene Sheeting	Polyethylene sheeting is installed within an excavated trench to a confining unit to serve as a physical barrier to the potential migration of impacted soil and impacted groundwater.	
		Slurry Wall	Involves excavating a trench and backfilling with a cement-bentonite or soil-bentonite slurry to control potential offsite migration of impacted groundwater. Slurry walls are typically keyed into a confining unit.	
In-Situ Treatment	Biological Treatment	Groundwater Monitoring	Natural biological and physical processes that result in the reduction of concentration, toxicity, and mobility of chemical constituents.	Technically feasible.
		Enhanced Aerobic Biodegradation	Degradation of constituents by utilizing micro-organisms in an aerobic environment with the addition of amendments and controls to enhance the process performance and decrease treatment duration.	Technically feasible.

Table 4-2
Preliminary Remedial Technology Screening Evaluation for Groundwater

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
In-Situ Treatment (cont'd)	Biological Treatment (cont'd)	Anaerobic Biodegradation	Degradation of constituents utilizing micro-organisms in an anaerobic environment.	Technically feasible.
		Biosparging	Indigenous micro-organisms are used to biodegrade organic constituents in the saturated (biosparging) zone. Air (or oxygen) and nutrients (if needed) are injected into the saturated and unsaturated zones to increase the biological activity of the indigenous micro-organisms.	Technically feasible.
	Chemical Treatment	Chemical Oxidation	Addition of oxidizing agents (e.g., ozone, hydrogen peroxide) below the water table to degrade organic constituents to less-toxic byproducts.	Feasible.
		Permeable Reactive Barrier (PRB)	PRBs are installed in or down gradient from the flow path of a contaminant plume. The contaminants in the plume react with the media inside the barrier to either break the compound down into harmless products or immobilize contaminants by precipitation or sorption.	Not retained. Limited extent of impacted groundwater does not warrant installation of a PRB.
	Extraction	Dynamic Underground Stripping and Hydrous Pyrolysis/Oxidation (DUS/HPO)	Steam is injected into the subsurface to mobilize contaminants. The mobilized contaminants are captured and constituents are recondensed, collected, and treated. In addition, HPO can degrade contaminants in subsurface heated zones. In most cases, this technology requires long-term operation and maintenance of on-site injection, collection, and/or treatment systems.	Not retained. This process is not technically practicable for surface and shallow subsurface impacts.

Table 4-2
Preliminary Remedial Technology Screening Evaluation for Groundwater

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
Extraction	Groundwater Removal	Vertical Extraction Wells	Vertical wells are installed and utilized to recover groundwater for treatment/management and containment/migration control.	Technically feasible.
		Horizontal Extraction Wells	Horizontal wells are utilized to replace conventional well clusters in soil and containment/migration control.	Technically feasible.
		Collection Trenches	A zone of higher permeability material is installed within the desired capture area with a perforated collection pipe placed laterally along the base of the trench to direct water to a collection area for treatment and/or management.	Technically feasible.
Ex-Situ On-Site Treatment	Chemical Treatment	Ion Exchange	Exchange of constituent cationic or anionic ions in the groundwater with ions held by an ion exchange material. Typically used to remove metallic elements and inorganic ions.	Not retained. Not proven to effectively treat PCBs and organics.
		Ultra-violet (UV) Oxidation	Oxidation by subjecting groundwater to UV light and ozone. If complete mineralization is achieved, the final products of oxidation are carbon dioxide, water, and salts.	Technically feasible.
		Chemical Oxidation	Addition of oxidizing agents to degrade organic constituents to less-toxic byproducts.	Technically feasible
	Physical Separation	Carbon Adsorption	Process by which organic constituents are adsorbed to the carbon as groundwater is passed through carbon units.	Technically feasible.
		Filtration	Extraction of groundwater and treatment using filtration. Process in which the groundwater is passed through a granular media in order to removed suspended solids by interception, straining, flocculation, and sedimentation activity within the filter.	Technically feasible.

Table 4-2
Preliminary Remedial Technology Screening Evaluation for Groundwater

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
Ex-Situ On-Site Treatment (cont'd)	Physical Separation (cont'd)	Air Stripping	A process in which VOCs are removed through volatilization by increasing the contact between the groundwater and air.	Technically feasible.
		Precipitation/ Coagulation/ Flocculation	Process which precipitates dissolved constituents into insoluble solids and improves settling characteristics through the addition of amendments to water to facilitate subsequent removal from the liquid phase by sedimentation/filtration.	Technically feasible.
		Oil/Water Separation	Process by which insoluble oils are separated from water via physical separation technologies, including gravity separation, baffled vessels, etc.	Not retained. Process not applicable to site-specific impacts.
Off-Site Treatment and/or Management	Groundwater Discharge	Discharge to a local Publicly Owned Treatment Works (POTW)	Treated or untreated water is discharged to a sanitary sewer and treated at a local POTW facility.	Technically feasible. The local POTW is unlikely to approve the discharge of untreated water.
		Discharge to Surface Water via Storm Sewer	Treated or untreated water is discharged to surface water, provided that the water quality and quantity meet the allowable discharge requirements for surface waters (NYSDEC SPDES compliance).	Technically feasible. Requires pretreatment.
		Discharge to a privately owned treatment/management facility.	Treated or untreated water is collected and transported to a privately owned treatment facility.	Technically feasible.
		Reinjection	Groundwater is extracted via extraction wells, passed through a treatment system, and then reinjected into the ground through injection wells.	Not retained. Difficult to obtain agency approval. Would require a higher level of treatment than other technology processes.

Note:
1. Shading indicates that technology process has not been retained for development of a remedial alternative.

Table 4-3
Preliminary Remedial Technology Screening Evaluation for Sediment

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
No Action	No Action	No Action	Alternative would not include any active remedial action.	Technically feasible.
Institutional Controls	Institutional Controls	Governmental Controls, Proprietary Controls, Enforcement and Permit Controls, Informational Devices	Institutional controls would include legal and/or institutional controls that mitigate the potential for exposure to impacted sediment. Examples of potential institutional controls include posting of signs to mitigate potential exposure and actions that may disturb impacted sediments and/or jeopardize the integrity of the remedy.	Technically feasible.
In-Situ Containment/ Control	Sediment Covering	Rip-Rap	Installation of a layer of irregularly placed stones to anchor sediments.	Not retained. Would decrease the wetland storage and increasing flooding potential. Due to shallow depth of sediment, would significantly alter wetland habit composition.
In-Situ Treatment	Natural Recovery	Enhanced Biodegradation	Natural recovery would include the continuous deposition of clean sediment over impacted sediment and the weathering/degradation of impacted sediments. Sedimentation rates and weathering would be monitored periodically. Process is dependent upon sedimentation and degradation rates.	Not retained. Although biodegradation potentially may occur at the site, the time frame for degradation of PCBs would be prohibitive.
	Immobilization	Solidification/ Stabilization	Addition of material to the impacted sediment that limits the solubility or mobility of the constituents present. Involves treating sediment to produce a stable, non-leachable material that physically or chemically locks the constituents within the solidified matrix.	Not retained. Would decrease the wetland storage and increasing flooding potential. Due to shallow depth of sediment, would significantly alter wetland habit composition.

Table 4-3
Preliminary Remedial Technology Screening Evaluation for Sediment

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
Removal	Dredging	Mechanical	Either conventional construction equipment (e.g., backhoes) or mechanical dredging equipment (e.g., clamshell) is used to remove all or some of the impacted materials for subsequent treatment and/or management. Removal can be performed "in the wet" or "in the dry" by using temporary structures (e.g. sheet piling).	Technically feasible.
		Hydraulic	Sediments are removed in liquid slurry form using pumps, suction hose, horizontal auger, and/or cutterhead dredge. Simultaneously removes large quantities of water. Space needed for dewatering and water treatment facilities.	Technically feasible.
	Engineering Controls	Dam or Diversion Structure	Installation of materials to form a dam and divert water flow around the impacted sediments during removal. Several types of dams are commonly used in the remediation of sediments. These include portadams, bladder dams, Jersey dams, earthen cofferdams, and sheet pile cofferdams.	Technically feasible. Would be used in conjunction with removal processes.
Ex-Situ On-Site Treatment and/or Management	Extraction	Low Temperature Thermal Desorption (LTTD)	Process by which sediment containing impacts with boiling point temperatures less than 800^{o}F are heated and the organic compounds are desorbed from the sediment into an induced airflow. The resulting gas is treated either by condensation and filtration or by thermal destruction.	Not retained. High temperatures are required to treat media impacted with PCBs.
		Steam stripping	A steam unit is used to remove constituents from impacted sediment. The removed constituents are recondensed, collected, and treated.	Not retained. Process is not as effective on PCBs.
		Solvent Extraction	Impacted sediment and solvent are mixed in an extractor. The extracted solution is placed in a separator, where the contaminants and extract are separated for further treatment.	Not retained. PCBs may not readily dissolve. Residual solvent in treated sediment may further impact the wetland.

Table 4-3
Preliminary Remedial Technology Screening Evaluation for Sediment

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
Ex-Situ On-Site Treatment and/or Management (cont'd)	Recycle/Reuse	On-Site Asphalt Batching (Cold-Mix/Hot-Mix)	Impacted sediment is excavated and mixed at the site with a heated asphalt emulsion and Portland cement to stabilize the material. The end product material may be used as structural fill above the groundwater table.	Not retained. Process is not applicable for site media impacted with PCBs.
	Thermal Destruction	Incineration	Use of a mobile incineration unit installed on-site for high temperature thermal destruction of the organic compounds present in the media.	Technically feasible.
	On-Site Management	RCRA Landfill	Construction of a landfill that would meet RCRA requirements.	Not retained. Hazardous waste would still remain on-site.
		Soil Management Cell	Construction of a soil management cell that would meet NYSDEC solid waste disposal requirements.	Technically feasible.
Off-Site Treatment and/or Management	Recycle/Reuse	Asphalt/Concrete Batch Plant	Sediment is used as a raw material in asphalt/concrete paving mixtures. The impacted sediment is transported to an off-site asphalt concrete facility and can replace part of the aggregate and asphalt concrete fraction. The hot-mix process melts asphalt concrete prior to mixing with aggregate. During the cold mix process, aggregate is mixed at ambient temperature with an asphalt-concrete-water emulsion. Organics and inorganics are bound in the asphalt concrete. Some organics may volatilize in the hot mix.	Not retained. Processes are not applicable for site media impacted with PCBs.
		Brick/Concrete Manufacture	Sediment is used as a raw material in manufacture of bricks or concrete. Heating in ovens during manufacture volatilizes organics and some inorganics. Other inorganics are bound into the product.	
		Co-Burn in Utility Boiler	Sediment is blended with feed coal to fire a utility boiler used to generate steam. Organics are destroyed.	

Table 4-3
Preliminary Remedial Technology Screening Evaluation for Sediment

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Description	Screening Comments
Off-Site Treatment and/or Management (cont'd)	Extraction	Low-Temperature Thermal Desorption (LTTD)	Process by which sediments are heated to temperatures less than 800°F and the organic compounds are desorbed from the soils into an induced airflow. The resulting gas is treated either by condensation and filtration or by thermal destruction.	Not retained. High temperatures are required to treat media impacted with PCBs.
	Thermal Destruction	Incineration	Process which uses high temperatures to thermally destruct organic compounds present in media.	Technically feasible.
	Management	Solid Waste Landfill	Management of impacted sediment in an existing permitted non-hazardous landfill.	Technically feasible.
		RCRA Landfill	Management of impacted sediment in an existing RCRA permitted landfill facility.	Technically feasible.

Note:
1. Shading indicates that technology process has not been retained for development of a remedial alternative.

Table 4-4
Secondary Remedial Technology Screening Evaluation for Soil

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Effectiveness	Implementability	Relative Cost
No Action	No Action	No Action	Would not achieve RAOs for soil. A "No Action" alternative serves as the baseline for comparison of the overall effectiveness of the other remedial alternatives.	Not Applicable.	None
Institutional Controls	Institutional Controls	Deed restrictions	This technology alone would not meet the RAOs for soil. However, institutional controls could be effective when used in conjunction with other remedial technologies.	Readily Implementable.	Low
In-Situ Containment/ Control	Capping	Clay/Soil Cap	This technology process alone would not meet the ROAs for soil. Effective for reducing infiltration of precipitation/surface water that could potentially transfer COCs to groundwater. Long-term effectiveness requires ongoing maintenance and monitoring.	Readily Implementable. Equipment and materials necessary to construct a clay/soil cap are readily available	Moderate
		Asphalt/Concrete Cap	This technology process alone would not meet the ROAs for soil. Effective for reducing infiltration of precipitation/surface water that could potentially transfer COCs to groundwater. Long-term effectiveness requires ongoing maintenance and monitoring. Asphalt/concrete cap may not be suitable for future operations as active scrap yard.	Readily Implementable. Equipment and materials necessary to construct an asphalt/concrete cap are readily available	Moderate
		Multi-Media Cap	This technology process alone would not meet the ROAs for soil. Effective for reducing infiltration of precipitation/surface water that could potentially transfer COCs to groundwater. Long-term effectiveness requires ongoing maintenance and monitoring. Multi-media cap may not be suitable for future operations as active scrap yard.	Readily Implementable. Equipment and materials necessary to construct a multi-media cap are readily available	Moderate

Table 4-4
Secondary Remedial Technology Screening Evaluation for Soil

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Effectiveness	Implementability	Relative Cost
In-Situ Treatment	Immobilization	Stabilization/ Solidification	This technology process is a proven technology for reducing the mobility and toxicity of COCs in site soils. Bench-scale testing would be required to determine appropriate stabilizing agent, long-term compatibility with COCs, and the leachate potential for solidified materials.	Not Retained. Not typically used to address PCBs. PCB mobility through subsurface is not a primary concern. PCBS would still be present in stabilized media. Stabilization is no an acceptable treatment method for PCBs under TSCA regulations.	Moderate to High
Removal	Excavation	Excavation	This technology process would be effective at meeting the RAOs for the site.	Readily Implementable. Equipment capable of excavating the soil is readily available.	High
Ex-Situ On-Site Treatment and/or Management	Thermal Destruction	Incineration	This technology process would be effective at meeting the RAOs for soil.	Not retained. Process would require bench- and pilot-scale testing. Public concerns associated with emissions.	High
	On-Site Management	Soil Management Cell	This technology process would be effective at meeting the RAOs for soil. Excavated material would be contained in an appropriately constructed soil management cell. Long-term effectiveness requires ongoing maintenance and monitoring.	Implementable. Materials, equipment, and contractors capable of implementing this technology are available.	High

Table 4-4
Secondary Remedial Technology Screening Evaluation for Soil

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Effectiveness	Implementability	Relative Cost
Off-Site Treatment and/or Management	Thermal Destruction	Incineration	This technology process would be effective at meeting the RAOs for soil.	Not retained. Limited number of permitted treatment facilities.	High
	Off-Site Management	RCRA Landfill	This technology process would be effective at meeting the RAOs for soil. Proven process that can effectively manage TSCA-regulated and NYS hazardous solid waste for PCBs.	Readily Implementable. Process would require complying with permitting, manifesting, recordkeeping, packaging, labeling, and transportation requirements provided in state and federal regulations.	High
		Solid Waste Landfill	This technology process would be effective at meeting the RAOs for soil. Effective method for managing material containing PCBs.	Readily Implementable. Process would require complying with permitting, manifesting, recordkeeping, packaging, labeling, and transportation requirements provided in state and federal regulations.	Moderate to High

Note:
1. Shading indicates that technology process has not been retained for development of a remedial alternative.

Table 4-5
Secondary Remedial Technology Screening Evaluation for Groundwater

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Effectiveness	Implementability	Relative Cost
No Action	No Action	No Action	Would not achieve RAOs for groundwater. A "No Action" alternative serves as the baseline for comparison of the overall effectiveness of the other remedial alternatives.	Not Applicable.	None
Institutional Controls	Institutional Controls	Deed Restrictions/ Groundwater Use Restrictions	This technology alone would not meet the RAOs for soil. However, institutional controls could be effective when used in conjunction with other remedial technologies.	Readily Implementable.	Low
In-Situ Containment/ Control	Capping/Infiltrati on Control	Clay/Soil Cap	This technology process alone would not meet the RAOs for groundwater. Effective for reducing infiltration of precipitation/surface water that could potentially transfer COCs to groundwater. Long-term effectiveness requires ongoing maintenance and monitoring.	Readily Implementable. Equipment and materials necessary to construct a clay/soil cap are readily available.	Moderate
		Asphalt/Concrete Cap	This technology process alone would not meet the RAOs for groundwater. Effective for reducing infiltration of precipitation/surface water that could potentially transfer COCs to groundwater. Long-term effectiveness requires ongoing maintenance and monitoring. Asphalt/concrete cap may not be suitable for future operations as active scrap yard.	Readily Implementable. Equipment and materials necessary to construct an asphalt/concrete cap are readily available.	Moderate
		Multi-Media Cap	This technology process alone would not meet the RAOs for groundwater. Effective for reducing infiltration of precipitation/surface water that could potentially transfer COCs to groundwater. Long-term effectiveness requires ongoing maintenance and monitoring. Multi-media cap may not be suitable for future operations as active scrap yard.	Readily Implementable. Equipment and materials necessary to construct a multi-media cap are readily available	Moderate

Table 4-5
Secondary Remedial Technology Screening Evaluation for Groundwater

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Effectiveness	Implementability	Relative Cost
In-Situ Treatment	Biological Treatment	Groundwater Monitoring	This technology process could potentially be effective at reducing the mobility, toxicity, and volume of dissolved phase impacts.	Readily Implementable.	Low
		Enhanced Aerobic Biodegradation	This technology process would be effective at addressing dissolved-phase volatile organic compounds in site groundwater.	Not Retained. Technologies available would require addition of large amounts of air/amendments to create and sustain an aerobic/anaerobic environment.	High
		Anaerobic Biodegradation			Moderate to High
		Biosparging			High
	Chemical Treatment	Chemical Oxidation	This technology process would be effective at addressing dissolved-phase VOCs in site groundwater.	Implementable.	High
Extraction	Groundwater Removal	Vertical Extraction Wells	These remedial technologies would be effective at removing impacted groundwater from the subsurface.	Not retained. Impacts to groundwater are localized and do not warrant pump and treat-type remediation.	Moderate
		Horizontal Extraction Wells		Not retained. Requires specialized horizontal drilling equipment.	Moderate
		Collection Trenches		Not retained. Impacts to groundwater are localized and do not warrant pump and treat-type remediation.	Moderate

Table 4-5
Secondary Remedial Technology Screening Evaluation for Groundwater

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Effectiveness	Implementability	Relative Cost
Ex-Situ On-Site Treatment and/or Management	Chemical Treatment	Ultra-violet (UV) Oxidation	This technology process may potentially be effective at removing VOCs from groundwater removed from the subsurface. Particulates could result in UV lamp fouling, pretreatment would be required.	Not retained. Impacts to groundwater are localized and do not warrant pump and treat-type remediation.	Moderate to High
		Chemical Oxidation	This technology process may potentially be effective at removing VOCs from groundwater removed from the subsurface.	Not retained. Impacts to groundwater are localized and do not warrant pump and treat-type remediation.	Moderate to High
	Physical Separation	Carbon Adsorption	This technology process is effective at removing VOCs, SVOCs, and PCBs.	Implementable.	Low to Moderate
		Filtration	This technology process would be effective at at removing suspended solids (that may contain PCBs). Process would potentially be used as a part of a treatment train to treat groundwater removed from excavation areas.	Readily Implementable.	Low to Moderate
		Air Stripping	This technology process would be effective at removing VOCs from water. Process would potentially be used as part of a treatment train to treat groundwater removed from excavation areas.	Implementable.	Moderate to High
		Precipitation/ Coagulation/ Flocculation	This technology process would be effective at improving the solids separation and settling characteristics of the groundwater. Process would potentially be used as part of a treatment train to treat groundwater removed from excavation areas.	Implementable.	Low to Moderate

Table 4-5
Secondary Remedial Technology Screening Evaluation for Groundwater

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Effectiveness	Implementability	Relative Cost
Off-Site Treatment and/or Management	Groundwater Discharge	Discharge to a local Publicly Owned Treatment Works (POTW)	This technology process would effectively manage groundwater. Impacted groundwater removed from excavation areas would require treatment to achieve water quality standards established by the local POTW.	Implementable.	Moderate
		Discharge to Surface Water via Storm Sewer	This technology process would effectively manage groundwater. Impacted groundwater would require treatment to achieve water quality discharge limits.	Discharges to surface water must meet substantive requirements of a SPDES permit.	High
		Discharge to a privately owned treatment/management facility.	This technology process would effectively manage groundwater. Impacted groundwater would require treatment to achieve water quality criteria required by treatment facility.	Implementable. May be prohibitive if large volumes of water require transportation to off-site facility.	High

Note:
1. Shading indicates that technology process has not been retained for development of a remedial alternative.

Table 4-6
Secondary Remedial Technology Screening Evaluation for Sediment

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Effectiveness	Implementability	Relative Cost
No Action	No Action	No Action	Would not achieve RAOs for sediment. A "No Action" alternative serves as the baseline for comparison of the overall effectiveness of the other remedial alternatives.	Not Applicable.	None
Institutional Controls	Institutional Controls	Governmental Controls, Proprietary Controls, Enforcement and Permit Controls, Informational	This technology alone would not meet the RAOs for soil. However, institutional controls could be effective when used in conjunction with other remedial technologies.	Readily Implementable.	Low
Removal	Dredging	Mechanical	This technology process would meet the RAOs for sediment.	Implementable.	High
		Hydraulic	This technology process would meet the RAOs for sediment.	Not Retained. Removal in the dry would be preferred to limit the amount of water that would require treatment/management.	High
	Engineering Controls	Dam or Diversion Structure	This technology alone would not meet the RAOs for soil. However, this process may be used in conjunction with other removal remedial technologies.	Implementable.	Moderate
Ex-Situ On-Site Treatment	Thermal Destruction	Incineration	This technology process would be effective at meeting the RAOs for soil.	Not retained. Process would require bench- and pilot-scale testing. Public concerns associated with emissions.	High
	On-Site Management	Soil Management Cell	This technology process would be effective at meeting the RAOs for sediment. Excavated material would be contained in an appropriately constructed soil management cell. Effective for reducing potential exposure to impacted surface soils. Long-term effectiveness requires ongoing maintenance and monitoring.	Implementable. Materials, equipment, and contractors capable of implementing this technology are available.	High

Table 4-6
Secondary Remedial Technology Screening Evaluation for Sediment

WSI - Waste Stream, Inc. Site - Potsdam, New York

General Response Action	Remedial Technology	Technology Process	Effectiveness	Implementability	Relative Cost
Off-Site Treatment and/or Management	Thermal Destruction	Incineration	This technology process would be effective at meeting the RAOs for soil.	Not retained. Limited number of permitted treatment facilities.	High
	Management	RCRA Landfill	This technology process would be effective at meeting the RAOs for sediment. Proven process that can effectively manage TSCA-regulated and NYS hazardous solid waste for PCBs.	Readily Implementable. Process would require complying with permitting, manifesting, recordkeeping, packaging, labeling, and transportation requirements provided in state and federal regulations.	High
		Soil Waste Landfill	This technology process would be effective at meeting the RAOs for sediment. Proven process that can effectively manage non-hazardous solid waste material.	Readily Implementable. Process would require complying with permitting, manifesting, recordkeeping, packaging, labeling, and transportation requirements provided in state and federal regulations.	Moderate to High

Note:
1. Shading indicates that technology process has not been retained for development of a remedial alternative.

Table 5-1
Cost Estimate for Alternative S2 - Institutional Controls

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
2	Permanent Site Fencing	4,000	LF	$35	$140,000
				Total Capital Cost	$190,000
				Contingency (20%)	$38,000
				Subtotal Cost	$228,000
OPERATION AND MAINTENANCE COSTS (30 YEAR					
3	Annual Inspection/Maintenance	1	LS	$6,000	$6,000
4	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$11,000
				Contingency (20%)	$2,200
				Subtotal Cost	$13,200
5				30-Year Total Present Worth Cost of O&M	$163,812
				Total Estimated Cost	**$391,812**
				Rounded to	**$390,000**

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Assumptions:

1. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent current or future site workers from performing intrusive on-site activities.

2. Permanent site fencing cost estimate includes all labor, equipment, and materials necessary to purchase and install a six-foot woven steel chain link fence equipped with top rail.

3. Annual inspection/maintenance cost estimate includes all labor, equipment, and materials necessary to conduct annual inspection of new site perimeter fencing and repair/replace up to 100 linear-feet of fencing per year. Cost estimate also includes periodic collection of stormwater samples to comply with current site permits.

4. Inspection of institutional controls and notifications to NYSDEC cost estimate includes Institutional costs associated with implementing Institutional controls to minimize the potential for human exposure to remaining impacted soils. Such Institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with Institutional controls include verifying the status of Institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the Institutional controls are being maintained and remain effective.

5. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

Table 5-2
Cost Estimate for Alternative S3 - Capping of Soil Containing COCs > Ecological SCOs
with Removal of Soil Beyond WSI Property Limits

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Mobilization/Demobilization	1	LS	$100,000	$100,000
2	Utility Location and Markout	1	LS	$2,000	$2,000
3	Construct and Remove Equipment Decontamination Pad	1	LS	$7,500	$7,500
4	Permanent Site Fencing	4,000	LF	$35	$140,000
5	Erosion Control	2,000	LF	$1	$2,000
6	Construction and Maintenance of Soil Staging Area	1	LS	$100,000	$100,000
7	Soil Excavation and Handling of Excavated Materials	5,000	CY	$30	$150,000
8	Soil Excavation Dewatering	2	month	$5,000	$10,000
9	Verification Sampling	130	each	$400	$52,000
10	Select Fill Importation, Placement, Grading and Compaction (Backfill)	5,000	CY	$25	$125,000
11	Site Regrading and Compaction	4,400	CY	$10	$44,000
12	Demarcation Layer	71,900	SY	$1	$71,900
13	Clay Importation, Placement, Grading and Compaction (Cap)	21,800	CY	$20	$436,000
14	Topsoil Importation, Placement, and Grading (Cap)	10,900	CY	$25	$272,500
15	Seed, Mulch, and Fertilizer	15.2	acre	$5,000	$76,000
16	Stormwater Management	1	LS	$300,000	$300,000
17	Solid Waste Characterization	15	each	$750	$11,250
18	Liquid Waste Characterization	1	each	$750	$750
19	Soil Waste Transportation and Off-Site Management - Solid Waste Landfill	750	ton	$50	$37,500
20	Soil Waste Transportation and Off-Site Management - RCRA Landfill	150	ton	$145	$21,750
21	Management of Wastewater	20,000	gal	$0.20	$4,000
22	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$2,014,150
23				Administration and Engineering (10%)	$195,090
				Construction Management (5%)	$97,545
				Contingency (20%)	$402,830
				Subtotal Cost	$2,709,615
OPERATION AND MAINTENANCE COSTS (30 YEAR					
24	Annual Monitoring/Maintenance	1	LS	$10,000	$10,000
25	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$15,000
				Contingency (20%)	$3,000
				Subtotal Cost	$18,000
26				30-Year Total Present Worth Cost of O&M	$223,380
				Total Estimated Cost	**$2,932,995**
				Rounded to	**$2,900,000**

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Table 5-2
Cost Estimate for Alternative S3 - Capping of Soil Containing COCs > Ecological SCOs
with Removal of Soil Beyond WSI Property Limits

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Assumptions:

1. Mobilization/demobilization cost estimate includes mobilization and demobilization of all equipment, materials, and labor necessary to facilitate soil excavation and construct a soil cap.

2. Utility location and markout cost estimate includes labor, equipment, and materials necessary to locate, identify, and markout underground utilities at the site. Cost assumes that utility location and markout would be conducted by a private utility locating company over a period of two days at a daily rate of $1,000 per day.

3. Construct and remove equipment decontamination pad cost estimate includes labor, equipment, and materials necessary to construct and remove a 60-foot by 30-foot decontamination pad and appurtenances. The decontamination pad would consist of 40-mil high-density polyethylene (HDPE) with a six-inch gravel drainage layer placed over the HDPE liner, surrounded by a one-foot high berm and sloped to a collection sump for the collection of decontamination water.

4. Permanent site fencing cost estimate includes all labor, equipment, and materials necessary to purchase and install a six-foot woven steel chain link fence equipped with top rail.

5. Erosion control cost estimate includes all labor, equipment, and materials necessary to purchase and install a three-foot silt fence equipped with stakes 10-foot on-center.

6. Construction and maintenance of soil staging area cost estimate includes labor, equipment, and materials to construct two approximately 100-foot by 100-foot material staging areas consisting of a 12-inch gravel fill layer bermed and sloped to a sump and covered with a 40-mil HDPE liner for the segregation of excavated material. Maintenance costs include inspecting and repairing staging area as necessary and covering staged soil with polyethylene sheeting. Cost assumes construction cost of approximately $4 per square foot of pad.

7. Soil excavation and handling of excavated materials cost estimate includes all labor, equipment, and materials necessary to excavate material, transfer excavated material to on-site staging area, and load staged material for off-site transportation. Estimated excavation limits and volumes (in-place) based on thiessen polygons created from previously collected site samples. Cost estimate includes air monitoring during excavation activities.

8. Soil excavation dewatering cost estimate includes rental of one frac tank, pumps, and piping. Cost estimate assumes water removed from excavations and material and decontamination areas will be temporarily stored on-site in a frac tank prior to transportation for off-site management.

9. Verification sampling cost estimate includes the laboratory analysis of soil samples collected from soil excavation areas for PCBs, SVOCs, and RCRA metals to verify impacted soil has been removed to proposed soil cleanup objectives. Cost estimate assumes a soil sample is collected every 2,500 square-feet of excavation bottom and every 50 linear-feet of excavation sidewalls.

10. Select fill importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact general fill. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

11. Site regrading and compaction cost estimate includes all labor, equipment, and materials necessary to regrade and compact material excavated beyond the WSI property boundary within the WSI property boundary. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

12. Demarcation layer cost estimate includes all labor, equipment, and materials necessary to purchase and install light-weight non-woven geotextile material as base layer to provide visual demarcation between clean cover materials and potentially impacted underlying soils. Cost estimate includes an additional 10% of material for folding, wrinkles, and overlaps.

13. Clay importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact clay or other suitable material. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 95% maximum compaction. Cost estimate includes survey verification and compaction testing.

14. Top soil importation, placement, and grading cost estimate includes all labor, equipment, and materials necessary to purchase, place, and grade six inches of topsoil.

15. Seed, mulch, and fertilizer cost estimate includes all labor, equipment, and materials necessary to purchase and apply seed, fertilizer, and mulch to site soil. Quantity estimate based on capping area within WSI property boundary and backfilled excavation areas beyond the WSI property boundary.

16. Stormwater management cost estimate includes all labor, equipment, and materials necessary to construct on-site stormwater collection trenches, drainage swales, and stormwater detention basins from management of stormwater runoff during and following remedial activities. Final stormwater management system to be developed during the remedial design phase.

17. Solid waste characterization cost estimate includes the analysis of soil samples (including, but not limited to, PCBs, VOCs, SVOCs, and RCRA Metals). Costs assumes that waste characterization samples would be collected at a frequency of one sample per every 500 tons of excavated material. The estimated weight of material was based on an assumed 1.5 tons per cubic-yard.

18. Liquid waste characterization cost estimate includes the analysis of wastewater sample for PCBs, VOCs, SVOCs, metals, and pesticides. Liquid waste characterization to be conducted in accordance with the requirements provided by off-site management facility.

19. Soil waste transportation and off-site management - solid waste landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations less than 50 ppm for off-site management at an appropriate landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes soil would be management at Seneca Meadows Landfill located in Waterloo, New York. Cost estimate includes transportation fuel charge and all applicable taxes. Cost estimate is based on information provided to ARCADIS by Seneca Meadows Landfill on December 16, 2008.

20. Soil waste transportation and off-site management - RCRA landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations greater than 50 ppm for off-site management at an appropriately permitted RCRA landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes that soil would be managed at Model City Landfill located in Niagara Falls, New York. Cost estimate includes transportation fuel charge, local, and state taxes. Cost estimate is based on information provided to ARCADIS by Waste Management on December 15, 2008.

21. Management of wastewater cost estimate include the transportation and off-site management of water generated during soil excavation activities. Volume estimate includes removal of one pore volume of saturated soil prior to excavation and removal of water from open excavation up to 2 times prior to backfilling.

22. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent current or future site workers from performing activities that would jeopardize the integrity of the multi-media cap.

23. Administration and engineering and construction management costs are based on an assumed 10% and 5% (respectively) of the total capital costs, not including costs for off-site management of material.

24. Annual monitoring/maintenance cost estimate includes all labor, equipment, and materials necessary to maintain the soil cap to prevent soil erosion. Cost estimate includes annual inspection of capped area to verify integrity of the soil cap. Cost estimate assumes annual cap maintenance including placement of up to six inches of topsoil and vegetation for up to 10,000 square-feet of soil cap. Cost estimate also includes annual inspection and repair/replacement of up to 100 linear-feet of new site perimeter fencing. Cost estimate also includes annual inspection and maintenance of stormwater management structures (e.g., ponds, ditches, etc.).

25. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to prevent current or future site workers from performing activities that would jeopardize the integrity of the soil cap. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

26. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

Table 5-3
Cost Estimate for Alternative S4 - Excavation of Soil (PCBs ≥ 50 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Mobilization/Demobilization	1	LS	$100,000	$100,000
2	Utility Location and Markout	1	LS	$2,000	$2,000
3	Construct and Remove Equipment Decontamination Pad	1	LS	$7,500	$7,500
4	Permanent Site Fencing	4,000	LF	$35	$140,000
5	Erosion Control	2,000	LF	$1	$2,000
6	Construction and Maintenance of Soil Staging Area	1	LS	$100,000	$100,000
7	Soil Excavation and Handling of Excavated Materials	10,300	CY	$30	$309,000
8	Soil Excavation Dewatering	2	month	$7,000	$14,000
9	Verification Sampling	240	each	$400	$96,000
10	Select Fill Importation, Placement, Grading and Compaction (Backfill)	5,000	CY	$25	$125,000
11	Site Regrading and Compaction (Backfill)	4,400	CY	$10	$44,000
12	Demarcation Layer	71,900	SY	$1	$71,900
13	Clay Importation, Placement, Grading and Compaction (Cap)	21,800	CY	$20	$436,000
14	Topsoil Importation, Placement, and Grading (Cap)	10,900	CY	$25	$272,500
15	Seed, Mulch, and Fertilizer	15.2	acre	$5,000	$76,000
16	Stormwater Management	1	LS	$300,000	$300,000
17	Solid Waste Characterization	31	each	$750	$23,250
18	Liquid Waste Characterization	1	each	$750	$750
19	Soil Waste Transportation and Off-Site Management - Solid Waste Landfill	750	ton	$50	$37,500
20	Soil Waste Transportation and Off-Site Management - RCRA Landfill	8,100	ton	$145	$1,174,500
21	Management of Wastewater	30,000	gal	$0.20	$6,000
22	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$3,387,900
23				Administration and Engineering (10%)	$216,990
				Construction Management (5%)	$108,495
				Contingency (20%)	$677,580
				Subtotal Cost	$4,390,965
OPERATION AND MAINTENANCE COSTS (30 YEAR					
24	Annual Monitoring/Maintenance	1	LS	$10,000	$10,000
25	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$15,000
				Contingency (20%)	$3,000
				Subtotal Cost	$18,000
26				30-Year Total Present Worth Cost of O&M	$223,380
				Total Estimated Cost	**$4,614,345**
				Rounded to	**$4,600,000**

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Table 5-3
Cost Estimate for Alternative S4 - Excavation of Soil (PCBs ≥ 50 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Assumptions:

1. Mobilization/demobilization cost estimate includes mobilization and demobilization of all equipment, materials, and labor necessary to perform soil excavation and construct a multi-media cap.

2. Utility location and markout cost estimate includes labor, equipment, and materials necessary to locate, identify, and markout underground utilities at the site. Cost assumes that utility location and markout would be conducted by a private utility locating company over a period of two days at a daily rate of $1,000 per day.

3. Construct and remove equipment decontamination pad cost estimate includes labor, equipment, and materials necessary to construct and remove a 60-foot by 30-foot decontamination pad and appurtenances. The decontamination pad would consist of 40-mil high-density polyethylene (HDPE) with a six-inch gravel drainage layer placed over the HDPE liner, surrounded by a one-foot high berm and sloped to a collection sump for the collection of decontamination water.

4. Permanent site fencing cost estimate includes all labor, equipment, and materials necessary to purchase and install a six-foot woven steel chain link fence equipped with top rail.

5. Erosion control cost estimate includes all labor, equipment, and materials necessary to purchase and install a three-foot silt fence equipped with stakes 10-foot on-center.

6. Construction and maintenance of soil staging area cost estimate includes labor, equipment, and materials to construct two approximately 100-foot by 100-foot material staging areas consisting of a 12-inch gravel fill layer bermed and sloped to a sump and covered with a 40-mil HDPE liner for the segregation of excavated material. Maintenance costs include inspecting and repairing staging area as necessary and covering staged soil with polyethylene sheeting. Cost assumes construction cost of approximately $4 per square foot of pad.

7. Soil excavation and handling of excavated materials cost estimate includes all labor, equipment, and materials necessary to excavate material, transfer excavated material to on-site staging area, and load staged material for off-site transportation or on-site consolidation. Estimated excavation limits and volumes (in-place) based on thiessen polygons created from previously collected site samples. Cost estimate includes air monitoring during excavation activities.

8. Soil excavation dewatering cost estimate includes rental of one frac tank, pumps, and piping. Cost estimate assumes water removed from excavations and material and decontamination areas will be temporarily stored on-site in a frac tank prior to transportation for off-site management.

9. Verification sampling cost estimate includes the laboratory analysis of soil samples collected from soil excavation areas for PCBs, SVOCs, and RCRA metals to verify impacted soil has been removed to proposed soil cleanup objectives. Cost estimate assumes a soil sample is collected every 2,500 square-feet of excavation bottom and every 50 linear-feet of excavation sidewalls.

10. Select fill importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact general fill. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

11. Site regrading and compaction cost estimate includes all labor, equipment, and materials necessary to regrade and compact material excavated beyond the WSI property boundary for use as backfill within the WSI property boundary. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

12. Demarcation layer cost estimate includes all labor, equipment, and materials necessary to purchase and install light-weight non-woven geotextile material as base layer to provide visual demarcation between clean cover materials and potentially impacted underlying soils. Cost estimate includes an additional 10% of material for folding, wrinkles, and overlaps.

13. Clay importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact clay or other suitable material. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 95% maximum compaction. Cost estimate includes survey verification and compaction testing.

14. Top soil importation, placement, and grading cost estimate includes all labor, equipment, and materials necessary to purchase, place, and grade six inches of topsoil.

15. Seed, mulch, and fertilizer cost estimate includes all labor, equipment, and materials necessary to purchase and apply seed, fertilizer, and mulch to site soil. Quantity estimate based on capping area within WSI property boundary and backfilled excavation areas beyond the WSI property boundary.

16. Stormwater management cost estimate includes all labor, equipment, and materials necessary to construct on-site stormwater collection trenches, drainage swales, and stormwater detention basins from management of stormwater runoff during and following remedial activities. Final stormwater management system to be developed during the remedial design phase.

17. Solid waste characterization cost estimate includes the analysis of soil samples (including, but not limited to, PCBs, VOCs, SVOCs, and RCRA Metals). Costs assumes that waste characterization samples would be collected at a frequency of one sample per every 500 tons of excavated material. The estimated weight of material was based on an assumed 1.5 tons per cubic-yard.

18. Liquid waste characterization cost estimate includes the analysis of wastewater sample for PCBs, VOCs, SVOCs, metals, and pesticides. Liquid waste characterization to be conducted in accordance with the requirements provided by off-site management facility.

19. Soil waste transportation and off-site management - solid waste landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations less than 50 ppm for off-site management at an appropriate landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes soil would be management at Seneca Meadows Landfill located in Waterloo, New York. Cost estimate includes transportation fuel charge and all applicable taxes. Cost estimate is based on information provided to ARCADIS by Seneca Meadows Landfill on December 16, 2008.

20. Soil waste transportation and off-site management - RCRA landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations greater than 50 ppm off-site for management at an appropriately permitted RCRA landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes that soil would be managed at Model City Landfill located in Niagara Falls, New York. Cost estimate includes transportation fuel charge, local, and state taxes. Cost estimate is based on information provided to ARCADIS by Waste Management on December 15, 2008.

21. Management of wastewater cost estimate include the transportation and off-site management of water generated during soil excavation activities. Volume estimate includes removal of one pore volume of saturated soil prior to excavation and removal of water from open excavation up to 2 times prior to backfilling.

22. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent current or future site workers from performing activities that would jeopardize the integrity of the multi-media cap.

23. Administration and engineering and construction management costs are based on an assumed 10% and 5% (respectively) of the total capital costs, not including costs for off-site management of material.

24. Annual monitoring/maintenance cost estimate includes all labor, equipment, and materials necessary to maintain the soil cap to prevent soil erosion. Cost estimate includes annual inspection of capped area to verify integrity of the soil cap. Cost estimate assumes annual cap maintenance including placement of up to six inches of topsoil and vegetation for up to 10,000 square-feet of soil cap. Cost estimate also includes annual inspection and repair/replacement of up to 100 linear-feet of new site perimeter fencing. Cost estimate also includes annual inspection and maintenance of stormwater management structures (e.g., ponds, ditches, etc.).

25. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to prevent current or future site workers from performing activities that would jeopardize the integrity of the soil cap. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

26. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

Table 5-4
Cost Estimate for Alternative S5 - Excavation of Soil (PCBs ≥ 25 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Mobilization/Demobilization	1	LS	$100,000	$100,000
2	Utility Location and Markout	1	LS	$2,000	$2,000
3	Construct and Remove Equipment Decontamination Pad	1	LS	$7,500	$7,500
4	Permanent Site Fencing	4,000	LF	$35	$140,000
5	Erosion Control	2,000	LF	$1	$2,000
6	Construction and Maintenance of Soil Staging Area	1	LS	$100,000	$100,000
7	Soil Excavation and Handling of Excavated Materials	11,700	CY	$30	$351,000
8	Soil Excavation Dewatering	2	month	$7,000	$14,000
9	Verification Sampling	280	each	$400	$112,000
10	Select Fill Importation, Placement, Grading and Compaction (Backfill)	5,000	CY	$25	$125,000
11	Site Regrading and Compaction (Backfill)	4,000	CY	$10	$40,000
12	Demarcation Layer	71,900	SY	$1	$71,900
13	Clay Importation, Placement, Grading and Compaction (Cap)	21,800	CY	$20	$436,000
14	Topsoil Importation, Placement, and Grading (Cap)	10,900	CY	$25	$272,500
15	Seed, Mulch, and Fertilizer	15.2	acre	$5,000	$76,000
16	Stormwater Management	1	LS	$300,000	$300,000
17	Solid Waste Characterization	36	each	$750	$27,000
18	Liquid Waste Characterization	1	each	$750	$750
19	Soil Waste Transportation and Off-Site Management - Solid Waste Landfill	3,500	ton	$50	$175,000
20	Soil Waste Transportation and Off-Site Management - RCRA Landfill	8,100	ton	$145	$1,174,500
21	Management of Wastewater	30,000	gal	$0.20	$6,000
22	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$3,583,150
23				Administration and Engineering (10%)	$222,765
				Construction Management (5%)	$111,383
				Contingency (20%)	$716,630
				Subtotal Cost	$4,633,928
OPERATION AND MAINTENANCE COSTS (30 YEAR					
24	Annual Monitoring/Maintenance	1	LS	$10,000	$10,000
25	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$15,000
				Contingency (20%)	$3,000
				Subtotal Cost	$18,000
26				30-Year Total Present Worth Cost of O&M	$223,380
				Total Estimated Cost	**$4,857,308**
				Rounded to	**$4,900,000**

Table 5-4
Cost Estimate for Alternative S5 - Excavation of Soil (PCBs ≥ 25 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

WSI - Waste-Stream, Inc. Site - Potsdam, New York

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Assumptions:

1. Mobilization/demobilization cost estimate includes mobilization and demobilization of all equipment, materials, and labor necessary to perform soil excavation and construct a soil cap.

2. Utility location and markout cost estimate includes labor, equipment, and materials necessary to locate, identify, and markout underground utilities at the site. Cost assumes that utility location and markout would be conducted by a private utility locating company over a period of two days at a daily rate of $1,000 per day.

3. Construct and remove equipment decontamination pad cost estimate includes labor, equipment, and materials necessary to construct and remove a 60-foot by 30-foot decontamination pad and appurtenances. The decontamination pad would consist of 40-mil high-density polyethylene (HDPE) with a six-inch gravel drainage layer placed over the HDPE liner, surrounded by a one-foot high berm and sloped to a collection sump for the collection of decontamination water.

4. Permanent site fencing cost estimate includes all labor, equipment, and materials necessary to purchase and install a six-foot woven steel chain link fence equipped with top rail.

5. Erosion control cost estimate includes all labor, equipment, and materials necessary to purchase and install a three-foot silt fence equipped with stakes 10-foot on-center.

6. Construction and maintenance of soil staging area cost estimate includes labor, equipment, and materials to construct two approximately 100-foot by 100-foot material staging areas consisting of a 12-inch gravel fill layer bermed and sloped to a sump and covered with a 40-mil HDPE liner for the segregation of excavated material. Maintenance costs include inspecting and repairing staging area as necessary and covering staged soil with polyethylene sheeting. Cost assumes construction cost of approximately $4 per square foot of pad.

7. Soil excavation and handling of excavated materials cost estimate includes all labor, equipment, and materials necessary to excavate material, transfer excavated material to on-site staging area, and load staged material for off-site transportation or on-site consolidation. Estimated excavation limits and volumes (in-place) based on thiessen polygons created from previously collected site samples. Cost estimate includes air monitoring during excavation activities.

8. Soil excavation dewatering cost estimate includes rental of one frac tank, pumps, and piping. Cost estimate assumes water removed from excavations and material and decontamination areas will be temporarily stored on-site in a frac tank prior to transportation for off-site management.

9. Verification sampling cost estimate includes the laboratory analysis of soil samples collected from soil excavation areas for PCBs, SVOCs, and RCRA metals to verify impacted soil has been removed to proposed soil cleanup objectives. Cost estimate assumes a soil sample is collected every 2,500 square-feet of excavation bottom and every 50 linear-feet of excavation sidewalls.

10. Select fill importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact general fill. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

11. Site regrading and compaction cost estimate includes all labor, equipment, and materials necessary to regrade and compact 4,000 CY of material excavated beyond the WSI property boundary (containing PCBs at concentrations less than 25 ppm) for use as backfill within the WSI property boundary. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

Table 5-4
Cost Estimate for Alternative S5 - Excavation of Soil (PCBs ≥ 25 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

WSI - Waste-Stream, Inc. Site - Potsdam, New York

12. Demarcation layer cost estimate includes all labor, equipment, and materials necessary to purchase and install light-weight non-woven geotextile material as base layer to provide visual demarcation between clean cover materials and potentially impacted underlying soils. Cost estimate includes an additional 10% of material for folding, wrinkles, and overlaps.

13. Clay importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact clay or other suitable material. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 95% maximum compaction. Cost estimate includes survey verification and compaction testing.

14. Top soil importation, placement, and grading cost estimate includes all labor, equipment, and materials necessary to purchase, place, and grade six inches of topsoil.

15. Seed, mulch, and fertilizer cost estimate includes all labor, equipment, and materials necessary to purchase and apply seed, fertilizer, and mulch to site soil. Quantity estimate based on capping area within WSI property boundary and backfilled excavation areas beyond the WSI property boundary.

16. Stormwater management cost estimate includes all labor, equipment, and materials necessary to construct on-site stormwater collection trenches, drainage swales, and stormwater detention basins from management of stormwater runoff during and following remedial activities. Final stormwater management system to be developed during the remedial design phase.

17. Solid waste characterization cost estimate includes the analysis of soil samples (including, but not limited to, PCBs, VOCs, SVOCs, and RCRA Metals). Costs assumes that waste characterization samples would be collected at a frequency of one sample per every 500 tons of excavated material. The estimated weight of material was based on an assumed 1.5 tons per cubic-yard.

18. Liquid waste characterization cost estimate includes the analysis of wastewater sample for PCBs, VOCs, SVOCs, metals, and pesticides. Liquid waste characterization to be conducted in accordance with the requirements provided by off-site management facility.

19. Soil waste transportation and off-site management - solid waste landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations less than 50 ppm for off-site management at an appropriate landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes soil would be management at Seneca Meadows Landfill located in Waterloo, New York. Cost estimate includes transportation fuel charge and all applicable taxes. Cost estimate is based on information provided to ARCADIS by Seneca Meadows Landfill on December 16, 2008.

20. Soil waste transportation and off-site management - RCRA landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations greater than 50 ppm for off-site management at an appropriately permitted RCRA landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes that soil would be managed at Model City Landfill located in Niagara Falls, New York. Cost estimate includes transportation fuel charge, local, and state taxes. Cost estimate is based on information provided to ARCADIS by Waste Management on December 15, 2008.

21. Management of wastewater cost estimate include the transportation and off-site management of water generated during soil excavation activities. Volume estimate includes removal of one pore volume of saturated soil prior to excavation and removal of water from open excavation up to 2 times prior to backfilling.

22. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent current or future site workers from performing activities that would jeopardize the integrity of the multi-media cap.

23. Administration and engineering and construction management costs are based on an assumed 10% and 5% (respectively) of the total capital costs, not including costs for off-site management of material.

24. Annual monitoring/maintenance cost estimate includes all labor, equipment, and materials necessary to maintain the soil cap to prevent soil erosion. Cost estimate includes annual inspection of capped area to verify integrity of the soil cap. Cost estimate assumes annual cap maintenance including placement of up to six inches of topsoil and vegetation for up to 10,000 square-feet of soil cap. Cost estimate also includes annual inspection and repair/replacement of up to 100 linear-feet of new site perimeter fencing. Cost estimate also includes annual inspection and maintenance of stormwater management structures (e.g., ponds, ditches, etc.).

Table 5-4
Cost Estimate for Alternative S5 - Excavation of Soil (PCBs ≥ 25 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

WSI - Waste-Stream, Inc. Site - Potsdam, New York

25. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to prevent current or future site workers from performing activities that would jeopardize the integrity of the soil cap. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

26. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

Table 5-5
Cost Estimate for Alternative S6 - Excavation of Soil (PCBs ≥ 10 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Mobilization/Demobilization	1	LS	$100,000	$100,000
2	Utility Location and Markout	1	LS	$2,000	$2,000
3	Construct and Remove Equipment Decontamination Pad	1	LS	$7,500	$7,500
4	Permanent Site Fencing	4,000	LF	$35	$140,000
5	Erosion Control	2,000	LF	$1	$2,000
6	Construction and Maintenance of Soil Staging Areas	1	LS	$150,000	$150,000
7	Soil Excavation and Handling of Excavated Materials	19,200	CY	$30	$576,000
8	Soil Excavation Dewatering	3	month	$7,000	$21,000
9	Verification Sampling	470	each	$400	$188,000
10	Select Fill Importation, Placement, Grading and Compaction (Backfill Beyond WSI Property Boundary)	5,000	CY	$25	$125,000
11	Site Regrading and Compaction (Backfill)	3,800	CY	$10	$38,000
12	Select Fill Importation, Placement, Grading and Compaction (Backfill within WSI Property Boundary)	5,000	CY	$25	$125,000
13	Demarcation Layer	71,900	SY	$1	$71,900
14	Clay Importation, Placement, Grading and Compaction (Cap)	21,800	CY	$20	$436,000
15	Topsoil Importation, Placement, and Grading (Cap)	10,900	CY	$25	$272,500
16	Seed, Mulch, and Fertilizer	15.2	acre	$5,000	$76,000
17	Stormwater Management	1	LS	$300,000	$300,000
18	Solid Waste Characterization	58	each	$750	$43,500
19	Liquid Waste Characterization	1	each	$750	$750
20	Soil Waste Transportation and Off-Site Management - Solid Waste Landfill	15,000	ton	$50	$750,000
21	Soil Waste Transportation and Off-Site Management - RCRA Landfill	8,100	ton	$145	$1,174,500
22	Management of Wastewater	40,000	gal	$0.20	$8,000
23	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$4,657,650
24				Administration and Engineering (10%)	$267,440
				Construction Management (5%)	$133,720
				Contingency (20%)	$931,530
				Subtotal Cost	$5,990,340
OPERATION AND MAINTENANCE COSTS (30 YEAR					
25	Annual Monitoring/Maintenance	1	LS	$10,000	$10,000
26	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$15,000
				Contingency (20%)	$3,000
				Subtotal Cost	$18,000
27				30-Year Total Present Worth Cost of O&M	$223,380
				Total Estimated Cost	**$6,213,720**
				Rounded to	**$6,200,000**

Table 5-5
Cost Estimate for Alternative S6 - Excavation of Soil (PCBs ≥ 10 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

WSI - Waste-Stream, Inc. Site - Potsdam, New York

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Assumptions:

1. Mobilization/demobilization cost estimate includes mobilization and demobilization of all equipment, materials, and labor necessary to perform soil excavation and construct a soil cap.

2. Utility location and markout cost estimate includes labor, equipment, and materials necessary to locate, identify, and markout underground utilities at the site. Cost assumes that utility location and markout would be conducted by a private utility locating company over a period of two days at a daily rate of $1,000 per day.

3. Construct and remove equipment decontamination pad cost estimate includes labor, equipment, and materials necessary to construct and remove a 60-foot by 30-foot decontamination pad and appurtenances. The decontamination pad would consist of 40-mil high-density polyethylene (HDPE) with a six-inch gravel drainage layer placed over the HDPE liner, surrounded by a one-foot high berm and sloped to a collection sump for the collection of decontamination water.

4. Permanent site fencing cost estimate includes all labor, equipment, and materials necessary to purchase and install a six-foot woven steel chain link fence equipped with top rail.

5. Erosion control cost estimate includes all labor, equipment, and materials necessary to purchase and install a three-foot silt fence equipped with stakes 10-foot on-center.

6. Construction and maintenance of soil staging area cost estimate includes labor, equipment, and materials to construct an approximate 100-foot by 200-foot and an approximate 100-foot by 100-foot material staging areas consisting of a 12-inch gravel fill layer bermed and sloped to a sump and covered with a 40-mil HDPE liner for the segregation of excavated material. Maintenance costs include inspecting and repairing staging area as necessary and covering staged soil with polyethylene sheeting. Cost assumes construction cost of approximately $4 per square foot of pad.

7. Soil excavation and handling of excavated materials cost estimate includes all labor, equipment, and materials necessary to excavate material, transfer excavated material to on-site staging area, and load staged material for off-site transportation or on-site consolidation. Estimated excavation limits and volumes (in-place) based on thiessen polygons created from previously collected site samples. Cost estimate includes air monitoring during excavation activities.

8. Soil excavation dewatering cost estimate includes rental of one frac tank, pumps, and piping. Cost estimate assumes water removed from excavations and material and decontamination areas will be temporarily stored on-site in a frac tank prior to transportation for off-site management.

9. Verification sampling cost estimate includes the laboratory analysis of soil samples collected from soil excavation areas for PCBs, SVOCs, and RCRA metals to verify impacted soil has been removed to proposed soil cleanup objectives. Cost estimate assumes a soil sample is collected every 2,500 square-feet of excavation bottom and every 50 linear-feet of excavation sidewalls.

10. Select fill importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact general fill. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

11. Site regrading and compaction cost estimate includes all labor, equipment, and materials necessary to regrade and compact 3,800 CY of material excavated beyond the WSI property boundary (containing PCBs at concentrations less than 10 ppm) for use as backfill within the WSI property boundary.

Table 5-5
Cost Estimate for Alternative S6 - Excavation of Soil (PCBs ≥ 10 ppm) with Off-Site Management; Removal of Soil Beyond WSI Property Limits; On-Site Consolidation and Capping

WSI - Waste-Stream, Inc. Site - Potsdam, New York

12. Select fill importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact general fill. Note that 14,200 CY of excavated volume requires backfilling within the WSI property boundary. As indicated in Note #11, 3,800 CY of soil (from beyond the WSI property boundary) would be consolidated on-site, thereby leaving 10,400 CY within the WSI property boundary that requires backfilling. If Alternative SED3 is selected as the preferred sediment alternative, 2,100 CY of excavated sediment (containing PCBs at concentrations less than 10 ppm) would be avaible for use as backfill within the WSI property, thereby requiring an additional 8,300 CY of backfilling. If Alternative SED4 is selected as the preferred sediment alternative, 8,700 CY of excavated sediment (containing PCBs at concentrations less than 10 ppm) would be avaible for use as backfill within the WSI property, therefore requiring an additional 1,700 CY of backfilling. Therefore, this cost estimate includes importation of an additional 5,000 CY (average of 8,300 and 1,700 CY) of general fill to restore the site to pre-existing lines and grades (prior to capping). Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

13. Demarcation layer cost estimate includes all labor, equipment, and materials necessary to purchase and install light-weight non-woven geotextile material as base layer to provide visual demarcation between clean cover materials and potentially impacted underlying soils. Cost estimate includes an additional 10% of material for folding, wrinkles, and overlaps.

14. Clay importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact clay or other suitable material. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 95% maximum compaction. Cost estimate includes survey verification and compaction testing.

15. Top soil importation, placement, and grading cost estimate includes all labor, equipment, and materials necessary to purchase, place, and grade six inches of topsoil.

16. Seed, mulch, and fertilizer cost estimate includes all labor, equipment, and materials necessary to purchase and apply seed, fertilizer, and mulch to site soil. Quantity estimate based on capping area within WSI property boundary and backfilled excavation areas beyond the WSI property boundary.

17. Stormwater management cost estimate includes all labor, equipment, and materials necessary to construct on-site stormwater collection trenches, drainage swales, and stormwater detention basins from management of stormwater runoff during and following remedial activities. Final stormwater management system to be developed during the remedial design phase.

18. Solid waste characterization cost estimate includes the analysis of soil samples (including, but not limited to, PCBs, VOCs, SVOCs, and RCRA Metals). Costs assumes that waste characterization samples would be collected at a frequency of one sample per every 500 tons of excavated material. The estimated weight of material was based on an assumed 1.5 tons per cubic-yard.

19. Liquid waste characterization cost estimate includes the analysis of wastewater sample for PCBs, VOCs, SVOCs, metals, and pesticides. Liquid waste characterization to be conducted in accordance with the requirements provided by off-site management facility.

20. Soil waste transportation and off-site management - solid waste landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations less than 50 ppm for off-site management at an appropriate landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes soil would be managed at Seneca Meadows Landfill located in Waterloo, New York. Cost estimate includes transportation fuel charge and all applicable taxes. Cost estimate is based on information provided to ARCADIS by Seneca Meadows Landfill on December 16, 2008.

21. Soil waste transportation and off-site management - RCRA landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations greater than 50 ppm for off-site management at an appropriately permitted RCRA landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes that soil would be managed at Model City Landfill located in Niagara Falls, New York. Cost estimate includes transportation fuel charge, local, and state taxes. Cost estimate is based on information provided to ARCADIS by Waste Management on December 15, 2008.

22. Management of wastewater cost estimate include the transportation and off-site management of water generated during soil excavation activities. Volume estimate includes removal of one pore volume of saturated soil prior to excavation and removal of water from open excavation up to 2 times prior to backfilling.

23. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent current or future site workers from performing activities that would jeopardize the integrity of the multi-media cap.

24. Administration and engineering and construction management costs are based on an assumed 10% and 5% (respectively) of the total capital costs, not including costs for off-site management of material.

25. Annual monitoring/maintenance cost estimate includes all labor, equipment, and materials necessary to maintain the soil cap to prevent soil erosion. Cost estimate includes annual inspection of capped area to verify integrity of the soil cap. Cost estimate assumes annual cap maintenance including placement of up to six inches of topsoil and vegetation for up to 10,000 square-feet of soil cap. Cost estimate also includes annual inspection and repair/replacement of up to 100 linear-feet of new site perimeter fencing. Cost estimate also includes annual inspection and maintenance of stormwater management structures (e.g., ponds, ditches, etc.).

26. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to prevent current or future site workers from performing activities that would jeopardize the integrity of the soil cap. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

27. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

Table 5-6
Cost Estimate for Alternative S7 - Excavation of Soil Containing COCs > Unrestricted Use SCOs with Off-Site Management

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Mobilization/Demobilization	1	LS	$100,000	$100,000
2	Utility Location and Markout	1	LS	$2,000	$2,000
3	Construct and Remove Equipment Decontamination Pad	1	LS	$7,500	$7,500
4	Erosion Control	4,000	LF	$1	$4,000
5	Construction and Maintenance of Soil Staging Area	1	LS	$150,000	$150,000
6	Soil Excavation and Handling of Excavated Materials	90,800	CY	$30	$2,724,000
7	Soil Excavation Dewatering	10	month	$50,000	$500,000
8	Verification Sampling	1,260	each	$400	$504,000
9	Select Fill Importation, Placement, Grading and Compaction (Backfill)	90,800	CY	$25	$2,270,000
10	Seed, Mulch, and Fertilizer	15.5	acre	$5,000	$77,500
11	Stormwater Management	1	LS	$300,000	$300,000
12	Solid Waste Characterization	272	each	$750	$204,300
13	Liquid Waste Characterization	3	each	$750	$2,250
14	Soil Waste Transportation and Off-Site Management - Solid Waste Landfill	128,100	ton	$50	$6,405,000
15	Soil Waste Transportation and Off-Site Management - RCRA Landfill	8,100	ton	$145	$1,174,500
16	Groundwater Discharge to POTW	275,000	gal	$0.02	$5,500
				Total Capital Cost	$14,430,550
17				Administration and Engineering (10%)	$684,555
				Construction Management (5%)	$342,278
				Contingency (20%)	$2,886,110
				Subtotal Cost	$18,343,493
				Total Estimated Cost	**$18,343,493**
				Rounded to	**$18,400,000**

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Assumptions:

1. Mobilization/demobilization cost estimate includes mobilization and demobilization of all equipment, materials, and labor necessary to facilitate soil excavation.

2. Utility location and markout cost estimate includes labor, equipment, and materials necessary to locate, identify, and markout underground utilities at the site. Cost assumes that utility location and markout would be conducted by a private utility locating company over a period of two days at a daily rate of $1,000 per day.

3. Construct and remove equipment decontamination pad cost estimate includes labor, equipment, and materials necessary to construct and remove a 60-foot by 30-foot decontamination pad and appurtenances. The decontamination pad would consist of 40-mil high-density polyethylene (HDPE) with a six-inch gravel drainage layer placed over the HDPE liner, surrounded by a one-foot high berm and sloped to a collection sump for the collection of decontamination water.

4. Erosion control cost estimate includes all labor, equipment, and materials necessary to purchase and install a three-foot silt fence equipped with stakes 10-foot on-center.

5. Construction and maintenance of soil staging area cost estimate includes labor, equipment, and materials to construct an approximate 100-foot by 200-foot and an approximate 100-foot by 100-foot material staging areas consisting of a 12-inch gravel fill layer bermed and sloped to a sump and covered with a 40-mil HDPE liner for the segregation of excavated material. Maintenance costs include inspecting and repairing staging area as necessary and covering staged soil with polyethylene sheeting. Cost assumes construction cost of approximately $4 per square foot of pad.

6. Soil excavation and handling of excavated materials cost estimate includes all labor, equipment, and materials necessary to excavate material, transfer excavated material to on-site staging area, and load staged material for off-site transportation or on-site consolidation. Estimated excavation limits and volumes (in-place) based on thiessen polygons created from previously collected site samples. Cost estimate includes air monitoring during excavation activities.

7. Soil excavation dewatering cost estimate includes rental of a portal water treatment system capable of operating at 30 gallons per minute. Cost estimate assumes water treatment system includes pumps, influent piping and hoses, frac tank, carbon filters, bag filters, discharge piping and hoses, and flow meter. Cost estimate assumes bag filters will require change out approximately once per day of operation. Cost estimate assumes treated water would be discharged to POTW via local sanitary sewer. Cost estimate based on information provided to ARCADIS by Baker Tanks on March 8, 2007. Cost estimate includes sampling of treated water.

8. Verification sampling cost estimate includes the laboratory analysis of soil samples collected from soil excavation areas for PCBs, SVOCs, and RCRA metals to verify impacted soil has been removed to proposed soil cleanup objectives. Cost estimate assumes a soil sample is collected every 2,500 square-feet of excavation bottom and every 50 linear-feet of excavation sidewalls.

9. Select fill importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact general fill. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

10. Seed, mulch, and fertilizer cost estimate includes all labor, equipment, and materials necessary to purchase and apply seed, fertilizer, and mulch to site soil. Quantity estimate based on backfilled excavation areas within and beyond the WSI property boundary.

11. Stormwater management cost estimate includes all labor, equipment, and materials necessary to construct on-site stormwater collection trenches, drainage swales, and stormwater detention basins from management of stormwater runoff both during and following remedial activities. Final stormwater management system to be developed during the remedial design phase.

12. Solid waste characterization cost estimate includes the analysis of soil samples (including, but not limited to, PCBs, VOCs, SVOCs, and RCRA Metals). Costs assumes that waste characterization samples would be collected at a frequency of one sample per every 500 tons of excavated material. The estimated weight of material was based on an assumed 1.5 tons per cubic-yard.

13. Liquid waste characterization cost estimate includes the analysis of wastewater sample for PCBs, VOCs, SVOCs, metals, and pesticides. Liquid waste characterization to be conducted in accordance with the requirements provided by POTW.

14. Soil waste transportation and off-site management - solid waste landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations less than 50 ppm for off-site management at an appropriate landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes soil would be managed at Seneca Meadows Landfill located in Waterloo, New York. Cost estimate includes transportation fuel charge and all applicable taxes. Cost estimate is based on information provided to ARCADIS by Seneca Meadows Landfill on December 16, 2008.

15. Soil waste transportation and off-site management - RCRA landfill cost estimate includes all labor, equipment, and materials necessary to transport soil containing PCBs at concentrations greater than 50 ppm for off-site management at an appropriately permitted RCRA landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard. Cost estimate assumes that soil would be managed at Model City Landfill located in Niagara Falls, New York. Cost estimate includes transportation fuel charge, local, and state taxes. Cost estimate is based on information provided to ARCADIS by Waste Management on December 15, 2008.

16. Groundwater discharge to POTW cost estimate includes fee for discharging treated water generated during soil excavation activities to a sanitary sewer for management at the local POTW. Volume estimate includes removal of one pore volume of saturated soil prior to excavation and removal of water from open excavation up to 2 times prior to backfilling.

17. Administration and engineering and construction management costs are based on an assumed 10% and 5% (respectively) of the total capital costs, not including costs for off-site management of material.

Table 5-7
Cost Estimate for Alternative GW2 - Institutional Controls

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$50,000
				Contingency (20%)	$10,000
				Subtotal Cost	$60,000
OPERATION AND MAINTENANCE COSTS					
2	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$5,000
				Contingency (20%)	$1,000
				Subtotal Cost	$6,000
3				30-Year Total Present Worth Cost of O&M	$74,460
				Total Estimated Cost	**$134,460**
				Rounded to	**$135,000**

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Assumptions:

1. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent potential future use of site groundwater.

2. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to minimize the potential for human exposure to site groundwater. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

3. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

Table 5-8
Cost Estimate for Alternative GW3 - Continued Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
2	Abandon Existing Monitoring Wells	10	each	$2,000	$20,000
3	Groundwater Monitoring Well Installation	10	each	$5,000	$50,000
4	Annual Groundwater Monitoring Field Activities	1	LS	$7,500	$7,500
5	Laboratory Analysis	12	each	$400	$4,800
6	Waste Management	2	drum	$250	$500
7	Prepare Annual Groundwater Monitoring Report	1	LS	$6,000	$6,000
				Total Capital Cost	$138,800
				Administration and Engineering (10%)	$13,880
				Contingency (20%)	$27,760
				Total Cost	$180,440
OPERATION AND MAINTENANCE COSTS					
8	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
9	Annual Groundwater Monitoring	1	LS	$12,800	$12,800
10	Prepare Annual Groundwater Monitoring Report	1	LS	$6,000	$6,000
				Total O&M Cost	$23,800
				Contingency (20%)	$4,760
				Total Cost	$28,560
11				30-Year Total Present Worth Cost of O&M	$354,430
				Total Estimated Cost	**$534,870**
				Rounded to	**$530,000**

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Assumptions:

1. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent potential future use of site groundwater.

2. Abandon existing monitoring wells cost estimate includes all labor, equipment, and materials necessary to over-drill and grout existing groundwater monitoring wells. Cost estimate assumes abandonment activities can be complete two drillers and a geologist at a rate of two wells per day.

3. Groundwater monitoring well installation cost estimate includes all labor, equipment, and materials necessary to install shallow groundwater monitoring wells to a depth up to 20 feet below ground surface. Cost estimate assumes monitoring wells are constructed of PVC with cast iron, flush-mount, locking covers.

4. Annual groundwater monitoring field activities cost estimate includes all equipment, materials, and labor necessary to conduct groundwater monitoring activities once per year. Cost estimate assumes that two workers will require four days to collect groundwater samples from 10 wells.

5. Laboratory analysis cost estimate includes all labor, equipment, and materials necessary to submit groundwater samples for laboratory analysis for BTEX, select SVOCs, and PCBs that were detected in groundwater samples collected during the RI. Cost estimate assumes 12 groundwater samples will be collected per monitoring event including up to three QA/QC samples (field duplicate, matrix spike, and matrix spike duplicate).

Table 5-8
Cost Estimate for Alternative GW3 - Continued Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

6. Waste management cost estimate includes all labor, equipment, and materials necessary to manage PPE and wastewater generated during annual groundwater monitoring activities. Cost estimate assumes monitoring activities will generate two drums of waste material per year.

7. Prepare annual groundwater monitoring report includes all labor and materials necessary to summarize the results from the annual groundwater monitoring field activities and laboratory analysis. Cost estimate includes reproduction and delivery of report to NYSDEC.

8. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to minimize the potential for human exposure to site groundwater. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

9. See Notes 4, 5, and 6.

10. See Note 7.

11. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

Table 5-9
Cost Estimate for Alternative GW4 - Chemical Oxidation of Dissolved-Phase VOCs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Abandon Existing Monitoring Wells	10	each	$2,000	$20,000
2	Groundwater Monitoring Well Installation	10	each	$5,000	$50,000
3	Mobilization/Demobilization	1	LS	$6,000	$6,000
4	Construct and Remove Equipment Decontamination Pad	1	LS	$7,500	$7,500
5	Install Temporary Fencing	600	LF	$30	$18,000
6	Design, Planning, and Permitting	1	LS	$4,000	$4,000
7	Equipment Usage and Technology License	1	LS	$12,000	$12,000
8	Injection Well Installation	14	each	$1,800	$25,200
9	System Infrastructure Installation	1	LS	$18,000	$18,000
10	System Startup and Testing	1	LS	$2,500	$2,500
11	System Operation	1	LS	$7,200	$7,200
12	Project Management and Administration	1	LS	$4,500	$4,500
13	Quarterly Groundwater Monitoring	4	month	$2,000	$8,000
14	Laboratory Analysis	24	each	$120	$2,880
15	Summary Report	1	LS	$6,000	$6,000
16	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$241,780
				Administration and Engineering (20%)	$48,356
				Construction Management (10%)	$24,178
				Contingency (20%)	$48,356
				Subtotal Cost	$362,670
OPERATION AND MAINTENANCE COSTS					
17	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
18	Annual Groundwater Monitoring	1	LS	$12,800	$12,800
19	Prepare Annual Groundwater Monitoring Report	1	LS	$6,000	$6,000
				Total O&M Cost	$23,800
				Contingency (20%)	$4,760
				Subtotal Cost	$28,560
20				30-Year Total Present Worth Cost of O&M	$354,430
				Total Estimated Cost	**$717,100**
				Rounded to	**$720,000**

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Assumptions:

1. Abandon existing monitoring wells cost estimate includes all labor, equipment, and materials necessary to over-drill and grout existing groundwater monitoring wells. Cost estimate assumes abandonment activities can be complete two drillers and a geologist at a rate of two wells per day.

2. Groundwater monitoring well installation cost estimate includes all labor, equipment, and materials necessary to install shallow groundwater monitoring wells to a depth up to 20 feet below ground surface. Cost estimate assumes monitoring wells are constructed of PVC with cast iron, flush-mount, locking covers.

3. Mobilization/demobilization cost estimate includes mobilization and demobilization of all equipment, materials, and labor necessary to perform in-situ chemical oxidation of impacted site groundwater.

4. Construct and remove equipment decontamination pad cost estimate includes labor, equipment, and materials necessary to construct and remove a 60-foot by 30-foot decontamination pad and appurtenances. The decontamination pad would consist of 40-mil high-density polyethylene (HDPE) with a six-inch gravel drainage layer placed over the HDPE liner, surrounded by a one-foot high berm and sloped to a collection sump for the collection of decontamination water.

5. Temporary fencing cost estimate includes labor, equipment, and materials necessary to purchase, install, and remove temporary six-foot woven steel chain link fence equipped with top tension wire.

6. Design, planning, and permitting cost estimate includes all labor, equipment, and materials necessary to complete final system design, project plans such as design documents and operation plans, and obtain necessary permits associated with construction and operation of the injection system. Cost estimate based information provided to ARCADIS by Resource Control Corporation (RCC) in February 2007.

7. Equipment usage and technology license cost estimate includes rental of ozone production and injection equipment, as well as associated licensing, for a period of one month. Cost estimate based information provided to ARCADIS by RCC in February 2007.

8. Injection well installation cost estimate includes all labor, equipment, and materials necessary to install up to 14 ozone injection wells. Cost estimate assumes injection wells will be installed via hollow-stem drilling methods to a depth up to 25 feet below ground surface. Cost estimate based information provided to ARCADIS by RCC in February 2007.

9. System infrastructure installation cost estimate includes all labor, equipment, and materials necessary to complete installation of system components such as wellhead connections, process piping, construction of manifolds, and connection to and setup of equipment trailer(s). Cost estimate based information provided to ARCADIS by RCC in February 2007.

10. System startup and testing cost estimate includes all labor, equipment, and materials necessary to complete mechanical and electrical testing of all components, equipment calibration, system performance verification, and system optimization during initial remedial activities. Cost estimate based information provided to ARCADIS by RCC in February 2007.

11. System operation cost estimate includes all labor and electrical usage for system operation for a period of one month. Cost estimate assumes a system operator will visit the site two times per week to monitor system operation. Cost estimate assumes remedial system can be operated by the existing power supply at the site and a utility usage cost of $200. Cost estimate based information provided to ARCADIS by RCC in February 2007.

12. Project management and administration cost estimate includes project coordination with remedial contractor consisting of one design meeting, one preconstruction meeting, and one progress meeting to be held at the site. Cost estimate based information provided to ARCADIS by RCC in February 2007.

13. Quarterly groundwater monitoring field activities cost estimate includes all equipment, materials, and labor necessary to conduct quarterly groundwater sampling activities for one year following chem-ox application. Cost estimate assumes that two workers will require one day to collect groundwater samples from up to 4 wells in the vicinity of the chem-ox application.

14. Laboratory analysis cost estimate includes all labor, equipment, and materials necessary to analyze groundwater samples for VOCs only. Cost assumes 6 samples will be collected each quarter (including QA/QC samples - duplicate, matrix spike, and matrix spike duplicate) from up to 4 new wells for a period of one year.

15. Summary report cost estimate includes all labor necessary to prepare a report summarizing remedial activities and monthly groundwater sampling activities one year after implementation of remedial activities.

16. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent potential future use of site groundwater.

17. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to minimize the potential for human exposure to site groundwater. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

Table 5-9
Cost Estimate for Alternative GW4 - Chemical Oxidation of Dissolved-Phase VOCs

WSI - Waste-Stream, Inc. Site - Potsdam, New York

18. Annual groundwater monitoring cost estimate includes all labor, equipment, and materials to complete annual groundwater monitoring activities and laboratory analysis. Cost estimate assumes that two workers will require four days to collect groundwater samples from 10 wells. Cost include laboratory analysis for BTEX, select SVOCs, and PCBs that were detected in groundwater samples collected during the RI.

19. Prepare annual groundwater monitoring report includes all labor and materials necessary to summarize the results from the annual groundwater monitoring field activities and laboratory analysis. Cost estimate includes reproduction and delivery of report to NYSDEC.

20. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

Table 5-10
Cost Estimate for Alternative SD2 - Institutional Controls

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
1	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$50,000
				Contingency (20%)	$10,000
				Subtotal Cost	$60,000
OPERATION AND MAINTENANCE COSTS					
2	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$5,000
				Contingency (20%)	$1,000
				Subtotal Cost	$6,000
3				30-Year Total Present Worth Cost of O&M	$74,460
				Total Estimated Cost	**$134,460**
				Rounded to	**$135,000**

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Assumptions:

1. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent current or future site workers from performing intrusive activities.

2. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to minimize the potential for human exposure to remaining impacted sediment. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

3. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

Table 5-11
Cost Estimate for Alternative SD3 - Average-Based Sediment Removal to Achieve PCBs < 1 ppm with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Mobilization/Demobilization	1	LS	$100,000	$100,000
2	Utility Location and Markout	1	LS	$2,000	$2,000
3	Construct and Remove Equipment Decontamination Pad	1	LS	$7,500	$7,500
4	Erosion Control	4,000	LF	$1	$4,000
5	Construction and Maintenance of Soil Staging Areas	1	LS	$100,000	$100,000
6	Permitting	1	LS	$50,000	$50,000
7	Sediment Excavation and Handling of Excavated Materials	14,700	CY	$91	$1,337,700
8	Sediment Regrading and Compaction	9,800	CY	$10	$98,000
9	Temporary Water Treatment System	4	month	$50,000	$200,000
10	Verification Sampling	300	each	$400	$120,000
11	Perforated Drainpipe	500	LF	$150	$75,000
12	Geotextile Fabric	3,900	SY	$3	$11,700
13	Rip-Rap	3,000	CY	$85	$255,000
14	Wetland Restoration Vegetation Plan	1	LS	$50,000	$50,000
15	Select Fill Importation, Placement, Grading and Compaction	9,000	CY	$25	$225,000
16	Topsoil Importation, Placement, and Grading	2,300	CY	$25	$57,500
17	Wetlands Restoration	2.8	acre	$40,000	$112,000
18	Solid Waste Characterization	49	each	$750	$36,750
19	Liquid Waste Characterization	10	each	$750	$7,500
20	Sediment Waste Transportation and Off-Site Management - RCRA Landfill	8,100	ton	$145	$1,174,500
21	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$4,074,150
22				Administration and Engineering (10%)	$289,965
				Construction Management (5%)	$144,983
				Contingency (20%)	$814,830
				Subtotal Cost	$5,323,928
OPERATION AND MAINTENANCE COSTS (30 YEAR BIENNIAL)					
23	Biennial Wetland Biota Monitoring	1	LS	$35,000	$35,000
				Total O&M Cost	$35,000
				Contingency (20%)	$7,000
				Subtotal Cost	$42,000
24				30-Year Total Present Worth Cost of O&M	$251,580
OPERATION AND MAINTENANCE COSTS (30 YEAR ANNUAL)					
25	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$5,000
				Contingency (20%)	$1,000
				Subtotal Cost	$6,000
26				30-Year Total Present Worth Cost of O&M	$74,460
OPERATION AND MAINTENANCE COSTS (5 YEAR ANNUAL)					
27	Annual Wetland Vegetation Monitoring	1	LS	$15,000	$15,000
				Total O&M Cost	$15,000
				Contingency (20%)	$3,000
				Subtotal Cost	$18,000
28				5-Year Total Present Worth Cost of O&M	$73,800
				Total Estimated Cost	**$5,723,768**
				Rounded to	**$5,700,000**

Table 5-11
Cost Estimate for Alternative SD3 - Average-Based Sediment Removal to Achieve PCBs < 1 ppm with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

3. Cost estimate assumes Soil Alternatives S3 through S6 would be implemented as part of site remedial activities. Costs for construction of site cap on WSI property are not included with the cost estimate for this sediment alternative.

Assumptions:

1. Mobilization/demobilization cost estimate includes mobilization and demobilization of all equipment, materials, and labor necessary to perform sediment removal activities.

2. Utility location and markout cost estimate includes labor, equipment, and materials necessary to locate, identify, and markout underground utilities at the site. Cost assumes that utility location and markout would be conducted by a private utility locating company over a period of two days at a daily rate of $1,000 per day.

3. Construct and remove equipment decontamination pad cost estimate includes labor, equipment, and materials necessary to construct and remove a 60-foot by 30-foot decontamination pad and appurtenances. The decontamination pad would consist of 40-mil high-density polyethylene (HDPE) with a six-inch gravel drainage layer placed over the HDPE liner, surrounded by a one-foot high berm and sloped to a collection sump for the collection of decontamination water.

4. Erosion control cost estimate includes all labor, equipment, and materials necessary to purchase and install a three-foot silt fence equipped with stakes 10-foot on-center.

5. Construction and maintenance of soil staging area cost estimate includes labor, equipment, and materials to construct two approximately 100-foot by 100-foot material staging areas consisting of a 12-inch gravel fill layer bermed and sloped to a sump and covered with a 40-mil HDPE liner for the segregation of excavated material. Maintenance costs include inspecting and repairing staging area as necessary and covering staged soil with polyethylene sheeting. Cost assumes construction cost of approximately $4 per square foot of pad.

6. Permitting cost estimate includes all labor necessary to file for and obtain necessary permits for conducting work in southern and northern drainage area wetlands.

7. Sediment excavation and handling of excavated materials cost estimate includes all labor, equipment, and materials necessary to excavate sediment, transfer excavated material to staging/dewatering/amendment area, and load staged material for off-site transportation or on-site consolidation. Cost estimate includes construction of access roads into northern drainage area, excavation area dewatering, construction of mixing area, mixing/amending excavated material, amendment (i.e., with wood chips, inert wood ash, or Portland cement), and air monitoring during excavation activities. Estimated excavation limits and volumes (in-place) based on thiessen polygons created from previously collected site samples.

8. Sediment regrading and compaction cost estimate includes all labor, equipment, and materials necessary to regrade and compact excavated sediment for use as backfill within the WSI property boundary. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing. Note that this cost estimate has been prepared assuming Alternative S4 would be selected as the preferred soil alternative. However, this sediment alternative could also be paired with either Soil Alternative S5 or S6 (which would change the volume of sediment that could be consolidated on-site and volume of sediment to be managed off-site). Off-site management and on-site consolidation volumes and costs associated with the implementation of this sediment alternative in conjunction with Soil Alternatives S5 and S6 are summarized in the table below.

Table 5-11

Cost Estimate for Alternative SD3 - Average-Based Sediment Removal to Achieve PCBs < 1 ppm with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

	Soil Alternative	
	S5 (PCBs > 25 ppm)	**S6 (PCBs > 10 ppm)**
Sediment Available for Regrading and Compaction (CY)	6,000	2,100
Sediment Waste Transportation and Off-Site Management - Solid Waste Landfill (CY)	3,800	7,700
Total Estimated Cost of Sediment Alternative SD3	$6,100,000	$6,400,000

9. Temporary groundwater treatment system cost estimate includes rental of a portal water treatment system capable of operating at 30 gallons per minute. Cost estimate assumes water treatment system includes pumps, influent piping and hoses, frac tank, carbon filters, bag filters, discharge piping and hoses, and flow meter. Cost estimate assumes bag filters will require change out approximately once per day of operation. Cost estimate assumes treated water would be discharged to site wetlands. Cost estimate based on information provided to ARCADIS by Baker Tanks on March 8, 2007. Cost estimate includes sampling of treated water.

10. Verification sampling cost estimate includes the laboratory analysis of sediment samples collected from sediment excavation areas for PCBs, SVOCs, and RCRA metals to verify impacted sediment has been removed to proposed soil cleanup objectives. Cost estimate assumes a soil sample is collected every 2,500 square-feet of excavation bottom and every 50 linear-feet of excavation sidewalls.

11. Perforated drainpipe cost estimate includes all labor, equipment, and materials necessary to install a perforated drainpipe to replace the on-site portion of the drainage ditch/culvert with a perforated HDPE drainpipe. Cost estimate assumes drainpipe would be covered and includes costs for drainpipe excavation backfill materials.

12. Geotextile fabric cost estimate includes all labor, equipment, and materials necessary to purchase and install non-woven geotextile as a base layer within the southern drainage areas and the portion of the drainage swale not within the WSI property prior to placement of rip-rap stone. Cost estimate includes an additional 10% of material for folding, wrinkles, and overlaps.

13. Rip-rap cost estimate includes all labor, equipment, and materials necessary to place rip-rap stone for backfill in the southern drainage areas and the portion of drainage swale not within the WSI property.

14. Wetland restoration plan cost estimate includes all labor necessary to prepare a wetland restoration plan. Cost estimate includes five days of wetland investigation activities (including collection and analysis of soil samples for soil characterization) by two workers. Cost estimate includes office support for writing wetland restoration plan to include a wetland grading plan, vegetation requirements, and post-restoration monitoring activities.

15. Select fill importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact general fill to replace removed sediment to within six inches of proposed wetland final grades during wetland restoration activities. Cost estimate assumes two feet of general fill required per each excavation area. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

16. Topsoil importation, placement, and grading cost estimate includes all labor, equipment, and materials necessary to purchase, place, and grade six inches of topsoil (consistent with existing wetland materials) to meet previously existing wetland grades during wetland restoration activities.

17. Wetland restoration cost estimate includes all labor, equipment, and materials necessary to restore wetlands with seed mixtures, shrubs, and trees.

18. Solid waste characterization cost estimate includes the analysis of sediment samples (including, but not limited to, PCBs, VOCs, SVOCs, and RCRA Metals). Costs assumes that waste characterization samples would be collected at a frequency of one sample per every 500 tons of excavated sediment. The estimated weight of material was based on an assumed 1.5 tons per cubic-yard plus an additional 10% for the addition of stabilizing agents.

19. Liquid waste characterization cost estimate includes the analysis of wastewater sample for PCBs, VOCs, SVOCs, metals, and pesticides.

Table 5-11
Cost Estimate for Alternative SD3 - Average-Based Sediment Removal to Achieve PCBs < 1 ppm with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

20. Sediment waste transportation and off-site management - RCRA landfill cost estimate includes all labor, equipment, and materials necessary to transport sediment containing PCBs at concentrations greater than 50 ppm for off-site management at an appropriately permitted RCRA landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard plus an additional 10% for stabilizing agents. Cost estimate assumes that sediment would be managed at Model City Landfill located in Niagara Falls, New York. Cost estimate includes transportation fuel charge, local, and state taxes. Cost estimate is based on information provided to ARCADIS by Waste Management on December 15, 2008. Note that this cost estimate has been prepared under the assumption that Alternative S4 would be selected as the preferred soil alternative. See Note 8 for off-site management/on-site consolidation volumes associated with the implementation of other soil alternatives.

21. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent current or future site workers from performing intrusive activities in on-site and off-site wetlands.

22. Administration and engineering and construction management costs are based on an assumed 10% and 5% (respectively) of the total capital costs, not including costs for off-site management of material.

23. Biennial wetland biota monitoring cost estimate includes all labor, equipment, and materials necessary to conduct annual wetland monitoring following remedial activities. Cost estimate assumes two workers will require 10 days to collect up to 40 biota samples (e.g., minnows, fish, frogs, etc.) from the northern drainage area (NDA) and drainage swale area that discharges to the NDA. Cost estimate assumes biota samples will be analyzed for PCBs and percent lipids. The scope of monitoring activities is based on the September 2002 FWIA IIC Sampling Plan. The scope of sampling activities shall be reviewed and revised, as appropriate, prior to conducting sampling activities. Cost estimate includes preparation of a report to document results of sampling activities and laboratory analysis of samples.

24. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

25. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to minimize the potential for human exposure to remaining impacted sediment. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

26. See Note 24.

27. Annual wetland vegetation monitoring cost estimate includes all labor, equipment, and materials necessary to conduct annual wetland vegetation monitoring for five years following remedial activities. Cost estimate assumes two workers will require five days to inspect site wetlands to verify that restored vegetation has been established. The scope of monitoring activities shall be reviewed and revised, as appropriate, prior to conducting sampling activities. Cost estimate includes preparation of an annual report to document results of investigation activities.

28. See Note 24.

Table 5-12
Cost Estimate for Alternative SD4 - Area-Based Sediment Removal (PCBs > 1 ppm) with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Mobilization/Demobilization	1	LS	$100,000	$100,000
2	Utility Location and Markout	1	LS	$2,000	$2,000
3	Construct and Remove Equipment Decontamination Pad	1	LS	$7,500	$7,500
4	Erosion Control	4,000	LF	$1	$4,000
5	Construction and Maintenance of Soil Staging Areas	1	LS	$100,000	$100,000
6	Permitting	1	LS	$50,000	$50,000
7	Sediment Excavation and Handling of Excavated Materials	21,300	CY	$91	$1,938,300
8	Sediment Regrading and Compaction	16,400	CY	$10	$164,000
9	Temporary Water Treatment System	6	month	$50,000	$300,000
10	Verification Sampling	420	each	$400	$168,000
11	Perforated Drainpipe	500	LF	$150	$75,000
12	Geotextile Fabric	3,900	SY	$3	$11,700
13	Rip-Rap	3,000	CY	$85	$255,000
14	Wetland Restoration Vegetation Plan	1	LS	$50,000	$50,000
15	Select Fill Importation, Placement, Compaction, and Grading	14,000	CY	$25	$350,000
16	Topsoil Importation, Placement, and Grading	3,500	CY	$25	$87,500
17	Wetlands Restoration	4.4	acre	$10,000	$44,000
18	Solid Waste Characterization	71	each	$750	$53,250
19	Liquid Waste Characterization	10	each	$750	$7,500
20	Sediment Waste Transportation and Off-Site Management - RCRA Landfill	8,100	ton	$145	$1,174,500
21	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$4,992,250
22				Administration and Engineering (10%)	$381,775
				Construction Management (5%)	$190,888
				Contingency (20%)	$998,450
				Subtotal Cost	$6,563,363
OPERATION AND MAINTENANCE COSTS (30 YEAR BIENNIAL)					
23	Biennial Wetland Biota Monitoring	1	LS	$35,000	$35,000
				Total O&M Cost	$35,000
				Contingency (20%)	$7,000
				Subtotal Cost	$42,000
24				30-Year Total Present Worth Cost of O&M	$251,580
OPERATION AND MAINTENANCE COSTS (30 YEAR ANNUAL)					
25	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$5,000
				Contingency (20%)	$1,000
				Subtotal Cost	$6,000
26				30-Year Total Present Worth Cost of O&M	$74,460
OPERATION AND MAINTENANCE COSTS (5 YEAR ANNUAL)					
27	Annual Wetland Vegetation Monitoring	1	LS	$15,000	$15,000
				Total O&M Cost	$15,000
				Contingency (20%)	$3,000
				Subtotal Cost	$18,000
28				5-Year Total Present Worth Cost of O&M	$73,800
				Total Estimated Cost	**$6,963,203**
				Rounded to	**$7,000,000**

Table 5-12
Cost Estimate for Alternative SD4 - Area-Based Sediment Removal (PCBs > 1 ppm)
with On-Site Consolidation and Off-Site Management and Long-Term Biota Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

3. Cost estimate assumes Soil Alternatives S3 through S6 would be implemented as part of site remedial activities. Costs for construction of site cap on WSI property are not included with the cost estimate for this sediment alternative.

Assumptions:

1. Mobilization/demobilization cost estimate includes mobilization and demobilization of all equipment, materials, and labor necessary to perform sediment removal activities.

2. Utility location and markout cost estimate includes labor, equipment, and materials necessary to locate, identify, and markout underground utilities at the site. Cost assumes that utility location and markout would be conducted by a private utility locating company over a period of two days at a daily rate of $1,000 per day.

3. Construct and remove equipment decontamination pad cost estimate includes labor, equipment, and materials necessary to construct and remove a 60-foot by 30-foot decontamination pad and appurtenances. The decontamination pad would consist of 40-mil high-density polyethylene (HDPE) with a six-inch gravel drainage layer placed over the HDPE liner, surrounded by a one-foot high berm and sloped to a collection sump for the collection of decontamination water.

4. Erosion control cost estimate includes all labor, equipment, and materials necessary to purchase and install a three-foot silt fence equipped with stakes 10-foot on-center.

5. Construction and maintenance of soil staging area cost estimate includes labor, equipment, and materials to construct two approximately 100-foot by 100-foot material staging areas consisting of a 12-inch gravel fill layer bermed and sloped to a sump and covered with a 40-mil HDPE liner for the segregation of excavated material. Maintenance costs include inspecting and repairing staging area as necessary and covering staged soil with polyethylene sheeting. Cost assumes construction cost of approximately $4 per square foot of pad.

6. Permitting cost estimate includes all labor necessary to file for and obtain necessary permits for conducting work in southern and northern drainage area wetlands.

7. Sediment excavation and handling of excavated materials cost estimate includes all labor, equipment, and materials necessary to excavate sediment, transfer excavated material to staging/dewatering/amendment area, and load staged material for off-site transportation or on-site consolidation. Cost estimate includes construction of access roads into northern drainage area, excavation area dewatering, construction of mixing area, mixing/amending excavated material, amendment (i.e., with wood chips, inert wood ash, or Portland cement), and air monitoring during excavation activities. Estimated excavation limits and volumes (in-place) based on thiessen polygons created from previously collected site samples.

8. Sediment regrading and compaction cost estimate includes all labor, equipment, and materials necessary to regrade and compact excavated sediment for use as backfill within the WSI property boundary. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing. Note that this cost estimate has been prepared assuming Alternative S4 would be selected as the preferred soil alternative. However, this sediment alternative could also be paired with either Soil Alternative S5 or S6 (which would change the volume of sediment that could be consolidated on-site and volume of sediment to be managed off-site). Off-site management and on-site consolidation volumes and costs associated with the implementation of this sediment alternative in conjunction with Soil Alternatives S5 and S6 are summarized in the table below.

	Soil Alternative	
	S5 (PCBs > 25 ppm)	**S6 (PCBs > 10 ppm)**
Sediment Available for Regrading and Compaction (CY)	12,600	8,700
Sediment Waste Transportation and Off-Site Management - Solid Waste Landfill (CY)	3,800	7,700
Total Estimated Cost of Sediment Alternative SD4	$7,300,000	$7,600,000

9. Temporary groundwater treatment system cost estimate includes rental of a portal water treatment system capable of operating at 30 gallons per minute. Cost estimate assumes water treatment system includes pumps, influent piping and hoses, frac tank, carbon filters, bag filters, discharge piping and hoses, and flow meter. Cost estimate assumes bag filters will require change out approximately once per day of operation. Cost estimate assumes treated water would be discharged to site wetlands. Cost estimate based on information provided to ARCADIS by Baker Tanks on March 8, 2007. Cost estimate includes sampling of treated water.

10. Verification sampling cost estimate includes the laboratory analysis of sediment samples collected from sediment excavation areas for PCBs, SVOCs, and RCRA metals to verify impacted sediment has been removed to proposed soil cleanup objectives. Cost estimate assumes a soil sample is collected every 2,500 square-feet of excavation bottom and every 50 linear-feet of excavation sidewalls.

11. Perforated drainpipe cost estimate includes all labor, equipment, and materials necessary to install a perforated drainpipe to replace the on-site portion of the drainage ditch/culvert with a perforated HDPE drainpipe. Cost estimate assumes drainpipe would be covered and includes costs for drainpipe excavation backfill materials.

12. Geotextile fabric cost estimate includes all labor, equipment, and materials necessary to purchase and install non-woven geotextile as a base layer within the southern drainage areas and the portion of the drainage swale not within the WSI property prior to placement of rip-rap stone. Cost estimate includes an additional 10% of material for folding, wrinkles, and overlaps.

13. Rip-rap cost estimate includes all labor, equipment, and materials necessary to place rip-rap stone for backfill in the southern drainage areas and the portion of drainage swale not within the WSI property.

14. Wetland restoration plan cost estimate includes all labor necessary to prepare a wetland restoration plan. Cost estimate includes five days of wetland investigation activities (including collection and analysis of soil samples for soil characterization) by two workers. Cost estimate includes office support for writing wetland restoration plan to include a wetland grading plan, vegetation requirements, and post-restoration monitoring activities.

15. Select fill importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact general fill to replace removed sediment to within six inches of proposed wetland final grades during wetland restoration activities. Cost estimate assumes two feet of general fill required per each excavation area. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

16. Topsoil importation, placement, and grading cost estimate includes all labor, equipment, and materials necessary to purchase, place, and grade six inches of topsoil (consistent with existing wetland materials) to meet previously existing wetland grades during wetland restoration activities. Cost estimate includes survey verification and compaction testing.

17. Wetland restoration cost estimate includes all labor, equipment, and materials necessary to restore wetlands with seed mixtures, shrubs, and trees.

18. Solid waste characterization cost estimate includes the analysis of sediment samples (including, but not limited to, PCBs, VOCs, SVOCs, and RCRA Metals). Costs assumes that waste characterization samples would be collected at a frequency of one sample per every 500 tons of excavated sediment. The estimated weight of material was based on an assumed 1.5 tons per cubic-yard plus an additional 10% for the addition of stabilizing agents.

19. Liquid waste characterization cost estimate includes the analysis of wastewater sample for PCBs, VOCs, SVOCs, metals, and pesticides.

20. Sediment waste transportation and off-site management - RCRA landfill cost estimate includes all labor, equipment, and materials necessary to transport sediment containing PCBs at concentrations greater than 50 ppm for off-site management at an appropriately permitted RCRA landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard plus an additional 10% for stabilizing agents. Cost estimate assumes that sediment would be managed at Model City Landfill located in Niagara Falls, New York. Cost estimate includes transportation fuel charge, local, and state taxes. Cost estimate is based on information provided to ARCADIS by Waste Management on December 15, 2008. Note that this cost estimate has been prepared under the assumption that Alternative S4 would be selected as the preferred soil alternative. See Note 8 for off-site management/on-site consolidation volumes associated with the implementation of other soil alternatives.

21. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent current or future site workers from performing intrusive activities in on-site and off-site wetlands.

22. Administration and engineering and construction management costs are based on an assumed 10% and 5% (respectively) of the total capital costs, not including costs for off-site management of material.

23. Biennial wetland biota monitoring cost estimate includes all labor, equipment, and materials necessary to conduct annual wetland monitoring following remedial activities. Cost estimate assumes two workers will require 10 days to collect up to 40 biota samples (e.g., minnows, fish, frogs, etc.) from the northern drainage area (NDA) and drainage swale area that discharges to the NDA. Cost estimate assumes biota samples will be analyzed for PCBs and percent lipids. The scope of monitoring activities is based on the September 2002 FWIA IIC Sampling Plan. The scope of sampling activities shall be reviewed and revised, as appropriate, prior to conducting sampling activities. Cost estimate includes preparation of a report to document results of sampling activities and laboratory analysis of samples.

24. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

25. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to minimize the potential for human exposure to remaining impacted sediment. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

26. See Note 24.

27. Annual wetland vegetation monitoring cost estimate includes all labor, equipment, and materials necessary to conduct annual wetland vegetation monitoring for five years following remedial activities. Cost estimate assumes two workers will require five days to inspect site wetlands to verify that restored vegetation has been established. The scope of monitoring activities shall be reviewed and revised, as appropriate, prior to conducting sampling activities. Cost estimate includes preparation of an annual report to document results of investigation activities.

28. See Note 24.

Table 5-13
Cost Estimate for Alternative SD5 - Area-Based Sediment Removal (PCBs > 0.1 ppm)
with Off-Site Management and Long-Term Biota Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

Item #	Description	Estimated Quantity	Unit	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
1	Mobilization/Demobilization	1	LS	$100,000	$100,000
2	Utility Location and Markout	1	LS	$2,000	$2,000
3	Construct and Remove Equipment Decontamination Pad	1	LS	$7,500	$7,500
4	Erosion Control	4,000	LF	$1	$4,000
5	Construction and Maintenance of Soil Staging Areas	1	LS	$150,000	$150,000
6	Permitting	1	LS	$50,000	$50,000
7	Sediment Excavation and Handling of Excavated Materials	37,800	CY	$91	$3,439,800
8	Temporary Water Treatment System	11	month	$50,000	$550,000
9	Verification Sampling	640	each	$400	$256,000
10	Perforated Drainpipe	500	LF	$150	$75,000
11	Geotextile Fabric	3,900	SY	$3	$11,700
12	Rip-Rap	3,000	CY	$85	$255,000
13	Wetland Restoration Vegetation Plan	1	LS	$50,000	$50,000
14	Select Fill Importation, Placement, Compaction, and Grading	27,200	CY	$25	$680,000
15	Topsoil Importation, Placement, and Grading	6,800	CY	$25	$170,000
16	Wetlands Restoration	8.5	acre	$10,000	$85,000
17	Solid Waste Characterization	125	each	$750	$93,750
18	Liquid Waste Characterization	20	each	$750	$15,000
19	Sediment Waste Transportation and Off-Site Management - Solid Waste Landfill	29,800	ton	$50	$1,490,000
20	Sediment Waste Transportation and Off-Site Management - RCRA Landfill	8,100	ton	$145	$1,174,500
21	Legal Expenses for Institutional Controls	1	LS	$50,000	$50,000
				Total Capital Cost	$8,709,250
22				Administration and Engineering (10%)	$604,475
				Construction Management (5%)	$302,238
				Contingency (20%)	$1,741,850
				Subtotal Cost	$11,357,813
OPERATION AND MAINTENANCE COSTS (30 YEAR BIENNIAL					
23	Biennial Wetland Biota Monitoring	1	LS	$35,000	$35,000
				Total O&M Cost	$35,000
				Contingency (20%)	$7,000
				Subtotal Cost	$42,000
24				30-Year Total Present Worth Cost of O&M	$251,580
OPERATION AND MAINTENANCE COSTS (30 YEAR ANNUAL					
25	Inspection of Institutional Controls and Notifications to NYSDEC	1	LS	$5,000	$5,000
				Total O&M Cost	$5,000
				Contingency (20%)	$1,000
				Subtotal Cost	$6,000
26				30-Year Total Present Worth Cost of O&M	$74,460
OPERATION AND MAINTENANCE COSTS (5 YEAR ANNUAL					
27	Annual Wetland Vegetation Monitoring	1	LS	$15,000	$15,000
				Total O&M Cost	$15,000
				Contingency (20%)	$3,000
				Subtotal Cost	$18,000
28				5-Year Total Present Worth Cost of O&M	$73,800
				Total Estimated Cost	**$11,757,653**
				Rounded to	**$11,800,000**

Table 5-13
Cost Estimate for Alternative SD5 - Area-Based Sediment Removal (PCBs > 0.1 ppm)
with Off-Site Management and Long-Term Biota Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

General Notes:

1. Cost estimate is based on ARCADIS' past experience and vendor estimates using 2009 dollars.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost. Utilization of this cost estimate information beyond the stated purpose is not recommended. ARCADIS is not licensed to provide financial or legal consulting services; as such; this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

Assumptions:

1. Mobilization/demobilization cost estimate includes mobilization and demobilization of all equipment, materials, and labor necessary to perform sediment removal activities.

2. Utility location and markout cost estimate includes labor, equipment, and materials necessary to locate, identify, and markout underground utilities at the site. Cost assumes that utility location and markout would be conducted by a private utility locating company over a period of two days at a daily rate of $1,000 per day.

3. Construct and remove equipment decontamination pad cost estimate includes labor, equipment, and materials necessary to construct and remove a 60-foot by 30-foot decontamination pad and appurtenances. The decontamination pad would consist of 40-mil high-density polyethylene (HDPE) with a six-inch gravel drainage layer placed over the HDPE liner, surrounded by a one-foot high berm and sloped to a collection sump for the collection of decontamination water.

4. Erosion control cost estimate includes all labor, equipment, and materials necessary to purchase and install a three-foot silt fence equipped with stakes 10-foot on-center.

5. Construction and maintenance of soil staging area cost estimate includes labor, equipment, and materials to construct an approximate 100-foot by 200-foot and an approximate 100-foot by 100-foot material staging areas consisting of a 12-inch gravel fill layer bermed and sloped to a sump and covered with a 40-mil HDPE liner for the segregation of excavated material. Maintenance costs include inspecting and repairing staging area as necessary and covering staged soil with polyethylene sheeting. Cost assumes construction cost of approximately $4 per square foot of pad.

6. Permitting cost estimate includes all labor necessary to file for and obtain necessary permits for conducting work in southern and northern drainage area wetlands.

7. Sediment excavation and handling of excavated materials cost estimate includes all labor, equipment, and materials necessary to excavate sediment, transfer excavated material to staging/dewatering/amendment area, and load staged material for off-site transportation or on-site consolidation. Cost estimate includes construction of access roads into northern drainage area, excavation area dewatering, construction of mixing area, mixing/amending excavated material, amendment (i.e., with wood chips, inert wood ash, or Portland cement), and air monitoring during excavation activities. Estimated excavation limits and volumes (in-place) based on thiessen polygons created from previously collected site samples.

8. Temporary groundwater treatment system cost estimate includes rental of a portal water treatment system capable of operating at 30 gallons per minute. Cost estimate assumes water treatment system includes pumps, influent piping and hoses, frac tank, carbon filters, bag filters, discharge piping and hoses, and flow meter. Cost estimate assumes bag filters will require change out approximately once per day of operation. Cost estimate assumes treated water would be discharged to site wetlands. Cost estimate based on information provided to ARCADIS by Baker Tanks on March 8, 2007. Cost estimate includes sampling of treated water.

9. Verification sampling cost estimate includes the laboratory analysis of sediment samples collected from sediment excavation areas for PCBs, SVOCs, and RCRA metals to verify impacted sediment has been removed to proposed soil cleanup objectives. Cost estimate assumes a soil sample is collected every 2,500 square-feet of excavation bottom and every 50 linear-feet of excavation sidewalls.

10. Perforated drainpipe cost estimate includes all labor, equipment, and materials necessary to install a perforated drainpipe to replace the on-site portion of the drainage ditch/culvert with a perforated HDPE drainpipe. Cost estimate assumes drainpipe would be covered and includes costs for drainpipe excavation backfill materials.

Table 5-13
Cost Estimate for Alternative SD5 - Area-Based Sediment Removal (PCBs > 0.1 ppm)
with Off-Site Management and Long-Term Biota Monitoring

WSI - Waste-Stream, Inc. Site - Potsdam, New York

11. Geotextile fabric cost estimate includes all labor, equipment, and materials necessary to purchase and install non-woven geotextile as a base layer within the southern drainage areas and the portion of the drainage swale not within the WSI property prior to placement of rip-rap stone. Cost estimate includes an additional 10% of material for folding, wrinkles, and overlaps.

12. Rip-rap cost estimate includes all labor, equipment, and materials necessary to place rip-rap stone for backfill in the southern drainage areas and the portion of drainage swale not within the WSI property.

13. Wetland restoration plan cost estimate includes all labor necessary to prepare a wetland restoration plan. Cost estimate includes five days of wetland investigation activities (including collection and analysis of soil samples for soil characterization) by two workers. Cost estimate includes office support for writing wetland restoration plan to include a wetland grading plan, vegetation requirements, and post-restoration monitoring activities.

14. Select fill importation, placement, grading and compaction cost estimate includes all labor, equipment, and materials necessary to purchase, place, grade and compact general fill to replace removed sediment to within six inches of proposed wetland final grades during wetland restoration activities. Cost estimate assumes two feet of general fill required per each excavation area. Cost estimate assumes material to be placed in 12-inch lifts and compaction to 90% maximum compaction. Cost estimate includes survey verification and compaction testing.

15. Topsoil importation, placement, and grading cost estimate includes all labor, equipment, and materials necessary to purchase, place, and grade six inches of topsoil (consistent with existing wetland materials) to meet previously existing wetland grades during wetland restoration activities. Cost estimate includes survey verification and compaction testing.

16. Wetland restoration cost estimate includes all labor, equipment, and materials necessary to restore wetlands with seed mixtures, shrubs, and trees.

17. Solid waste characterization cost estimate includes the analysis of sediment samples (including, but not limited to, PCBs, VOCs, SVOCs, and RCRA Metals). Costs assumes that waste characterization samples would be collected at a frequency of one sample per every 500 tons of excavated sediment. The estimated weight of material was based on an assumed 1.5 tons per cubic-yard plus an additional 10% for the addition of stabilizing agents.

18. Liquid waste characterization cost estimate includes the analysis of wastewater sample for PCBs, VOCs, SVOCs, metals, and pesticides.

19. Sediment waste transportation and off-site management - solid waste landfill cost estimate includes all labor, equipment, and materials necessary to transport sediment containing PCBs at concentrations less than 50 ppm for off-site management at an appropriate landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard plus an additional 10% for stabilizing agents. Cost estimate assumes sediment would be managed at Seneca Meadows Landfill located in Waterloo, New York. Cost estimate includes transportation fuel charge and all applicable taxes. Cost estimate is based on information provided to ARCADIS by Seneca Meadows Landfill on December 16, 2008.

20. Sediment waste transportation and off-site management - RCRA landfill cost estimate includes all labor, equipment, and materials necessary to transport sediment containing PCBs at concentrations greater than 50 ppm for off-site management at an appropriately permitted RCRA landfill. Cost estimate assumes a material density of 1.5 tons per cubic-yard plus an additional 10% for stabilizing agents. Cost estimate assumes that sediment would be managed at Model City Landfill located in Niagara Falls, New York. Cost estimate includes transportation fuel charge, local, and state taxes. Cost estimate is based on information provided to ARCADIS by Waste Management on December 15, 2008.

21. Legal expenses for institutional controls cost estimate includes all labor and materials necessary to institute environmental easements and deed restrictions to prevent current or future site workers from performing intrusive activities in on-site and off-site wetlands.

22. Administration and engineering and construction management costs are based on an assumed 10% and 5% (respectively) of the total capital costs, not including costs for off-site management of material.

23. Biennial wetland biota monitoring cost estimate includes all labor, equipment, and materials necessary to conduct annual wetland monitoring following remedial activities. Cost estimate assumes two workers will require 10 days to collect up to 40 biota samples (e.g., minnows, fish, frogs, etc.) from the northern drainage area (NDA) and drainage swale area that discharges to the NDA. Cost estimate assumes biota samples will be analyzed for PCBs and percent lipids. The scope of monitoring activities is based on the September 2002 FWIA IIC Sampling Plan. The scope of sampling activities shall be reviewed and revised, as appropriate, prior to conducting sampling activities. Cost estimate includes preparation of a report to document results of sampling activities and laboratory analysis of samples.

24. Present worth is estimated based on a 7% beginning-of-year discount rate (adjusted for inflation) in accordance with OSWER Directive 9355.3-20 "Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis" (USEPA, 1993). It is assumed that "year zero" is 2008.

25. Inspection of institutional controls and notifications to NYSDEC cost estimate includes costs associated with implementing institutional controls to minimize the potential for human exposure to remaining impacted sediment. Such institutional controls may include governmental controls, proprietary controls, enforcement tools, and/or informational devices. Annual costs associated with institutional controls include verifying the status of institutional controls and preparing/submitting notification to the NYSDEC to demonstrate that the institutional controls are being maintained and remain effective.

26. See Note 24.

27. Annual wetland vegetation monitoring cost estimate includes all labor, equipment, and materials necessary to conduct annual wetland vegetation monitoring for five years following remedial activities. Cost estimate assumes two workers will require five days to inspect site wetlands to verify that restored vegetation has been established. The scope of monitoring activities shall be reviewed and revised, as appropriate, prior to conducting sampling activities. Cost estimate includes preparation of an annual report to document results of investigation activities.

28. See Note 24.

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Figures

LEGEND:

- PCBs >50 PPM
- PCBs >1 PPM INSIDE CAP LIMITS
- PCBs >1 AND <50 PPM OUTSIDE OF CAP LIMITS
- SVOCs/INORGANICS > 6 NYCRR PART 375 RESTRICTED USE SOIL CLEANUP OBJECTIVES FOR PROTECTION OF ECOLOGICAL RESOURCES OUTSIDE CAP LIMITS
- 3 EXCAVATION DEPTH (FEET BELOW EXISTING GROUND SURFACE)
- CAP LIMITS
- WETLAND DELINEATION
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- PROPERTY BOUNDARY
- OVERHEAD UTILITIES
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- EXISTING UTILITY POLE
- FORMER GROUNDWATER SUPPLY WELL
- SOIL SAMPLE LOCATION

NOTE:

BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.

WASTE-STREAM INC.
POTSDAM, NEW YORK
FEASIBILITY STUDY REPORT

ALTERNATIVE S3 - CAPPING

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FIGURE
5-1

LEGEND:

- PCBs >50 PPM
- PCBs >1 AND <50 PPM OUTSIDE OF CAP LIMITS
- SVOCs/INORGANICS > 6 NYCRR PART 375 RESTRICTED USE SOIL CLEANUP OBJECTIVES FOR PROTECTION OF ECOLOGICAL RESOURCES OUTSIDE CAP LIMITS
- 3 — EXCAVATION DEPTH (FEET BELOW EXISTING GROUND SURFACE)
- CAP LIMITS
- WETLAND DELINEATION
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- PROPERTY BOUNDARY
- OHU — OVERHEAD UTILITIES
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- EXISTING UTILITY POLE
- GWS — FORMER GROUNDWATER SUPPLY WELL
- S-110 — SOIL SAMPLE LOCATION

NOTE:

BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.

0 80' 160'
GRAPHIC SCALE

WASTE-STREAM INC.
POTSDAM, NEW YORK
FEASIBILITY STUDY REPORT

ALTERNATIVE S4 - SOIL REMOVAL (PCBs >50 PPM) AND CAPPING

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FIGURE
5-2

CITY: SYRACUSE GROUP: ENVCAD DB: D. WODARCZYK, P. LISTER PM/TM: J.BRIEN TR: J. GOLUBSKI LYR:ON=*;OFF=REF (FRZ) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/5/2009 10:31 AM BY: LISTER, PAUL
G:\ENVCAD\SYRACUSE\ACT\B0031006\0001\00001\DWG\31006G01.DWG LAYOUT: 5-2 SAVED: 5/5/2009 10:16 AM ACADVER: 17.0S (LMS TECH)
XREFS: 31006X01 31006X00 IMAGES: PROJECTNAME: ----

LEGEND:

- PCBs >50 PPM
- PCBs >25 AND <50 PPM INSIDE CAP LIMITS
- PCBs >1 AND <50 PPM OUTSIDE OF CAP LIMITS
- SVOCs/INORGANICS > 6 NYCRR PART 375 RESTRICTED USE SOIL CLEANUP OBJECTIVES FOR PROTECTION OF ECOLOGICAL RESOURCES OUTSIDE CAP LIMITS
- 3 EXCAVATION DEPTH (FEET BELOW EXISTING GROUND SURFACE)
- CAP LIMITS
- WETLAND DELINEATION
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- PROPERTY BOUNDARY
- OVERHEAD UTILITIES
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- EXISTING UTILITY POLE
- FORMER GROUNDWATER SUPPLY WELL
- S-110 SOIL SAMPLE LOCATION

NOTE:

BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.

0 80' 160'
GRAPHIC SCALE

WASTE-STREAM INC.
POTSDAM, NEW YORK
FEASIBILITY STUDY REPORT

ALTERNATIVE S5 - SOIL REMOVAL (PCBs >25 PPM) AND CAPPING

ARCADIS

FIGURE
5-3

LEGEND:

- PCBs >50 PPM
- PCBs >10 AND <50 PPM INSIDE CAP LIMITS
- PCBs >1 AND <50 PPM OUTSIDE OF CAP LIMITS
- SVOCs/INORGANICS > 6 NYCRR PART 375 RESTRICTED USE SOIL CLEANUP OBJECTIVES FOR PROTECTION OF ECOLOGICAL RESOURCES OUTSIDE CAP LIMITS
- 3 EXCAVATION DEPTH (FEET BELOW EXISTING GROUND SURFACE)
- CAP LIMITS
- WETLAND DELINEATION
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- PROPERTY BOUNDARY
- OVERHEAD UTILITIES
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- EXISTING UTILITY POLE
- FORMER GROUNDWATER SUPPLY WELL
- S-110 SOIL SAMPLE LOCATION

NOTE:

BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.

0 80' 160'

GRAPHIC SCALE

WASTE-STREAM INC.
POTSDAM, NEW YORK
FEASIBILITY STUDY REPORT

ALTERNATIVE S6 - SOIL REMOVAL (PCBs >10 PPM) AND CAPPING

ARCADIS

FIGURE
5-4

CITY: SYRACUSE GROUP: ENV-141 DB: DMW PGL PM: J.BRIEN TR: A. FALZARANO LYR:ON=*;OFF=REF (FRZ) ACADVER: 17.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/5/2009 10:32 AM BY: LISTER, PAUL
G:\ENVCAD\SYRACUSE\ACT\B0031006\0001\00001\DWG\31006G04.DWG LAYOUT: 5-4 SAVED: 5/5/2009 10:31 AM
XREFS: 31006X01 31006X00 IMAGES: PROJECTNAME: ----

LEGEND:

- PCBs >50 PPM
- PCBs >0.1 AND <50 PPM
- SVOCs/INORGANICS > 6 NYCRR PART 375 UNRESTRICTED USE SOIL CLEANUP OBJECTIVES WHERE PCBs WERE NOT DETECTED AT CONCENTRATIONS >0.1 PPM
- 3 EXCAVATION DEPTH (FEET BELOW EXISTING GROUND SURFACE)
- WETLAND DELINEATION
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- PROPERTY BOUNDARY
- OHU OVERHEAD UTILITIES
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- EXISTING UTILITY POLE
- GWS FORMER GROUNDWATER SUPPLY WELL
- S-110 SOIL SAMPLE LOCATION

NOTE:

BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.

0 80' 160'
GRAPHIC SCALE

WASTE-STREAM INC.
POTSDAM, NEW YORK
FEASIBILITY STUDY REPORT

ALTERNATIVE S7 - SOIL REMOVAL (PCBs >0.1 PPM)

ARCADIS

FIGURE
5-5

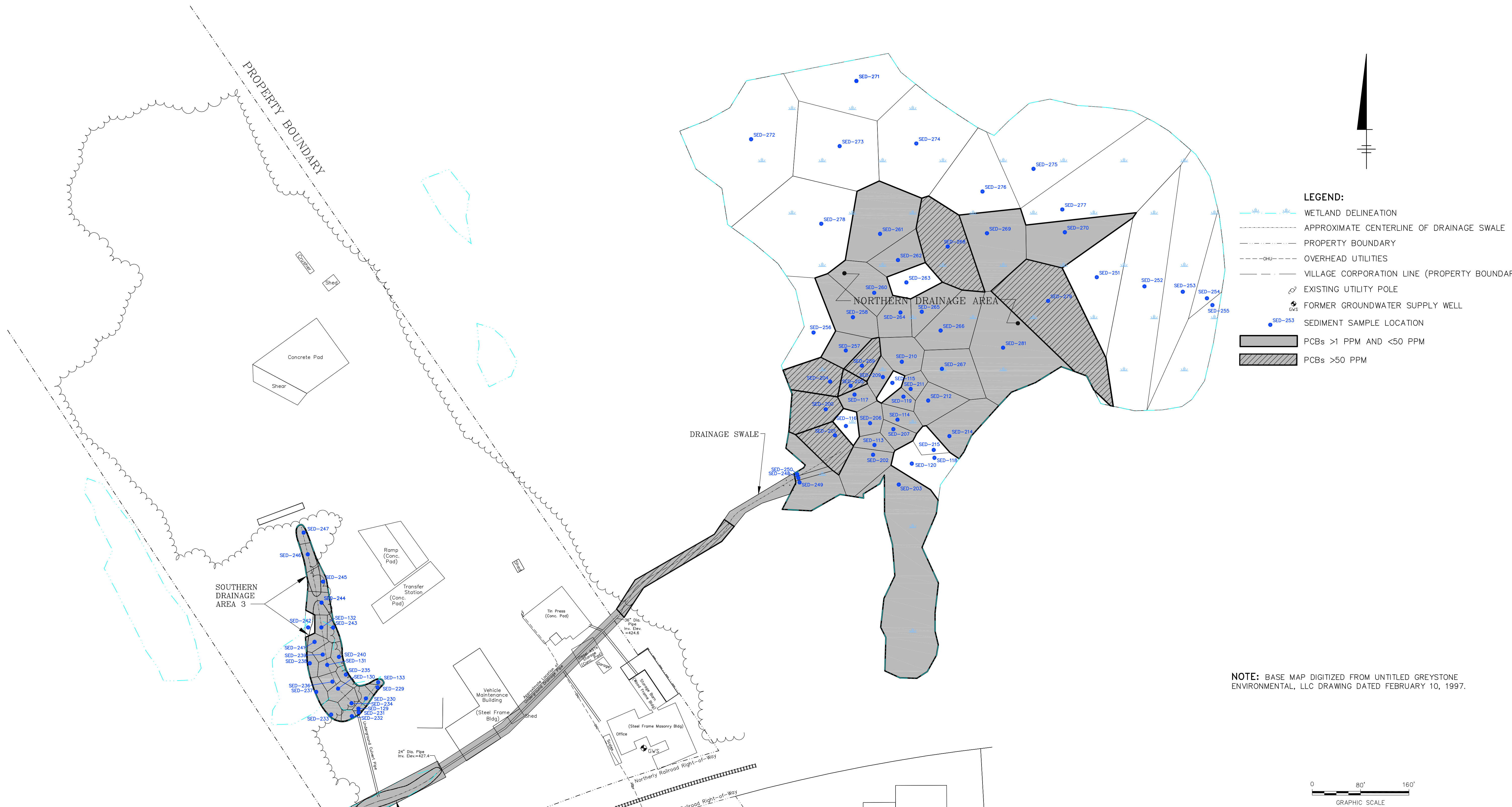
NOTE: BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.

WASTE-STREAM INC.
POTSDAM, NEW YORK
FEASIBILITY STUDY REPORT

ALTERNATIVES SD3 - SEDIMENT REMOVAL (AVERAGE-BASED)

ARCADIS

FIGURE
5-6

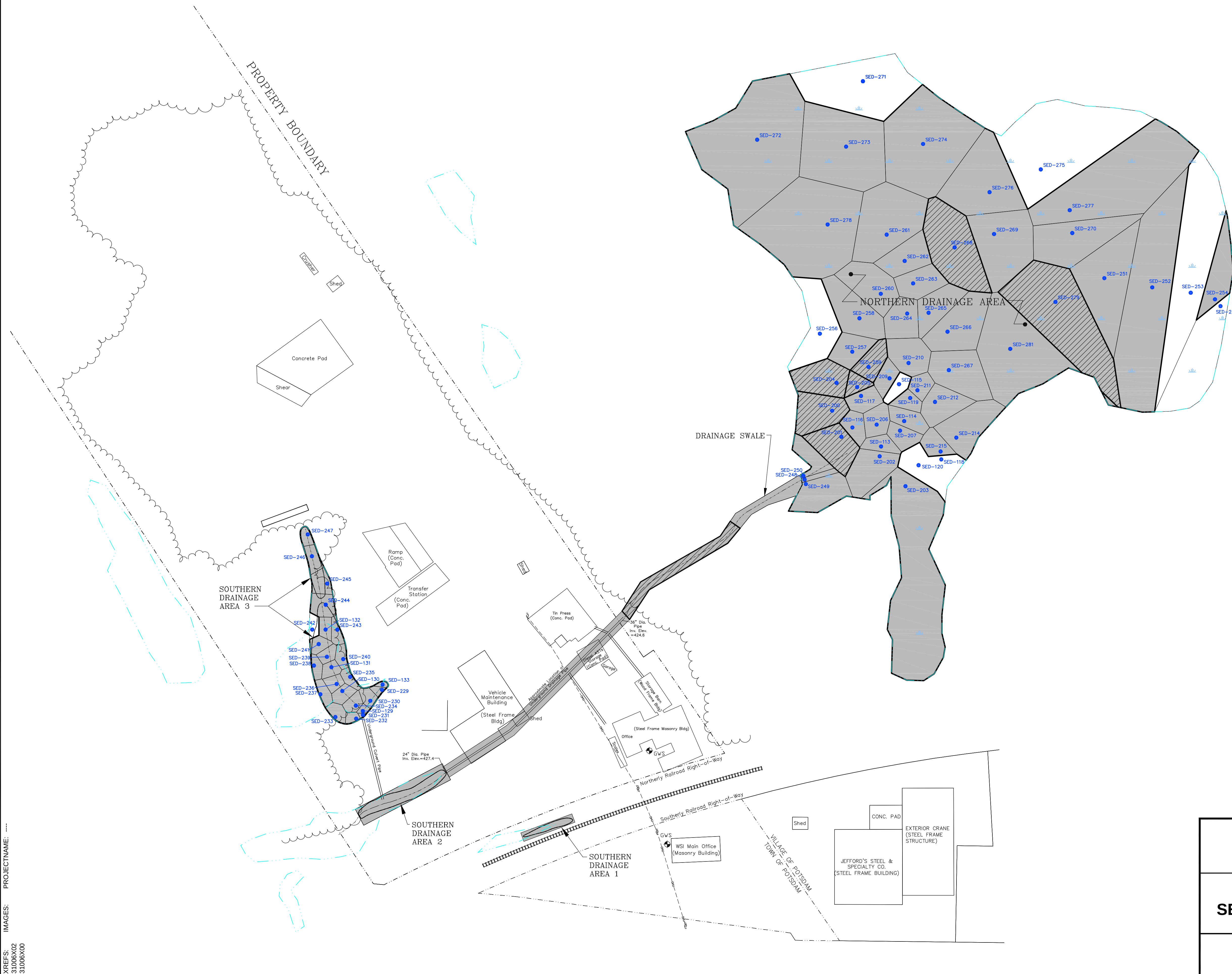


WASTE-STREAM INC.
POTSDAM, NEW YORK
FEASIBILITY STUDY REPORT

ALTERNATIVES SD4 - SEDIMENT REMOVAL (PCBs >1 PPM)

ARCADIS

FIGURE
5-7



LEGEND:

- WETLAND DELINEATION
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- PROPERTY BOUNDARY
- OHU OVERHEAD UTILITIES
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- EXISTING UTILITY POLE
- GWS FORMER GROUNDWATER SUPPLY WELL
- SED-253 SEDIMENT SAMPLE LOCATION
- PCBs >0.1 PPM AND <50 PPM
- PCBs >50 PPM

NOTES:

1. BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.

WASTE-STREAM INC.
POTSDAM, NEW YORK
FEASIBILITY STUDY REPORT

ALTERNATIVE SD5 - SEDIMENT REMOVAL (PCBs >0.1 PPM)

ARCADIS

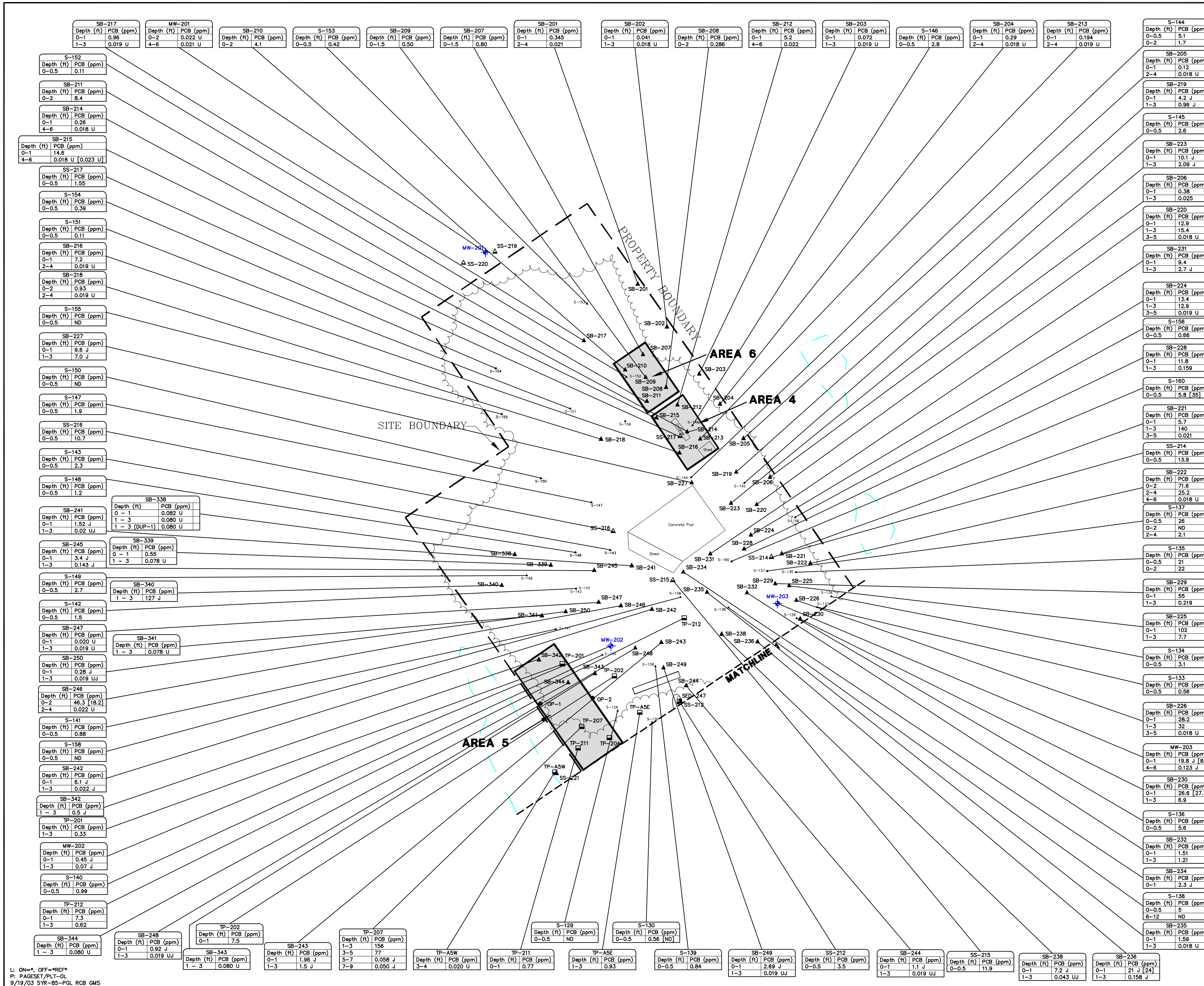
FIGURE **5-8**

Appendices

ARCADIS

Appendix A

Select Focused Remedial Investigation Report Figures



L: ON=*, OFF=*REF*
P: PAGESET/PLT-DL
9/19/03 SYR-85-PGL RCB GMS
31005018/31005B07.DWG

LEGEND:

- INVESTIGATION AREA
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- —OHU— OVERHEAD UTILITIES
- PROPERTY BOUNDARY
- WETLAND DELINEATION
- MATCH LINE
- SITE BOUNDARY
- BLOCK HEATER POST

INTEGREYTED SAMPLING LOCATIONS

- S-101 SOIL SAMPLING LOCATION
- SED-125 SEDIMENT SAMPLE

BBL SAMPLING LOCATIONS

- MW-201 MONITORING WELL
- SB-217 SOIL BORING
- TP-212 TEST PIT
- SS-214 SURFACE SOIL SAMPLE
- SED-201 SEDIMENT SAMPLE
- OP-1 OBSERVATION PIT

NOTES:

1. BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.
2. INTEGREYTED SEDIMENT AND SOIL SAMPLING LOCATIONS WERE SURVEYED USING CONVENTIONAL METHODS BY CAMBRIDGE SURVEYING OF POTSDAM, NEW YORK.
3. BLASLAND, BOUCK & LEE, INC. (BBL) SEDIMENT AND SOIL SAMPLING LOCATIONS WERE SURVEYED USING GLOBAL POSITIONING SYSTEM (GPS) SURVEYING METHODS.
4. ANALYTICAL RESULTS FOR FOCUSED REMEDIAL INVESTIGATION SOIL SAMPLES HAVE BEEN VALIDATED BY BBL. ANALYTICAL RESULTS FOR PREVIOUS INVESTIGATIONS HAVE NOT BEEN VALIDATED.
5. THE RESULTS IN [ ] INDICATE THE RESULTS OF A DUPLICATE SAMPLE.

0 80' 160'
GRAPHIC SCALE

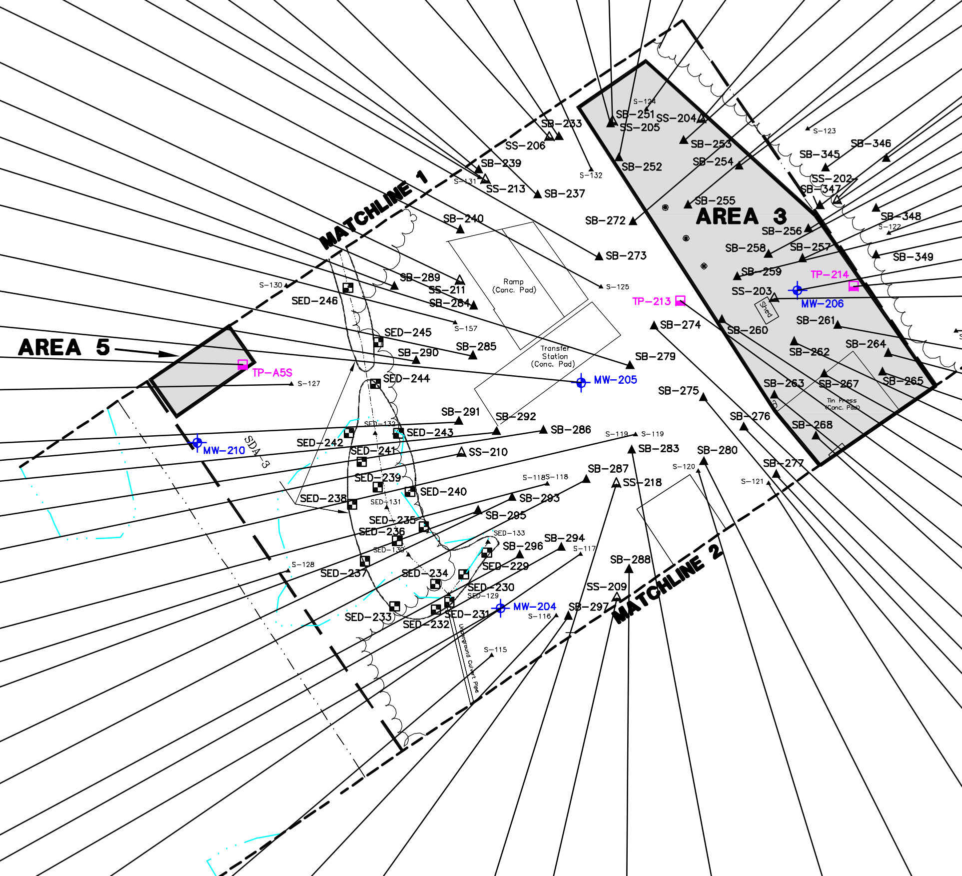
WASTE-STREAM INC.
POTSDAM, NEW YORK

FOCUSED REMEDIAL INVESTIGATION

SOIL SAMPLING RESULTS FOR TOTAL PCBS - SECTION 1

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE
4A



S-131

Depth (ft)	PCB (ppm)
0-0.5	2.6

SS-213

Depth (ft)	PCB (ppm)
0-0.5	18.4

SB-239

Depth (ft)	PCB (ppm)
0-1	99
1-3	0.645

SB-237

Depth (ft)	PCB (ppm)
0-1	3.0
1-3	0.018 U

SS-206

Depth (ft)	PCB (ppm)
0-0.5	22.8

SB-233

Depth (ft)	PCB (ppm)
0-1	7.8
1-3	1.84

S-132

Depth (ft)	PCB (ppm)
0-0.5	3.3

SB-251

Depth (ft)	PCB (ppm)
0-1	23
1-3	4.88

SS-205

Depth (ft)	PCB (ppm)
0-0.5	16.3

SB-252

Depth (ft)	PCB (ppm)
0-1	15.6
1-3	1.35

MW-211

Depth (ft)	PCB (ppm)
20-26	0.074 U
20-26(DUP-3)	0.074 U

S-124

Depth (ft)	PCB (ppm)
0-0.5	4.4

SS-204

Depth (ft)	PCB (ppm)
0-0.5	14.2

SB-253

Depth (ft)	PCB (ppm)
0-1	8.8
1-3	4400
3-5	0.018 U

SB-273

Depth (ft)	PCB (ppm)
0-1	34.9
1-3	0.211

S-125

Depth (ft)	PCB (ppm)
0-0.5	0.12
0-2	0.83

SB-240

Depth (ft)	PCB (ppm)
0-1	0.137 J
1-3	7.4 J

SS-211

Depth (ft)	PCB (ppm)
0-0.5	11.6

SB-284

Depth (ft)	PCB (ppm)
0-1	0.019 U
1-3	0.67 J

SB-289

Depth (ft)	PCB (ppm)
0-1	0.63
1-3	0.019 U

SB-279

Depth (ft)	PCB (ppm)
0-1	18.5
1-3	1.65

S-157

Depth (ft)	PCB (ppm)
0-0.5	2.4
0-2	5.3

SB-285

Depth (ft)	PCB (ppm)
0-1	13.7
1-3	10
3-5	0.019 U

SB-290

Depth (ft)	PCB (ppm)
0-1	0.058
1-3	0.02 U

MW-205

Depth (ft)	PCB (ppm)
0-1	12.6
2-4	4.05 J
6-8	0.28 J

TP-A5S

Depth (ft)	PCB (ppm)
3-4	0.021 U

S-127

Depth (ft)	PCB (ppm)
0-0.5	ND
0-2	ND

SB-291

Depth (ft)	PCB (ppm)
0-1	1.73
1-3	3.2

MW-210

Depth (ft)	PCB (ppm)
0 - 2	0.079 U

SB-292

Depth (ft)	PCB (ppm)
0-1	4.7
1-3	1.04

SB-286

Depth (ft)	PCB (ppm)
0-1	14.1
1-3	0.89

SS-210

Depth (ft)	PCB (ppm)
0-0.5	12.9

S-119

Depth (ft)	PCB (ppm)
0-0.5	2.8

S-118

Depth (ft)	PCB (ppm)
0-0.5	4.5
0-2	8.8
2-4	1.5

S-128

Depth (ft)	PCB (ppm)
0-0.5	ND

SB-295

Depth (ft)	PCB (ppm)
0-1	1.31
1-3	5.23

SB-293

Depth (ft)	PCB (ppm)
0-1	8.0 [16.4]
1-2	12
2-4	12.9
4-6	0.019 U
6-8	0.020 U
8-9	0.020 U

SB-287

Depth (ft)	PCB (ppm)
0-1	5.9
1-3	3.59

SB-296

Depth (ft)	PCB (ppm)
0-1	3.07
1-3	0.019 U

SB-294

Depth (ft)	PCB (ppm)
0-1	0.31
1-3	1.07

MW-204

Depth (ft)	PCB (ppm)
0-1	59 [72]
1-2	0.98
8-10	2.72

S-117

Depth (ft)	PCB (ppm)
0-0.5	0.14
6-12	1.4
0-2	ND
2-4	ND

S-115

Depth (ft)	PCB (ppm)
0-0.5	0.28

S-116

Depth (ft)	PCB (ppm)
0-0.5	1.5

SB-297

Depth (ft)	PCB (ppm)
0-1	1.22
1-3	0.019 U

SS-218

Depth (ft)	PCB (ppm)
0-0.5	16.2 [19.1]

SS-209

Depth (ft)	PCB (ppm)
0-0.5	4.3

SB-288

Depth (ft)	PCB (ppm)
0-1	0.183
1-3	0.019 U

SB-283

Depth (ft)	PCB (ppm)
0-1	6.7
2-4	21.5
4-6	0.020 U

S-120

Depth (ft)	PCB (ppm)
6-12	ND
0-2	5.8
2-4	ND

SB-280

Depth (ft)	PCB (ppm)
0-1	13.9
1-3	14.5
3-5	0.019 U

S-121

Depth (ft)	PCB (ppm)
0-0.5	6.7
0-2	ND
2-4	ND

SB-275

Depth (ft)	PCB (ppm)
0-1	23.4
1-3	3.7

SB-277

Depth (ft)	PCB (ppm)
0-1	7.2
1-3	0.148

SB-272

Depth (ft)	PCB (ppm)
0-1	13.4
1-3	0.27

SB-255

Depth (ft)	PCB (ppm)
0-1	8.6
1-3	19.3 [15.8]
3-5	0.019 U

SB-254

Depth (ft)	PCB (ppm)
0-1	1.4
1-3	0.066

S-123

Depth (ft)	PCB (ppm)
0-0.5	5.2

SB-345

Depth (ft)	PCB (ppm)
0 - 1	0.082 U
1 - 3	0.076 U

SB-346

Depth (ft)	PCB (ppm)
0 - 1	1.62 J
1 - 3	0.077 U

SB-347

Depth (ft)	PCB (ppm)
0 - 1	29.5 J
1 - 3	0.077 U

SS-202

Depth (ft)	PCB (ppm)
0-0.5	24.8

SB-256

Depth (ft)	PCB (ppm)
0-1	27.9
1-3	27.9
3-5	0.018 U

SB-258

Depth (ft)	PCB (ppm)
0-1	406
1-3	0.033

SB-348

Depth (ft)	PCB (ppm)
0 - 1	0.44
1 - 3	0.085 U

SB-257

Depth (ft)	PCB (ppm)
0-1	97
1-3	0.299

S-122

Depth (ft)	PCB (ppm)
0-0.5	0.22

SB-259

Depth (ft)	PCB (ppm)
0-1	21.9
1-3	53
3-5	1.82 J

SB-349

Depth (ft)	PCB (ppm)
0 - 1	1.0
1 - 3	0.080 U

MW-206

Depth (ft)	PCB (ppm)
0-1	39.8
4-6	61.4
6-8	0.058 J

TP-214

Depth (ft)	PCB (ppm)
0-1	7.3
1-3	0.34

SS-203

Depth (ft)	PCB (ppm)
0-0.5	12

S-110

Depth (ft)	PCB (ppm)
0-0.5	0.15

SB-261

Depth (ft)	PCB (ppm)
0-1	4.1
1-3	31.3
3-5	9.5 J
5-7	0.018 U
7-9	0.018 U

SB-264

Depth (ft)	PCB (ppm)
0-1	1.2
5-7	0.277

SB-265

Depth (ft)	PCB (ppm)
0-1	3.7
2-4	0.64

SB-262

Depth (ft)	PCB (ppm)
0-1	303
1-3	56.5
3-5	0.031 J

SB-267

Depth (ft)	PCB (ppm)
0-1	19.9
1-3	0.173

SB-260

Depth (ft)	PCB (ppm)
0-1	117
1-3	22.4
3-5	0.019 U [0.019 U]

TP-213

Depth (ft)	PCB (ppm)
0-1	0.46
1-3	0.027

SB-263

Depth (ft)	PCB (ppm)
0-1	4.5
1-3	15
3-5	0.021 U

SB-268

Depth (ft)	PCB (ppm)
0-2	4.8
2-4	0.032

SB-274

Depth (ft)	PCB (ppm)
0-1	13.5
1-3	1.54

SB-276

Depth (ft)	PCB (ppm)
0-1	17.2
1-3	0.34

LEGEND:

- INVESTIGATION AREA
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- OHU — OVERHEAD UTILITIES
- PROPERTY BOUNDARY
- WETLAND DELINEATION
- MATCH LINE
- SITE BOUNDARY
- BLOCK HEATER POST

INTEGREYTED SAMPLING LOCATIONS

- S-101 ▲ SOIL SAMPLING LOCATION
- SED-125 ▲ SEDIMENT SAMPLE

BBL SAMPLING LOCATIONS

- MW-201 MONITORING WELL
- SB-217 ▲ SOIL BORING
- TP-212 TEST PIT
- SS-214 ▲ SURFACE SOIL SAMPLE
- SED-201 SEDIMENT SAMPLE
- OP-1 ● OBSERVATION PIT

0 80' 160'

GRAPHIC SCALE

NOTES:

1. BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.
2. INTEGREYTED SEDIMENT AND SOIL SAMPLING LOCATIONS WERE SURVEYED USING CONVENTIONAL METHODS BY CAMBRIDGE SURVEYING OF POTSDAM, NEW YORK.
3. BLASLAND, BOUCK & LEE, INC. (BBL) SEDIMENT AND SOIL SAMPLING LOCATIONS WERE SURVEYED USING GLOBAL POSITIONING SYSTEM (GPS) SURVEYING METHODS.
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5. THE RESULTS IN [ ] INDICATE THE RESULTS OF A DUPLICATE SAMPLE.

L: ON=*, OFF=REF*
P: PAGESET/PLT-DL
10/30/03 SYR-85-RCB GMS RCB
31005018/31005B08.DWG

WASTE-STREAM INC.
POTSDAM, NEW YORK

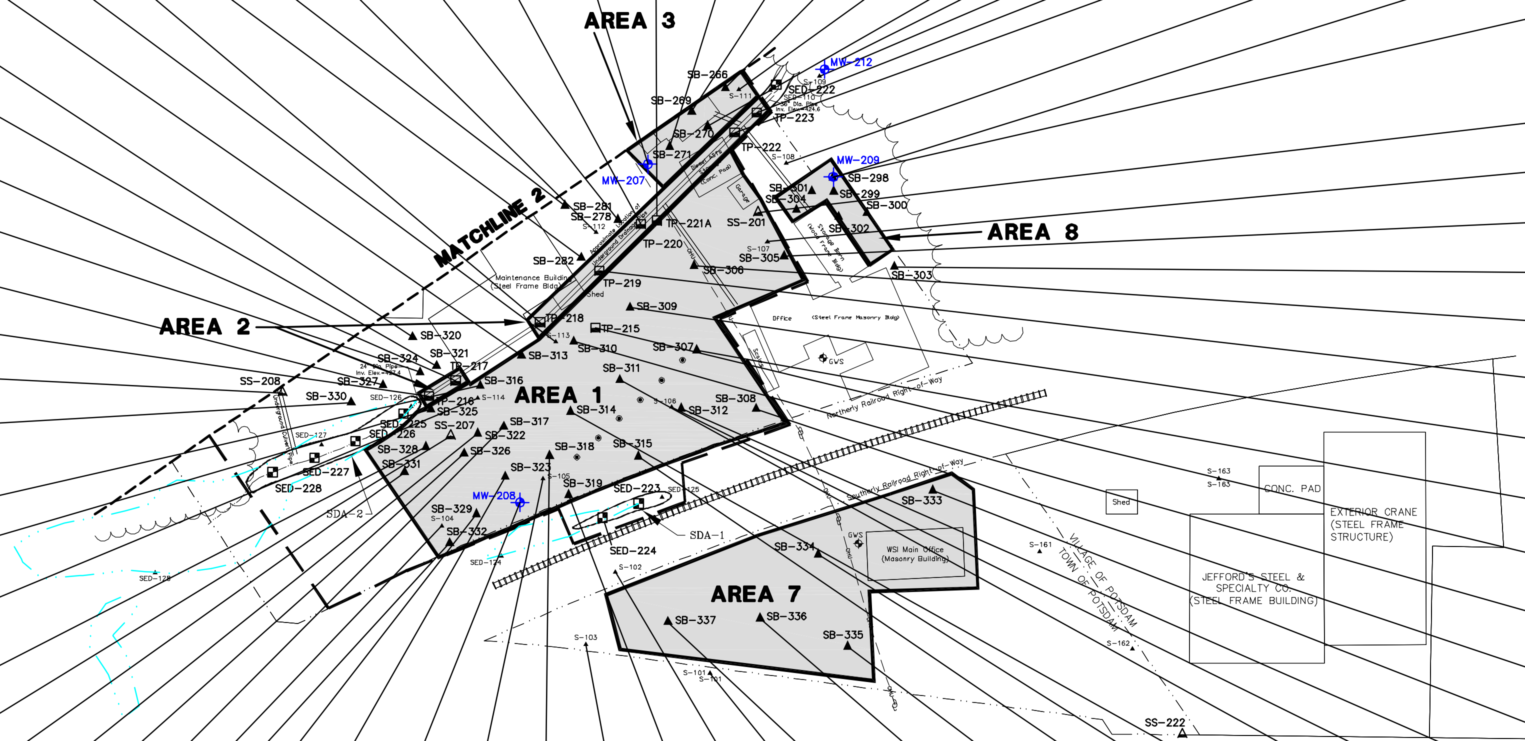
FOCUSED REMEDIAL INVESTIGATION

SOIL SAMPLING RESULTS FOR TOTAL PCBS - SECTION 2

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE

4B



SB-282

Depth (ft)	PCB (ppm)
0-1	23.5
1-3	1.6 [2.1]

SB-281

Depth (ft)	PCB (ppm)
0-1	97
1-3	0.023

S-112

Depth (ft)	PCB (ppm)
0-0.5	4.2
6-12	0.83
0-2	3.3

SB-278

Depth (ft)	PCB (ppm)
0-1	7.3
1-3	15.7
3-5	0.35 J

TP-220

Depth (ft)	PCB (ppm)
0-1	14.1
4-5	0.071

MW-207

Depth (ft)	PCB (ppm)
0-1	1.22 [1.8]
4-6	0.043

TP-221A

Depth (ft)	PCB (ppm)
0-1	4.2 [5.6]
3-4.5	0.188

SB-271

Depth (ft)	PCB (ppm)
0-1	3.0
2-4	0.019 U

SB-269

Depth (ft)	PCB (ppm)
0-2	8.2
2-4	2.93

SB-266

Depth (ft)	PCB (ppm)
0-1	163
2-4	0.42

S-111

Depth (ft)	PCB (ppm)
0-0.5	1.7
0-2	6.8 [7.5]

SB-270

Depth (ft)	PCB (ppm)
0-1	5.32
1-3	14.1 [15.4]
3-5	2.6 J

MW-212

Depth (ft)	PCB (ppm)
2 - 4	0.076 U

S-109

Depth (ft)	PCB (ppm)
0-0.5	0.14

TP-223

Depth (ft)	PCB (ppm)
0-1	5.4
4-4.5	61.3
4.5-6.5	0.58 J [0.34]

TP-218

Depth (ft)	PCB (ppm)
0-1	6.5
4-5	0.173

S-113

Depth (ft)	PCB (ppm)
0-0.5	3.2
0-2	ND
2-4	ND

SB-313

Depth (ft)	PCB (ppm)
0-1	0.017 U
4-6	0.226

SB-320

Depth (ft)	PCB (ppm)
0-1	0.019 U
4-6	16.6
6-8	0.019 U

SB-321

Depth (ft)	PCB (ppm)
0-1	45
3-4	0.019 U

TP-217

Depth (ft)	PCB (ppm)
0-1	4.1
3-4	12.5
4-6	0.28

SB-324

Depth (ft)	PCB (ppm)
0-1	0.069
4-6	1.74 J

SB-327

Depth (ft)	PCB (ppm)
0-1	1.26 UJ
4-6	0.019 U

TP-216

Depth (ft)	PCB (ppm)
0-1	6.8
3-3.5	6.96

SS-208

Depth (ft)	PCB (ppm)
0-0.5	1.72

SB-330

Depth (ft)	PCB (ppm)
0-1	6.0
4-6	0.019 U

SB-316

Depth (ft)	PCB (ppm)
0-1	0.034
2-4	16.5
4-6	0.021 U

SB-325

Depth (ft)	PCB (ppm)
0-1	5.6
3-4	0.039

S-114

Depth (ft)	PCB (ppm)
0-0.5	0.66
6-12	57
0-2	954 J
2-4	59

SB-328

Depth (ft)	PCB (ppm)
0-1	5.4
1-3	0.019 U

SS-207

Depth (ft)	PCB (ppm)
0-0.5	28 [24]

SB-331

Depth (ft)	PCB (ppm)
0-1	0.83
4-6	0.019 U

SB-322

Depth (ft)	PCB (ppm)
0-1	6.4
4-6	0.019 U

SB-326

Depth (ft)	PCB (ppm)
0-1	0.83
2-4	0.019 U

SB-317

Depth (ft)	PCB (ppm)
0-1	0.017 U
1-3	75
3-5	0.019 U

S-104

Depth (ft)	PCB (ppm)
0-0.5	0.91

SB-332

Depth (ft)	PCB (ppm)
0-1	3.82
1-3	0.027 [0.021 U]

SB-329

Depth (ft)	PCB (ppm)
0-1	1.39
2-4	0.019 U

SB-323

Depth (ft)	PCB (ppm)
0-1	96
2-4	0.019 U

MW-208

Depth (ft)	PCB (ppm)
0-1	1.0
8-10	0.19

S-105

Depth (ft)	PCB (ppm)
0-0.5	20
0-2	1.4
2-4	0.98

SB-318

Depth (ft)	PCB (ppm)
0-1	0.222
2-4	8.1

S-103

Depth (ft)	PCB (ppm)
0-0.5	ND

SB-319

Depth (ft)	PCB (ppm)
0-1	0.281
4-6	0.02 U

S-102

Depth (ft)	PCB (ppm)
0-0.5	ND

S-101

Depth (ft)	PCB (ppm)
0-0.5	ND

SB-337

Depth (ft)	PCB (ppm)
0-1	0.058
1-3	0.019 U

SB-336

Depth (ft)	PCB (ppm)
0-1	0.165
1-3	0.02 U

SB-335

Depth (ft)	PCB (ppm)
0-1	0.204
1-3	0.59

SB-315

Depth (ft)	PCB (ppm)
0-1	123
4-6	0.02 U

TP-222

Depth (ft)	PCB (ppm)
1-3	1.11
3-4.5	1.48

S-108

Depth (ft)	PCB (ppm)
0-0.5	0.59

SB-298

Depth (ft)	PCB (ppm)
0-1	0.71
4-6	0.027 [0.019 U]
6-8	0.019 U

MW-209

Depth(ft)	PCB (ppm)
0-1	9.4
4-6	0.019 U

SS-201

Depth (ft)	PCB (ppm)
0-0.5	3.0

S-107

Depth (ft)	PCB (ppm)
0-0.5	2.6

SB-305

Depth (ft)	PCB (ppm)
0-1	3.5
1-3	0.067

SB-303

Depth (ft)	PCB (ppm)
0-1	0.294

SB-306

Depth (ft)	PCB (ppm)
0-1	1.51
1-3	0.017 U

TP-219

Depth (ft)	PCB (ppm)
0-1	6.7
4-5	0.75

SB-309

Depth (ft)	PCB (ppm)
0-1	28.4
2-4	0.020 U

SB-307

Depth (ft)	PCB (ppm)
0-1	1.59
1-3	0.079

TP-215

Depth (ft)	PCB (ppm)
1.5-3	0.334
3-4	0.022

SB-310

Depth (ft)	PCB (ppm)
0-1	11.1
2-4	0.019 U

SB-308

Depth (ft)	PCB (ppm)
0-1	2.58
1-3	0.018 U

SB-333

Depth (ft)	PCB (ppm)
0-1	0.092
2-4	0.019 U

SB-312

Depth (ft)	PCB (ppm)
0-1	8.1
1-3	1.13

S-106

Depth (ft)	PCB (ppm)
0-0.5	5.7

SB-311

Depth (ft)	PCB (ppm)
0-1	150
2-4	0.23

SB-314

Depth (ft)	PCB (ppm)
0-1	18.9
4-6	0.019 U

SB-334

Depth (ft)	PCB (ppm)
0-1	0.48
1-3	0.08

LEGEND:

- INVESTIGATION AREA
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- OHU — OVERHEAD UTILITIES
- PROPERTY BOUNDARY
- WETLAND DELINEATION
- MATCH LINE
- SITE BOUNDARY
- BLOCK HEATER POST

INTEGREYTED SAMPLING LOCATIONS

- S-101 SOIL SAMPLING LOCATION
- SED-125 SEDIMENT SAMPLE

BBL SAMPLING LOCATIONS

- MW-201 MONITORING WELL
- SB-217 SOIL BORING
- TP-212 TEST PIT
- SS-214 SURFACE SOIL SAMPLE
- SED-201 SEDIMENT SAMPLE
- OP-1 OBSERVATION PIT

NOTES:

1. BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.
2. INTEGREYTED SEDIMENT AND SOIL SAMPLING LOCATIONS WERE SURVEYED USING CONVENTIONAL METHODS BY CAMBRIDGE SURVEYING OF POTSDAM, NEW YORK.
3. BLASLAND, BOUCK & LEE, INC. (BBL) SEDIMENT AND SOIL SAMPLING LOCATIONS WERE SURVEYED USING GLOBAL POSITIONING SYSTEM (GPS) SURVEYING METHODS.
4. ANALYTICAL RESULTS FOR FOCUSED REMEDIAL INVESTIGATION SOIL SAMPLES HAVE BEEN VALIDATED BY BBL. ANALYTICAL RESULTS FOR PREVIOUS INVESTIGATIONS HAVE NOT BEEN VALIDATED.
5. THE RESULTS IN [ ] INDICATE THE RESULTS OF A DUPLICATE SAMPLE.

0 80' 160'
GRAPHIC SCALE

WASTE-STREAM INC.
POTSDAM, NEW YORK

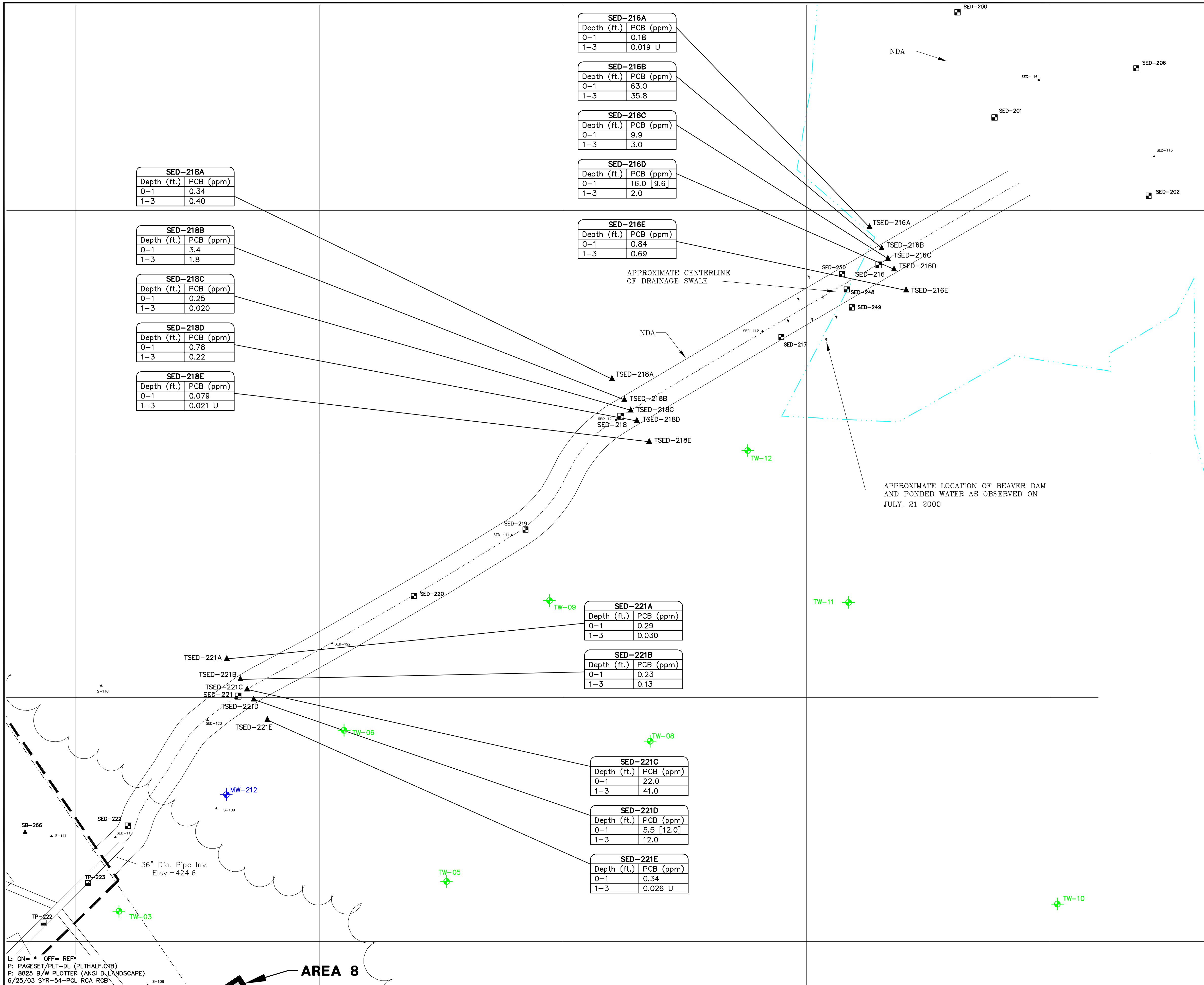
FOCUSED REMEDIAL INVESTIGATION

SOIL SAMPLING RESULTS FOR TOTAL PCBS - SECTION 3

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE 4C

L: ON=*, OFF=*REF*
P: PAGESET/PLT-DL
9/19/03 SYR-85-PGL RCB GMS
31005018/31005B09.DWG



SED-216A	
Depth (ft.)	PCB (ppm)
0-1	0.18
1-3	0.019 U

SED-216B	
Depth (ft.)	PCB (ppm)
0-1	63.0
1-3	35.8

SED-216C	
Depth (ft.)	PCB (ppm)
0-1	9.9
1-3	3.0

SED-216D	
Depth (ft.)	PCB (ppm)
0-1	16.0 [9.6]
1-3	2.0

SED-216E	
Depth (ft.)	PCB (ppm)
0-1	0.84
1-3	0.69

SED-218A	
Depth (ft.)	PCB (ppm)
0-1	0.34
1-3	0.40

SED-218B	
Depth (ft.)	PCB (ppm)
0-1	3.4
1-3	1.8

SED-218C	
Depth (ft.)	PCB (ppm)
0-1	0.25
1-3	0.020

SED-218D	
Depth (ft.)	PCB (ppm)
0-1	0.78
1-3	0.22

SED-218E	
Depth (ft.)	PCB (ppm)
0-1	0.079
1-3	0.021 U

SED-221A	
Depth (ft.)	PCB (ppm)
0-1	0.29
1-3	0.030

SED-221B	
Depth (ft.)	PCB (ppm)
0-1	0.23
1-3	0.13

SED-221C	
Depth (ft.)	PCB (ppm)
0-1	22.0
1-3	41.0

SED-221D	
Depth (ft.)	PCB (ppm)
0-1	5.5 [12.0]
1-3	12.0

SED-221E	
Depth (ft.)	PCB (ppm)
0-1	0.34
1-3	0.026 U

LEGEND:

- INVESTIGATION AREA
- VILLAGE CORPORATION LINE (PROPERTY BOUNDARY)
- APPROXIMATE CENTERLINE OF DRAINAGE SWALE
- PROPERTY BOUNDARY
- WETLAND DELINEATION
- MATCH LINE
- SITE BOUNDARY

MW-201

INTEGREYTED SAMPLING LOCATIONS

- S-101 SOIL SAMPLING LOCATION
- SED-125 SEDIMENT SAMPLE

BBL SAMPLING LOCATIONS

- SB-217 SOIL BORING
- TP-212 TEST PIT
- SS-214 SURFACE SOIL SAMPLE
- SED-201 SEDIMENT SAMPLE
- TW-10 TEMPORARY MONITORING WELL

NOTES:

1. BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.
2. INTEGREYTED SEDIMENT AND SOIL SAMPLING LOCATIONS WERE SURVEYED USING CONVENTIONAL METHODS BY CAMBRIDGE SURVEYING OF POTSDAM, NEW YORK.
3. BLASLAND, BOUCK & LEE, INC. (BBL) SEDIMENT AND SOIL LOCATIONS WERE SURVEYED USING GLOBAL POSITIONING SYSTEM (GPS) SURVEYING METHODS.
4. THE ANALYTICAL RESULTS PRESENTED HAVE BEEN VALIDATED BY BBL.
5. THE RESULTS IN [ ] INDICATE THE RESULTS OF A DUPLICATE SAMPLE.

0 20' 40'
GRAPHIC SCALE

L: ON= * OFF= REF*
P: PAGESET/PLT-DL (PLTHALF.CTB)
P: 8825 B/W PLOTTER (ANSI D LANDSCAPE)
6/25/03 SYR-54-PGL RCA RCB
31005018/31005B11.DWG

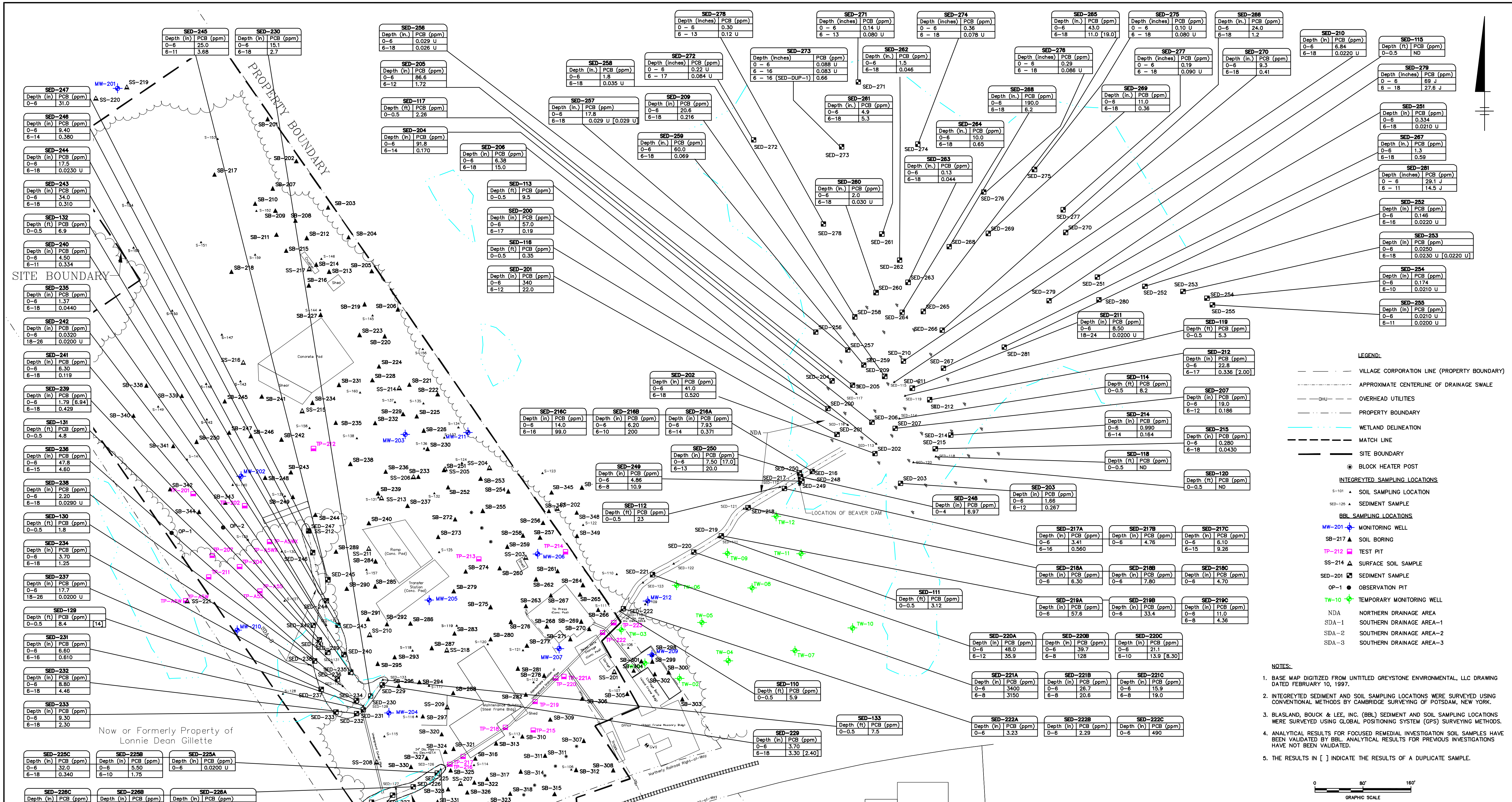
WASTE-STREAM INC.
POTSDAM, NEW YORK

FOCUSED REMEDIAL INVESTIGATION

SOIL SAMPLING RESULTS FOR TOTAL PCBs - DRAINAGE DITCH TRANSECTS

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE
4D



NOTES:

1. BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.
2. INTEGREYTED SEDIMENT AND SOIL SAMPLING LOCATIONS WERE SURVEYED USING CONVENTIONAL METHODS BY CAMBRIDGE SURVEYING OF POTSDAM, NEW YORK.
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4. ANALYTICAL RESULTS FOR FOCUSED REMEDIAL INVESTIGATION SOIL SAMPLES HAVE BEEN VALIDATED BY BBL. ANALYTICAL RESULTS FOR PREVIOUS INVESTIGATIONS HAVE NOT BEEN VALIDATED.
5. THE RESULTS IN [ ] INDICATE THE RESULTS OF A DUPLICATE SAMPLE.

L: ON=*, OFF=REF
P: PAGESET/PLT-DL
(PLTHALF.CTB)
P: 8825 B/W PLOTTER
(ANSI D LANDSCAPE)
7/17/03 SYR-54-PGL RCA RCB
31005018/31005B10.DWG

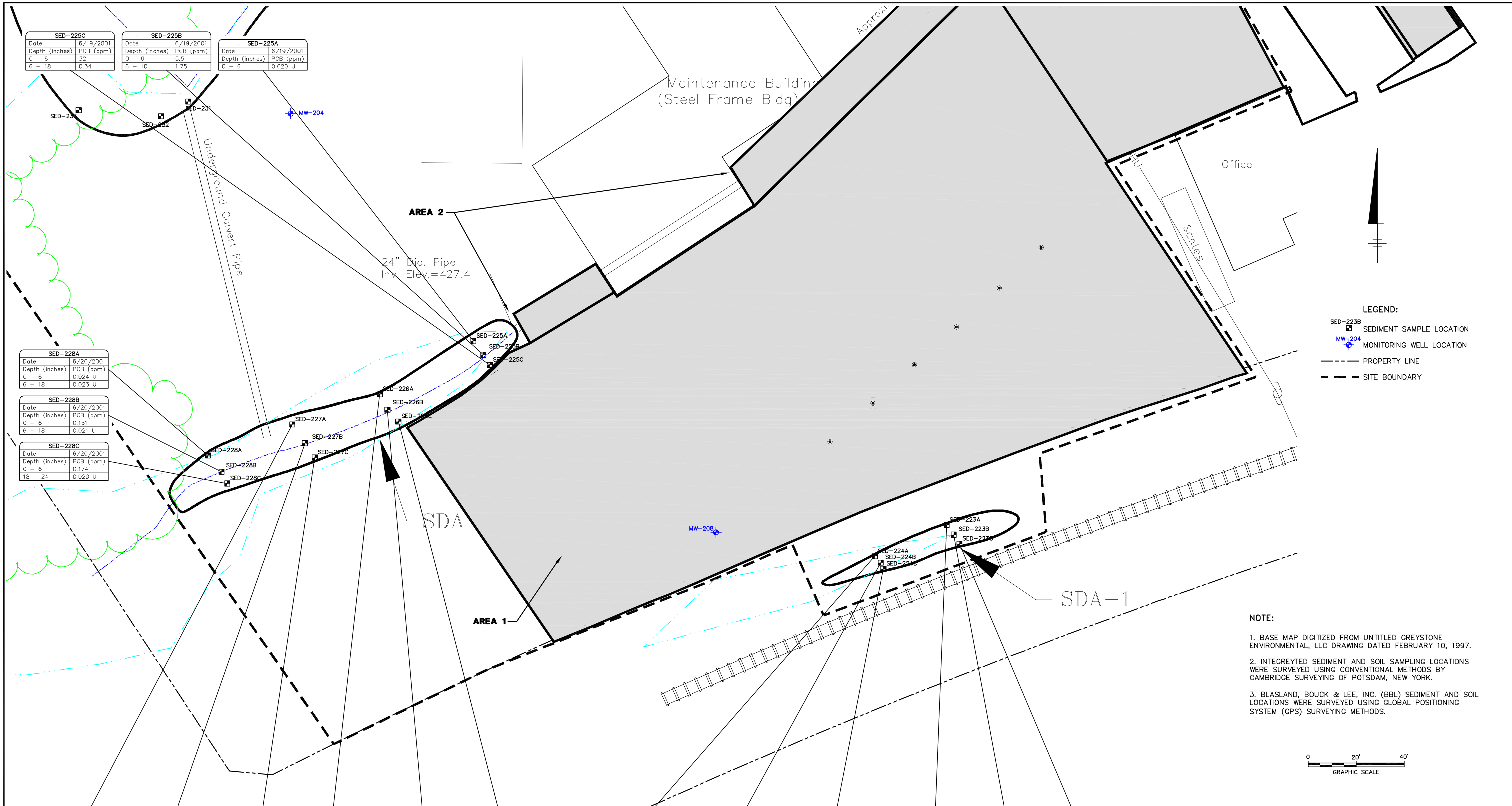
WASTE-STREAM INC.
POTSDAM, NEW YORK

FOCUSED REMEDIAL INVESTIGATION

SEDIMENT SAMPLING RESULTS FOR TOTAL PCBs

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE
6A



SED-225C	
Date	6/19/2001
Depth (inches)	PCB (ppm)
0 – 6	32
6 – 18	0.34

SED-225B	
Date	6/19/2001
Depth (inches)	PCB (ppm)
0 – 6	5.5
6 – 10	1.75

SED-225A	
Date	6/19/2001
Depth (inches)	PCB (ppm)
0 – 6	0.020 U

SED-228A	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	0.024 U
6 – 18	0.023 U

SED-228B	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	0.151
6 – 18	0.021 U

SED-228C	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	0.174
18 – 24	0.020 U

SED-227A	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	3.7
6 – 17	0.023 U

SED-227B	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	1.15
6 – 18	0.021 U

SED-227C	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	0.85
6 – 12	0.113

SED-226A	
Date	6/19/2001
Depth (inches)	PCB (ppm)
0 – 6	7.1
6 – 18	0.020 UJ
6 – 18 (DUP SED-226A)	0.020 UJ

SED-226B	
Date	6/19/2001
Depth (inches)	PCB (ppm)
0 – 6	2.5
6 – 18	0.288

SED-226C	
Date	6/19/2001
Depth (inches)	PCB (ppm)
0 – 6	1.02
6 – 18	0.019 UJ

SED-224A	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	1.6
6 – 12	0.151

SED-224B	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	1.39
0 – 6 (DUP SED-224B)	7.8
6 –14	9.4

SED-224C	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	5.5
6 – 15	0.53

SED-223A	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	37.4
6 – 12	40.4

SED-223B	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 6	25
6 – 12	5.1

SED-223C	
Date	6/20/2001
Depth (inches)	PCB (ppm)
0 – 4	4.5

NOTE:

1. BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.
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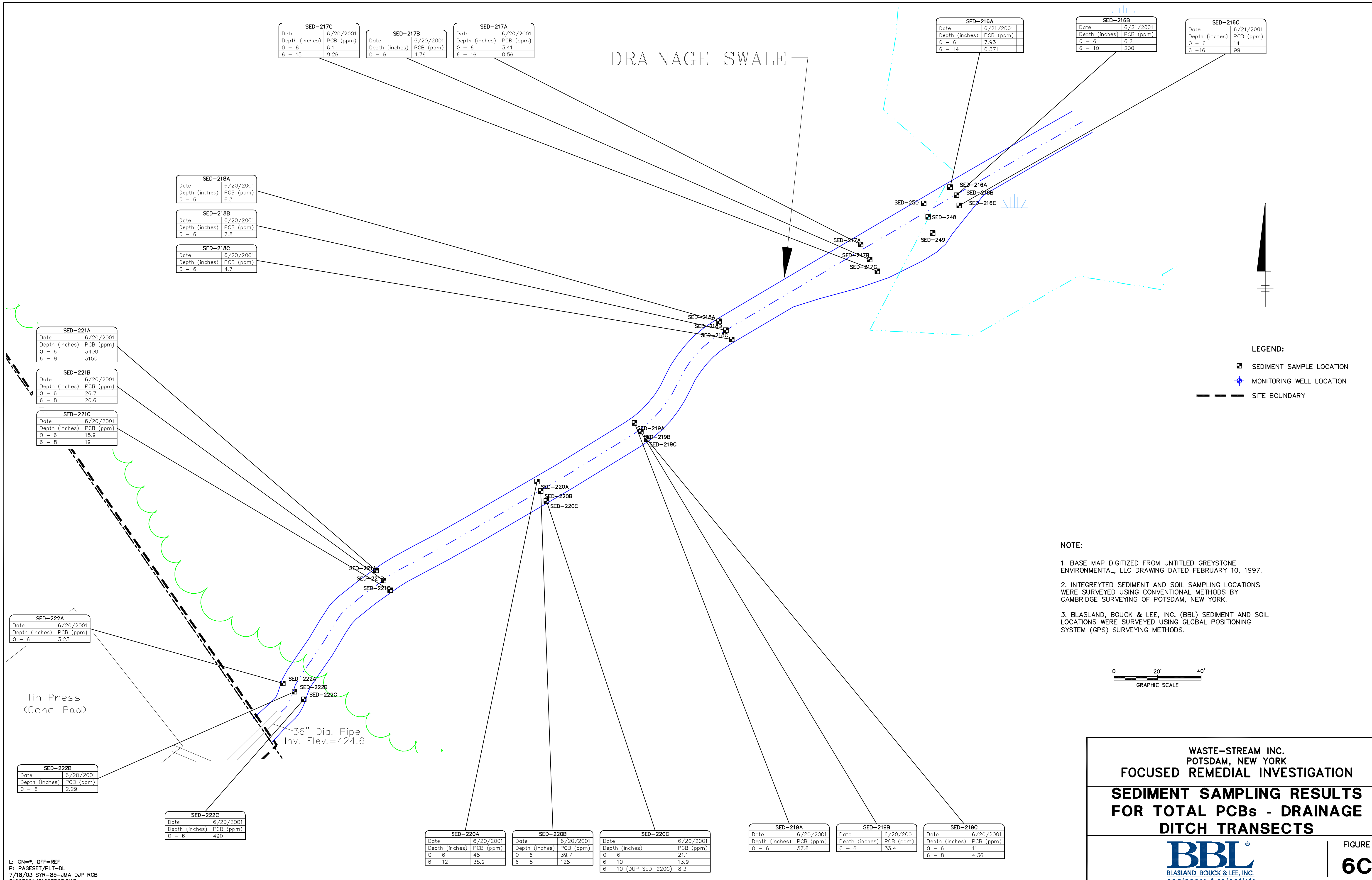
WASTE-STREAM INC.
POTSDAM, NEW YORK
FOCUSED REMEDIAL INVESTIGATION

SEDIMENT SAMPLING RESULTS FOR TOTAL PCBs - SDA-1 AND SDA-2

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE
6B

L: ON=*, OFF=REF
P: PAGESET/PLT-DL
7/18/03 SYR-85-JMA DJP RCB
31005001/31005B04.DWG



SED-217C

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	6.1
6 - 15	9.26

SED-217B

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	4.76

SED-217A

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	3.41
6 - 16	0.56

SED-216A

Date	6/21/2001
Depth (inches)	PCB (ppm)
0 - 6	7.93
6 - 14	0.371

SED-216B

Date	6/21/2001
Depth (inches)	PCB (ppm)
0 - 6	6.2
6 - 10	200

SED-216C

Date	6/21/2001
Depth (inches)	PCB (ppm)
0 - 6	14
6 -16	99

SED-218A

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	6.3

SED-218B

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	7.8

SED-218C

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	4.7

SED-221A

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	3400
6 - 8	3150

SED-221B

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	26.7
6 - 8	20.6

SED-221C

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	15.9
6 - 8	19

SED-222A

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	3.23

SED-222B

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	2.29

SED-222C

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	490

SED-220A

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	48
6 - 12	35.9

SED-220B

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	39.7
6 - 8	128

SED-220C

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	21.1
6 - 10	13.9
6 - 10 (DUP SED-220C)	8.3

SED-219A

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	57.6

SED-219B

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	33.4

SED-219C

Date	6/20/2001
Depth (inches)	PCB (ppm)
0 - 6	11
6 - 8	4.36

LEGEND:

- SEDIMENT SAMPLE LOCATION
- MONITORING WELL LOCATION
- SITE BOUNDARY

NOTE:

1. BASE MAP DIGITIZED FROM UNTITLED GREYSTONE ENVIRONMENTAL, LLC DRAWING DATED FEBRUARY 10, 1997.
2. INTEGREYTED SEDIMENT AND SOIL SAMPLING LOCATIONS WERE SURVEYED USING CONVENTIONAL METHODS BY CAMBRIDGE SURVEYING OF POTSDAM, NEW YORK.
3. BLASLAND, BOUCK & LEE, INC. (BBL) SEDIMENT AND SOIL LOCATIONS WERE SURVEYED USING GLOBAL POSITIONING SYSTEM (GPS) SURVEYING METHODS.

L: ON=*, OFF=REF
P: PAGESET/PLT-DL
7/18/03 SYR-85-JMA DJP RCB
31005001/31005B05.DWG

WASTE-STREAM INC.
POTSDAM, NEW YORK
FOCUSED REMEDIAL INVESTIGATION

SEDIMENT SAMPLING RESULTS FOR TOTAL PCBs - DRAINAGE DITCH TRANSECTS

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE
6C

ARCADIS

Appendix B

Select Focused Remedial Investigation Report Tables

TABLE 4

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Total PCBs (ppm)

Sample ID	Depth(feet)	Date Collected	Total PCBs
MW-201	0 - 2	06/11/01	0.022 U
MW-202	0 - 1	06/04/01	0.45 J
MW-203	0 - 1	06/05/01	19.8 J
DUP-02 (MW-203)	0 - 1	06/05/01	8.3 D
MW-204	0 - 1	06/06/01	59
DUP-04 (MW-204)	0 - 1	06/06/01	72
MW-205	0 - 1	06/05/01	12.6
MW-206	0 - 1	06/06/01	39.8
MW-207	0 - 1	06/07/01	1.22
DUP-07 (MW-207)	0 - 1	06/07/01	1.8
MW-208	0 - 1	06/07/01	1.0
MW-210	0 - 2	04/04/03	0.079 U
SB-201	0 - 1	06/14/01	0.345
SB-202	0 - 1	06/14/01	0.041
SB-203	0 - 1	06/13/01	0.072
SB-204	0 - 1	06/13/01	0.29
SB-205	0 - 1	06/14/01	0.12
SB-206	0 - 1	06/14/01	0.38
SB-207	0 - 1.5	06/14/01	0.80
SB-208	0 - 2	06/14/01	0.286
SB-209	0 - 1.5	06/14/01	0.50
SB-210	0 - 2	06/14/01	4.1
SB-211	0 - 2	06/14/01	8.4
SB-212	0 - 1	06/14/01	5.2
SB-213	0 - 1	06/14/01	0.194
SB-214	0 - 1	06/14/01	0.26
SB-215	0 - 1	06/14/01	14.6
SB-216	0 - 1	06/14/01	7.2
SB-217	0 - 1	06/14/01	0.96
SB-218	0 - 2	06/14/01	0.93
SB-219	0 - 1	06/05/01	4.2 J
SB-220	0 - 1	06/05/01	12.9
SB-221	0 - 1	06/05/01	5.7
SB-222	0 - 2	06/14/01	71.6
SB-223	0 - 1	06/05/01	10.1 J
SB-224	0 - 1	06/05/01	13.4
SB-225	0 - 1	06/05/01	102
SB-226	0 - 1	06/05/01	28.2
SB-227	0 - 1	06/05/01	9.6 J
SB-228	0 - 1	06/05/01	11.8
SB-229	0 - 1	06/05/01	55
SB-230	0 - 1	06/05/01	26.6
DUP-03 (SB-230)	0 - 1	06/05/01	27.7
SB-231	0 - 1	06/05/01	9.4
SB-232	0 - 1	06/05/01	1.51
SB-233	0 - 1	06/05/01	7.8
SB-234	0 - 1	06/05/01	2.3 J
SB-235	0 - 1	06/05/01	1.59
SB-236	0 - 1	06/05/01	21 J
DUP-01 (SB-236)	0 - 1	06/05/01	24

TABLE 4

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Total PCBs (ppm)

Sample ID	Depth(feet)	Date Collected	Total PCBs
SB-237	0 - 1	06/06/01	3.0
SB-238	0 - 1	06/05/01	7.2 J
SB-239	0 - 1	06/05/01	99
SB-240	0 - 1	06/05/01	0.137 J
SB-241	0 - 1	06/04/01	1.52 J
SB-242	0 - 1	06/04/01	6.1 J
SB-243	0 - 1	06/04/01	1.96 J
SB-244	0 - 1	06/04/01	1.1 J
SB-245	0 - 1	06/04/01	3.4 J
SB-246	0 - 2	06/14/01	46.3
DUP-17 (SB-246)	0 - 2	06/14/01	18.2
SB-247	0 - 1	06/14/01	0.020 U
SB-248	0 - 1	06/04/01	0.92 J
SB-249	0 - 1	06/04/01	2.69 J
SB-250	0 - 1	06/05/01	0.28 J
SB-251	0 - 1	06/07/01	23
SB-252	0 - 1	06/07/01	15.6
SB-253	0 - 1	06/07/01	8.8
SB-254	0 - 1	06/07/01	1.4
SB-255	0 - 1	06/07/01	8.6
SB-256	0 - 1	06/07/01	27.9
SB-257	0 - 1	06/07/01	97
SB-258	0 - 1	06/14/01	406
SB-259	0 - 1	06/07/01	21.9
SB-260	0 - 1	06/07/01	117
SB-261	0 - 1	06/07/01	4.1
SB-262	0 - 1	06/07/01	303
SB-263	0 - 1	06/07/01	4.5
SB-264	0 - 1	06/07/01	1.2
SB-265	0 - 1	06/08/01	3.7
SB-266	0 - 1	06/07/01	163
SB-267	0 - 1	06/07/01	19.9
SB-268	0 - 2	06/12/01	4.8
SB-269	0 - 2	06/12/01	8.2
SB-270	0 - 1	06/07/01	5.32
SB-271	0 - 1	06/07/01	3.0
SB-272	0 - 1	06/06/01	13.4
SB-273	0 - 1	06/06/01	34.9
SB-274	0 - 1	06/06/01	13.5
SB-275	0 - 1	06/06/01	23.4
SB-276	0 - 1	06/06/01	17.2
SB-277	0 - 1	06/06/01	7.2
SB-278	0 - 1	06/06/01	7.3
SB-279	0 - 1	06/06/01	18.5
SB-280	0 - 1	06/06/01	13.9
SB-281	0 - 1	06/06/01	97
SB-282	0 - 1	06/06/01	23.5
SB-283	0 - 1	06/06/01	6.7
SB-284	0 - 1	06/12/01	0.019 U
SB-285	0 - 1	06/08/01	13.7
SB-286	0 - 1	06/06/01	14.1
SB-287	0 - 1	06/06/01	5.9
SB-288	0 - 1	06/07/01	0.183

TABLE 4

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Total PCBs (ppm)

Sample ID	Depth(feet)	Date Collected	Total PCBs
SB-289	0 - 1	06/06/01	0.63
SB-290	0 - 1	06/06/01	0.058
SB-291	0 - 1	06/06/01	1.73
SB-292	0 - 1	06/06/01	4.7
SB-293	0 - 1	06/06/01	8.0
DUP-06 (SB-293)	0 - 1	06/06/01	16.4
SB-294	0 - 1	06/06/01	0.310
SB-295	0 - 1	06/12/01	1.31
SB-296	0 - 1	06/06/01	3.07
SB-297	0 - 1	06/06/01	1.22
SB-298	0 - 1	06/08/01	0.71
SB-303	0 - 1	06/07/01	0.294
SB-305	0 - 1	06/12/01	3.5
SB-306	0 - 1	06/12/01	1.51
SB-307	0 - 1	06/12/01	1.59
SB-308	0 - 1	06/12/01	2.58
SB-309	0 - 1	06/12/01	28.4
SB-310	0 - 1	06/12/01	11.1
SB-311	0 - 1	06/12/01	150
SB-312	0 - 1	06/12/01	8.1
SB-313	0 - 1	06/12/01	0.017 U
SB-314	0 - 1	06/12/01	18.9
SB-315	0 - 1	06/12/01	123
SB-316	0 - 1	06/12/01	0.034
SB-317	0 - 1	06/12/01	0.017 U
SB-318	0 - 1	06/12/01	0.222
SB-319	0 - 1	06/13/01	0.281
SB-320	0 - 1	06/12/01	0.019 U
SB-321	0 - 1	06/12/01	45
SB-322	0 - 1	06/13/01	6.4
SB-323	0 - 1	06/13/01	96
SB-324	0 - 1	06/12/01	0.069
SB-325	0 - 1	06/13/01	5.6
SB-326	0 - 1	06/13/01	0.830
SB-327	0 - 1	06/12/01	1.26 UJ
SB-328	0 - 1	06/13/01	5.4
SB-329	0 - 1	06/13/01	1.39
SB-330	0 - 1	06/12/01	6.0
SB-331	0 - 1	06/13/01	0.830
SB-332	0 - 1	06/13/01	3.82
SB-333	0 - 1	06/13/01	0.092
SB-334	0 - 1	06/13/01	0.480
SB-335	0 - 1	06/13/01	0.204
SB-336	0 - 1	06/13/01	0.165
SB-337	0 - 1	06/13/01	0.058
SB-338	0 - 1	03/31/03	0.082 U
SB-339	0 - 1	03/31/03	0.55
SB-345	0 - 1	03/31/03	0.082 U
SB-346	0 - 1	04/01/03	1.62 J
SB-347	0 - 1	03/31/03	29.5 J
SB-348	0 - 1	03/31/03	0.44
SB-349	0 - 1	03/31/03	1.0
SS-201	0 - 0.5	06/14/01	3.0

TABLE 4

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Total PCBs (ppm)

Sample ID	Depth(feet)	Date Collected	Total PCBs
SS-202	0 - 0.5	06/14/01	24.8
SS-203	0 - 0.5	06/14/01	12
SS-204	0 - 0.5	06/14/01	14.2
SS-205	0 - 0.5	06/14/01	16.3
SS-206	0 - 0.5	06/14/01	22.8
SS-207	0 - 0.5	06/14/01	28
DUP-19 (SS-207)	0 - 0.5	06/14/01	24
SS-208	0 - 0.5	06/14/01	1.72
SS-209	0 - 0.5	06/14/01	4.3
SS-210	0 - 0.5	06/14/01	12.9
SS-211	0 - 0.5	06/14/01	11.6
SS-212	0 - 0.5	06/14/01	3.5
SS-213	0 - 0.5	06/15/01	18.4
SS-214	0 - 0.5	06/15/01	13.9
SS-215	0 - 0.5	06/15/01	11.9
SS-216	0 - 0.5	06/15/01	10.7
SS-217	0 - 0.5	06/15/01	1.55
SS-218	0 - 0.5	06/15/01	16.2
DUP-18 (SS-218)	0 - 0.5	06/15/01	19.1
TP-202	0 - 1	06/14/01	7.5
TP-211	0 - 1	06/11/01	0.77
TP-212	0 - 1	06/11/01	7.3
TP-213	0 - 1	06/11/01	0.46
TP-214	0 - 1	06/11/01	7.3
TP-216	0 - 1	06/13/01	6.8
TP-217	0 - 1	06/12/01	4.1
TP-218	0 - 1	06/12/01	6.5
TP-219	0 - 1	06/13/01	6.7
TP-220	0 - 1	06/13/01	14.1
TP-221A	0 - 1	06/14/01	4.2
DUP-13 (TP-221A)	0 - 1	06/14/01	5.6
TP-223	0 - 1	06/12/01	5.4
T-SED-216A	0 - 1	02/19/02	0.18
T-SED-216B	0 - 1	02/19/02	63.0
T-SED-216C	0 - 1	02/19/02	9.9
T-SED-216D	0 - 1	02/19/02	16.0
T-SED-DUP-01 (T-SED-216D)	0 - 1	02/19/02	9.6
T-SED-216E	0 - 1	02/19/02	0.84
T-SED-218A	0 - 1	02/19/02	0.34
T-SED-218B	0 - 1	02/19/02	3.4
T-SED-218C	0 - 1	02/19/02	0.25
T-SED-218D	0 - 1	02/19/02	0.78
T-SED-218E	0 - 1	02/19/02	0.079
T-SED-221A	0 - 1	02/19/02	0.29
T-SED-221B	0 - 1	02/19/02	0.23
T-SED-221C	0 - 1	02/19/02	22.0
T-SED-221D	0 - 1	02/19/02	5.5
T-SED-DUP-02 (T-SED-221D)	0 - 1	02/19/02	12.0
T-SED-221E	0 - 1	02/19/02	0.34

TABLE 4

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Total PCBs (ppm)

Notes:

1. Samples collected by Blasland Bouck & Lee, Inc. on the dates indicated
2. Samples collected during June 2001 were analyzed by Galson Laboratories, Inc. using USEPA SW-846 Method 8082 for PCBs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. Samples collected during February 2002, March 2003, and April 2003 were analyzed by Severn Trent Laboratories using USEPA SW-846 Method 8082 for PCBs as referenced in NYSDEC 2000 ASP.
4. Concentrations reported in milligrams per kilogram (mg/kg), which are equivalent to parts per million (ppm)
5. DUP = Blind Duplicate Sample. The Sample ID in parenthesis indicates the parent sample
6. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit
7. Shaded values indicate a total PCB concentration exceeding the Recommended Soil Cleanup Objective, for surface soils, of 1 ppm for total PCBs presented in the NYSDEC Technical Administrative Guidance Memorandum (TAGM) #4046, dated January 24, 1994
8. J = Estimated value.

TABLE 5

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	MW-210 0 - 2 04/04/03	SB-205 0 - 1' 06/14/01	SB-207 0 - 1.5' 06/14/01	SB-208 0 - 2' 06/14/01	SB-209 0 - 1.5' 06/14/01	SB-210 0 - 2' 06/14/01	SB-211 0 - 2' 06/14/01
Inorganic Compounds								
Aluminum	11337*	9890 *	4090	6780	4210	5190	17000	4060
Antimony	0.71*	0.84 UN	0.6 UJ	1.4 BJ	0.6 UJ	0.62 UJ	0.69 UJ	1.5 BJ
Arsenic	7.5	2.7 B	2.7 J	4.3 J	1.9 J	2 J	2.7 J	1.7 J
Barium	300	132	53.9 J	86.3	40.6	22 B	167 B	57.4
Beryllium	0.55*	0.38 B	0.22 B	0.52 BJ	0.24 BJ	0.24 BJ	0.79 J	0.42 BJ
Cadmium	1	0.086 UJ	1.8	1	0.51 B	0.25 U	0.28 U	0.86
Calcium	3050*	3190	885 J	6350	4350	1910	2320	28100
Chromium	19*	17.2	7	12.2	6.3	6.4	24.4	12.2
Cobalt	30	6.6 B	2.9 B	7.2	2.5 B	1.8 B	12.1	3.8 B
Copper	25	11.3	15.1	69.5	28	5.4	22	62.5
Cyanide	--	NA	NA	5.8	0.6 U	0.58 U	5.9	11.6
Iron	16970*	16800	27400	18100	11100	8970	25200	12600
Lead	500	6.8	102 J	98.5 J	61.7 J	13.2 J	17.6 J	120 J
Magnesium	4090*	4080	625 J	1970	1780	820	4450	11300
Manganese	246*	526 J	155 J	2290 J	143 J	153 J	1290 J	233 J
Mercury	0.1	0.04 B	0.06 U	0.36	0.07 B	0.062 U	0.069 U	3.6
Nickel	13	14.5	8.5 J	10.9	21.6	2.6 B	20.9	12.5
Potassium	1906*	1510 J	247 B	504 B	180 B	213 B	1790	491 B
Selenium	2	0.84 U	0.59 BJ	1.5 J	0.65 J	0.6 BJ	1.3 J	0.44 UJ
Silver	0.28*	0.15 U	0.24 U	0.27 U	0.24 U	0.25 U	0.28 U	0.26 B
Sodium	123*	289 B	50.2 U	490 B	49.5 U	108 B	1340	592
Thallium	0.85*	0.95 U	0.72 U	0.82 U	0.71 U	0.75 U	0.83 U	0.66 U
Vanadium	150	25.7	13.9 J	21.8	85.1	14.2	36.5	10.5
Zinc	45*	39.6	271	259	219	39	67.9	244

TABLE 5

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	SB-250 0 - 1' 06/05/01	SB-253 0 - 1' 06/07/01	SB-261 0 - 1' 06/07/01	SB-289 0 - 1' 06/06/01	SB-304 0 - 2' 06/12/01	SB-338 0 -1' 03/31/03	SB-346 0 - 1' 04/01/03
Inorganic Compounds								
Aluminum	11337*	5090	NA	NA	2430	22200	4470	3630
Antimony	0.71*	0.57 UJ	NA	NA	0.6 UJ	0.61 UJ	1.1 UJ	2.0 UJ
Arsenic	7.5	1 B	NA	NA	0.87 B	1.7 J	1.2 B	3.5 B
Barium	300	58.2	NA	NA	20.4 B	129 J	16.4 B	67.2
Beryllium	0.55*	0.35 B	NA	NA	0.2 B	1.4	0.29 B	0.13 B
Cadmium	1	0.96	NA	NA	0.63	0.24 U	0.18 B	0.72 B
Calcium	3050*	8140	NA	NA	1570	2550	3890	4080
Chromium	19*	10.9	NA	NA	4	36.9 J	9.4	8.2
Cobalt	30	2.7 B	NA	NA	1.8 B	13	1.2 B	2.1 B
Copper	25	36.5	NA	NA	14.4	24.5 J	4.8 B	25.4
Cyanide	--	NA	1.8	0.52 U	NA	NA	NA	NA
Iron	16970*	11700	NA	NA	6870	49100	8220	11600
Lead	500	319	NA	NA	44.1	8.9 J	21.0 J	68.9
Magnesium	4090*	2140	NA	NA	1020	5750	2050	1160 B
Manganese	246*	109	NA	NA	56.2	273 J	57.3	176
Mercury	0.1	0.057 U	NA	NA	0.063 B	0.061 U	0.04 B	0.31
Nickel	13	7.1	NA	NA	8.2	23.6	15	7.0 B
Potassium	1906*	311 B	NA	NA	187 B	2510	102 B	263 B
Selenium	2	0.46 U	NA	NA	0.48 U	0.49 UJ	1.1 U	1.3 U
Silver	0.28*	0.23 U	NA	NA	0.24 U	0.24 U	0.27 U	0.33 U
Sodium	123*	61 B	NA	NA	49.7 U	50.9 U	86.0 U	105 U
Thallium	0.85*	0.69 U	NA	NA	0.72 U	1.4	1.0 U	1.2 U
Vanadium	150	14	NA	NA	34.6	79.8 J	14.1	16.8
Zinc	45*	163	NA	NA	105	67.2 J	55.1 J	122

TABLE 5

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	SB-347 0 - 1' 03/31/03	SB-348 0 - 1' 03/31/03	SS-201 0 - 0.5' 06/14/01	SS-202 0 - 0.5' 06/14/01	SS-203 0 - 0.5' 06/14/01	SS-204 0 - 0.5' 06/14/01	SS-205 0 - 0.5' 06/14/01
Inorganic Compounds								
Aluminum	11337*	21300	4470	3110	10900	14400	8240	15000
Antimony	0.71*	5.9 J	1.1 UJ	2.8 BJ	7.6 J	14.7 J	17.6 J	7.4 J
Arsenic	7.5	31.6	2.4 B	3.3 J	9.1 J	8.9 J	22.1 J	10.8 J
Barium	300	239	31.1 B	77.1 J	163 J	160 J	236 J	268 J
Beryllium	0.55*	3.3	0.29 B	0.21 B	1.6	1.6	0.76	1
Cadmium	1	5.5	0.12 B	1.6 J	6.2 J	8.1 J	12 J	8.6 J
Calcium	3050*	21800	869 B	54000 J	37900 J	30100 J	9610 J	25400 J
Chromium	19*	85.5	6.3	19.4	94.4	75.2	104	80 J
Cobalt	30	12.3	1.9 B	2.8 B	8.9	7.5	14.7	10.6
Copper	25	487	5.7 B	243	1070	719	530	1290
Cyanide	--	NA	NA	0.48 UJ	3.8 J	3.2 J	1.2 J	2.2 J
Iron	16970*	89000	12100	17800 J	78400 J	65400 J	337000 J	87200 J
Lead	500	1360 J	19.3 J	193	1190	921	987	762
Magnesium	4090*	9380	877 B	23900	17900	10400	3600	9820
Manganese	246*	653	86.6	292	841	575	1660	708
Mercury	0.1	2.7	0.09	0.4	4.2	3.3	1.5	4.3
Nickel	13	100	4.1 B	23.3	69.7	61	140	71.7
Potassium	1906*	1380	207 B	531	697	722	367 B	674
Selenium	2	1.0 U	1.1 U	0.4 UJ	1.6 J	0.4 UJ	0.43 UJ	0.41 UJ
Silver	0.28*	0.37 B	0.27 U	0.2 U	0.35 B	0.36 B	0.21 U	0.25 B
Sodium	123*	6100	87.4 U	2100	1090	2550	407 B	1290
Thallium	0.85*	0.95 U	1.2 B	0.6 U	2.5	2.3	10.1	2.3
Vanadium	150	115	21.0	11.1	39.8	38.9	62.8	39.2
Zinc	45*	1250 J	42.6 J	721 J	1330 J	1230 J	1730 J	2450 J

TABLE 5

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: Sample Depth(feet): Date Collected:	Recommended Soil Cleanup Objective	SS-206 0 - 0.5' 06/14/01	SS-207 0 - 0.5' 06/14/01	DUP (SS-207) 0 - 0.5' 06/14/01	SS-208 0 - 0.5' 06/14/01	SS-209 0 - 0.5' 06/14/01	SS-210 0 - 0.5' 06/14/01	SS-211 0 - 0.5' 06/14/01
Inorganic Compounds								
Aluminum	11337*	13600	4550	6250	1960	3180	3990	5000
Antimony	0.71*	10.8 J	3.2 BJ	3.7 BJ	1.1 BJ	1.9 J	2.3 BJ	2.2 BJ
Arsenic	7.5	15.7 J	4.4 J	3.4 J	3.8 J	2.4 J	3.6 J	3.7 J
Barium	300	282 J	304 J	1100	46.3 J	118 J	80.9 J	84.3 J
Beryllium	0.55*	1.5	0.3 B	0.26 B	0.21 B	0.29 B	0.42 B	0.47 B
Cadmium	1	13.2	1.6 J	2.1 J	2.9	1.1	2.3	2.6
Calcium	3050*	35000 J	32100 J	35500 J	42100 J	32600 J	50800 J	28500 J
Chromium	19*	139 J	25.7	24.7	9.5	13.8	19 J	20.6 J
Cobalt	30	18	4.5 B	4.9 B	2.5 B	2.7 B	3.4 B	5.1 B
Copper	25	638 J	117	136	46.9 J	88.7 J	206 J	178 J
Cyanide	--	2.8 J	0.63 J	0.51 J	0.49 UJ	0.64 J	1.6 J	2.7 J
Iron	16970*	95900	19600 J	20200 J	15500	12800	19300	32900
Lead	500	1280 J	688	1290	237 J	236 J	314 J	313 J
Magnesium	4090*	13600 J	14800	17300	21900 J	14700 J	21700 J	14000 J
Manganese	246*	857 J	464	291	264 J	248 J	275 J	335 J
Mercury	0.1	2.9	0.43	0.31	0.4	0.43	1.2	1.3
Nickel	13	112 J	19.7	17	8.6 J	10.9 J	20.8 J	24.4 J
Potassium	1906*	975	351 B	571	300 B	390 B	473 B	494 B
Selenium	2	1 J	0.41 UJ	0.42 UJ	0.42 UJ	0.41 UJ	0.42 J	0.43 UJ
Silver	0.28*	0.23 B	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Sodium	123*	5720	396 B	630	110 B	2250	4450	304 B
Thallium	0.85*	0.62 U	0.61 U	0.63 U	0.63 U	0.62 U	0.63 U	0.64 U
Vanadium	150	63.6 J	10.9	11.9	8 J	10.7 J	20.3 J	45.8 J
Zinc	45*	2970	384 J	572 J	1040	301	489	575

TABLE 5

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	SS-212 0 - 0.5' 06/14/01	SS-213 0 - 0.5' 06/15/01	SS-214 0 - 0.5' 06/15/01	SS-215 0 - 0.5' 06/15/01	SS-216 0 - 0.5' 06/15/01	SS-217 0 - 0.5' 06/15/01	SS-218 0 - 0.5' 06/15/01
Inorganic Compounds								
Aluminum	11337*	5760	14700	9040	10200	9450	3380	9190
Antimony	0.71*	1.7 BJ	6.9 J	16.9 J	7.8 J	8.9 J	0.74 J	2.6 J
Arsenic	7.5	5.9 J	11.1 J	10.1 J	8.8 J	7.7 J	2.4 J	6 J
Barium	300	98.9 J	193 J	143 J	187 J	310 J	120 J	120 J
Beryllium	0.55*	0.51 B	1.6	1	1.2	0.94	0.29 B	0.62
Cadmium	1	3.3	8.8	6.1	10.7 J	9	1.3	3.2
Calcium	3050*	34400 J	41800 J	31100 J	47100 J	56000 J	27200 J	42800 J
Chromium	19*	168 J	143 J	155 J	164	98.5 J	11 J	31.8 J
Cobalt	30	6.1	9.5	10.6	10.8	9	3.5 B	5.3 B
Copper	25	710 J	1180 J	6870 J	614	471 J	300 J	255 J
Cyanide	--	0.49 UJ	1.9	2.6	2 J	2.2	0.95 J	2.2 J
Iron	16970*	37700	60700	98700	81700 J	65800	13900	23100
Lead	500	359 J	873 J	1280 J	956	936 J	224 J	478 J
Magnesium	4090*	15200 J	18100 J	14800 J	23500	28500 J	14300 J	20700 J
Manganese	246*	1680 J	559 J	804 J	724	603 J	260 J	362 J
Mercury	0.1	1	4.6	2	2.7	2	0.33	1.8
Nickel	13	64.6	139 J	638 J	91.6	64.6 J	16.5 J	28.4 J
Potassium	1906*	522 B	843	491 B	777	738	395 B	766
Selenium	2	0.61 J	1.5 J	0.4 UJ	0.4 UJ	0.4 UJ	0.41 UJ	0.49 UJ
Silver	0.28*	0.24 U	0.31 B	2.2	0.25 B	0.44 B	0.21 U	0.25 U
Sodium	123*	368 B	4620	1970	2590	2480	95.4 B	548 B
Thallium	0.85*	0.71 U	0.61 U	0.6 U	2.1	0.6 U	0.62 U	0.74 U
Vanadium	150	24.1 J	82.2 J	88.8 J	48.8	48.4 J	12.4 J	34 J
Zinc	45*	615	1980	1950	2170 J	1540	458	778

TABLE 5

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	DUP18 (SS-218) 0 - 0.5' 06/15/01	SS-219 0 - 0.5' 06/15/01	SS-220 0 - 0.5' 06/15/01	SS-221 0 - 0.5' 06/15/01	SS-222 0 - 0.5' 06/15/01	TP-211 0-1' 06/11/01
Inorganic Compounds							
Aluminum	11337*	6510	13100	3910	8910	1420	4070
Antimony	0.71*	2.6 BJ	0.71 UJ	0.76 UJ	0.66 UJ	0.5 UJ	1 J
Arsenic	7.5	5.8 J	1.4 BJ	0.74 BJ	2.9 J	1.4 J	1.7 J
Barium	300	111 J	102 J	33.1 J	74.2 J	33.4 J	48 J
Beryllium	0.55*	0.7	0.58 B	0.25 B	0.48 B	0.16 B	0.26 B
Cadmium	1	3.1	0.28 U	0.31 U	0.26 U	0.34 B	0.78
Calcium	3050*	38000 J	2260 J	1770 J	2420 J	28000 J	28200
Chromium	19*	26.4 J	18.9 J	4.9 J	10.9 J	9.2 J	7.2 J
Cobalt	30	5.2 B	8.1	2 B	4.5 B	1.7 B	1.9 B
Copper	25	258 J	9.1	4.7	7.4	44.3 J	70.8 J
Cyanide	--	1.5	0.7 UJ	0.75 UJ	0.62 UJ	0.6 J	NA
Iron	16970*	22200	17300	6310	14100	6350	7150
Lead	500	456 J	13.6 J	20.6 J	24 J	58.2 J	62.9 J
Magnesium	4090*	18400 J	3460 J	811 J	1500 J	15300 J	11100
Manganese	246*	334 J	204 J	105 J	845 J	162 J	206 J
Mercury	0.1	1.5	0.071 U	0.076 U	0.24	0.064 B	0.42
Nickel	13	32.3 J	11.2 J	2.7 BJ	6.2 J	4.5 J	5.5
Potassium	1906*	702	1210	378 B	580 B	228 B	379 B
Selenium	2	0.43 UJ	0.57 UJ	0.61 UJ	0.7 J	0.4 UJ	0.45 UJ
Silver	0.28*	0.21 U	0.28 U	0.31 U	0.26 U	0.2 U	0.66 B
Sodium	123*	665	122 B	63.5 U	54.7 U	125 B	325 B
Thallium	0.85*	0.64 U	0.85 U	0.92 U	0.79 U	0.6 U	0.68 U
Vanadium	150	32.5 J	33.9 J	14.1 J	21.1 J	5.1 J	6.4 J
Zinc	45*	858	49.3	26.8	62.2	92.6	219 J

TABLE 5

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Notes:

1. Samples collected by Blasland Bouck & Lee, Inc. on the dates indicated.
2. Samples collected during June 2001 were analyzed by Galson Laboratories, Inc. and samples collected during 2002 and 2003 were analyzed by Severn Trent Laboratories, Inc using USEPA SW-846 Method 6010/7000 for inorganic constituents (except cyanide). Cyanide was analyzed using USEPA SW-846 Method ILM 04.4 as referenced in the NYSDEC 2000 ASP.
3. Concentrations reported in milligrams per kilogram (mg/kg), which are equivalent to parts per million (ppm).
4. The recommended soil cleanup objective listed is either a calculated background value obtained from averaging data collected from SS-219, SS-220, and MW-201, or from TAGM 4046, whichever value was higher.
5. * = Cleanup objective based on site-specific background concentration.
6. The recommended soil cleanup objective for lead is based on the high end of the typical range for background lead in metropolitan and suburban areas as presented in TAGM 4046.
7. DUP = Blind Duplicate Sample. The Sample ID in parenthesis indicates the parent sample.
8. J = Estimated Value based data validation.
9. B = The reported value was obtained from a reading that was less than the Contract Required Detection Limit, but greater that or equal to the Instrument Detection Limit.
10. E = The reported value is estimated due to the presence of interference.
11. N = Spike sample recovery not within control limits.
12. NA = The analyte was not analyzed for.
13. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
14. Shaded values indicate a concentration exceeding calculated soil background levels or the Recommended Soil Cleanup Objective presented in the NYSDEC Technical Administrative Guidance Memorandum (TAGM) #4046, dated January 24, 1994.

TABLE 6

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	MW-210 0 - 2' 04/04/03	SB-250 0 - 1' 06/05/01	SB-205 0 - 1' 06/14/01	SB-289 0 - 1' 06/06/01	SB-338 0 - 1' 03/31/03	SB-346 0 - 1' 04/01/03	SS-201 0 - 0.5' 06/14/01	SS-202 0 - 0.5' 06/14/01
Semi-Volatile Organic Compounds									
1,4-Dichlorobenzene	8.5	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.35 U
2-Methylnaphthalene	36.4	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.29 J
4-Methylphenol	0.9	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.35 U
Acenaphthene	50	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.22 J
Acenaphthylene	41	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.079 J
Anthracene	50	0.40 UJ	0.38 U	0.4 U	0.056 J	0.41 U	0.022 J	0.094 J	0.79
Benzo(A)Anthracene	0.224 or MDL	0.040 UJ	0.11 J	0.049 J	0.47	0.041 U	0.36	0.72	10 D
Benzo(A)Pyrene	0.061 or MDL	0.040 UJ	0.11 J	0.041 J	0.32 J	0.041 U	0.48	0.87 J	9.3 D
Benzo(B)Fluoranthene	1.1	0.040 UJ	0.4	0.33 J	2.2	0.041 U	1.7	4.7 DJ	26 D
Benzo(G,H,I)Perylene	50	0.40 UJ	0.12 J	0.4 UJ	0.44	0.41 U	0.79	1.3	9.6 D
Benzo(K)Fluoranthene	1.1	0.040 UJ	0.1 J	0.062 J	0.62	0.041 U	0.44	0.75 J	11 D
Bis(2-Ethylhexyl)Phthalate	50	0.14 J	0.11 J	0.055 J	0.18 J	0.41 U	0.50 U	0.71 U	3.1 JD
Butylbenzylphthalate	50	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.15 J	4.8 D
Carbazole	None	0.40 UJ	0.38 U	0.4 U	0.048 J	0.41 U	0.033 J	0.078 J	0.59
Chrysene	0.4	0.40 UJ	0.28 J	0.28 J	1.5	0.41 U	2.1 J	3.3 D	26 D
Di-N-Butylphthalate	8.1	0.40 UJ	0.041 J	0.051 J	0.089 J	0.41 U	0.50 U	0.22 J	2.7
Di-N-Octylphthalate	50	0.40 UJ	0.38 U	0.4 UJ	0.39 U	0.41 U	0.50 U	0.33 UJ	0.35 U
Dibenzo(A,H)Anthracene	0.014 or MDL	0.040 UJ	0.38 U	0.4 UJ	0.13 J	0.041 U	0.18	0.4 J	3 JD
Dibenzofuran	6.2	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.12 J
Diethylphthalate	7.1	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.35 U
Dimethylphthalate	2	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.045 J
Fluoranthene	50	0.40 UJ	0.15 J	0.04 J	0.7	0.41 U	0.27 J	0.93	9.6 D
Fluorene	50	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.18 J
Indeno(1,2,3-Cd)Pyrene	3.2	0.040 UJ	0.099 J	0.041 J	0.36 J	0.041 U	0.62	1.1 J	7.9 D
Naphthalene	13	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.33 U	0.37
Phenanthrene	50	0.40 UJ	0.075 J	0.4 U	0.35 J	0.41 U	0.10 J	0.51	3.3 JD
Phenol	0.03	0.40 UJ	0.38 U	0.4 U	0.39 U	0.41 U	0.50 U	0.31 J	0.35 U
Pyrene	50	0.40 UJ	0.17 J	0.071 J	0.93	0.41 U	0.49 J	1.5	13 D
Volatile Organic Compounds									
2-Butanone	0.3	0.0063 U	0.018	0.012 U	0.012 UJ	NA	NA	0.01 U	0.01 U
Acetone	0.2	0.0063 U	0.074 J	0.009 J	0.003 J	NA	NA	0.008 J	0.01 U
Ethylbenzene	5.5	0.0053 U	0.011 U	0.012 UJ	0.012 UJ	NA	NA	0.01 U	0.01 UJ
Methyl Acetate	None	NA	0.011 U	0.012 U	0.012 U	NA	NA	0.01 U	0.01 U
Methylene Chloride	0.1	0.0038 U	0.011 U	0.025 U	0.012 U	NA	NA	0.038 B	0.016 B
Styrene	None	0.0063 U	0.011 U	0.012 UJ	0.012 UJ	NA	NA	0.01 U	0.01 UJ
Tetrachloroethene	1.4	0.0013 U	0.009 J	0.012 UJ	0.012 UJ	NA	NA	0.01 U	0.01 UJ
Toluene	1.5	0.0018 J	0.011 U	0.012 UJ	0.012 UJ	NA	NA	0.01 U	0.01 UJ
Trichlorofluoromethane	None	NA	0.011 U	0.012 U	0.012 U	NA	NA	0.01 U	0.01 U
Xylene (Total)	1.2	0.0063 U	0.011 U	0.002 J	0.012 UJ	NA	NA	0.01 U	0.01 UJ

TABLE 6

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	SS-203 0 - 0.5' 06/14/01	SS-204 0 - 0.5' 06/14/01	SS-205 0 - 0.5' 06/14/01	SS-206 0 - 0.5' 06/14/01	SS-207 0 - 0.5' 06/14/01	SS-207DUP 0 - 0.5' 06/14/01	SS-208 0 - 0.5' 06/14/01	SS-209 0 - 0.5' 06/14/01
Semi-Volatile Organic Compounds									
1,4-Dichlorobenzene	8.5	0.33 U	0.35 U	0.34 U	0.34 U	0.34 U	0.35 U	0.34 U	0.35 U
2-Methylnaphthalene	36.4	0.079 J	0.054 J	0.07 J	0.22 J	0.34 U	0.35 U	0.34 U	0.35 U
4-Methylphenol	0.9	0.33 U	0.35 U	0.34 U	0.25 J	0.34 U	0.35 U	0.34 U	0.35 U
Acenaphthene	50	0.26 J	0.18 J	0.15 J	0.44	0.059 J	0.062 J	0.34 U	0.35 U
Acenaphthylene	41	0.05 J	0.22 J	0.18 J	0.092 J	0.34 U	0.05 J	0.34 U	0.35 U
Anthracene	50	0.63	0.68	1.3	1.4 J	0.19 J	0.2 J	0.34 U	0.15 J
Benzo(A)Anthracene	0.224 or MDL	6.9 DJ	5.4 DJ	50 D	14 DJ	1.6 J	2 J	0.16 J	1 J
Benzo(A)Pyrene	0.061 or MDL	6.9 DJ	5.4 DJ	19 JD	8.8 DJ	1.5 J	1.5 J	0.22 J	1 J
Benzo(B)Fluoranthene	1.1	24 DJ	9.9 DJ	210 DJ	60 DJ	7.4 DJ	5 DJ	0.83 J	5.7 DJ
Benzo(G,H,I)Perylene	50	7 DJ	5 DJ	18 JD	12 DJ	2.1 J	1.9 J	0.55 J	1.7 J
Benzo(K)Fluoranthene	1.1	2.6	2.2 J	43 DJ	14 DJ	1.6 J	1.8 J	0.19 J	1.1 J
Bis(2-Ethylhexyl)Phthalate	50	1.3 UJ	0.88 UJ	5.9 JD	44 DJ	0.88 UJ	0.67 UJ	1 UJ	1 J
Butylbenzylphthalate	50	0.35 J	0.13 J	0.72 J	2.6 J	0.39 J	0.67 J	0.11 J	0.3 J
Carbazole	None	0.46	0.43	1.3	0.66 J	0.12 J	0.12 J	0.52 U	0.094 J
Chrysene	0.4	20 D	8.8 DJ	180 DJ	67 D	6.5 DJ	5.1 D	0.52 J	3.9 DJ
Di-N-Butylphthalate	8.1	1.2	0.18 J	0.4	6.8 JD	2.1	0.37 J	0.048 J	0.14 J
Di-N-Octylphthalate	50	0.33 U	0.35 UJ	0.34 U	0.34 U	0.18 J	0.35 UJ	0.34 UJ	0.35 UJ
Dibenzo(A,H)Anthracene	0.014 or MDL	2.1	1.3 J	6.7 JD	3.9 JD	0.53 J	0.6 J	0.34 UJ	0.46 J
Dibenzofuran	6.2	0.13 J	0.095 J	0.19 J	0.32 J	0.034 J	0.35 U	0.34 U	0.35 U
Diethylphthalate	7.1	0.33 U	0.35 U	0.34 U	0.34 U	0.34 U	0.35 U	0.34 U	0.35 U
Dimethylphthalate	2	0.33 U	0.35 U	0.045 J	0.21 J	0.34 U	0.35 U	0.34 U	0.35 U
Fluoranthene	50	7.8 D	5.6 D	60 D	16 DJ	1.6	1.8	0.15 J	0.94 J
Fluorene	50	0.21 J	0.2 J	0.15 J	0.47	0.059 J	0.064 J	0.34 U	0.35 U
Indeno(1,2,3-Cd)Pyrene	3.2	5.7 D	4.4 DJ	19 JD	11 DJ	1.7 J	1.8 J	0.41 J	1.4 J
Naphthalene	13	0.13 J	0.056 J	0.1 J	0.29 J	0.34 U	0.35 U	0.34 U	0.35 U
Phenanthrene	50	3.4 D	2.7	14 JD	7.7 JD	0.87	0.96	0.1 J	0.48
Phenol	0.03	0.33 U	0.35 U	0.34 U	0.12 J	0.34 U	0.35 U	0.34 U	0.35 U
Pyrene	50	10 D	9.2 DJ	80 DJ	21 DJ	3.4 DJ	2.3 D	0.4 J	2.6 J
Volatile Organic Compounds									
2-Butanone	0.3	0.01 U	0.011 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 UJ	0.01 U
Acetone	0.2	0.006 J	0.011 U	0.01 U	0.02	0.007 J	0.01 U	0.007 J	0.005 J
Ethylbenzene	5.5	0.01 U	0.011 UJ	0.01 UJ	0.01 JU	0.01 U	0.01 U	0.01 UJ	0.01 UJ
Methyl Acetate	None	0.01 U	0.011 U	0.01 U	0.004 J	0.01 U	0.01 U	0.01 U	0.01 U
Methylene Chloride	0.1	0.017 B	0.039 B	0.047 B	0.026 B	0.016 U	0.013 U	0.015 U	0.01 U
Styrene	None	0.01 U	0.011 UJ	0.01 UJ	0.01 JU	0.01 U	0.01 U	0.01 UJ	0.01 UJ
Tetrachloroethene	1.4	0.01 U	0.011 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 UJ	0.01 UJ
Toluene	1.5	0.01 U	0.011 UJ	0.010 JU	0.01 JU	0.01 U	0.01 U	0.01 UJ	0.01 UJ
Trichlorofluoromethane	None	0.01 U	0.011 U	0.01 U	0.01	0.01 U	0.01 U	0.01 U	0.01 U
Xylene (Total)	1.2	0.01 U	0.011 UJ	0.01 UJ	0.004 J	0.01 U	0.01 U	0.01 UJ	0.01 UJ

TABLE 6

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	SS-210 0 - 0.5' 06/14/01	SS-211 0 - 0.5' 06/14/01	SS-212 0 - 0.5' 06/14/01	SS-213 0 - 0.5' 06/15/01	SS-214 0 - 0.5' 06/15/01	SS-215 0 - 0.5' 06/15/01	SS-216 0 - 0.5' 06/15/01	SS-217 0 - 0.5' 06/15/01
Semi-Volatile Organic Compounds									
1,4-Dichlorobenzene	8.5	0.37 U	0.41 U	0.34 U	0.34 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Methylnaphthalene	36.4	0.37 U	0.1 J	0.038 J	0.26 J	0.049 J	0.073 J	0.14 J	0.33 U
4-Methylphenol	0.9	0.37 U	0.41 U	0.34 U	0.34 U	0.33 U	0.33 U	0.035 J	0.33 U
Acenaphthene	50	0.14 J	0.41 U	0.068 J	0.47	0.18 J	0.14 J	0.4	0.33 U
Acenaphthylene	41	0.37 U	0.41 U	0.34 U	0.061 J	0.33 U	0.035 J	0.038 J	0.33 U
Anthracene	50	0.34 J	0.075 J	0.19 J	1.7	0.86 J	0.51	1.1	0.059 J
Benzo(A)Anthracene	0.224 or MDL	2.1 J	0.94 J	1.8 J	26 DJ	9.5 DJ	14 DJ	9.1 D	2.2 J
Benzo(A)Pyrene	0.061 or MDL	2.2 J	0.8 J	1.7 J	11 JD	5 JD	6.2 JD	5.3 JD	0.29 J
Benzo(B)Fluoranthene	1.1	12 DJ	5.1 DJ	9.9 DJ	110 DJ	43 DJ	62 DJ	43 DJ	2.3 J
Benzo(G,H,I)Perylene	50	3 DJ	1.6 J	2.4 J	9.7 JD	5.2 JD	6.8 JD	4.7 JD	1 J
Benzo(K)Fluoranthene	1.1	2.2 J	0.94 J	1.6 J	21 DJ	8.6 DJ	16 DJ	8.8 DJ	0.63 J
Bis(2-Ethylhexyl)Phthalate	50	6 DJ	1.5 J	1.1 J	7.4 JD	4.1 JD	6 J	7.9 D	12 DJ
Butylbenzylphthalate	50	1.4 J	1.1 J	0.2 J	0.55 J	0.4 J	0.49 J	6.5 JD	0.33 UJ
Carbazole	None	0.15 J	0.072 J	0.1 J	0.68	0.38 J	0.37	0.55	0.33 UJ
Chrysene	0.4	8 DJ	2.8 J	6.1 DJ	130 DJ	40 DJ	64 DJ	41 D	0.71 J
Di-N-Butylphthalate	8.1	0.15 J	0.14 J	0.74	1.9	1.2 J	0.73	1.2	0.16 J
Di-N-Octylphthalate	50	0.37 UJ	0.41 UJ	0.34 UJ	0.34 UJ	0.33 UJ	0.33 UJ	0.33 UJ	0.33 UJ
Dibenzo(A,H)Anthracene	0.014 or MDL	0.95 J	0.44 J	0.71 J	4.1 JD	2.6 J	2.6 DJ	2.7 J	0.35 J
Dibenzofuran	6.2	0.086 J	0.41 U	0.035 J	0.39	0.12 J	0.11 J	0.3 J	0.33 U
Diethylphthalate	7.1	0.37 U	0.41 U	0.34 U	0.34 U	0.33 U	0.33 U	0.33 U	0.33 U
Dimethylphthalate	2	0.37 U	0.41 U	0.34 U	0.34 U	0.33 U	0.31 J	0.05 J	0.33 U
Fluoranthene	50	1.7 J	1 J	1.2 J	28 DJ	7.3 JD	9.2 JD	9 DJ	0.35 J
Fluorene	50	0.17 J	0.41 U	0.061 J	0.6	0.18 J	0.16 J	0.54	0.33 U
Indeno(1,2,3-Cd)Pyrene	3.2	2.9 J	1.3 J	2 J	10 JD	5.3 JD	7.1 JD	4.8 JD	0.93 J
Naphthalene	13	0.37 U	0.08 J	0.34 U	0.48	0.062 J	0.099 J	0.3 J	0.33 U
Phenanthrene	50	1.5	0.45	0.82	11 JD	3.2 JD	2.5	5.6 JD	0.26 J
Phenol	0.03	0.37 U	0.41 U	0.34 U	0.17 J	0.091 J	0.07 J	0.1 J	0.33 U
Pyrene	50	5 DJ	2.9 J	3 DJ	39 DJ	12 D	15 DJ	14 DJ	0.8 J
Volatile Organic Compounds									
2-Butanone	0.3	0.011 U	0.013 UJ	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Acetone	0.2	0.011 U	0.013 U	0.01 U	0.013	0.013	0.014	0.013	0.01 U
Ethylbenzene	5.5	0.011 UJ	0.013 U	0.01 UJ	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ
Methyl Acetate	None	0.011 U	0.013 U	0.01 U	0.004 J	0.01 U	0.004 J	0.006 J	0.01 U
Methylene Chloride	0.1	0.011 U	0.013 U	0.1 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Styrene	None	0.011 UJ	0.013 U	0.01 UJ	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ
Tetrachloroethene	1.4	0.011 UJ	0.013 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Toluene	1.5	0.011 UJ	0.013 U	0.01 UJ	0.01 UJ	0.01 JU	0.01 UJ	0.01 UJ	0.01 JU
Trichlorofluoromethane	None	0.011 U	0.013 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Xylene (Total)	1.2	0.011 UJ	0.013 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ

TABLE 6

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	SS-218 0 - 0.5' 06/15/01	DUP18(SS-218) 0-0.5' 06/15/01	TP-202 0 - 1' 06/14/01	TP-211 0 - 1' 06/11/01
Semi-Volatile Organic Compounds					
1,4-Dichlorobenzene	8.5	0.37 U	0.36 U	NA	0.37 U
2-Methylnaphthalene	36.4	0.49	0.36 U	NA	0.37 U
4-Methylphenol	0.9	0.37 U	0.36 U	NA	0.37 U
Acenaphthene	50	0.15 J	0.044 J	NA	0.19 J
Acenaphthylene	41	0.044 J	0.36 U	NA	0.37 U
Anthracene	50	0.4	0.37	NA	0.24 J
Benzo(A)Anthracene	0.224 or MDL	5.7 DJ	14 DJ	NA	1
Benzo(A)Pyrene	0.061 or MDL	3 J	2.4 J	NA	1.3
Benzo(B)Fluoranthene	1.1	28 DJ	30 DJ	NA	2.8
Benzo(G,H,I)Perylene	50	4.8 DJ	2.9 DJ	NA	1.7
Benzo(K)Fluoranthene	1.1	7.3 DJ	8.2 DJ	NA	0.84
Bis(2-Ethylhexyl)Phthalate	50	1.8 J	1.5 J	NA	0.14 J
Butylbenzylphthalate	50	0.82 J	0.23 J	NA	0.37 U
Carbazole	None	0.2 J	0.14 J	NA	0.17 J
Chrysene	0.4	18 DJ	19 DJ	NA	1.6
Di-N-Butylphthalate	8.1	0.25 J	0.2 J	NA	0.046 J
Di-N-Octylphthalate	50	0.37 UJ	0.36 UJ	NA	0.37 U
Dibenzo(A,H)Anthracene	0.014 or MDL	2 J	1.4 J	NA	0.33 J
Dibenzofuran	6.2	0.088 J	0.36 U	NA	0.048 J
Diethylphthalate	7.1	0.1 J	0.36 U	NA	0.37 U
Dimethylphthalate	2	0.37 U	0.27 J	NA	0.37 U
Fluoranthene	50	2.6 J	9.8 DJ	NA	1.8
Fluorene	50	0.16 J	0.045 J	NA	0.12 J
Indeno(1,2,3-Cd)Pyrene	3.2	4.8 DJ	2.9 DJ	NA	1.3
Naphthalene	13	0.45	0.36 U	NA	0.042 J
Phenanthrene	50	1.9	1	NA	1.3
Phenol	0.03	0.37 U	0.36 U	NA	0.37 U
Pyrene	50	9.2 DJ	23 DJ	NA	2.2
Volatile Organic Compounds					
2-Butanone	0.3	0.011 U	0.011 U	0.011 U	0.011 U
Acetone	0.2	0.011 U	0.011 U	0.011 U	0.011 UJ
Ethylbenzene	5.5	0.011 UJ	0.011 UJ	0.011 UJ	0.011 U
Methyl Acetate	None	0.011 U	0.011 U	0.011 U	0.011 U
Methylene Chloride	0.1	0.011 U	0.011 U	0.011 U	0.011 U
Styrene	None	0.011 UJ	0.011 UJ	0.011 UJ	0.011 U
Tetrachloroethene	1.4	0.011 UJ	0.011 UJ	0.011 UJ	0.011 U
Toluene	1.5	0.011 UJ	0.011 UJ	0.011 UJ	0.011 U
Trichlorofluoromethane	None	0.011 U	0.011 UJ	0.011 U	0.011 U
Xylene (Total)	1.2	0.011 UJ	0.011 UJ	0.011 UJ	0.011 U

TABLE 6

Waste Stream, Inc.
Potsdam, NY

Surface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Notes:

1. Samples collected by Blasland Bouck & Lee, Inc. on the dates indicated.
2. Samples collected during June 2001 were analyzed by Galson Laboratories, Inc. and samples collected during 2003 and 2003 were analyzed by Severn Trent Laboratories, Inc. using USEPA SW-846 Method 8260 for VOCs and Method 8270 for SVOCs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. Concentrations reported in milligrams per kilogram (mg/kg), which are equivalent to parts per million (ppm).
4. DUP = Blind Duplicate Sample. The Sample ID in parenthesis indicated the parent sample.
5. B = Indicates analyte found in method blank as well as in the sample.
6. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
7. J = The value presented in an estimated value.
8. D = Analyte analyzed at a secondary dilution.
9. Shaded values indicate an analyte concentration exceeding the Recommended Soil Cleanup Objective presented in the NYSDEC Technical Administrative Guidance Memorandum (TAGM #4046), dated January 24, 1994.
10. None = TAGM 4046 criteria not available for analyte.
11. The table presents detected VOCs and SVOCs only.
12. MDL = method detection limit.

TABLE 7

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Total PCBs (ppm)

Sample ID	Depth(feet)	Date Collected	Total PCBs
MW-201	4 - 6	06/11/01	0.021 U
MW-202	1 - 3	06/04/01	0.07 J
MW-203	4 - 6	06/05/01	0.123 J
MW-204	1 - 2	06/06/01	0.98
MW-204	8 - 10	06/06/01	2.72
MW-205	2 - 4	06/05/01	4.05 J
MW-205	6 - 8	06/05/01	0.28 J
MW-206	4 - 6	06/06/01	61.4
MW-206	6 - 8	02/20/02	0.058J
MW-207	4 - 6	06/07/01	0.043
MW-208	8 - 10	06/07/01	0.19
MW-211	20 - 26	04/03/03	0.074 U
MW-212	2 - 4	03/31/03	0.076 U
SB-201	2 - 4	06/14/01	0.021
DUP-15 (SB-201)	2 - 4	06/14/01	0.019 U
SB-202	1 - 3	06/14/01	0.018 U
SB-203	1 - 3	06/13/01	0.019 U
SB-204	2 - 4	06/13/01	0.018 U
SB-205	2 - 4	06/14/01	0.018 U
SB-206	1 - 3	06/14/01	0.025
SB-212	4 - 6	06/14/01	0.022
SB-213	2 - 4	06/14/01	0.019 U
SB-214	4 - 6	06/14/01	0.018 U
SB-215	4 - 6	06/14/01	0.018 U
DUP-14 (SB-215)	4 - 6	06/14/01	0.023 U
SB-216	2 - 4	06/14/01	0.019 U
SB-217	1 - 3	06/14/01	0.019 U
SB-218	2 - 4	06/14/01	0.019 U
SB-219	1 - 3	06/05/01	0.96 J
SB-220	1 - 3	06/05/01	15.4
SB-220	3 - 5	02/21/02	0.018 U
SB-221	1 - 3	06/05/01	140
SB-221	3 - 5	02/21/02	0.021
SB-222	2 - 4	06/14/01	25.2
SB-222	4 - 6	02/21/02	0.018 U
SB-223	1 - 3	06/05/01	2.09 J
SB-224	1 - 3	06/05/01	12.9
SB-224	3 - 5	02/21/02	0.019 U
SB-225	1 - 3	06/05/01	7.7
SB-226	1 - 3	06/05/01	32
SB-226	3 - 5	02/21/02	0.018 U
SB-227	1 - 3	06/05/01	7.0 J
SB-228	1 - 3	06/05/01	0.159
SB-229	1 - 3	06/05/01	0.219
SB-230	1 - 3	06/05/01	6.9
SB-231	1 - 3	06/05/01	2.7 J
SB-232	1 - 3	06/05/01	1.21
SB-233	1 - 3	06/05/01	1.84
SB-235	1 - 3	06/05/01	0.018 U
SB-236	1 - 3	06/05/01	0.158 J
SB-237	1 - 3	06/06/01	0.018 U
SB-238	1 - 3	06/05/01	0.043 UJ
SB-239	1 - 3	06/05/01	0.645

TABLE 7

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Total PCBs (ppm)

Sample ID	Depth(feet)	Date Collected	Total PCBs
SB-240	1 - 3	06/05/01	7.4 J
SB-241	1 - 3	06/04/01	0.02 UJ
SB-242	1 - 3	06/04/01	0.022 J
SB-243	1 - 3	06/04/01	1.5 J
SB-244	1 - 3	06/04/01	0.019 UJ
SB-245	1 - 3	06/04/01	0.143 J
SB-246	2 - 4	06/14/01	0.022 U
SB-247	1 - 3	06/14/01	0.019 U
SB-248	1 - 3	06/04/01	0.019 UJ
SB-249	1 - 3	06/04/01	0.019 UJ
SB-250	1 - 3	06/05/01	0.019 UJ
SB-251	1 - 3	06/07/01	4.88
SB-252	1 - 3	06/07/01	1.35
SB-253	1 - 3	06/07/01	4400
SB-253	3 - 5	02/21/02	0.018 U
SB-254	1 - 3	06/07/01	0.066
SB-255	1 - 3	06/07/01	19.3
SB-255	3 - 5	02/21/02	0.019 U
DUP-08 (SB-255)	1 - 3	06/07/01	15.8
SB-256	1 - 3	06/07/01	27.9
SB-256	3 - 5	02/20/02	0.018 U
SB-257	1 - 3	06/07/01	0.299
SB-258	1 - 3	06/14/01	0.033
SB-259	1 - 3	06/07/01	53
SB-259	3 - 5	02/21/02	1.82 J
SB-260	1 - 3	06/07/01	22.4
SB-260	3 - 5	02/21/02	0.019 U
SB-DUP-04 (SB-260)	3 - 5	02/21/02	0.019 U
SB-261	1 - 3	06/07/01	31.3
SB-261	3 - 5	02/20/02	9.5 J
SB-261	5 - 7	02/20/02	0.018 U
SB-261	7 - 9	02/20/02	0.018 U
SB-262	1 - 3	06/07/01	56.5
SB-262	3 - 5	02/20/02	0.031 J
SB-263	1 - 3	06/07/01	15
SB-263	3 - 5	02/20/02	0.021 U
SB-264	5 - 7	06/07/01	0.277
SB-265	2 - 4	06/08/01	0.64
SB-266	2 - 4	06/07/01	0.42
SB-267	1 - 3	06/07/01	0.173
SB-268	2 - 4	06/12/01	0.032
SB-269	2 - 4	06/12/01	2.93
SB-270	1 - 3	06/07/01	14.1
DUP-09 (SB-270)	1 - 3	06/07/01	15.4
SB-270	3 - 5	02/20/02	2.6 J
SB-271	2 - 4	06/07/01	0.019 U
SB-272	1 - 3	06/06/01	0.27
SB-273	1 - 3	06/06/01	0.211
SB-274	1 - 3	06/06/01	1.54
SB-275	1 - 3	06/06/01	3.7
SB-276	1 - 3	06/06/01	0.34
SB-277	1 - 3	06/06/01	0.148
SB-278	1 - 3	06/06/01	15.7

TABLE 7

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Total PCBs (ppm)

Sample ID	Depth(feet)	Date Collected	Total PCBs
SB-278	3 - 5	02/21/02	0.35 J
SB-279	1 - 3	06/06/01	1.65
SB-280	1 - 3	06/06/01	14.5
SB-280	3 - 5	02/20/02	0.019 U
SB-281	1 - 3	06/06/01	0.023
SB-282	1 - 3	06/06/01	1.6
DUP-05 (SB-282)	1 - 3	06/06/01	2.1
SB-283	2 - 4	06/06/01	21.5
SB-283	4 - 6	02/20/02	0.020 U
SB-284	1 - 3	06/12/01	0.67 J
SB-285	1 - 3	06/08/01	10
SB-285	3 - 5	02/20/02	0.019U
SB-286	1 - 3	06/06/01	0.89
SB-287	1 - 3	06/06/01	3.59
SB-288	1 - 3	06/07/01	0.019 U
SB-289	1 - 3	06/06/01	0.019 U
SB-290	1 - 3	06/06/01	0.02 U
SB-291	1 - 3	06/06/01	3.2
SB-292	1 - 3	06/06/01	1.04
SB-293	1 - 2	06/06/01	12
SB-293	2 - 4	02/20/02	12.9
SB-293	4 - 6	02/20/02	0.019 U
SB-293	6 - 8	02/20/02	0.02 U
SB-293	8 - 9	02/20/02	0.02 U
SB-294	1 - 3	06/06/01	1.07
SB-295	1 - 3	06/12/01	5.23
SB-296	1 - 3	06/06/01	0.019 U
SB-297	1 - 3	06/06/01	0.019 U
SB-298	4 - 6	06/08/01	0.027
DUP-10 (SB-298)	4 - 6	06/08/01	0.019 U
SB-298	6 - 8	06/08/01	0.019 U
SB-305	1 - 3	06/12/01	0.067
SB-306	1 - 3	06/12/01	0.017 U
SB-307	1 - 3	06/12/01	0.079
SB-308	1 - 3	06/12/01	0.018 U
SB-309	2 - 4	06/12/01	0.02 U
SB-310	2 - 4	06/12/01	0.019 U
SB-311	2 - 4	06/12/01	0.23
SB-312	1 - 3	06/12/01	1.13
SB-313	4 - 6	06/12/01	0.226
SB-314	4 - 6	06/12/01	0.019 U
SB-315	4 - 6	06/12/01	0.02 U
SB-316	2 - 4	06/12/01	16.5
SB-316	4 - 6	02/20/02	0.021
SB-317	1 - 3	06/12/01	75
SB-317	3 - 5	02/20/02	0.019 U

TABLE 7

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Total PCBs (ppm)

Sample ID	Depth(feet)	Date Collected	Total PCBs
SB-318	2 - 4	06/12/01	8.1
SB-319	4 - 6	06/13/01	0.02 U
SB-320	4 - 6	06/12/01	16.6
SB-320	6 - 8	02/20/02	0.019 U
SB-321	3 - 4	06/12/01	0.019 U
SB-322	4 - 6	06/13/01	0.019 U
SB-323	2 - 4	06/13/01	0.019 U
SB-324	4 - 6	06/12/01	1.74 J
SB-325	3 - 4	06/13/01	0.039
SB-326	2 - 4	06/13/01	0.019 U
SB-327	4 - 6	06/12/01	0.019 U
SB-328	1 - 3	06/13/01	0.019 U
SB-329	2 - 4	06/13/01	0.019 U
SB-330	4 - 6	06/12/01	0.019 U
SB-331	4 - 6	06/13/01	0.019 U
SB-332	1 - 3	06/13/01	0.027
DUP-12 (SB-332)	1 - 3	06/13/01	0.021 U
SB-333	2 - 4	06/13/01	0.019 U
SB-334	1 - 3	06/13/01	0.08
SB-335	1 - 3	06/13/01	0.59
SB-336	1 - 3	06/13/01	0.02 U
SB-337	1 - 3	06/13/01	0.019 U
SB-338	1 - 3	03/31/03	0.080 U
DUP-1 (SB-338)	1 - 3	03/31/03	0.080 U
SB-339	1 - 3	03/31/03	0.078 U
SB-340	1 - 3	03/31/03	127 J
SB-341	1 - 3	03/31/03	0.078 U
SB-342	1 - 3	03/31/03	0.5 J
SB-343	3 - 5	03/31/03	0.080 U
SB-344	1 - 3	03/31/03	0.080 U
SB-345	1 - 3	03/31/03	0.076 U
SB-346	1 - 3	04/01/03	0.077 U
SB-347	1 - 3	03/31/03	0.077 U
SB-348	1 - 3	03/31/03	0.085 U
SB-349	1 - 3	03/31/03	0.080 U
TP-201	1 - 3	06/14/01	0.033
TP-207	1 - 3	06/11/01	156
TP-207	3 - 5	02/21/02	77
TP-207	5 - 7	02/21/02	0.058 J
TP-207	7 - 9	02/21/02	0.050 J
TP-213	1 - 3	06/11/01	0.027
TP-214	1 - 3	06/11/01	0.34
TP-215	1.5 - 3	06/13/01	0.334
TP-215	3 - 4	06/13/01	0.022
TP-216	3 - 3.5	06/13/01	6.96
TP-217	3 - 4	06/12/01	12.5
TP-217	4 - 6	02/20/02	0.28
TP-218	4 - 5	06/12/01	0.173
TP-219	4 - 5	06/13/01	0.750
TP-220	4 - 5	06/13/01	0.071
TP-221A	3 - 4.5	06/14/01	0.188
TP-222	1 - 3	06/13/01	1.11
TP-222	3 - 4.5	06/13/01	1.48

TABLE 7

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Total PCBs (ppm)

Sample ID	Depth(feet)	Date Collected	Total PCBs
TP-223	4 - 4.5	06/12/01	61.3
TP-223	4.5 - 6.5	02/20/02	0.58 J
SB-DUP-01 (TP-223)	4.5 - 6.5	02/20/02	0.34
TP-A5E	1 - 3	06/12/01	0.930
TP-A5S	3 - 4	06/12/01	0.021 U
TP-A5W	3 - 4	06/12/01	0.020 U
T-SED-216A	1 - 3	02/19/02	0.019 U
T-SED-216B	1 - 3	02/19/02	35.8
T-SED-216C	1 - 3	02/19/02	3.0
T-SED-216D	1 - 3	02/19/02	2.0
T-SED-216E	1 - 3	02/19/02	0.69
T-SED-218A	1 - 3	02/19/02	0.4
T-SED-218B	1 - 3	02/19/02	1.8
T-SED-218C	1 - 3	02/19/02	0.02
T-SED-218D	1 - 3	02/19/02	0.22
T-SED-218E	1 - 3	02/19/02	0.021 U
T-SED-221A	1 - 3	02/19/02	0.03
T-SED-221B	1 - 3	02/19/02	0.13
T-SED-221C	1 - 3	02/19/02	41.0
T-SED-221D	1 - 3	02/19/02	12.0
T-SED-221E	1 - 3	02/19/02	0.026 U

Notes:

1. Samples collected by Blasland, Bouck & Lee, Inc.on the dates indicated..
2. Samples collected during June 2001 analyzed by Galson Laboratories, Inc. using USEPA SW-846 Method 8082 for PCBs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. Samples collected during February 2002, March 2003, and April 2003 analyzed by Severn Trent Laboratories using USEPA SW-846 Method 8082 for PCBs as referenced in NYSDEC 2000 ASP.
4. Concentrations reported in milligrams per kilogram (mg/kg), which are equivalent to parts per million (ppm).
5. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
6. J = Estimated Value.
7. DUP = Blind Duplicate Sample. The Sample ID in parenthesis indicated the parent sample.
8. Shaded values indicated a total PCB concentration exceeding the Recommended Soil Clean-up Objective, for subsurface soil, of 10 ppm for total PCBs presented in the NYSDEC Technical Administrative Guidance Memorandum (TAGM) #4046, dated January 24, 1994.

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	MW-201PB 2 - 4' 06/11/01	MW-204 1 - 2' 06/06/01	MW-209 4 - 6' 06/08/01	MW-211 20 - 26 04/03/03	DUP-3 (MW-211) 20 - 26 04/03/03	MW-212 2 - 4 03/31/03	SB-201 2 - 4' 06/14/01
Inorganic Compounds								
Aluminum	11337*	17000	2920	2250	1860	1310	5460	3210
Antimony	0.71*	0.66 UJ	0.6 U	0.58 UJ	0.86 J	0.78 UJ	0.93 UJ	0.6 UJ
Arsenic	7.5	2 J	0.69 B	0.55 B	0.78 B	2.4	1.1 B	1.2 BJ
Barium	300	197 J	18.1 B	14.9 B	19.9 B	13.3 B	50.0	24.6
Beryllium	0.55*	0.82	0.16 B	0.17 B	0.08 B	0.08 B	0.44	0.21 BJ
Cadmium	1	0.26 U	0.24 U	0.23 U	0.88 U	0.08 U	0.082 U	0.24 U
Calcium	3050*	5120	1010	20700	32400	188100	20100	1760
Chromium	19*	32.5 J	3.8	4.3	4.5	3.3 *	10.2	5.9
Cobalt	30	12.5	1.2 B	2 B	1.4 B	2.1 B	3.6 B	2.2 B
Copper	25	24.1 J	2.7 B	4.4	2.5 B	3.1 B	14.1	2.5 B
Cyanide	--	0.61 U	0.58 U	NA	NA	NA	NA	NA
Iron	16970*	27300	3490	6420	6310	6630	8960	6960
Lead	500	5.9 J	8.8	2.6	1.7	2.8	8.1 J	3.3 J
Magnesium	4090*	8000	680	9920	13600	10900	10900	1050
Manganese	246*	428 J	20.5	138	185 J	1060 J	180	308 J
Mercury	0.1	0.066 U	0.06 U	0.058 U	0.018 U	0.016 U	0.02 B	0.06 U
Nickel	13	24.9	2 B	4 B	3.4 B	4.0 B	8.9	4.7 B
Potassium	1906*	4130	222 B	392 B	369 B	325 B	623 B	316 B
Selenium	2	0.52 UJ	0.48 U	0.46 U	0.86 U	0.78 U	0.93 U	0.48 UJ
Silver	0.28*	0.26 U	0.24 U	0.23 U	0.15 U	0.14 U	0.23 U	0.24 U
Sodium	123*	182 B	50.7 B	48.3 U	134 B	84.8 B	98.6 B	88.6 B
Thallium	0.85*	0.79 U	0.72 U	0.7 U	0.97 U	0.88 U	0.84 U	0.72 U
Vanadium	150	46.8 J	8.5	8.2	8.2 B	6.9 B	16	8.8
Zinc	45*	58.6 J	10.8	9.2	7.7	18.0	21.7 J	10.4

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: Sample Depth(feet): Date Collected:	Recommended Soil Cleanup Objective	SB-202 1 - 3' 06/14/01	SB-203 1 - 3' 06/13/01	SB-204 2 - 4' 06/13/01	SB-206 1 - 3' 06/14/01	SB-207 1.5 - 3' 06/14/01	SB-208 2 - 4' 06/14/01	SB-209 1.5 - 3' 06/14/01
Inorganic Compounds								
Aluminum	11337*	5110	6910	6910	11200	2840	3720	4910
Antimony	0.71*	0.57 UJ	0.62	0.56	0.53 UJ	0.7 BJ	0.57 UJ	0.61 BJ
Arsenic	7.5	1.8 J	2.1 J	1.5 J	2.7 J	2.9 J	2.1 J	2.4 J
Barium	300	42.6	68.5 J	54.4 J	70.7 J	27	36.8	31.8
Beryllium	0.55*	0.29 BJ	0.32 B	0.34 B	0.52 B	0.2 BJ	0.25 BJ	0.3 BJ
Cadmium	1	0.23 U	0.25 UJ	0.23 UJ	0.21 U	0.25 U	0.23 U	0.23 U
Calcium	3050*	1790	1490 J	773 E	827 J	21100	1550	2160
Chromium	19*	8.1	7.1	10.3	13	4.5	5.8	9.8
Cobalt	30	3.9 B	3.5 B	4.2 B	7.1	2.5 B	3.5 B	5.7 B
Copper	25	5.5	4.5	6.9	7.2	4.4	4.9	4.9
Cyanide	--	NA	NA	NA	NA	0.6 U	0.54 U	0.59 U
Iron	16970*	9440	11200 J	11300 J	14100	7310	9530	13400
Lead	500	3.7 J	19.2	3.8	9	5.6 J	3.4 J	6.9 J
Magnesium	4090*	1540	721	1530	2410 J	8710	935	3530
Manganese	246*	254 J	222	265	379 J	527 J	422 J	253 J
Mercury	0.1	0.057 U	0.062 U	0.056 U	0.073 B	0.062 U	0.057 U	0.059 U
Nickel	13	6	4.4 B	7	10.7 J	3.8 B	5.5	15.7
Potassium	1906*	467 B	235 B	667	750	380 B	380 B	345 B
Selenium	2	0.48 BJ	0.91 J	0.45 UJ	0.52 BJ	0.49 UJ	0.47 BJ	0.61 J
Silver	0.28*	0.23 U	0.25 U	0.23 U	0.21 U	0.25 U	0.23 U	0.23 U
Sodium	123*	54.2 B	51.7 U	47 U	44.3 U	164 B	47.1 U	74.7 B
Thallium	0.85*	0.68 U	0.75 U	0.68 U	0.64 U	0.74 U	0.68 U	0.7 U
Vanadium	150	12.4	15.5	16.9	20.3 J	8.4	11	16.1
Zinc	45*	13.5	66.2 J	13.2 J	32	11.7	11.7	20

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	DUP (SB-209) 1.5 - 3' 06/14/01	SB-210 2 - 4' 06/14/01	SB-211 2 - 4' 06/14/01	SB-213 2 - 4' 06/14/01	SB-214 1 - 3' 06/14/01	SB-216 5 - 7' 06/14/01	SB-217 1 - 3' 06/14/01
Inorganic Compounds								
Aluminum	11337*	3830	4150	7700	5350	5100	3420	2380
Antimony	0.71*	0.59 UJ	0.58 UJ	0.57 UJ	0.58 UJ	0.58 UJ	0.58 UJ	1.6 BJ
Arsenic	7.5	1.7 J	0.83 J	1.5 J	1.3 J	1.9 J	1.7 J	0.5 BJ
Barium	300	26.8	32	57.6	28.5	17.1 B	35	22.8 B
Beryllium	0.55*	0.25 BJ	0.22 BJ	0.49 BJ	0.26 BJ	0.27 BJ	0.29 BJ	0.12 BJ
Cadmium	1	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.24 U
Calcium	3050*	1680	1330	2060	922	4360	2100	2300
Chromium	19*	6.7	7.7	11.3	6.9	4.8	5.9	3.6
Cobalt	30	3.6 B	1.9 B	4 B	2.7 B	2.1 B	2.6 B	1.7 B
Copper	25	4	5.8	7.1	3	5.3	5.4	6.1
Cyanide	--	NA	0.54 U	0.56 U	NA	NA	NA	NA
Iron	16970*	8890	7290	13000	8350	9360	8040	5580
Lead	500	6.5 J	5.7 J	5.5 J	7.6 J	17.4 J	3 J	27.4 J
Magnesium	4090*	2450	1130	1740	1070	1990	1430	856
Manganese	246*	274 J	88.9 J	189 J	134 J	52.5 J	295 J	137 J
Mercury	0.1	0.059 U	0.058 U	0.057 U	0.058 U	0.058 U	0.058 U	0.06 U
Nickel	13	10.4	4.4 B	7.2	4.1 B	7.3	5.2	8.1
Potassium	1906*	270 B	395 B	525 B	269 B	200 B	433 B	273 B
Selenium	2	0.61 J	0.47 UJ	0.56 BJ	0.47 BJ	0.47 UJ	0.46 UJ	0.48 UJ
Silver	0.28*	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.24 U
Sodium	123*	76.7 B	301 B	47.4 U	47.9 U	48.5 U	48.1 U	180 B
Thallium	0.85*	0.7 U	0.7 U	0.68 U	0.69 U	0.7 U	0.69 U	0.71 U
Vanadium	150	10.7	10.3	19.1	11.3	16.3	9.9	5.8 B
Zinc	45*	18.6	19	27.5	26.7	41.9	10.3	154

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	SB-218 2 - 4' 06/14/01	SB-221 1 - 3' 06/05/01	SB-225 1 - 3' 06/05/01	SB-227 1 - 3' 06/05/01	SB-235 1 - 3' 06/05/01	SB-236 1 - 3' 06/05/01	SB-245 1 - 3' 06/04/01
Inorganic Compounds								
Aluminum	11337*	5600	8630	6870	39400	7340	7850	5020
Antimony	0.71*	0.58 UJ	0.58 UJ	0.56 UJ	36.5 J	0.57 UJ	0.54 UJ	0.58 UJ
Arsenic	7.5	0.52 B	2.8	1.1	11.8	1.3	2.5	0.65 B
Barium	300	28.9 J	52.3	27.3	577	34.5	65.7	9.7 B
Beryllium	0.55*	0.3 BN	0.67	0.27 B	2.7	0.31 B	0.29 B	0.25 B
Cadmium	1	0.23 U	0.91	0.36 B	7	0.23 U	0.87	0.33 B
Calcium	3050*	995 J	2480	996	22100	627	2020	4480
Chromium	19*	7.1 J	15.4	7.3	330	8.5	10.4	5.1
Cobalt	30	3 B	5.2 B	3.2 B	11.9	4.1 B	4.4 B	1.8 B
Copper	25	3.2	62.9	15.9	263	4	28.6	4.7
Cyanide	--	NA	NA	NA	NA	NA	NA	NA
Iron	16970*	10400	20300	7670	93500	10400	16000	9670
Lead	500	1.4	79.2	21.3	3250	5.4	95.3	16.3
Magnesium	4090*	1200 J	1490	927	6800	1400	1410	1780
Manganese	246*	73.5 J	200	57.1	825	95.1	177	68.4
Mercury	0.1	0.058 U	0.1 B	1.5	0.72	0.057 U	0.082 B	0.058 U
Nickel	13	4.4 BJ	27.3	6.3	110	6.4	14.7	3.9 B
Potassium	1906*	461 B	523 B	301 B	1300	407 B	504 B	196 B
Selenium	2	0.46 UJ	0.46 U	0.45 U	2.2 U	0.45 U	0.43 U	0.46 U
Silver	0.28*	0.23 U	0.23 U	0.22 U	0.22 U	0.23 U	0.22 U	0.23 U
Sodium	123*	48 U	1030	88 B	12400	334 B	123 B	48.3 U
Thallium	0.85*	0.69 U	0.7 U	0.67 U	0.65 U	0.68 U	0.65 U	0.7 U
Vanadium	150	14.2 J	33.2	10.1	31.6	15.2	16.2	12.8
Zinc	45*	16.9	150	81.3	1080	19.2	162	35.3

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: Sample Depth(feet): Date Collected:	Recommended Soil Cleanup Objective	SB-246 2 - 4' 06/14/01	SB-251 1 - 3' 06/07/01	SB-252 1 - 3' 06/07/01	SB-253 1 - 3' 06/07/01	SB-262 1 - 3' 06/07/01	SB-264 2 - 4' 06/07/01	SB-267 2 - 3' 06/08/01
Inorganic Compounds								
Aluminum	11337*	25700	8950	7180	4240	4020	7760	6360
Antimony	0.71*	0.66 UJ	0.55 UJ	0.67 UJ	9.5 J	2.8 BJ	0.58 UJ	2.6 BJ
Arsenic	7.5	2.9 J	2.3	1.5	12.9	4.8	1.5	4.1 J
Barium	300	315	35.4	32.9	41.9	169	37.2	356 J
Beryllium	0.55*	1.1 J	0.36 B	0.33 B	0.51 B	0.25 B	0.37 B	0.14 B
Cadmium	1	0.53 U	0.28 B	0.27 U	4.5	5.3	0.23 U	7.4
Calcium	3050*	6710	2490	830	33200	5960	1470	4810
Chromium	19*	43.8	7.9	7.7	34.8	23.4	10.4	19.3 J
Cobalt	30	17	3.9 B	3.4 B	11	4.5 B	3.6 B	3.1 B
Copper	25	28.6	14.1	3.1 B	71.2	182	3.2	114 J
Cyanide	--	NA	0.55 U	0.65 U	NA	0.54 U	NA	NA
Iron	16970*	37000	10300	13300	233000	35900	10000	19900
Lead	500	8.8 J	20.7	5.3	72.6	508	6.1	765 J
Magnesium	4090*	10100	1590	1080	15100	2680	1950	1290
Manganese	246*	561 J	97.4	136	852	284	59.1	204 J
Mercury	0.1	0.066 U	0.13	0.067 U	0.19	1.7	0.058 U	0.14
Nickel	13	35.2	8.6	4.7 B	31.8	25.4	7.8	16.2
Potassium	1906*	3630	407 B	322 B	393 B	359 B	551 B	664
Selenium	2	1.1 J	0.44 U	0.53 U	2.2 U	0.44 U	0.47 U	0.45 UJ
Silver	0.28*	0.26 J	0.22 U	0.27 U	0.22 U	0.22 U	0.23 U	0.56 B
Sodium	123*	55.1 U	582	193 B	1770	319 B	68.8 B	318 B
Thallium	0.85*	0.79 U	0.66 U	0.8 U	2	0.66 U	0.7 U	0.68 U
Vanadium	150	53.6	14	19.5	17.2	11.6	15.3	9.4 J
Zinc	45*	77.5	59.2	19.2	127	2870	11.2	1590 J

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: Sample Depth(feet): Date Collected:	Recommended Soil Cleanup Objective	SB-272 1 - 3' 06/06/01	SB-276 1 - 3' 06/06/01	SB-283 2 - 4' 06/06/01	SB-293 2 - 4' 06/06/01	SB-298 4 - 6' 06/08/01	DUP10 (SB-298) 4 - 6' 06/08/01	SB-298 6 - 8' 06/08/01
Inorganic Compounds								
Aluminum	11337*	1440	3580	2930	19100	2180	2250	NA
Antimony	0.71*	0.54 UJ	0.56 UJ	0.56 UJ	1.4 UJ	0.56 UJ	0.58 UJ	NA
Arsenic	7.5	0.43 U	0.45 U	0.85 B	4.1	0.52 B	0.55	NA
Barium	300	10.8 B	11.9 B	27.3	161	14.1 B	14.9 B	NA
Beryllium	0.55*	0.11 U	0.15 B	0.24 B	1.9	0.16 B	0.17 B	NA
Cadmium	1	0.22 B	0.22 U	0.53 B	2	0.22 U	0.23 U	NA
Calcium	3050*	1370	1260	2240	10400	31700	20700	NA
Chromium	19*	1.8	4.1	5.1	43.1	4.2	4.3	NA
Cobalt	30	0.75 B	2.3 B	2.7 B	3.3 B	1.9 B	2 B	NA
Copper	25	2.8	1 B	18.1	59.9	4	4.4	NA
Cyanide	--	NA	NA	NA	NA	NA	NA	NA
Iron	16970*	1770	4340	5800	14400	5010	6420	NA
Lead	500	12.5	1.5	24.1	88.4	2.7	2.6	4.3 J
Magnesium	4090*	450 B	1020	1440	1590	16600	9920	NA
Manganese	246*	10.1	29.5	63.1	111	141	138	NA
Mercury	0.1	0.054 U	0.056 U	0.066 B	0.22 B	0.056 U	0.058 U	NA
Nickel	13	1.4 B	3.5 B	4.3 B	10.7 B	3.6 B	4 B	NA
Potassium	1906*	130 B	311 B	314 B	549 B	376 B	392 B	NA
Selenium	2	0.43 U	0.45 U	0.45 U	1.9	0.44 U	0.46 U	NA
Silver	0.28*	0.22 U	0.22 U	0.22 U	0.58 U	0.22 U	0.23 U	NA
Sodium	123*	145 B	46.6 U	53 B	13200	47.3 B	48.3 U	NA
Thallium	0.85*	0.65 U	0.67 U	0.67 U	1.7 U	0.67 U	0.70 U	NA
Vanadium	150	6	6.9	8.5	60.2	7.5	8.2	NA
Zinc	45*	11.7	11.2	208	369	8.4	9.2	NA

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	SB-299 4 - 6' 06/07/01	SB-299 8 - 10' 06/07/01	SB-300 5 - 7' 06/07/01	SB-301 4 - 6' 06/11/01	SB-301 8 - 10' 06/11/01	SB-303 2 - 4' 06/07/01	SB-303 8 - 10' 06/07/01
Inorganic Compounds								
Aluminum	11337*	NA	NA	NA	NA	NA	NA	NA
Antimony	0.71*	NA	NA	NA	NA	NA	NA	NA
Arsenic	7.5	NA	NA	NA	NA	NA	NA	NA
Barium	300	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.55*	NA	NA	NA	NA	NA	NA	NA
Cadmium	1	NA	NA	NA	NA	NA	NA	NA
Calcium	3050*	NA	NA	NA	NA	NA	NA	NA
Chromium	19*	NA	NA	NA	NA	NA	NA	NA
Cobalt	30	NA	NA	NA	NA	NA	NA	NA
Copper	25	NA	NA	NA	NA	NA	NA	NA
Cyanide	--	NA	NA	NA	NA	NA	NA	NA
Iron	16970*	NA	NA	NA	NA	NA	NA	NA
Lead	500	9.1 J	3.9 J	3.9 J	3 J	2.2 J	25.9 J	3.4 J
Magnesium	4090*	NA	NA	NA	NA	NA	NA	NA
Manganese	246*	NA	NA	NA	NA	NA	NA	NA
Mercury	0.1	NA	NA	NA	NA	NA	NA	NA
Nickel	13	NA	NA	NA	NA	NA	NA	NA
Potassium	1906*	NA	NA	NA	NA	NA	NA	NA
Selenium	2	NA	NA	NA	NA	NA	NA	NA
Silver	0.28*	NA	NA	NA	NA	NA	NA	NA
Sodium	123*	NA	NA	NA	NA	NA	NA	NA
Thallium	0.85*	NA	NA	NA	NA	NA	NA	NA
Vanadium	150	NA	NA	NA	NA	NA	NA	NA
Zinc	45*	NA	NA	NA	NA	NA	NA	NA

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth(feet): / Date Collected:	Recommended Soil Cleanup Objective	SB-304 2 - 4' 06/12/01	SB-304 8 - 10' 06/12/01	SB-307 1 - 3' 06/12/01	SB-313 2 - 4' 06/12/01	SB-316 4 - 6' 06/12/01	SB-321 1 - 3' 06/12/01	SB-325 1 - 3' 06/13/01
Inorganic Compounds								
Aluminum	11337*	NA	NA	4080	4050	2080	1430	3220
Antimony	0.71*	NA	NA	1.8 BJ	0.61 U	0.71 U	0.59 U	0.6 U
Arsenic	7.5	NA	NA	30.1 J	1.2 BJ	0.74 BJ	0.47 UJ	1.3 J
Barium	300	NA	NA	87.6 J	31.3 J	19.7 J	8.8 BJ	21.6 BJ
Beryllium	0.55*	NA	NA	0.45 B	0.19 B	0.15 B	0.12 U	0.17 B
Cadmium	1	NA	NA	1.1 J	0.24 UJ	0.28 UJ	0.24 UJ	0.24 UJ
Calcium	3050*	NA	NA	16400 J	5850 J	7030 J	967 EJ	5900 J
Chromium	19*	NA	NA	10.2	5.7	5.8	2.2	4.9
Cobalt	30	NA	NA	5 B	2.1 B	1.6 B	1 B	1.8 B
Copper	25	NA	NA	41.1	4	3.1 B	1.6 B	8.1
Cyanide	--	NA	NA	NA	NA	NA	NA	NA
Iron	16970*	NA	NA	21600 J	7360 J	5840 J	1530 J	6910 J
Lead	500	9.4 J	2.1 J	85.2	8.2	1.6	1.1	17.9
Magnesium	4090*	NA	NA	8670	2870	3510	658	3380
Manganese	246*	NA	NA	140	70.9	64.8	16.4	80.4
Mercury	0.1	NA	NA	0.23	0.061 U	0.071 U	0.059 U	0.068 B
Nickel	13	NA	NA	14.8	3 B	2.4 B	1.1 B	2.7 B
Potassium	1906*	NA	NA	476 B	301 B	339 B	168 B	282 B
Selenium	2	NA	NA	1.5 J	0.48 UJ	0.57 UJ	0.47 UJ	0.48 UJ
Silver	0.28*	NA	NA	0.23 U	0.24 U	0.28 U	0.24 U	0.24 U
Sodium	123*	NA	NA	51.1 B	50.4 U	87.4 B	49.2 U	50 U
Thallium	0.85*	NA	NA	1.5	0.73 U	0.85 U	0.71 U	0.72 U
Vanadium	150	NA	NA	14.2	17.3	11.1	2.6 B	14.3
Zinc	45*	NA	NA	194 J	18.5 J	11	7.1	28.9 J

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: Sample Depth(feet): Date Collected:	Recommended Soil Cleanup Objective	SB-327 2 - 4' 06/12/01	SB-334 1 - 3' 06/13/01	SB-338 1 - 3' 03/31/03	DUP-1 (SB-338) 1 - 3' 03/31/03	SB-341 1 - 3' 03/31/03	SB-342 1 - 3' 03/31/03	SB-343 3 -5' 03/31/03
Inorganic Compounds								
Aluminum	11337*	1210	2180	4390	4200	3160	3420	17300
Antimony	0.71*	0.58 U	1.1 BJ	1.1 UJ	1.1 UJ	1.0 UJ	0.97 UJ	0.98 UJ
Arsenic	7.5	0.47 UJ	4.3 J	0.86 U	0.86 U	0.84 U	2.5 B	3.4 B
Barium	300	9.1 BJ	57.7 J	7.3 B	7.9 B	1.2 B	25.1 B	235
Beryllium	0.55*	0.12 U	0.12 U	0.36 B	0.34 B	0.22 B	0.34 B	0.89
Cadmium	1	0.23 UJ	0.64 J	0.096 U	0.096 U	0.093 U	0.17 B	0.16 B
Calcium	3050*	483 BJ	94400 J	894 B	891 B	807	14600	38600
Chromium	19*	2 **	8.5	4.0	4.0	3.6	7.1	31.1
Cobalt	30	1.1 B	3.2 B	1.2 B	1.2 B	1.2 B	2.0 B	13.6
Copper	25	2.5 B	43	0.65 U	0.65 U	1.3 B	8.6	26.6
Cyanide	--	NA	NA	NA	NA	NA	NA	NA
Iron	16970*	1870 EJ	16200 J	6730	6440	5750	9740	26400
Lead	500	0.96	32.3	1.7 BJ	2.0 BJ	6.2 J	26.4 J	11.7 J
Magnesium	4090*	570 B	46400	758 B	699 B	701 B	6530	13900
Manganese	246*	16.3	549	34.2	32.2	31.3	334	697
Mercury	0.1	0.058 U	0.058 U	0.02 B	0.02 B	0.019 U	0.04 B	0.02 B
Nickel	13	1.5 B	6.5	2.4 B	2.2 B	3.2 B	5.0 B	31.5
Potassium	1906*	238 B	500 B	109 B	113 B	149 B	227 B	3290
Selenium	2	0.47 UJ	0.46 UJ	1.1 U	1.1 U	1.0 U	0.97 U	0.98 U
Silver	0.28*	0.23 U	0.23 U	0.26 U	0.26 U	0.26 U	0.24 U	0.24 U
Sodium	123*	52.7 B	218 B	111 B	104 B	101 B	75.5 U	445 B
Thallium	0.85*	0.7 U	0.7 U	0.98 U	0.98 U	0.95 U	0.88 U	0.90 U
Vanadium	150	2.7 B	8.8	12.2	11.7	6.1 B	11.7	46.9
Zinc	45*	5.8	263 J	11.2 J	11.5 J	13.9 J	42.0 J	71.8 J

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: Sample Depth(feet): Date Collected:	Recommended Soil Cleanup Objective	SB-344 1 - 3' 03/31/03	SB-347 1 - 3' 03/31/03	SB-348 1 - 3' 03/31/03	TP-207 1 - 3' 06/11/01	TP-216 3 - 3.5' 06/13/01	TP-222 3 - 4.5' 06/13/01	TP-A5E 1 - 3' 06/12/01
Inorganic Compounds								
Aluminum	11337*	2290	14400	7780	3460	2610	4640	1760
Antimony	0.71*	1.1 UJ	0.94 UJ	1.1 UJ	3.2 BJ	0.61	35.8 J	0.57 UJ
Arsenic	7.5	1.7 B	2.8 B	1.9 B	3.1 J	1.2 BJ	20.4 J	0.55 J
Barium	300	41.0 B	128	48.2 B	70.1 J	17.5 BJ	1050 J	20.9 BJ
Beryllium	0.55*	0.25 B	0.79	0.47 B	0.37 B	0.12 U	0.13 U	0.22 B
Cadmium	1	0.63 B	0.084 U	0.10 U	1.8	0.24 UJ	25.8 J	0.34 B
Calcium	3050*	1240	1340	665 B	17600	8200 J	28900 J	1980
Chromium	19*	4.5	22.3	9.2	11.6 J	3.7	92.4	2 J
Cobalt	30	1.7 B	11.1	3.9 B	3.5 B	1.5 B	16.3	0.82 B
Copper	25	13.3	10.6	3.4 B	539 J	11.9	925	5.2 J
Cyanide	--	NA	NA	NA	NA	NA	NA	NA
Iron	16970*	10500	20300	9990	11100	5110 J	217000 J	2550
Lead	500	34.3 J	9.1 J	5.3 J	397 J	25.4	3690	18.2 J
Magnesium	4090*	629 B	4230	1620	8920	4430	9210	759
Manganese	246*	730	735	220	202 J	57.5	857	30.4 J
Mercury	0.1	0.07	0.11	0.03 B	0.45	1.1	0.45	0.057 U
Nickel	13	9.2 B	17.8	7.5 B	10.8	3.5 B	191	1.9 B
Potassium	1906*	103 B	1130	336 B	384 B	186 B	617 B	122 B
Selenium	2	1.1 U	0.94 U	1.1 U	0.45 UJ	0.49 UJ	4.1 J	0.46 UJ
Silver	0.28*	0.26 U	0.23 U	0.28 U	0.23 U	0.24 U	0.83 B	0.23 U
Sodium	123*	103 B	600 B	137 B	47.3 U	50.7 U	537 B	47.7 U
Thallium	0.85*	0.98 U	0.86 U	1.0 U	0.68 U	0.73 U	7.5	0.69 U
Vanadium	150	8.6 B	37.6	17.5	11.4 J	9.2	22.1	5.6 BJ
Zinc	45*	177 J	38.3 J	17.2 J	329 J	60.2 J	7680 J	171 J

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: Sample Depth(feet): Date Collected:	Recommended Soil Cleanup Objective	TP-A5S 3 - 4' 06/12/01	DUP11 (TP-A5S) 3 - 4' 06/12/01	TP-A5W 3 - 4' 06/12/01
Inorganic Compounds				
Aluminum	11337*	10300	12300	8490
Antimony	0.71*	0.64 UJ	0.59 UN	0.6 UJ
Arsenic	7.5	2.1 J	2.4 N	2.6 J
Barium	300	91.9 J	125 N	79.4 J
Beryllium	0.55*	0.67	0.69	0.46 B
Cadmium	1	0.26 U	0.24 U	0.24 U
Calcium	3050*	4280	3350	20000
Chromium	19*	17.5 J	20.9 N	14 J
Cobalt	30	6.2 B	8.4	4.9 B
Copper	25	10.1 J	11.1 N	6.7 J
Cyanide	--	NA	NA	NA
Iron	16970*	18000	19200	12500
Lead	500	5.6 J	6 N	5.2 J
Magnesium	4090*	4460	4660	7230
Manganese	246*	163 J	325 N	299 J
Mercury	0.1	0.064 U	0.06 U	0.060 U
Nickel	13	12.2	15.2	8.9
Potassium	1906*	1810	2110	940
Selenium	2	0.51 UJ	0.47 UN	0.48 UJ
Silver	0.28*	0.26 U	0.24 U	0.24 U
Sodium	123*	53.4 U	49.1 U	89.1 B
Thallium	0.85*	0.77 U	0.71 U	0.72 U
Vanadium	150	27.1 J	30.9 N	17 J
Zinc	45*	29.8 J	34.8 EN	20.8 J

TABLE 8

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for TAL Inorganic Constituents (ppm)

Notes:

1. Samples collected by Blasland Bouck & Lee, Inc. on the dates indicated
2. Samples collected during June 2001 were analyzed by Galson Laboratories, Inc. and samples collected during 2002 and 2003 were analyzed by Severn Trer Laboratories, Inc. using USEPA SW-846 Method 6010/7000 for inorganic constituents (except cyanide). Cyanide was analyzed using Method ILM 04. as referenced in the NYSDEC 2000 ASP.
3. Concentrations reported in milligrams per kilogram (mg/kg), which are equivalent to ppn
4. The recommended soil cleanup objective listed is either a calculated background value obtained from averaging data fron from SS-219, SS-220, and MW-201, or from TAGM 4046, whichever value was higher
5. * = Cleanup objective based on site-specific background concentration
6. The recommended soil cleanup objective for lead is based on the high end of the typical range for background lead in metropolitan anc suburban areas as presented in TAGM 4046
7. DUP = Blind Duplicate Sample. The Sample ID in parenthesis indicates the parent sample
8. J = Estimated value based on data validation
9. B = The reported value was obtained from a reading that was less than the Contract Required Detection Limit, but greater that or equal to th Instrument Detection Limit
10. E = The reported value is estimated due to the presence of interference
11. N = Spike sample recovery not within control limits
12. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limi
13. NA = The analyte was not analyzed for
14. Shaded values indicate a concentration exceeding calculated soil background levels or the Recommended Soil Cleanup Objectiv presented in the NYSDEC Technical Administrative Guidance Memorandum (TAGM) #4046, dated January 24, 1994
15. ** = For dual column analysis, the lowest quantitational concentration was reported due to coeluting interferenc

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: Sample Depth: Date Collected:	Recommended Soil Cleanup Objective	MW-201PB 2 - 4' 06/11/01	MW-204 1 - 2' 06/06/01	MW-211 20 - 26' 04/03/03	DUP-3 (MW-211) 20 - 26' 04/03/03	MW-212 2 - 4' 03/31/03	SB-201 2 - 4' 06/14/01	DUP15 (SB-201) 2 - 4' 06/14/01	SB-202 1 - 3' 06/14/01
Semi-Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.42 U	0.4 U	0.012 J	0.012 J	0.038 U	0.39 U	0.4 U	0.38 U
2,4-Dimethylphenol	None	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
2-Methylnaphthalene	36.4	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
4-Methylphenol	0.9	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Acenaphthene	50	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Acenaphthylene	41	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Anthracene	50	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Benzo(A)Anthracene	0.224 or MDL	0.42 U	0.4 U	0.037 U	0.037 U	0.038 U	0.39 U	0.4 U	0.38 U
Benzo(A)Pyrene	0.061 or MDL	0.42 U	0.4 U	0.037 U	0.037 U	0.038 U	0.39 U	0.4 U	0.38 U
Benzo(B)Fluoranthene	1.1	0.42 U	0.4 U	0.037 U	0.037 U	0.038 U	0.39 U	0.4 U	0.38 U
Benzo(G,H,I)Perylene	50	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Benzo(K)Fluoranthene	1.1	0.42 U	0.4 U	0.037 U	0.037 U	0.038 U	0.39 U	0.4 U	0.38 U
Bis(2-Ethylhexyl)Phthalate	50	0.42 U	0.11 J	0.19 J	0.10 J	0.094 J	0.068 J	0.4 U	0.38 U
Butylbenzylphthalate	50	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Carbazole	None	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Chrysene	0.4	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Di-N-Butylphthalate	8.1	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Dibenzo(A,H)Anthracene	0.014 or MDL	0.42 U	0.4 U	0.037 U	0.037 U	0.038 U	0.39 U	0.4 U	0.38 U
Dibenzofuran	6.2	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Dimethylphthalate	2	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Fluoranthene	50	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Fluorene	50	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Indeno(1,2,3-Cd)Pyrene	3.2	0.42 U	0.4 U	0.037 U	0.037 U	0.038 U	0.39 U	0.4 U	0.38 U
Naphthalene	13	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Phenanthrene	50	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Pyrene	50	0.42 U	0.4 U	0.37 U	0.37 U	0.38 U	0.39 U	0.4 U	0.38 U
Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.013 U	0.012 U	0.012 J	0.012 J	0.038 U	0.012 U	0.012 U	0.011 JU
2-Butanone	0.3	0.013 UJ	0.12 J	0.0054 U	0.0053 U	0.0054 U	0.012 U	0.012 U	0.011 UJ
4-Methyl-2-Pentanone	1	0.013 U	0.012 UJ	0.0054 U	0.0053 U	0.0054 U	0.012 U	0.012 U	0.011 UJ
Acetone	0.2	0.013 UJ	0.27 D	0.025	0.031	0.047	0.012 UJ	0.012 UJ	0.011 UJ
Benzene	0.06	0.013 U	0.012 U	0.0007 J	0.0012	0.0011 U	0.012 U	0.012 U	0.011 U
Bromoform	None	0.013 U	0.012 U	0.0017 J	0.0022 J	0.0008 J	0.012 U	0.012 U	0.011 U
Chlorobenzene	1.7	0.013 U	0.012 U	0.046	0.062	0.0054 U	0.012 U	0.012 U	0.011 UJ
Carbon Disulfide	2.7	0.013 U	0.012 U	0.0054 U	0.0053 U	0.0054 U	0.012 U	0.012 U	0.011 U
1,2-Dichlorobenzene	7.9	0.013 U	0.012 U	0.023 J	0.034 J	0.38 U	0.012 U	0.012 U	0.011 UJ
1,3-Dichlorobenzene	1.6	0.013 U	0.012 U	0.026 J	0.048 J	0.38 U	0.012 U	0.012 U	0.011 UJ
1,4-Dichlorobenzene	8.5	0.013 U	0.012 U	0.14 J	0.21 J	0.38 U	0.012 U	0.012 U	0.011 UJ
1,2-Dichloroethene (trans)	0.4	0.013 U	0.012 U	0.001 J	0.0034 J	0.0054 U	0.012 U	0.012 U	0.011 UJ
Ethylbenzene	5.5	0.013 U	0.034	0.0043 U	0.0043 U	0.0043 U	0.012 U	0.012 U	0.011 UJ
Isopropylbenzene	None	0.013 U	0.012 U	NA	NA	NA	0.012 U	0.012 U	0.011 UJ
Methyl Acetate	None	0.013 U	0.012 U	NA	NA	NA	0.012 U	0.012 U	0.011 U
Methylcyclohexane	None	0.013 U	0.012 U	NA	NA	NA	0.012 U	0.012 U	0.011 U
Methylene Chloride	0.1	0.013 U	0.012 U	0.0032 U	0.0032 U	0.0032 U	0.012 U	0.012 U	0.011 U
Trichloroethene	0.7	0.013 U	0.012 U	0.089	0.17	0.0011 U	0.012 U	0.011 U	0.011 U
Toluene	1.5	0.013 U	0.013	0.0012 J	0.0015 J	0.0054 U	0.012 U	0.012 U	0.002 JU
Xylene (Total)	1.2	0.013 U	0.012 U	0.0054 U	0.0053 U	0.0054 U	0.012 U	0.012 U	0.004 JU

See Notes, Page 10.

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: Sample Depth: Date Collected:	Recommended Soil Cleanup Objective	SB-203 1 - 3' 06/13/01	SB-204 2 - 4' 06/13/01	SB-206 1 - 3' 06/14/01	SB-207 1.5 - 3' 06/14/01	SB-213 4 - 6' 06/14/01	SB-214 1 - 3' 06/14/01	SB-216 5 - 7' 06/14/01
Semi-Volatile Organic Compounds								
1,2,4-Trichlorobenzene	3.4	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
2,4-Dimethylphenol	None	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
2-Methylnaphthalene	36.4	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
4-Methylphenol	0.9	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Acenaphthene	50	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Acenaphthylene	41	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Anthracene	50	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Benzo(A)Anthracene	0.224 or MDL	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.067 J	0.38 U
Benzo(A)Pyrene	0.061 or MDL	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.067 J	0.38 U
Benzo(B)Fluoranthene	1.1	0.42 U	0.36 U	0.35 U	0.044 J	0.38 U	0.22 J	0.38 U
Benzo(G,H,I)Perylene	50	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.12 J	0.38 U
Benzo(K)Fluoranthene	1.1	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.071 J	0.38 U
Bis(2-Ethylhexyl)Phthalate	50	0.42 U	0.36 U	0.037 J	0.042 J	0.38 U	0.069 J	0.044 J
Butylbenzylphthalate	50	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 UJ	0.38 U
Carbazole	None	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Chrysene	0.4	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.17 J	0.38 U
Di-N-Butylphthalate	8.1	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Dibenzo(A,H)Anthracene	0.014 or MDL	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 UJ	0.38 U
Dibenzofuran	6.2	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Dimethylphthalate	2	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Fluoranthene	50	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.085 J	0.38 U
Fluorene	50	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Indeno(1,2,3-Cd)Pyrene	3.2	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.1 J	0.38 U
Naphthalene	13	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Phenanthrene	50	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.39 U	0.38 U
Pyrene	50	0.42 U	0.36 U	0.35 U	0.4 U	0.38 U	0.19 J	0.38 U
Volatile Organic Compounds								
1,2,4-Trichlorobenzene	3.4	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
2-Butanone	0.3	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
4-Methyl-2-Pentanone	1	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Acetone	0.2	0.012 UJ	0.011 UJ	0.011 U	0.012 U	0.008 J	0.005 J	0.005 J
Benzene	0.06	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Bromoform	None	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Chlorobenzene	1.7	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Carbon Disulfide	2.7	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
1,2-Dichlorobenzene	7.9	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
1,3-Dichlorobenzene	1.6	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
1,4-Dichlorobenzene	8.5	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
1,2-Dichloroethene (trans)	0.4	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Ethylbenzene	5.5	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Isopropylbenzene	None	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Methyl Acetate	None	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Methylcyclohexane	None	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Methylene Chloride	0.1	0.002 J	0.011 U	0.015 U	0.012 U	0.019 U	0.012 U	0.012 U
Trichloroethene	0.7	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Toluene	1.5	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
Xylene (Total)	1.2	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U

See Notes, Page 10.

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: Sample Depth: Date Collected:	Recommended Soil Cleanup Objective	SB-217 1 - 3' 06/14/01	SB-218 2 - 4' 06/14/01	SB-221 1 - 3' 06/05/01	SB-225 1 - 3' 06/05/01	SB-227 1 - 3' 06/05/01	SB-235 1 - 3' 06/05/01	SB-236 1 - 3' 06/05/01	SB-245 1 - 3' 06/04/01
Semi-Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.4 U	0.37 U	0.095 J	0.37 U	0.36 U	0.38 U	0.35 U	0.39 U
2,4-Dimethylphenol	None	0.4 U	0.37 U	0.39 U	0.37 U	0.051 J	0.38 U	0.35 U	0.39 U
2-Methylnaphthalene	36.4	0.4 U	0.37 U	0.39 U	0.37 U	0.34 J	0.38 U	0.35 U	0.39 U
4-Methylphenol	0.9	0.46 J	0.37 U	0.39 U	0.37 U	0.056 J	0.38 U	0.35 U	0.39 U
Acenaphthene	50	0.4 U	0.37 U	0.061 J	0.37 U	0.44	0.38 U	0.35 U	0.39 U
Acenaphthylene	41	0.4 U	0.37 U	0.1 J	0.37 U	0.042 J	0.38 U	0.35 U	0.39 U
Anthracene	50	0.4 U	0.37 U	0.64	0.047 J	2	0.38 U	0.35 U	0.39 U
Benzo(A)Anthracene	0.224 or MDL	0.4 U	0.37 U	15 D	0.32 J	9.2 DJ	0.079 J	0.35 U	0.39 U
Benzo(A)Pyrene	0.061 or MDL	0.4 UJ	0.37 U	7.5 JD	0.37	2.3	0.063 J	0.08 J	0.39 U
Benzo(B)Fluoranthene	1.1	0.4 UJ	0.1 J	50 J	1.9	21 DJ	0.18 J	0.25 J	0.39 U
Benzo(G,H,I)Perylene	50	0.4 UJ	0.37 U	18 DJ	0.64	4.9	0.042 J	0.12 J	0.39 U
Benzo(K)Fluoranthene	1.1	0.4 UJ	0.37 U	2.6	0.38	1.7	0.052 J	0.071 J	0.39 U
Bis(2-Ethylhexyl)Phthalate	50	0.075 J	0.37 U	3 J	2.9	6.2 DJ	0.045 J	0.046 J	0.39 U
Butylbenzylphthalate	50	0.4 U	0.37 U	0.39 UJ	0.1 J	0.36 U	0.38 U	0.35 U	0.39 U
Carbazole	None	0.4 U	0.37 U	0.59	0.37 U	1.2	0.38 U	0.35 U	0.39 U
Chrysene	0.4	0.4 U	0.12 J	59 D	1	26 DJ	0.24 J	0.12 J	0.39 U
Di-N-Butylphthalate	8.1	0.4 U	0.37 U	2.7	2.7	0.32 J	0.055 J	0.35 U	0.047 J
Dibenzo(A,H)Anthracene	0.014 or MDL	0.4 UJ	0.37 U	4.7 JD	0.15 J	1.5	0.38 U	0.35 U	0.39 U
Dibenzofuran	6.2	0.4 U	0.37 U	0.071 J	0.37 U	0.26 J	0.38 U	0.35 U	0.39 U
Dimethylphthalate	2	0.4 U	0.37 U	0.39 U	0.37 U	0.36 U	0.38 U	0.35 U	0.39 U
Fluoranthene	50	0.4 U	0.37 U	8.9 D	0.33 J	19 D	0.14 J	0.068 J	0.39 U
Fluorene	50	0.4 U	0.37 U	0.092 J	0.37 U	0.46	0.38 U	0.35 U	0.39 U
Indeno(1,2,3-Cd)Pyrene	3.2	0.4 UJ	0.37 U	15 DJ	0.46	3.4	0.039 J	0.089 J	0.39 U
Naphthalene	13	0.4 U	0.37 U	0.088 J	0.37 U	0.37	0.38 U	0.35 U	0.39 U
Phenanthrene	50	0.4 U	0.37 U	1.7	0.12 J	8.9 D	0.096 J	0.04 J	0.39 U
Pyrene	50	0.4 U	0.37 U	12 D	0.38	23 DJ	0.13 J	0.12 J	0.39 U
Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.012 UJ	0.011 U	0.012 UJ	0.011 U	0.011 U	0.011 UJ	0.011 U	0.012 UJ
2-Butanone	0.3	0.069 J	0.011 U	0.011 J	0.015	0.053	0.011 U	0.038	0.023
4-Methyl-2-Pentanone	1	0.012 UJ	0.011 U	0.012 U	0.011 U	0.006 J	0.011 U	0.011 U	0.012 U
Acetone	0.2	0.220 J	0.032 J	0.047 J	0.058 J	0.17 J	0.015 J	0.15 J	0.1 J
Benzene	0.06	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Bromoform	None	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Chlorobenzene	1.7	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Carbon Disulfide	2.7	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
1,2-Dichlorobenzene	7.9	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
1,3-Dichlorobenzene	1.6	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
1,4-Dichlorobenzene	8.5	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
1,2-Dichloroethene (trans)	0.4	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Ethylbenzene	5.5	0.012 UJ	0.011 U	0.012 U	0.011 U	0.002 J	0.011 U	0.011 U	0.012 U
Isopropylbenzene	None	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Methyl Acetate	None	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Methylcyclohexane	None	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Methylene Chloride	0.1	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Trichloroethene	0.7	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Toluene	1.5	0.012 UJ	0.011 U	0.012 U	0.011 U	0.007 J	0.011 U	0.011 U	0.012 U
Xylene (Total)	1.2	0.012 UJ	0.011 U	0.012 U	0.011 U	0.019	0.011 U	0.011 U	0.012 U

See Notes, Page 10.

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth: / Date Collected:	Recommended Soil Cleanup Objective	SB-247 1 - 3' 06/14/01	SB-253 1 - 3' 06/07/01	SB-256 1 - 3' 06/07/01	SB-260 1 - 3' 06/07/01	SB-264 2 - 4' 06/07/01	SB-265 2 - 4' 06/08/01	SB-271 2 - 4' 06/07/01	SB-271 4 - 5.5' 06/07/01
Semi-Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.38 U	3.6 U	0.43 U	0.4 U	3.7 UD	0.37 U	0.39 U	NA
2,4-Dimethylphenol	None	0.38 U	3.6 U	0.43 U	0.4 U	3.7 UD	0.37 U	0.39 U	NA
2-Methylnaphthalene	36.4	0.38 U	0.86 J	0.047 J	0.4 U	3.7 UD	0.37 U	0.14 J	NA
4-Methylphenol	0.9	0.38 U	3.6 U	0.43 U	0.4 U	0.37 U	0.37 U	0.39 U	NA
Acenaphthene	50	0.38 U	19	0.1 J	0.051 J	3.7 UD	0.37 U	0.39 U	NA
Acenaphthylene	41	0.38 U	0.69 J	0.43 U	0.11 J	3.7 UD	0.37 U	0.39 U	NA
Anthracene	50	0.38 U	140 JD	0.32 J	0.16 J	3.7 UD	0.37 U	0.39 U	NA
Benzo(A)Anthracene	0.224 or MDL	0.38 U	260 D	2.6 J	0.97	3.7 UD	0.37 U	0.39 U	NA
Benzo(A)Pyrene	0.061 or MDL	0.38 U	160 JD	3.1 J	0.93	3.7 UD	0.37 U	0.39 U	NA
Benzo(B)Fluoranthene	1.1	0.38 U	420 D	12 DJ	2	3.7 UD	0.37 U	0.39 U	NA
Benzo(G,H,I)Perylene	50	0.38 U	86 JD	10 DJ	1.3	3.7 UD	0.37 U	0.39 U	NA
Benzo(K)Fluoranthene	1.1	0.38 U	110 JD	1.5 J	0.52	3.7 UD	0.37 U	0.39 U	NA
Bis(2-Ethylhexyl)Phthalate	50	0.38 U	3.6 UJ	0.16 J	0.1 J	3.7 UD	0.37 U	0.39 U	NA
Butylbenzylphthalate	50	0.38 U	3.6 U	0.43 UJ	0.4 U	3.7 UD	0.37 U	0.39 U	NA
Carbazole	None	0.38 U	28	0.21 J	0.14 J	3.7 UD	0.37 U	0.39 U	NA
Chrysene	0.4	0.38 U	480 D	8 D	1.6	3.7 UD	0.37 U	0.39 U	NA
Di-N-Butylphthalate	8.1	0.38 U	3.6 U	0.84	1.3	3.7 UD	0.37 U	0.39 U	NA
Dibenzo(A,H)Anthracene	0.014 or MDL	0.38 U	24	2.3 J	0.26 J	3.7 UD	0.37 U	0.39 U	NA
Dibenzofuran	6.2	0.38 U	10	0.054 J	0.4 U	3.7 UD	0.37 U	0.39 U	NA
Dimethylphthalate	2	0.38 U	3.6 U	0.43 U	0.4 U	3.7 UD	0.37 U	0.39 U	NA
Fluoranthene	50	0.38 U	860 D	2	1.3	3.7 UD	0.37 U	0.39 U	NA
Fluorene	50	0.38 U	25	0.11 J	0.056 J	3.7 UD	0.37 U	0.39 U	NA
Indeno(1,2,3-Cd)Pyrene	3.2	0.38 U	72 JD	6.8 DJ	0.91	3.7 UD	0.37 U	0.39 U	NA
Naphthalene	13	0.38 U	3.6 U	0.053 J	0.4 U	3.7 UD	0.37 U	0.39 U	NA
Phenanthrene	50	0.38 U	520 D	1.2	0.83	3.7 UD	0.37 U	0.044 J	NA
Pyrene	50	0.38 U	720 D	5.7 D	2	3.7 UD	0.37 U	0.39 U	NA
Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.012 U	0.011 JU	0.013 U	0.012 U	0.012 U	0.017 J	NA	0.012 U
2-Butanone	0.3	0.012 U	0.016	0.038	0.012 U	0.012	0.011 U	NA	0.012 U
4-Methyl-2-Pentanone	1	0.012 U	0.011 UJ	0.013 U	0.012 U	0.012 U	0.011 UJ	NA	0.012 U
Acetone	0.2	0.004 J	0.088 U	0.17 J	0.012 UJ	0.05 J	0.042 J	NA	0.095 J
Benzene	0.06	0.012 U	0.011 UJ	0.013 U	0.012 U	0.012 U	0.004 J	NA	0.012 U
Bromoform	None	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	NA	0.012 U
Chlorobenzene	1.7	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	NA	0.012 U
Carbon Disulfide	2.7	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	NA	0.012 U
1,2-Dichlorobenzene	7.9	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	NA	0.012 U
1,3-Dichlorobenzene	1.6	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	NA	0.012 U
1,4-Dichlorobenzene	8.5	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	NA	0.012 U
1,2-Dichloroethene (trans)	0.4	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	NA	0.012 U
Ethylbenzene	5.5	0.012 U	0.011 UJ	0.013 U	0.012 U	0.002 J	0.006 J	NA	0.013
Isopropylbenzene	None	0.012 U	0.011 UJ	0.013 U	0.012 U	0.012 U	0.003 J	NA	0.018
Methyl Acetate	None	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.009 J	NA	0.012 U
Methylcyclohexane	None	0.012 U	0.011 UJ	0.013 U	0.012 U	0.012 U	0.007 J	NA	0.01 J
Methylene Chloride	0.1	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	NA	0.012 U
Trichloroethene	0.7	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	NA	0.012 U
Toluene	1.5	0.012 U	0.003 J	0.008 J	0.004 J	0.03	0.094 J	NA	0.023
Xylene (Total)	1.2	0.012 U	0.011 JU	0.013 U	0.012 U	0.01 J	0.022 J	NA	0.05

See Notes, Page 10.

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth: / Date Collected:	Recommended Soil Cleanup Objective	SB-272 1 - 3' 06/06/01	SB-276 1 - 3' 06/06/01	SB-283 2 - 4' 06/06/01	SB-293 2 - 4' 06/06/01	SB-298 4 - 6' 06/08/01	DUP10 (SB-298) 4 - 6' 06/08/01	SB-298 6 - 8' 06/08/01	SB-299 4 - 6' 06/07/01
Semi-Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.36 U	0.37 U	0.36 U	0.94 U	0.36 U	0.38 U	0.39 U	0.38 U
2,4-Dimethylphenol	None	0.36 U	0.37 U	0.36 U	0.94 U	0.36 U	0.38 U	0.39 U	0.38 U
2-Methylnaphthalene	36.4	0.36 U	0.37 U	0.36 U	0.23 J	0.11 J	0.041 J	0.056 J	12 D
4-Methylphenol	0.9	0.36 U	0.37 U	0.36 U	0.94 U	0.36 U	0.38 U	0.39 U	0.38 U
Acenaphthene	50	0.36 U	0.37 U	0.36 U	0.22 J	0.36 U	0.38 U	0.39 U	0.38 U
Acenaphthylene	41	0.36 U	0.37 U	0.36 U	0.94 U	0.36 U	0.38 U	0.39 U	0.38 U
Anthracene	50	0.36 U	0.37 U	0.36 U	0.77 J	0.36 U	0.38 U	0.39 U	0.077 J
Benzo(A)Anthracene	0.224 or MDL	0.36 U	0.37 U	0.21 J	4.1	0.36 U	0.38 U	0.39 U	0.38 U
Benzo(A)Pyrene	0.061 or MDL	0.36 U	0.37 U	0.2 J	3	0.36 U	0.38 U	0.39 U	0.38 U
Benzo(B)Fluoranthene	1.1	0.36 U	0.37 U	1.3	6	0.36 U	0.38 U	0.39 U	0.38 U
Benzo(G,H,I)Perylene	50	0.36 U	0.37 U	0.26 J	1.5	0.36 U	0.38 U	0.39 U	0.38 U
Benzo(K)Fluoranthene	1.1	0.36 U	0.37 U	0.3 J	1.9	0.36 U	0.38 U	0.39 U	0.38 U
Bis(2-Ethylhexyl)Phthalate	50	0.038 J	0.37 U	0.065 J	0.24 J	0.068 J	0.047 J	0.065 J	0.38 U
Butylbenzylphthalate	50	0.36 U	0.37 U	0.36 U	0.94 U	0.36 U	0.38 U	0.39 U	0.38 U
Carbazole	None	0.36 U	0.37 U	0.36 U	0.42 J	0.36 U	0.38 U	0.39 U	0.38 U
Chrysene	0.4	0.36 U	0.37 U	0.99	5.9	0.36 U	0.38 U	0.39 U	0.38 U
Di-N-Butylphthalate	8.1	0.36 U	0.37 U	0.36 U	0.13 J	0.36 U	0.38 U	0.39 U	0.38 U
Dibenzo(A,H)Anthracene	0.014 or MDL	0.36 U	0.37 U	0.075 J	0.43 J	0.36 U	0.38 U	0.39 U	0.38 U
Dibenzofuran	6.2	0.36 U	0.37 U	0.36 U	0.94 U	0.36 U	0.38 U	0.39 U	0.38 U
Dimethylphthalate	2	0.36 U	0.37 U	0.36 U	0.94 U	0.36 U	0.38 U	0.39 U	0.38 U
Fluoranthene	50	0.36 U	0.37 U	0.18 J	6.3	0.36 U	0.38 U	0.39 U	0.04 J
Fluorene	50	0.36 U	0.37 U	0.36 U	0.26 J	0.36 U	0.38 U	0.39 U	0.38 U
Indeno(1,2,3-Cd)Pyrene	3.2	0.36 U	0.37 U	0.22 J	1.4	0.36 U	0.38 U	0.39 U	0.38 U
Naphthalene	13	0.36 U	0.37 U	0.36 U	0.19 J	0.12 J	0.051 J	0.056 J	13 D
Phenanthrene	50	0.36 U	0.37 U	0.058 J	2.9	0.36 U	0.38 U	0.39 U	0.41
Pyrene	50	0.36 U	0.37 U	0.26 J	7	0.36 U	0.38 U	0.39 U	0.078 J
Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.011 U	0.011 U	0.011 U	0.028 UJ	0.056 U	1.4 U	0.12 U	1.5 U
2-Butanone	0.3	0.011 UJ	0.013 J	0.073 J	0.12 J	0.056 U	1.4 U	0.12 U	1.5 U
4-Methyl-2-Pentanone	1	0.011 UJ	0.011 UJ	0.011 UJ	0.028 UJ	0.056 U	1.4 U	0.12 U	1.5 U
Acetone	0.2	0.004 J	0.046	0.15	310 J	0.056 UJ	1.4 UJ	0.12 UJ	1.5 U
Benzene	0.06	0.011 U	0.011 U	0.011 U	0.028 U	0.64 J	1.6 J	0.3 J	9.9 J
Bromoform	None	0.011 U	0.011 U	0.011 U	0.028 U	0.056 U	1.4 U	0.12 U	1.5 U
Chlorobenzene	1.7	0.011 U	0.011 U	0.011 U	0.028 U	0.056 U	1.4 U	0.12 U	1.5 U
Carbon Disulfide	2.7	0.011 U	0.011 U	0.011 U	0.004 J	0.056 U	1.4 U	0.12 U	1.5 U
1,2-Dichlorobenzene	7.9	0.011 U	0.011 U	0.011 U	0.028 U	0.056 U	1.4 U	0.12 U	1.5 U
1,3-Dichlorobenzene	1.6	0.011 U	0.011 U	0.011 U	0.028 U	0.056 U	1.4 U	0.12 U	1.5 U
1,4-Dichlorobenzene	8.5	0.011 U	0.011 U	0.011 U	0.028 U	0.056 U	1.4 U	0.12 U	1.5 U
1,2-Dichloroethene (trans)	0.4	0.011 U	0.011 U	0.011 U	0.028 U	0.056 U	1.4 U	0.12 U	1.5 U
Ethylbenzene	5.5	0.011 U	0.011 U	0.011 U	0.013 J	38 D	36 JD	4.6 DJ	75 DJ
Isopropylbenzene	None	0.011 U	0.011 U	0.011 U	0.011 J	6.5 D	6.4 J	0.53 J	13 J
Methyl Acetate	None	0.011 U	0.011 U	0.011 U	0.028 U	0.056 U	1.4 U	0.12 U	1.5 U
Methylcyclohexane	None	0.011 U	0.011 U	0.011 U	0.028 U	8.4 D	8.2 J	0.68 J	14 J
Methylene Chloride	0.1	0.011 U	0.011 U	0.011 U	0.028 U	0.056 U	1.4 U	0.12 U	1.5 U
Trichloroethene	0.7	0.011 U	0.011 U	0.011 U	0.028 U	0.056 U	1.4 U	0.12 U	1.5 U
Toluene	1.5	0.011 U	0.011 U	0.011 U	0.018 J	28 D	28 J	3.8 DJ	140 DJ
Xylene (Total)	1.2	0.011 U	0.011 U	0.011 U	0.076 J	190 D	180 JD	26 DJ	470 DJ

See Notes, Page 10.

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth: / Date Collected:	Recommended Soil Cleanup Objective	SB-299 8 - 10' 06/07/01	SB-300 2 - 4' 06/07/01	SB-300 5 - 7' 06/07/01	SB-301 4 - 6' 06/11/01	SB-301 8 - 10' 06/11/01	SB-303 2 - 4' 06/07/01	SB-303 8 - 10' 06/07/01	SB-304 2 - 4' 06/12/01
Semi-Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
2,4-Dimethylphenol	None	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
2-Methylnaphthalene	36.4	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
4-Methylphenol	0.9	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Acenaphthene	50	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Acenaphthylene	41	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Anthracene	50	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Benzo(A)Anthracene	0.224 or MDL	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Benzo(A)Pyrene	0.061 or MDL	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Benzo(B)Fluoranthene	1.1	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Benzo(G,H,I)Perylene	50	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Benzo(K)Fluoranthene	1.1	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Bis(2-Ethylhexyl)Phthalate	50	0.36 U	0.36 U	0.13 J	0.039 J	0.35 U	0.37 U	0.36 U	0.42 U
Butylbenzylphthalate	50	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Carbazole	None	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Chrysene	0.4	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Di-N-Butylphthalate	8.1	0.36 U	0.36 U	0.37 U	0.039 J	0.053 J	0.37 U	0.36 U	0.044 J
Dibenzo(A,H)Anthracene	0.014 or MDL	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Dibenzofuran	6.2	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Dimethylphthalate	2	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Fluoranthene	50	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Fluorene	50	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Indeno(1,2,3-Cd)Pyrene	3.2	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Naphthalene	13	0.04 J	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Phenanthrene	50	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Pyrene	50	0.36 U	0.36 U	0.37 U	0.38 U	0.35 U	0.37 U	0.36 U	0.42 U
Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
2-Butanone	0.3	0.011 U	0.011 U	0.011 U	0.011 UJ	0.011 UJ	0.011 U	0.011 U	0.013 U
4-Methyl-2-Pentanone	1	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
Acetone	0.2	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.013 UJ
Benzene	0.06	0.012	0.011 U	0.011 U	0.001 J	0.001 J	0.011 U	0.011 U	0.013 U
Bromoform	None	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
Chlorobenzene	1.7	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
Carbon Disulfide	2.7	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
1,2-Dichlorobenzene	7.9	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
1,3-Dichlorobenzene	1.6	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
1,4-Dichlorobenzene	8.5	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
1,2-Dichloroethene (trans)	0.4	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
Ethylbenzene	5.5	0.029	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
Isopropylbenzene	None	0.004 J	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
Methyl Acetate	None	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
Methylcyclohexane	None	0.004 J	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
Methylene Chloride	0.1	0.011 U	0.011 U	0.011 U	0.011 J	0.011 U	0.011 U	0.011 U	0.013 U
Trichloroethene	0.7	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U
Toluene	1.5	0.08	0.011 U	0.011 U	0.011 U	0.011 U	0.01 J	0.011 U	0.013 U
Xylene (Total)	1.2	0.19	0.011 U	0.011 U	0.011 U	0.011 U	0.005 J	0.011 U	0.013 U

See Notes, Page 10.

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth: / Date Collected:	Recommended Soil Cleanup Objective	SB-304 8 - 10' 06/12/01	SB-307 1 - 3' 06/12/01	SB-313 2 - 4' 06/12/01	SB-316 4 - 6' 06/12/01	SB-321 1 - 3' 06/12/01	SB-325 1 - 3' 06/13/01	SB-327 2 - 4' 06/12/01	SB-334 1 - 3' 06/13/01
Semi-Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.36 U	0.38 U	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
2,4-Dimethylphenol	None	0.36 U	0.38 U	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
2-Methylnaphthalene	36.4	0.36 U	0.19 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
4-Methylphenol	0.9	0.36 U	0.38 U	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Acenaphthene	50	0.36 U	0.12 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Acenaphthylene	41	0.36 U	0.34 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Anthracene	50	0.36 U	0.35 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Benzo(A)Anthracene	0.224 or MDL	0.36 U	0.87 J	0.4 U	0.46 U	0.39 U	0.065 J	0.38 U	0.38 U
Benzo(A)Pyrene	0.061 or MDL	0.36 U	0.68 J	0.4 U	0.52	0.39 U	0.39 U	0.38 U	0.38 U
Benzo(B)Fluoranthene	1.1	0.36 U	1 J	0.4 U	0.46 U	0.39 U	0.14 J	0.38 U	0.38 U
Benzo(G,H,I)Perylene	50	0.36 U	0.88 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Benzo(K)Fluoranthene	1.1	0.36 U	0.38 J	0.4 U	0.46 U	0.39 U	0.046 J	0.38 U	0.38 U
Bis(2-Ethylhexyl)Phthalate	50	0.037 J	0.047 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Butylbenzylphthalate	50	0.36 U	0.38 U	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Carbazole	None	0.36 U	0.15 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Chrysene	0.4	0.36 U	1.4 J	0.4 U	0.46 U	0.39 U	0.18 J	0.38 U	0.38 U
Di-N-Butylphthalate	8.1	0.36 U	0.087 J	0.044 J	0.46 U	0.046 J	0.39 U	0.38 U	0.38 U
Dibenzo(A,H)Anthracene	0.014 or MDL	0.36 U	0.16 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Dibenzofuran	6.2	0.36 U	0.12 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Dimethylphthalate	2	0.36 U	0.38 U	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Fluoranthene	50	0.36 U	1.6	0.4 U	0.46 U	0.39 U	0.14 J	0.38 U	0.38 U
Fluorene	50	0.36 U	0.21 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Indeno(1,2,3-Cd)Pyrene	3.2	0.36 U	0.61 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Naphthalene	13	0.36 U	0.22 J	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Phenanthrene	50	0.36 U	1.4	0.4 U	0.46 U	0.39 U	0.39 U	0.38 U	0.38 U
Pyrene	50	0.36 U	3.8 DJ	0.4 U	0.46 U	0.39 U	0.19 J	0.38 U	0.38 U
Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
2-Butanone	0.3	0.011 U	0.011 U	0.058	0.065	0.012 U	0.012 U	0.012 U	0.012 U
4-Methyl-2-Pentanone	1	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
Acetone	0.2	0.011 UJ	0.012 J	0.19 J	0.19 J	0.012 UJ	0.024 J	0.019 J	0.025 J
Benzene	0.06	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
Bromoform	None	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
Chlorobenzene	1.7	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
Carbon Disulfide	2.7	0.011 U	0.011 U	0.012 U	0.004 J	0.012 U	0.012 U	0.012 U	0.012 U
1,2-Dichlorobenzene	7.9	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
1,3-Dichlorobenzene	1.6	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
1,4-Dichlorobenzene	8.5	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
1,2-Dichloroethene (trans)	0.4	0.011 U	0.011 U	0.012 U	0.014 U	0.012 U	0.012 U	0.012 U	0.012 U
Ethylbenzene	5.5	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
Isopropylbenzene	None	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
Methyl Acetate	None	0.011 U	0.011 U	0.012 U	0.014 U	0.012 U	0.012 U	0.012 U	0.012 U
Methylcyclohexane	None	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
Methylene Chloride	0.1	0.011 U	0.011 U	0.012 U	0.002 J	0.012 U	0.001 J	0.001 J	0.012 U
Trichloroethene	0.7	0.011 U	0.011 U	0.012 U	0.014 UJ	0.012 U	0.012 U	0.012 U	0.012 U
Toluene	1.5	0.011 U	0.003 J	0.012 U	0.014 UJ	0.012 U	0.003 J	0.012 U	0.012 U
Xylene (Total)	1.2	0.011 U	0.002 J	0.012 U	0.004 UJ	0.012 U	0.004 J	0.012 U	0.012 U

See Notes, Page 10.

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth: / Date Collected:	Recommended Soil Cleanup Objective	SB-338 1 -3' 03/31/03	DUP-1 (SB-338) 1 - 3' 03/31/03	SB-341 1 - 3' 03/31/03	SB-342 1 - 3' 03/31/03	SB-343 3 -5' 03/31/03	SB-344 1 - 3' 03/31/03	TP-201 1 - 3' 06/14/01	TP-207 1 - 3' 06/11/01
Semi-Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.040 U	0.040 U	0.039 U	0.039 U	0.040 U	0.040 U	NA	0.38 U
2,4-Dimethylphenol	None	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.38 U
2-Methylnaphthalene	36.4	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.026	NA	0.38 U
4-Methylphenol	0.9	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.38 U
Acenaphthene	50	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.38 U
Acenaphthylene	41	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.38 U
Anthracene	50	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.075 J
Benzo(A)Anthracene	0.224 or MDL	0.040 U	0.040 U	0.039 U	0.030 J	0.040 U	0.040 U	NA	0.5
Benzo(A)Pyrene	0.061 or MDL	0.040 U	0.040 U	0.039 U	0.027 J	0.040 U	0.040 U	NA	0.58 J
Benzo(B)Fluoranthene	1.1	0.040 U	0.040 U	0.039 U	0.068	0.040 U	0.040 U	NA	1.8 J
Benzo(G,H,I)Perylene	50	0.40 U	0.40 U	0.39 U	0.050 J	0.40 U	0.40 U	NA	1.1 J
Benzo(K)Fluoranthene	1.1	0.040 U	0.040 U	0.039 U	0.020 J	0.040 U	0.040 U	NA	0.51 J
Bis(2-Ethylhexyl)Phthalate	50	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.14 J
Butylbenzylphthalate	50	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	
Carbazole	None	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.053 J
Chrysene	0.4	0.40 U	0.40 U	0.010 J	0.065 J	0.40 U	0.40 U	NA	1.3
Di-N-Butylphthalate	8.1	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.38 U
Dibenzo(A,H)Anthracene	0.014 or MDL	0.040 U	0.040 U	0.039 U	0.039 U	0.040 U	0.040 U	NA	0.19 J
Dibenzofuran	6.2	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.38 U
Dimethylphthalate	2	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.38 U
Fluoranthene	50	0.40 U	0.40 U	0.39 U	0.030 J	0.40 U	0.40 U	NA	0.53
Fluorene	50	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.38 U
Indeno(1,2,3-Cd)Pyrene	3.2	0.040 U	0.040 U	0.039 U	0.016 J	0.040 U	0.040 U	NA	0.67 J
Naphthalene	13	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.019 J	NA	0.38 U
Phenanthrene	50	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	NA	0.3 J
Pyrene	50	0.40 U	0.40 U	0.39 U	0.037 J	0.40 U	0.40 U	NA	0.92
Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
2-Butanone	0.3	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
4-Methyl-2-Pentanone	1	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Acetone	0.2	NA	NA	NA	NA	NA	NA	0.005 J	0.011 UJ
Benzene	0.06	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Bromoform	None	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Chlorobenzene	1.7	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Carbon Disulfide	2.7	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
1,2-Dichlorobenzene	7.9	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	0.014 U	0.011 U
1,3-Dichlorobenzene	1.6	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	0.014 U	0.011 U
1,4-Dichlorobenzene	8.5	0.40 U	0.40 U	0.39 U	0.39 U	0.40 U	0.40 U	0.014 U	0.011 U
1,2-Dichloroethene (trans)	0.4	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Ethylbenzene	5.5	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Isopropylbenzene	None	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Methyl Acetate	None	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Methylcyclohexane	None	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Methylene Chloride	0.1	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Trichloroethene	0.7	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Toluene	1.5	NA	NA	NA	NA	NA	NA	0.014 U	0.011 U
Xylene (Total)	1.2	NA	NA	NA	NA	NA	NA	0.014 U	0.005 J

See Notes, Page 10.

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: Sample Depth: Date Collected:	Recommended Soil Cleanup Objective	TP-216 3 - 3.5' 06/13/01	TP-218 4 - 5' 06/12/01	TP-220 4 - 5' 06/13/01	TP-222 3 - 4.5' 06/13/01	TP-A5E 1 - 3' 06/12/01	TP-A5S 3 - 4' 06/12/01	DUP-11 (TP-A5S) 3 - 4' 06/12/01	TP-A5W 3 - 4' 06/12/01
Semi-Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.4 U	NA	NA	0.4 U	0.38 U	0.42 U	0.39 U	0.4 U
2,4-Dimethylphenol	None	0.4 U	NA	NA	0.4 U	0.38 U	0.42 U	0.39 U	0.4 U
2-Methylnaphthalene	36.4	0.4 U	NA	NA	0.045 J	0.38 U	0.42 U	0.39 U	0.4 U
4-Methylphenol	0.9	0.4 U	NA	NA	0.4 U	0.38 U	0.42 U	0.39 U	0.4 U
Acenaphthene	50	0.4 U	NA	NA	0.4 U	0.38 U	0.42 U	0.39 U	0.4 U
Acenaphthylene	41	0.4 U	NA	NA	0.4 U	0.38 U	0.42 U	0.39 U	0.4 U
Anthracene	50	0.4 U	NA	NA	0.094 J	0.38 U	0.42 U	0.39 U	0.4 U
Benzo(A)Anthracene	0.224 or MDL	2	NA	NA	0.37 J	0.38 U	0.42 U	0.39 U	0.4 U
Benzo(A)Pyrene	0.061 or MDL	0.093 J	NA	NA	0.45 J	0.38 UJ	0.42 U	0.39 U	0.4 U
Benzo(B)Fluoranthene	1.1	4.5 DJ	NA	NA	0.7 J	0.19 J	0.42 U	0.39 U	0.4 U
Benzo(G,H,I)Perylene	50	0.18 J	NA	NA	0.45 J	0.38 UJ	0.42 U	0.39 U	0.4 U
Benzo(K)Fluoranthene	1.1	0.86	NA	NA	0.26 J	0.38 UJ	0.42 U	0.39 U	0.4 U
Bis(2-Ethylhexyl)Phthalate	50	0.4 U	NA	NA	0.58 U	0.059 J	0.42 U	0.39 U	0.4 U
Butylbenzylphthalate	50	0.4 U	NA	NA	0.4 U	0.38 U	0.42 U	0.39 U	0.4 U
Carbazole	None	0.4 U	NA	NA	0.076 J	0.38 U	0.42 U	0.39 U	0.4 U
Chrysene	0.4	6 D	NA	NA	0.55	0.18 J	0.42 U	0.39 U	0.4 U
Di-N-Butylphthalate	8.1	0.4 U	NA	NA	2.8	0.04 J	0.42 U	0.39 U	0.04 J
Dibenzo(A,H)Anthracene	0.014 or MDL	0.1 J	NA	NA	0.095 J	0.38 UJ	0.42 U	0.39 U	0.4 U
Dibenzofuran	6.2	0.4 U	NA	NA	0.071 J	0.38 U	0.42 U	0.39 U	0.4 U
Dimethylphthalate	2	0.4 U	NA	NA	0.4 U	0.38 U	0.42 U	0.39 U	0.4 U
Fluoranthene	50	1.5	NA	NA	0.94	0.38 U	0.42 U	0.39 U	0.4 U
Fluorene	50	0.4 U	NA	NA	0.1 J	0.38 U	0.42 U	0.39 U	0.4 U
Indeno(1,2,3-Cd)Pyrene	3.2	0.22 J	NA	NA	0.35 J	0.38 UJ	0.42 U	0.39 U	0.4 U
Naphthalene	13	0.4 U	NA	NA	0.11 J	0.38 U	0.42 U	0.39 U	0.4 U
Phenanthrene	50	0.072 J	NA	NA	1	0.38 U	0.42 U	0.39 U	0.4 U
Pyrene	50	1.9	NA	NA	1.2	0.044 J	0.42 U	0.39 U	0.4 U
Volatile Organic Compounds									
1,2,4-Trichlorobenzene	3.4	0.012 U	0.014 U	0.015 UJ	0.013 UJ	0.011 UJ	0.013 U	0.012 U	0.012 U
2-Butanone	0.3	0.015 J	0.016 J	0.038	0.011 J	0.011 U	0.013 U	0.012 U	0.012 U
4-Methyl-2-Pentanone	1	0.012 U	0.014 U	0.015 U	0.013 UJ	0.011 UJ	0.013 U	0.012 U	0.012 U
Acetone	0.2	0.040 J	0.050 J	0.15	0.066	0.051 J	0.013 UJ	0.012 UJ	0.012 UJ
Benzene	0.06	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
Bromoform	None	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
Chlorobenzene	1.7	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
Carbon Disulfide	2.7	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
1,2-Dichlorobenzene	7.9	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
1,3-Dichlorobenzene	1.6	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
1,4-Dichlorobenzene	8.5	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
1,2-Dichloroethene (trans)	0.4	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
Ethylbenzene	5.5	0.012 U	0.014 U	0.015 U	0.013 UJ	0.011 UJ	0.013 U	0.012 U	0.012 U
Isopropylbenzene	None	0.012 U	0.014 U	0.015 U	0.013 UJ	0.011 UJ	0.013 U	0.012 U	0.012 U
Methyl Acetate	None	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
Methylcyclohexane	None	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
Methylene Chloride	0.1	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
Trichloroethene	0.7	0.012 U	0.014 U	0.015 U	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U
Toluene	1.5	0.012 U	0.014 U	0.015 U	0.003 J	0.005 J	0.013 U	0.012 U	0.012 U
Xylene (Total)	1.2	0.012 U	0.014 U	0.015 U	0.013 UJ	0.007 J	0.013 U	0.012 U	0.012 U

See Notes, Page 10.

TABLE 9

Waste Stream, Inc.
Potsdam, NY

Subsurface Soil Analytical Results for Detected VOCs and SVOCs (ppm)

Notes:

1. Samples collected by Blasland Bouck & Lee, Inc. on the dates indicated.
2. Samples collected during June 2001 were analyzed by Galson Laboratories, Inc. and samples collected during 2003 and 2003 were analyzed by Severn using USEPA SW-846 Method 8260 for VOCs and Method 8270 for SVOCs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. Concentrations reported in milligrams per kilogram (mg/kg), which are equivalent to ppm.
4. DUP = Blind Duplicate Sample. The Sample ID in parenthesis indicates the parent sample.
5. B = Indicates analyte found in method blank as well as in sample.
6. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
7. J = The value presented in an estimated value.
8. D = Analyte analyzed at a secondary dilution.
9. Shaded values indicate an analyte concentration exceeding the Recommended Soil Cleanup Objective presented in the NYSDEC Technical Administrative guidance Memorandum (TAGM) #4046, dated January 24, 1994.
10. None = TAGM 4046 criteria not available for analyte.
11. The table presents detected VOCs and SVOCs only.
12. NA = not analyzed.
13. MDL = method detection limit.

TABLE 10

Waste Stream, Inc.
Potsdam, NY

Sediment Analytical Results for Total PCBs and TOC (ppm)

Sample ID	Depth (inches)	Date Collected	PCB Sediment Criteria (ppm) Human Health Bioaccumulation	Benthic Aquatic Life Acute	Benthic Aquatic Life Chronic	Wildlife Bioaccumulation	Total PCBs (ppm)	Total Organic Carbon (ppm)
SED-200	0 - 6	06/21/01	1.84E-06	6.35	0.0444	0.0032	57	2300
SED-200	6 - 17	06/21/01	7.92E-07	2.73	0.0191	0.0014	0.19	990
SED-201	0 - 6	06/21/01	5.20E-06	17.95	0.1255	0.0091	340	6500
SED-201	6 - 12	06/21/01	1.92E-06	6.63	0.0463	0.0034	22	2400
SED-202	0 - 6	06/21/01	7.76E-06	26.78	0.1872	0.0136	41	9700
SED-202	6 - 18	06/21/01	2.00E-06	6.90	0.0483	0.0035	0.52	2500
SED-203	0 - 6	06/21/01	6.56E-06	22.64	0.1583	0.0115	1.66	8200
SED-203	6 - 12	06/21/01	5.92E-06	20.43	0.1428	0.0104	0.267	7400
SED-204	0 - 6	06/21/01	4.80E-06	16.56	0.1158	0.0084	91.8	6000
SED-204	6 - 14	06/21/01	1.12E-06	3.87	0.0270	0.0020	0.17	1400
SED-205	0 - 6	06/21/01	8.80E-06	30.37	0.2123	0.0154	86.6	11000
SED-205	6 - 12	06/21/01	3.36E-06	11.60	0.0811	0.0059	1.72	4200
SED-206	0 - 6	06/21/01	3.84E-06	13.25	0.0926	0.0067	6.38	4800
SED-206	6 - 18	06/21/01	6.16E-06	21.26	0.1486	0.0108	15	7700
SED-207	0 - 6	06/21/01	1.76E-06	6.07	0.0425	0.0031	19	2200
SED-207	6 - 12	06/21/01	2.16E-06	7.45	0.0521	0.0038	0.186	2700
SED-209	0 - 6	06/21/01	5.12E-06	17.67	0.1235	0.0090	20.6	6400
SED-209	6 - 18	06/21/01	1.84E-06	6.35	0.0444	0.0032	0.216	2300
SED-210	0 - 6	06/21/01	6.40E-06	22.09	0.1544	0.0112	6.84	8000
SED-210	6 - 18	06/21/01	2.00E-06	6.90	0.0483	0.0035	0.022 U	2500
SED-211	0 - 6	06/21/01	8.80E-06	30.37	0.2123	0.0154	8.5	11000
SED-211	18 - 24	06/21/01	8.80E-07	3.04	0.0212	0.0015	0.020 U	1100
SED-212	0 - 6	06/21/01	5.84E-06	20.15	0.1409	0.0102	22.8	7300
SED-212	6 - 17	06/21/01	1.84E-06	6.35	0.0444	0.0032	0.336	2300
DUP (SED-212)	6 - 17	06/21/01	2.24E-06	7.73	0.0540	0.0039	2	2800
SED-214	0 - 6	06/21/01	8.00E-06	27.61	0.1930	0.0140	0.99	10000
SED-214	6 - 14	06/21/01	3.20E-06	11.04	0.0772	0.0056	0.164	4000
SED-215	0 - 6	06/21/01	6.64E-06	22.91	0.1602	0.0116	0.28	8300
SED-215	6 - 18	06/21/01	5.04E-06	17.39	0.1216	0.0088	0.043	6300
SED-216A	0 - 6	06/21/01	2.64E-06	9.11	0.0637	0.0046	7.93	3300
SED-216A	6 - 14	06/21/01	1.60E-06	5.52	0.0386	0.0028	0.371	2000
SED-216B	0 - 6	06/21/01	1.60E-06	5.52	0.0386	0.0028	6.2	2000
SED-216B	6 - 10	06/21/01	1.52E-06	5.25	0.0367	0.0027	200	1900
SED-216C	0 - 6	06/21/01	1.04E-06	3.59	0.0251	0.0018	14	1300
SED-216C	6 - 16	06/21/01	1.84E-06	6.35	0.0444	0.0032	99	2300
SED-217A	0 - 6	06/20/01	2.24E-06	7.73	0.0540	0.0039	3.41	2800
SED-217A	6 - 16	06/20/01	1.76E-06	6.07	0.0425	0.0031	0.56	2200
SED-217B	0 - 6	06/20/01	2.80E-06	9.66	0.0676	0.0049	4.76	3500
SED-217C	0 - 6	06/20/01	3.44E-06	11.87	0.0830	0.0060	6.1	4300
SED-217C	6 - 15	06/20/01	2.00E-06	6.90	0.0483	0.0035	9.26	2500
SED-218A	0 - 6	06/20/01	1.20E-06	4.14	0.0290	0.0021	6.3	1500
SED-218B	0 - 6	06/20/01	7.92E-07	2.73	0.0191	0.0014	7.8	990
SED-218C	0 - 6	06/20/01	2.08E-06	7.18	0.0502	0.0036	4.7	2600
SED-219A	0 - 6	06/20/01	2.72E-06	9.39	0.0656	0.0048	57.6	3400
SED-219B	0 - 6	06/20/01	9.60E-07	3.31	0.0232	0.0017	33.4	1200
SED-219C	0 - 6	06/20/01	1.52E-06	5.25	0.0367	0.0027	11	1900
SED-219C	6 - 8	06/20/01	5.28E-06	18.22	0.1274	0.0092	4.36	6600
SED-220A	0 - 6	06/20/01	3.92E-06	13.53	0.0946	0.0069	48	4900
SED-220A	6 - 12	06/20/01	1.68E-06	5.80	0.0405	0.0029	35.9	2100
SED-220B	0 - 6	06/20/01	9.60E-06	33.13	0.2316	0.0168	39.7	12000
SED-220B	6 - 8	06/20/01	2.16E-06	7.45	0.0521	0.0038	128	2700
SED-220C	0 - 6	06/20/01	4.88E-06	16.84	0.1177	0.0085	21.1	6100
DUP (SED-220C)	6 - 10	06/20/01	1.04E-06	3.59	0.0251	0.0018	8.3	1300
SED-220C	6 - 10	06/20/01	4.72E-06	16.29	0.1139	0.0083	13.9	5900
SED-221A	0 - 6	06/20/01	3.52E-06	12.15	0.0849	0.0062	3400	4400
SED-221A	6 - 8	06/20/01	4.80E-06	16.56	0.1158	0.0084	3150	6000
SED-221B	0 - 6	06/20/01	1.36E-06	4.69	0.0328	0.0024	26.7	1700

TABLE 10

Waste Stream, Inc.
Potsdam, NY

Sediment Analytical Results for Total PCBs and TOC (ppm)

Sample ID	Depth (inches)	Date Collected	PCB Sediment Criteria (ppm) Human Health Bioaccumulation	Benthic Aquatic Life Acute	Benthic Aquatic Life Chronic	Wildlife Bioaccumulation	Total PCBs (ppm)	Total Organic Carbon (ppm)
SED-221B	6 - 8	06/20/01	1.36E-06	4.69	0.0328	0.0024	20.6	1700
SED-221C	0 - 6	06/20/01	2.64E-06	9.11	0.0637	0.0046	15.9	3300
SED-221C	6 - 8	06/20/01	2.56E-06	8.83	0.0618	0.0045	19	3200
SED-222A	0 - 6	06/20/01	1.52E-06	5.25	0.0367	0.0027	3.23	1900
SED-222B	0 - 6	06/20/01	2.80E-06	9.66	0.0676	0.0049	2.29	3500
SED-222C	0 - 6	06/20/01	5.20E-06	17.95	0.1255	0.0091	490	6500
SED-223A	0 - 6	06/20/01	1.36E-06	4.69	0.0328	0.0024	37.4	1700
SED-223A	6 - 12	06/20/01	3.60E-06	12.42	0.0869	0.0063	40.4	4500
SED-223B	0 - 6	06/20/01	4.48E-06	15.46	0.1081	0.0078	25	5600
SED-223B	6 - 12	06/20/01	1.84E-06	6.35	0.0444	0.0032	5.1	2300
SED-223C	0 - 4	06/20/01	3.92E-06	13.53	0.0946	0.0069	4.5	4900
SED-224A	0 - 6	06/20/01	1.92E-06	6.63	0.0463	0.0034	1.6	2400
SED-224A	6 - 12	06/20/01	6.96E-07	2.40	0.0168	0.0012	0.151	870
SED-224B	0 - 6	06/20/01	1.20E-05	41.41	0.2895	0.0210	1.39	15000
SED-224B	6 - 14	06/20/01	3.36E-06	11.60	0.0811	0.0059	9.4	4200
DUP (SED-224B)	0 - 6	06/20/01	7.44E-06	25.68	0.1795	0.0130	7.8	9300
SED-224C	0 - 6	06/20/01	3.44E-06	11.87	0.0830	0.0060	5.5	4300
SED-224C	6 - 15	06/20/01	1.92E-06	6.63	0.0463	0.0034	0.53	2400
SED-225A	0 - 6	06/19/01	3.92E-07	1.35	0.0095	0.0007	0.020 U	490
SED-225B	0 - 6	06/19/01	1.28E-06	4.42	0.0309	0.0022	5.5	1600
SED-225B	6 - 10	06/19/01	7.60E-07	2.62	0.0183	0.0013	1.75	950
SED-225C	0 - 6	06/19/01	1.36E-06	4.69	0.0328	0.0024	32	1700
SED-225C	6 - 18	06/19/01	5.36E-07	1.85	0.0129	0.0009	0.34	670
SED-226A	0 - 6	06/19/01	2.88E-06	9.94	0.0695	0.0050	7.1	3600
SED-226A	6 - 18	06/19/01	6.24E-07	2.15	0.0151	0.0011	0.020 UJ	780
DUP (SED-226A)	6 - 18	06/19/01	6.64E-07	2.29	0.0160	0.0012	0.020 UJ	830
SED-226B	0 - 6	06/19/01	2.08E-06	7.18	0.0502	0.0036	2.5	2600
SED-226B	6 - 18	06/19/01	5.28E-07	1.82	0.0127	0.0009	0.288	660
SED-226C	0 - 6	06/19/01	6.88E-07	2.37	0.0166	0.0012	1.02	860
SED-226C	6 - 18	06/19/01	3.78E-07	1.31	0.0091	0.0007	0.019 UJ	473 U
SED-227A	0 - 6	06/20/01	3.44E-06	11.87	0.0830	0.0060	3.7	4300
SED-227A	6 - 17	06/20/01	2.32E-07	0.80	0.0056	0.0004	0.023 U	290
SED-227B	0 - 6	06/20/01	1.04E-06	3.59	0.0251	0.0018	1.15	1300
SED-227B	6 - 18	06/20/01	5.60E-07	1.93	0.0135	0.0010	0.021 U	700
SED-227C	0 - 6	06/20/01	2.56E-06	8.83	0.0618	0.0045	0.85	3200
SED-227C	6 - 12	06/20/01	1.28E-06	4.42	0.0309	0.0022	0.113	1600
SED-228A	0 - 6	06/20/01	1.60E-06	5.52	0.0386	0.0028	0.024 U	2000
SED-228A	6 - 18	06/20/01	1.60E-06	5.52	0.0386	0.0028	0.023 U	2000
SED-228B	0 - 6	06/20/01	1.60E-06	5.52	0.0386	0.0028	0.151	2000
SED-228B	6 - 18	06/20/01	8.80E-07	3.04	0.0212	0.0015	0.021 U	1100
SED-228C	0 - 6	06/20/01	1.68E-06	5.80	0.0405	0.0029	0.174	2100
SED-228C	18 - 24	06/20/01	8.00E-08	0.28	0.0019	0.0001	0.020 U	470 U
SED-229	0 - 6	06/18/01	3.52E-06	12.15	0.0849	0.0001	3.7	4400
SED-229	6 - 18	06/18/01	2.00E-06	6.90	0.0483	0.0035	3.3	2500
DUP (SED-229)	6 - 18	06/18/01	2.80E-06	9.66	0.0676	0.0049	2.4	3500
SED-230	0 - 6	06/18/01	3.04E-06	10.49	0.0733	0.0053	15.1	3800
SED-230	6 - 18	06/18/01	8.80E-07	3.04	0.0212	0.0015	2.7	1100
SED-231	0 - 6	06/18/01	3.04E-06	10.49	0.0733	0.0053	6.6	3800
SED-231	6 - 16	06/18/01	4.32E-06	14.91	0.1042	0.0076	0.61	5400
SED-232	0 - 6	06/19/01	3.52E-06	12.15	0.0849	0.0062	8.8	4400
SED-232	6 - 18	06/19/01	3.52E-06	12.15	0.0849	0.0062	4.46	4400
SED-233	0 - 6	06/19/01	1.52E-06	5.25	0.0367	0.0027	9.3	1900
SED-233	6 - 18	06/19/01	2.08E-06	7.18	0.0502	0.0036	2.3	2600
SED-234	0 - 6	06/18/01	5.44E-06	18.77	0.1312	0.0095	3.7	6800
SED-234	6 - 18	06/18/01	3.84E-07	1.33	0.0093	0.0007	1.25	480 U
SED-235	0 - 6	06/19/01	2.08E-06	7.18	0.0502	0.0036	1.37	2600
SED-235	6 - 18	06/19/01	5.68E-07	1.96	0.0137	0.0010	0.044	710

TABLE 10

Waste Stream, Inc.
Potsdam, NY

Sediment Analytical Results for Total PCBs and TOC (ppm)

Sample ID	Depth (inches)	Date Collected	PCB Sediment Criteria (ppm) Human Health Bioaccumulation	Benthic Aquatic Life Acute	Benthic Aquatic Life Chronic	Wildlife Bioaccumulation	Total PCBs (ppm)	Total Organic Carbon (ppm)
SED-236	0 - 6	06/20/01	8.80E-07	3.04	0.0212	0.0015	47.8	1100 U
SED-236	6 - 15	06/20/01	3.12E-06	10.77	0.0753	0.0055	4.6	3900
SED-237	0 - 6	06/19/01	1.60E-06	5.52	0.0386	0.0028	17.7	2000
SED-237	18 - 26	06/19/01	8.00E-08	0.28	0.0019	0.0001	0.020 U	360 U
SED-238	0 - 6	06/19/01	1.68E-05	57.98	0.4053	0.0294	2.2	21000
SED-238	6 - 18	06/19/01	8.80E-07	3.04	0.0212	0.0015	0.029 U	1100
SED-239	0 - 6	06/19/01	2.16E-06	7.45	0.0521	0.0038	1.79	2700
DUP (SED-239)	0 - 6	06/19/01	2.00E-06	6.90	0.0483	0.0035	6.94	2500
SED-239	6 - 18	06/19/01	2.08E-06	7.18	0.0502	0.0036	0.429	2600
SED-240	0 - 6	06/19/01	6.88E-07	2.37	0.0166	0.0012	4.5	860
SED-240	6 - 11	06/19/01	8.00E-08	0.28	0.0019	0.0001	0.334	350 U
SED-241	0 - 6	06/19/01	2.40E-06	8.28	0.0579	0.0042	6.3	3000
SED-241	6 - 18	06/19/01	1.44E-06	4.97	0.0347	0.0025	0.119	1800
SED-242	0 - 6	06/19/01	2.80E-06	9.66	0.0676	0.0049	0.032	3500
SED-242	18 - 26	06/19/01	8.00E-08	0.28	0.0019	0.0001	0.020 U	520 U
SED-243	0 - 6	06/19/01	7.60E-06	26.23	0.1834	0.0133	34	9500
SED-243	6 - 18	06/19/01	4.56E-06	15.74	0.1100	0.0080	0.310	5700
SED-244	0 - 6	06/19/01	1.20E-06	4.14	0.0290	0.0021	17.5	1500
SED-244	6 - 18	06/19/01	6.00E-07	2.07	0.0145	0.0011	0.023 U	750
SED-245	0 - 6	06/19/01	4.40E-06	15.18	0.1062	0.0077	25	5500
SED-245	6 - 11	06/19/01	1.92E-06	6.63	0.0463	0.0034	3.68	2400
SED-246	0 - 6	06/19/01	2.16E-06	7.45	0.0521	0.0038	9.4	2700
SED-246	6 - 14	06/19/01	8.80E-07	3.04	0.0212	0.0015	0.38	1100
SED-247	0 - 6	06/19/01	2.48E-06	8.56	0.0598	0.0043	31	3100
SED-248	0 - 4	06/21/01	2.72E-06	9.39	0.0656	0.0048	6.97	3400
SED-249	0 - 6	06/21/01	1.52E-06	5.25	0.0367	0.0027	4.86	1900
SED-249	6 - 8	06/21/01	1.76E-06	6.07	0.0425	0.0031	10.9	2200
SED-250	0 - 6	06/21/01	7.52E-07	2.60	0.0181	0.0013	7.5	940 U
DUP (SED-250)	0 - 6	06/21/01	3.28E-06	11.32	0.0791	0.0057	17	4100
SED-250	6 - 13	06/21/01	8.80E-07	3.04	0.0212	0.0015	20	1100
SED-251	0 - 6	06/21/01	3.20E-06	11.04	0.0772	0.0056	0.334	4000
SED-251	6 - 18	06/21/01	9.60E-07	3.31	0.0232	0.0017	0.021 U	1200
SED-252	0 - 6	06/21/01	3.52E-06	12.15	0.0849	0.0062	0.146	4400
SED-252	6 - 16	06/21/01	1.44E-06	4.97	0.0347	0.0025	0.022 U	1800
SED-253	0 - 6	06/21/01	9.60E-07	3.31	0.0232	0.0017	0.025	1200
SED-253	6 - 18	06/21/01	1.12E-06	3.87	0.0270	0.0020	0.023 U	1400
DUP (SED-253)	6 - 18	06/21/01	1.28E-06	4.42	0.0309	0.0022	0.022 U	1600
SED-254	0 - 6	06/21/01	2.56E-06	8.83	0.0618	0.0045	0.174	3200
SED-254	6 - 10	06/21/01	1.12E-06	3.87	0.0270	0.0020	0.021 U	1400
SED-255	0 - 6	06/21/01	1.52E-06	5.25	0.0367	0.0027	0.021 U	1900
SED-255	6 - 11	06/21/01	7.76E-07	2.68	0.0187	0.0014	0.020 U	970
SED-256	0 - 6	02/18/02	7.68E-07	2.65	0.0185	0.0013	0.024 U	960
SED-256	6 - 18	02/18/02	1.18E-07	0.41	0.0028	0.0002	0.026 U	147
SED-257	0 - 6	02/18/02	5.51E-07	1.90	0.0133	0.0010	17.8	689
SED-257	6 - 18	02/18/02	1.97E-07	0.68	0.0047	0.0003	0.029 U	246
SED-DUP-01	6 - 18	02/18/02	1.09E-07	0.38	0.0026	0.0002	0.029 U	136
SED-258	0 - 6	02/18/02	2.86E-07	0.99	0.0069	0.0005	1.8	357
SED-258	6 - 18	02/18/02	6.62E-07	2.29	0.0160	0.0012	0.035 U	828
SED-259	0 - 6	02/18/02	1.09E-06	3.75	0.0262	0.0019	60	1360
SED-259	6 - 18	02/18/02	6.33E-07	2.18	0.0153	0.0011	0.069	791
SED-260	0 - 6	02/18/02	2.37E-07	0.82	0.0057	0.0004	2.0	296
SED-260	6 - 18	02/18/02	1.61E-07	0.55	0.0039	0.0003	0.030 U	201
SED-261	0 - 6	02/18/02	3.23E-07	1.12	0.0078	0.0006	4.9	404
SED-261	6 - 18	02/18/02	3.14E-07	1.08	0.0076	0.0005	5.5	392
SED-262	0 - 6	02/18/02	4.75E-07	1.64	0.0115	0.0008	1.5	594
SED-262	6 - 18	02/18/02	8.16E-07	2.82	0.0197	0.0014	0.046	1020
SED-263	0 - 6	02/18/02	2.14E-07	0.74	0.0052	0.0004	0.13	268

TABLE 10

Waste Stream, Inc.
Potsdam, NY

Sediment Analytical Results for Total PCBs and TOC (ppm)

Sample ID	Depth (inches)	Date Collected	PCB Sediment Criteria (ppm) Human Health Bioaccumulation	Benthic Aquatic Life Acute	Benthic Aquatic Life Chronic	Wildlife Bioaccumulation	Total PCBs (ppm)	Total Organic Carbon (ppm)
SED-263	6 - 18	02/18/02	3.63E-07	1.25	0.0088	0.0006	0.044	454
SED-264	0 - 6	02/18/02	3.30E-07	1.14	0.0080	0.0006	10	412
SED-264	6 - 18	02/18/02	1.09E-07	0.38	0.0026	0.0002	0.65	136
SED-265	0 - 6	02/18/02	5.54E-07	1.91	0.0134	0.0010	43	692
SED-265	6 - 18	02/18/02	4.66E-07	1.61	0.0112	0.0008	11	582
SED-DUP-02	6 - 18	02/18/02	4.98E-07	1.72	0.0120	0.0009	19	623
SED-266	0 - 6	02/18/02	5.61E-07	1.94	0.0135	0.0010	24.0	701
SED-266	6 - 18	02/18/02	4.70E-07	1.62	0.0113	0.0008	1.2	588
SED-267	0 - 6	02/18/02	5.62E-07	1.94	0.0136	0.0010	1.3	703
SED-267	6 - 18	02/18/02	2.71E-07	0.94	0.0065	0.0005	0.59	339
SED-268	0 - 6	02/18/02	1.22E-07	0.42	0.0030	0.0002	190	153
SED-268	6 - 18	02/18/02	3.08E-07	1.06	0.0074	0.0005	6.2	385
SED-269	0 - 6	02/18/02	2.28E-07	0.79	0.0055	0.0004	11	285
SED-269	6 - 18	02/18/02	3.77E-07	1.30	0.0091	0.0007	0.36	471
SED-270	0 - 6	02/18/02	2.08E-06	7.18	0.0502	0.0036	9.3	2600 A
SED-270	6 - 18	02/18/02	1.92E-06	6.63	0.0463	0.0034	0.41	2400 U
SED-271	0 -6	04/02/03	6.62E-05	228.59	1.5980	0.1159	0.14 U	82800
SED-271	6 - 13	04/02/03	4.48E-07	1.55	0.0108	0.0008	0.080 U	560
SED-272	0 -6	04/02/03	9.60E-05	331.30	2.3160	0.1680	0.22 U	120000
SED-272	6 - 17	04/02/03	6.01E-06	20.73	0.1449	0.0105	0.084 U	7510
SED-273	0 - 6	04/02/03	1.58E-05	54.39	0.3802	0.0276	0.088 U	19700
SED-273	6 - 16	04/02/03	2.19E-06	7.56	0.0529	0.0038	0.083 U	2740
SED-DUP-1 (SED-273)	6 - 16	04/02/03	4.34E-06	14.99	0.1048	0.0076	0.66	5430
SED-274	0 - 6	04/02/03	9.04E-06	31.20	0.2181	0.0158	0.36	11300
SED-274	6 - 18	04/02/03	1.13E-06	3.89	0.0272	0.0020	0.078 U	1410
SED-275	0 - 6	04/02/03	2.26E-05	77.85	0.5443	0.0395	0.10 U	28200
SED-275	6 - 18	04/02/03	1.78E-06	6.16	0.0430	0.0031	0.080 U	2230
SED-276	0 - 6	04/02/03	6.74E-05	232.46	1.6251	0.1179	0.29	84200
SED-276	6 - 18	04/02/03	1.00E-05	34.51	0.2413	0.0175	0.086 U	12500
SED-277	0 - 6	04/02/03	7.73E-05	266.69	1.8644	0.1352	0.19	96600
SED-277	6 - 18	04/02/03	1.50E-05	51.63	0.3609	0.0262	0.090 U	18700
SED-278	0 - 6	04/02/03	1.24E-04	427.92	2.9915	0.2170	0.30	155000
SED-278	6 - 13	04/02/03	4.84E-05	167.03	1.1677	0.0847	0.12 U	60500
SED-279	0 - 6	04/02/03	1.88E-04	648.79	4.5355	0.3290	69 J	235000
SED-279	6 - 18	04/02/03	1.31E-04	452.77	3.1652	0.2296	27.6 J	164000
SED-281	0 - 6	04/02/03	1.66E-04	574.25	4.0144	0.2912	29.1 J	208000
SED-281	6 - 11	04/02/03	1.19E-04	411.36	2.8757	0.2086	14.5 J	149000

TABLE 10

Waste Stream, Inc.
Potsdam, NY

Sediment Analytical Results for Total PCBs and TOC (ppm)

Notes:

1. Samples collected by Blasland Bouck & Lee, Inc. on the dates indicated.
2. Samples collected during June 2001 analyzed by Galson Laboratories, Inc. using USEPA SW-846 Method 8082 for PCBs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. Samples collected during February 2002 and April 2003 were analyzed by Severn Trent Laboratories, Inc. using USEPA SW-841 Method 8082 for PCBs as referenced in NYSDEC 2000 ASP.
4. Concentrations reported in milligrams per kilogram (mg/kg), which are equivalent to parts per million (ppm).
5. DUP = Blind Duplicate Sample. The Sample ID in parenthesis indicated the parent sample.
6. U = The analyte was analyzed for but not detected. The value preceding the U indicates the laboratory detection limit.
7. NYSDEC sediment criteria were calculated using the human health bioaccumulation and three ecological risk-based levels of protection (benthic aquatic life acute toxicity, benthic aquatic life chronic toxicity, and wildlife bioaccumulation) presented in the NYSDEC Division of Fish, Wildlife, and Marine Resources document entitled, "Technical Guidance for Screening Contaminated Sediments", dated January 1999, and the concentration of TOC detected in the individual sediment samples.
8. For samples where TOC concentrations were not detected at concentrations exceeding the laboratory detection limits, the laboratory detection limits value was used to calculate NYSDEC sediment criteria.

TABLE 11

Waste Stream, Inc.
Potsdam, New York

Sediment Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: Sample Depth: Date Collected:	Lowest Effect Level	Severe Effect Level	SED-200 (0 - 6") 06/21/01	SED-207 (0 - 6") 06/21/01	SED-210 (6 - 18") 06/21/01	SED-212 (6 - 17") 06/21/01	WSI-SED-DUP-7 (SED-212) (6 - 17") 06/21/01	SED-219C (0 - 6") 06/20/01	SED-222A (0 - 6") 06/20/01	SED-224B (6 - 14") 06/20/01	SED-226C (6 - 18") 06/19/01	SED-2 (0 - 6 06/20/
Aluminum	None	None	8280	4290	6750	4590	3080	3680	5040	11900	1430	1210
Antimony	2	25	1.8 BJ	1.7 BJ	0.66 UJ	0.72 UJ	0.76 UJ	1.5 BJ	**4.7** BJ	**5.2** BJ	0.59 UJ	0.73
Arsenic	6	33	5.1	4.3	0.93 B	1.2 B	0.79 B	4.7	3.6	**27.8**	0.48 U	1.4
Barium	None	None	118	63.9	61.2	48.2	30.2 B	44.1	138	141	9.2 B	18.2
Beryllium	None	None	0.75 B	0.44 B	0.34 B	0.24 B	0.25 B	0.37 B	0.66 B	1.2	0.16 B	0.17
Cadmium	0.6	9	**2.2**	**1.6**	0.26 U	0.31 B	0.3 U	**1.5**	**4.3**	**8.9**	0.24 U	0.29
Calcium	None	None	8540	6990	2080	3140	1980	8430	11500	34100	672	2670
Chromium	26	110	18.7	11.6	9.4	7.4	4.9	13.1	14.6	**58.9**	2	2.8
Cobalt	None	None	5.9 B	3.5 B	2.9 B	2.6 B	1.9 B	3 B	3.6 B	12.3	1.4 B	1
Copper	16	110	**254**	**255**	3 B	7.9	4.1	**375**	**2320**	**962**	1.8 B	6.8
Cyanide	None	None	1.1 U	0.82 U	0.64 U	0.69 U	0.72 U	0.6 U	0.67 U	0.89 U	0.59 U	0.69
Iron	20000	40000	**21200**	15500	9540	6670	8790	**21500**	17500	**50100**	2150	4680
Lead	31	110	**323** J	**802** J	7 J	15 J	6.5 J	**259** J	**474** J	**1160** J	0.73 J	19.1
Magnesium	None	None	3420	3290	1230	1210	772	4240	5930	18600	633	1090
Manganese	460	1100	256 J	177 J	152 J	79 J	69.8 J	433 J	136 J	392 J	18.2 J	48.4
Mercury	0.15	1.3	**3**	**0.57**	0.066 U	0.089 B	0.076 U	**0.87**	**1.9**	**7.5**	0.059 U	0.09
Nickel	16	50	15.5	10.9	3.4 B	4 B	2.2 B	12.1	**22.6**	**62.9**	2.1 B	1.6
Potassium	None	None	661 B	401 B	373 B	373 B	261 B	267 B	464 B	1210	260 B	138
Selenium	None	None	1.7	0.7 U	0.53 U	0.58 U	0.61 U	0.5 U	1.1	0.73 U	0.48 U	0.58
Silver	1	2.2	0.46 U	0.35 U	0.26 U	0.29 U	0.3 U	0.25 U	0.35 B	**1.6** B	0.24 U	0.29
Sodium	None	None	149 B	83.9 B	55 U	60 U	63.3 U	151 B	368 B	768 B	75.1 B	195
Thallium	None	None	1.4 U	1 U	0.79 U	0.87 U	0.91 U	0.75 U	0.86 U	1.2 B	0.71 U	0.87
Vanadium	None	None	35.2	17.3	16.9	12.1	11	17.3	20.7	45.8	2.9 B	4.8
Zinc	120	270	**507**	**385**	31.3	97.8	40.1	**387**	**4400**	**1750**	5.7	61.4

TABLE 11

Waste Stream, Inc.
Potsdam, New York

Sediment Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: Sample Depth: Date Collected:	Lowest Effect Level	Severe Effect Level	28B ") /01	SED-234 (6 - 18") 06/18/01	SED-239 (6 - 18") 06/19/01	SED-241 (6 - 18") 06/19/01	SED-244 (6 - 18") 06/19/01	SED-272 (0 - 6") 04/02/03	SED-272 (6 - 17") 04/02/03	SED-273 (0 - 6") 04/02/03	SED-273 (6 - 16") 04/02/03	SED-274 (0 - 6") 04/02/03	SED-274 (6 - 18") 04/02/03	SED-276 (0 - 6") 04/02/03
Aluminum	None	None		1320	3660	2340	1950	3960	1590	594	1600	2510	1700	13200
Antimony	2	25	UJ	0.6 UJ	1.3 UJ	0.72 UJ	0.71 UJ	**4.0 BJ**	1.6 U	1.7 U	1.1 UJ	1.1 UJ	1.4 U	2.5 UJ
Arsenic	6	33	B	0.83 B	2 B	0.72 B	0.56 U	3.4 B	1.4 B	0.86 U	0.89 U	1.6 B	1.0 B	**6.6 B**
Barium	None	None	B	10.4 B	40.1 B	19.8 B	16.9 B	41.3 B	12.2 B	11.4 B	8.4 B	32.9 B	26.6 B	176
Beryllium	None	None	B	0.16 B	0.52 B	0.3 B	0.18 B	0.30 B	0.16 B	0.048 U	0.07 B	0.18 B	0.19 B	0.63 B
Cadmium	0.6	9	U	0.36 B	0.51 U	0.29 U	0.28 U	0.34 B	0.10 U	0.095 U	0.099 U	0.095 U	0.085 U	0.22 U
Calcium	None	None		1430	6200	1840	1230	8690	1470	985 B	858 B	1300	962 B	6780
Chromium	26	110		3.1	8.4	3.4	2.5	7.0	3.2	0.94 B	2.1 B	4.6	6.2	20.5
Cobalt	None	None	B	1.1 B	3.4 B	1.3 B	1.1 B	1.7 B	1.3 B	0.24 U	0.68 B	1.6 B	1.8 B	9.6 B
Copper	16	110		12.2	**17.2**	6	2.4 B	8.7 B	1.3 B	1.3 B	0.73 B	4.6 B	1.0 B	13.9 B
Cyanide	None	None	U	0.56 U	1.3 U	0.7 U	0.68 U	NA	NA	NA	NA	NA	NA	NA
Iron	20000	40000		2290	10100	4620	2060	9830	6830	1400	2710	9130	13000	**24400**
Lead	31	110	J	**34.3** J	11.4 J	6.6 J	3.7 J	22.8	1.1 B	3.5	0.77 B	7.7 J	0.64 B	31.0 J
Magnesium	None	None		948	2440	812	647 B	1140 B	714 B	166 B	490 B	633 B	706 B	4100 B
Manganese	460	1100	J	21.4 J	74.2 J	27.1 J	16.3 J	429	64.2 J	71.6	25.2 J	280	106	**1070 J**
Mercury	0.15	1.3	B	**0.25**	0.13 U	0.072 U	0.071 U	**0.17**	0.021 U	0.07	0.021 U	0.04 U	0.02 U	**0.18**
Nickel	16	50	B	2.9 B	6.6 B	2.1 B	1.2 B	2.7 B	1.2 B	0.33 U	0.76 B	2.0 B	2.1 B	14.2 B
Potassium	None	None	B	169 B	542 B	172 B	147 B	170 BJ	94.4 BJ	60.4 UJ	70.1 BJ	63.5 BJ	75.4 BJ	828 BJ
Selenium	None	None	U	0.48 U	1 U	0.57 U	0.56 U	3.0 U	1.1 U	1.1 U	1.1 U	1.1 U	0.96 U	2.8 U
Silver	1	2.2	U	0.24 U	0.51 U	0.29 U	0.28 U	0.74 U	0.28 U	0.26 U	0.27 U	0.26 U	0.23 U	0.60 U
Sodium	None	None	B	49.9 U	234 B	59.5 U	58.7 U	236 U	94.4 B	89.7 B	111 B	123 B	96.7 B	379 B
Thallium	None	None	U	2.3	1.5 B	0.86 U	1.3 B	1.4 U	1.0 U	0.97 U	1.0 U	0.97 U	0.87 U	1.1 U
Vanadium	None	None	B	3.6 B	20.2	6.3 B	4.4 B	15.4 B	9.6 B	3.3 B	4.7 B	11.3 B	16.8	37.7
Zinc	120	270		49.6	40	21.6	22.1	49.3	13.4	5.2 B	5.3 B	17.2	6.2 B	68.7

TABLE 11

Waste Stream, Inc.
Potsdam, New York

Sediment Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth: / Date Collected:	Lowest Effect Level	Severe Effect Level	SED-276 (6 - 18") 04/02/03	SED-277 (0 - 6") 04/02/03	SED-277 (6 - 18") 04/02/03	SED-278 (0 - 6") 04/02/03	SED-278 (6 - 13") 04/02/03	SED-279 (0 - 6") 04/02/03	SED-279 (6 - 18") 04/02/03	SED-280 (0 - 6") 04/02/03	SED-DUP-1 (SED-280) (0 - 6") 04/02/03
Aluminum	None	None	12200	15000	8720	6610	6010	11500	15400	5110	5040
Antimony	2	25	1.1 UJ	2.5 U	1.2 UJ	**4.2 BJ**	2.0 U	**8.1 BJ**	2.5 UJ	2.3 UJ	1.6 UJ
Arsenic	6	33	4.3 B	2.9 B	1.3 B	4.2 B	3.0 B	**28.2**	**8.5 B**	3.0 B	3.4 B
Barium	None	None	163	127	64.2	71.3 B	60.1 B	265	189	92.3	84.3
Beryllium	None	None	0.61	0.66 B	0.40 B	0.52 B	0.55 B	1.1 B	0.82 B	0.30 B	0.25 B
Cadmium	0.6	9	0.094 U	0.25 B	0.11 U	0.42 B	0.44 B	**5.3**	**0.79 B**	0.28 B	0.22 B
Calcium	None	None	2850	6020	2300	10300	4920	15900	8580	4660	4470
Chromium	26	110	19.5	16.5	10.3	11.2	10.2	**31.1**	21.8	7.9	7.8
Cobalt	None	None	9.8 B	4.9 B	2.9 B	3.3 B	3.7 B	12.0 B	8.2 B	4.3 B	4.0 B
Copper	16	110	4.8 B	9.1 B	3.5 B	11.2 B	3.5 B	**354**	**26.1**	13.3	11.6
Cyanide	None	None	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	20000	40000	**21900**	**21000**	13400	19700	15900	**75100**	**45200**	19500	19700
Lead	31	110	8.1	16.7	3.5	27.3 J	4.8	**679**	**40.3**	24.8	19.9
Magnesium	None	None	3940	2800	1640	1430 B	1220 B	5310	3270	1630 B	1560 B
Manganese	460	1100	**670**	420	90	608	362	**1510**	**721**	**671**	**582**
Mercury	0.15	1.3	0.030 B	0.12	0.04	0.24 U	0.15	**4.0**	**0.24**	0.11	0.07
Nickel	16	50	13.9	8.9 B	5.7 B	4.2 B	3.3 B	**29.7 B**	10.6 B	3.9 B	4.0 B
Potassium	None	None	841 BJ	381 BJ	237 BJ	178 UJ	119 BJ	688 BJ	603 BJ	223 BJ	229 BJ
Selenium	None	None	1.1 U	1.9 U	1.2 U	3.1 U	1.7 U	4.3 U	2.5 U	1.7 U	1.6 U
Silver	1	2.2	0.26 U	0.45 U	0.29 U	0.77 U	0.41 U	1.1 U	0.61 U	0.41 U	0.40 U
Sodium	None	None	193 B	202 B	117 B	246 U	227 B	583 B	500 B	161 B	236 B
Thallium	None	None	0.96 U	1.7 U	1.1 B	1.4 U	1.5 U	2.0 U	1.1 U	1.5 U	1.5 U
Vanadium	None	None	35.5	373	22.9	32.2 B	29.4	56.9	69.4	24.6	25.0
Zinc	120	270	35.2	67.4	25.1	55.9	23.1	**1270**	**201**	88.7	81.0

TABLE 11

Waste Stream, Inc.
Potsdam, New York

Sediment Analytical Results for TAL Inorganic Constituents (ppm)

Sample ID: / Sample Depth: / Date Collected:	Lowest Effect Level	Severe Effect Level	SED-280 (6 - 15") 04/02/03	SED-281 (0 - 6") 04/02/03	SED-281 (6 - 11") 04/02/03
Aluminum	None	None	2670	12500	7320
Antimony	2	25	1.2 U	**7.9 BJ**	**3.4 BJ**
Arsenic	6	33	0.85 U	**19.7 B**	**9.0 B**
Barium	None	None	27.8 B	185	126
Beryllium	None	None	0.10 B	1.2 B	0.46 B
Cadmium	0.6	9	0.095 U	**4.4**	**2.4**
Calcium	None	None	1140	14400	8200
Chromium	26	110	4.3	**36.7**	12.9
Cobalt	None	None	1.4 B	11.4 B	4.9 B
Copper	16	110	1.2 B	**385**	**88.7**
Cyanide	None	None	NA	NA	NA
Iron	20000	40000	6530	**49800**	18500
Lead	31	110	2.3 B	**768**	**150**
Magnesium	None	None	747 B	4720	2140 B
Manganese	460	1100	78.1	**969**	353
Mercury	0.15	1.3	0.022 U	**4.8**	**0.98**
Nickel	16	50	1.8 B	**32.8 B**	9.8 B
Potassium	None	None	148 BJ	668 BJ	324 BJ
Selenium	None	None	1.1 U	3.9 U	2.1 U
Silver	1	2.2	0.26 U	0.96 U	0.52 U
Sodium	None	None	126 B	681 B	445 B
Thallium	None	None	0.97 U	1.8 U	1.9 U
Vanadium	None	None	9.8 B	58.1	29.6
Zinc	120	270	18.0	**1180**	**322**

TABLE 11

Waste Stream, Inc.
Potsdam, New York

Sediment Analytical Results for TAL Inorganic Constituents (ppm)

Notes:

1. Samples collected by Blasland Bouck & Lee, Inc. on dates indicated.
2. Samples collected during June 2001 were analyzed by Galson Laboratories, Inc. and samples collected during 2002 and 2003 were analyzed by Severn Trent Laboratories, Inc. using USEPA SW-846 Method 6010/7000 for inorganic constituents (except cyanide). Cyanide was analyzed using Method ILM 04.4 as referenced in the NYSDEC 2000 ASP.
3. Concentrations reported in milligrams per kilograms (mg/kg), which are equivalent to parts per million (ppm).
4. DUP = Blind Duplicate Sample. The Sample ID in parenthesis indicated the parent sample.
5. N = Spike sample recovery not within control limits.
6. B = The reported value was obtained from a reading that was less that the Contract Required Detection Limit, but greater that or equal to the Instrument Detection Limit.
7. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
8. NA = Effect Level not available.
9. Bold values indicate an analyte concentration exceeding the Lowest Effect Level and shaded values indicate an analyte concentration exceeding the Severe Effect Level presented in the NYSDEC document entitled, "Technical Guidance for Screening Contaminated Sediment", dated January 1999.

TABLE 12

Waste Stream, Inc.
Potsdam, NY

Sediment Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth: / Date Collected:	Human Health Criteria	Benthic Acute Criteria	Benthic Chronic Criteria	Wildlife Criteria	SED-200 0 - 6" 06/21/01	SED-207 0 - 6" 06/21/01	SED-210 6 - 18" 06/21/01	SED-212 6 - 17" 06/21/01	DUP-7 (SED-212) 6 - 17" 06/21/01	SED-219C 0 - 6" 06/20/01
Semi-Volatile Organic Compounds										
1,2,4-Trichlorobenzene	None	910	91	None	0.77 U	0.58 U	0.43 U	0.48 U	0.5 U	0.41 U
Acenaphthylene	None	0.640 (a)	0.44 (a)	None	0.77 U	0.58 U	0.43 U	0.48 U	0.5 U	0.41 U
Anthracene	None	986	107	None	0.77 U	0.58 U	0.43 U	0.48 U	0.5 U	0.41 U
Benzo(A)Anthracene	1.3	94	12	None	**0.53 J**	**0.39 J**	0.43 U	0.48 U	0.5 U	**0.44 J**
Benzo(A)Pyrene	1.3	1.6 (a)	0.430 (a)	None	**0.51 J**	**0.45 J**	0.43 U	0.48 U	0.5 U	**0.6 J**
Benzo(B)Fluoranthene	1.3	None	None	None	2.2	2	0.43 U	0.48 U	0.12 J	2.4 J
Benzo(G,H,I)Perylene	None	None	None	None	0.85	0.59	0.43 U	0.48 U	0.5 U	1.4 J
Benzo(K)Fluoranthene	1.3	None	None	None	0.49 J	0.53 J	0.43 U	0.48 U	0.5 U	0.57 J
Bis(2-Ethylhexyl)Phthalate	None	None	199.5	None	0.77 U	0.5 J	0.43 U	0.48 U	0.11 J	0.28 J
Carbazole	None	None	None	None	0.77 U	0.58 U	0.43 U	0.48 U	0.5 U	0.41 U
Chrysene	1.3	2.8 (a)	0.384 (a)	None	**2.8**	**1.5**	0.43 U	0.48 U	0.5 U	1.4 J
Di-N-Butylphthalate	None	None	None	None	0.77 U	0.58 U	0.43 U	0.48 U	0.5 U	0.045 J
Dibenzo(A,H)Anthracene	None	0.260 (a)	0.263 (a)	None	**0.18 J**	**0.17 J**	0.43 U	0.48 U	0.5 U	**0.33 J**
Fluoranthene	None	None	1,020	None	0.62 J	0.46 J	0.43 U	0.48 U	0.5 U	**0.37 J**
Indeno(1,2,3-Cd)Pyrene	1.3	None	None	None	0.66 J	0.5 J	0.43 U	0.48 U	0.5 U	1 J
4-Methylphenol	None	None	None	None	0.77 U	0.58 U	0.43 U	0.48 U	0.50 U	0.41 U
Pentachlorophenol	None	100	40	None	1.9 U	1.4 U	1.1 U	1.2 U	1.2 U	1.0 U
Phenol	None	None	0.0005	None	0.77 U	0.58 U	0.43 U	0.48 U	0.50 U	0.41 U
Phenanthrene	None	None	120	None	0.24 J	0.17 J	0.43 U	0.48 U	0.5 U	0.22 J
Pyrene	None	8775	961	None	0.81	0.61	0.43 U	0.48 U	0.5 U	0.98 J
Total PAHs	None	45 (a)	4 (a)	None	9.89	7.37	--	--	0.12	9.76
Volatile Organic Compounds										
2-Butanone	None	None	None	None	0.053 J	0.025 J	0.02 J	0.026 J	0.14 J	0.012 UJ
Acetone	None	None	None	None	0.14 J	0.072 J	0.073 J	0.062 J	0.3 J	0.012 UJ
Methylene Chloride	None	None	None	None	0.023 U	0.018 U	0.013 U	0.014 U	0.016 UJ	0.012 U
Xylene (Total)	None	833	92	None	0.023 UJ	0.018 U	0.013 U	0.014 U	0.015 JU	0.012 U
Total Organic Carbon (ppm)	--	--	--	--	2,300	2,200	2,500	2,300	2,800	1,900

TABLE 12

Waste Stream, Inc.
Potsdam, NY

Sediment Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: Sample Depth: Date Collected:	Human Health Criteria	Benthic Acute Criteria	Benthic Chronic Criteria	Wildlife Criteria	SED-222A 0 - 6" 06/20/01	SED-224B 6 - 14" 06/20/01	SED-226C 6 - 18" 06/19/01	SED-228B 0 - 6" 06/20/01	SED-234 6 - 18" 06/18/01	SED-239 6 - 18" 06/19/01	SED-241 6 - 18" 06/19/01	SED-244 6 - 18 " 06/19/01	SED-271 0 - 6" 04/02/03
Semi-Volatile Organic Compounds													
1,2,4-Trichlorobenzene	None	910	91	None	**0.058 J**	0.59 U	0.39 U	0.48 U	0.4 U	0.85 U	0.46 U	0.46 U	0.072 UJ
Acenaphthylene	None	0.640 (a)	0.44 (a)	None	0.47 U	0.24 J	0.39 U	0.48 U	0.4 U	0.85 U	0.46 U	0.46 U	0.72 UJ
Anthracene	None	986	107	None	**0.21 J**	0.18 J	0.39 U	0.48 U	0.4 U	0.85 U	0.46 U	0.46 U	0.72 UJ
Benzo(A)Anthracene	1.3	94	12	None	**0.76 J**	**1.5**	**0.14 J**	**0.15 J**	**0.063 J**	0.85 U	0.46 U	0.46 U	0.072 UJ
Benzo(A)Pyrene	1.3	1.6 (a)	0.430 (a)	None	**0.98 J**	**1.8 J**	0.14 J	0.16 J	0.092 J	0.85 U	0.46 U	0.46 U	0.072 UJ
Benzo(B)Fluoranthene	1.3	None	None	None	2.9 J	6.7 DJ	0.43 J	0.36 J	0.39 J	0.85 U	0.052 J	0.46 U	0.018 J
Benzo(G,H,I)Perylene	None	None	None	None	2.1 J	2.6 J	0.11 J	0.1 J	0.14 J	0.85 UJ	0.46 UJ	0.46 UJ	0.72 UJ
Benzo(K)Fluoranthene	1.3	None	None	None	0.65 J	1.1 J	0.1 J	0.11 J	0.1 J	0.85 U	0.46 U	0.46 U	0.017 J
Bis(2-Ethylhexyl)Phthalate	None	None	199.5	None	**1.5 J**	0.72 J	0.067 J	0.076 J	0.048 J	0.85 U	0.46 U	0.46 U	0.15 J
Carbazole	None	None	None	None	0.1 J	0.077 J	0.39 U	0.48 U	0.4 U	0.85 U	0.46 U	0.46 U	0.72 UJ
Chrysene	1.3	2.8 (a)	0.384 (a)	None	**1.9 J**	**3 J**	0.27 J	**0.22 J**	0.25 J	0.85 U	0.46 U	0.46 U	0.72 UJ
Di-N-Butylphthalate	None	None	None	None	0.2 J	0.073 J	0.39 U	0.48 U	0.4 U	0.85 U	0.46 U	0.46 U	0.72 UJ
Dibenzo(A,H)Anthracene	None	0.260 (a)	0.263 (a)	None	**0.55 J**	**0.64 J**	0.39 UJ	0.48 U	0.4 UJ	0.85 UJ	0.46 UJ	0.46 UJ	0.072 UJ
Fluoranthene	None	None	1,020	None	0.88	1.5	0.15 J	0.18 J	**0.047 J**	0.85 U	0.46 U	0.46 U	0.019 J
Indeno(1,2,3-Cd)Pyrene	1.3	None	None	None	1.6 J	2.2 J	0.1 J	0.1 J	0.13 J	0.85 UJ	0.46 UJ	0.46 UJ	0.072 UJ
4-Methylphenol	None	None	None	None	0.47 U	0.59 U	0.39 U	0.48 U	0.40 U	0.85 U	0.46 U	0.46 U	0.72 UJ
Pentachlorophenol	None	100	40	None	1.2 U	1.5 U	0.97 U	1.2 U	1.0 U	2.1 U	1.2 U	1.2 U	2.9 UJ
Phenol	None	None	0.0005	None	0.47 U	0.59 U	0.39 U	0.48 U	0.40 U	0.85 U	0.46 U	0.46 U	0.72 UJ
Phenanthrene	None	None	120	None	**0.61**	0.48 J	0.052 J	0.057 J	0.4 U	0.85 U	0.46 U	0.46 U	0.72 UJ
Pyrene	None	8775	961	None	2.3 J	3.9 JD	0.29 J	0.32 J	0.074 J	0.85 U	0.46 U	0.46 U	0.018 J
Total PAHs	None	45 (a)	4 (a)	None	15.44	25.84	1.78	1.76	1.29	--	0.052	--	0.072
Volatile Organic Compounds													
2-Butanone	None	None	None	None	0.014 U	0.018 UJ	0.012 UJ	0.014 UJ	0.012 UJ	0.026 UJ	0.014 UJ	0.014 UJ	0.014 UJ
Acetone	None	None	None	None	0.04 J	0.018 UJ	0.006 J	0.022 J	0.032 J	0.068 J	0.049 J	0.011 J	0.011 J
Methylene Chloride	None	None	None	None	0.14 U	0.018 U	0.012 U	0.014 U	0.012 U	0.26 UJ	0.014 UJ	0.014 U	0.014 U
Xylene (Total)	None	833	92	None	0.014 UJ	0.018 UJ	0.012 U	0.014 U	0.012 U	0.026 UJ	0.014 UJ	0.014 U	0.014 U
Total Organic Carbon (ppm)	--	--	--	--	1,900	4,200	473 U	2,000	480 U	2,600	1,800	750	82800

TABLE 12

Waste Stream, Inc.
Potsdam, NY

Sediment Analytical Results for Detected VOCs and SVOCs (ppm)

Sample ID: / Sample Depth: / Date Collected:	Human Health Criteria	Benthic Acute Criteria	Benthic Chronic Criteria	Wildlife Criteria	SED-272 6 - 17" 04/02/03	SED-273 0 - 6" 04/02/03	SED-273 6 - 16" 04/02/03	SED-DUP-1 (SED-273) 6 - 16" 04/02/03	SED-275 0 - 6" 04/02/03
Semi-Volatile Organic Compounds									
1,2,4-Trichlorobenzene	None	910	91	None	0.042 U	0.044 U	0.041 UJ	0.060 U	0.050 UJ
Acenaphthylene	None	0.640 (a)	0.44 (a)	None	0.42 U	0.44 U	0.41 U	0.60 U	0.50 UJ
Anthracene	None	986	107	None	0.42 U	0.44 U	0.41 U	0.60 U	0.40 UJ
Benzo(A)Anthracene	1.3	94	12	None	0.042 U	0.044 U	0.041 U	0.060 U	0.050 UJ
Benzo(A)Pyrene	1.3	1.6 (a)	0.430 (a)	None	0.042 U	0.016 J	0.041 U	0.060 U	0.050 UJ
Benzo(B)Fluoranthene	1.3	None	None	None	0.042 U	0.025 J	0.041 U	0.060 U	0.013 J
Benzo(G,H,I)Perylene	None	None	None	None	0.42 UJ	0.022 J	0.41 U	0.60 U	0.50 UJ
Benzo(K)Fluoranthene	1.3	None	None	None	0.042 U	0.020 J	0.041 U	0.060 U	0.013 J
Bis(2-Ethylhexyl)Phthalate	None	None	199.5	None	0.42 U	0.44 U	0.41 U	0.60 U	0.50 UJ
Carbazole	None	None	None	None	0.42 U	0.44 U	0.41 U	0.60 U	0.50 UJ
Chrysene	1.3	2.8 (a)	0.384 (a)	None	0.42 U	0.44 U	0.41 U	0.060 U	0.50 UJ
Di-N-Butylphthalate	None	None	None	None	0.42 U	0.44 U	0.41 U	0.60 U	0.50 UJ
Dibenzo(A,H)Anthracene	None	0.260 (a)	0.263 (a)	None	0.042 UJ	0.044 U	0.041 U	0.060 U	0.050 UJ
Fluoranthene	None	None	1,020	None	0.42 U	0.016 J	0.41 U	0.60 U	0.014 J
Indeno(1,2,3-Cd)Pyrene	1.3	None	None	None	0.042 UJ	0.016 J	0.041 U	0.060 U	0.050 J
4-Methylphenol	None	None	None	None	0.42 U	.0011 J	0.041 U	0.60 U	0.50 UJ
Pentachlorophenol	None	100	40	None	1.7 U	1.7 U	1.6 U	2.4 U	0.033 J
Phenol	None	None	0.0005	None	0.42 U	**0.12 J**	0.41 U	0.60 U	0.50 UJ
Phenanthrene	None	None	120	None	0.42 U	0.44 U	0.41 U	0.60 U	0.50 UJ
Pyrene	None	8775	961	None	0.42 U	0.017 J	0.41 U	0.60 U	0.012 J
Total PAHs	None	45 (a)	4 (a)	None		0.132	--	--	0.102
Volatile Organic Compounds									
2-Butanone	None	None	None	None	0.014 UJ	0.014 UJ	0.014 UJ	0.014 UJ	0.014 UJ
Acetone	None	None	None	None	0.011 J	0.011 J	0.011 J	0.011 J	0.011 J
Methylene Chloride	None	None	None	None	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Xylene (Total)	None	833	92	None	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Total Organic Carbon (ppm)	--	--	--	--	7510	19700	2740	54300	28200

TABLE 12

Waste Stream, Inc.
Potsdam, NY

Sediment Analytical Results for Detected VOCs and SVOCs (ppm)

Notes:
1. Samples collected by Blasland Bouck & Lee, Inc. on the dates indicated.
2. Samples collected during June 2001 were analyzed by Galson Laboratories, Inc. and samples collected during 2003 and 2003 were analyzed by using USEPA SW-846 Method 8260 for VOCs and Method 8270 for SVOCs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. Concentrations reported in milligrams per kilogram (mg/kg), which are equivalent to parts per million (ppm).
4. DUP = Blind Duplicate Sample. The Sample ID in parenthesis indicates the parent sample.
5. B = Indicates analyte found in method blank as well as in the sample.
6. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
7. J = The value presented in an estimated value.
8. D = Analyte analyzed at a secondary dilution.
9. The table presents detected VOCs and SVOCs only.
10. Analytical results are compared to regulatory criteria presented in the NySDEC document entitled "Technical Guidance for Screening Contaminated Sediment" (NYSDEC, 1999).Where appropriate, criteria were adjusted on a sample-specific basis for total organic carbon (TOC).
11. (a) = Criterial from Long, et al. 1995, as cited in "Technical Guidance for Screening Contaminated Sediment": (NYSDEC, 1999). Criteria not adjusted for TOC.
12. NA = Not Available

Underline values exceed Human Health Criteria.
Bold Values exceed Benthic Aquatic Life Chronic Toxicity Criteria.
Shaded Values exceed Benthic Aquatic Life Acute Toxicity Criteria.

TABLE 13

Waste Stream, Inc.
Potsdam, NY

Surface Water Analytical Results for Total PCBs (ppb)

Sample ID	Date Collected	Total PCBs (ug/L)
SW-201	06/21/01	0.05 U
SW-202	06/21/01	0.47
SW-203	06/21/01	1.05

Notes:
1. Samples collected by Blasland Bouck & Lee, Inc. during June 2001.
2. Samples were analyzed by Galson Laboratories, Inc. using USEPA SW-846 Method 8082 for PCBs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
4. Shaded values indicate a Total PCBs concentration exceeding the Class A Water Quality Standard of 0.09 ug/L presented in the NYSDEC document entitled "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations", dated June 1998.
5. Concentrations reported in micrograms per liter (ug/L), which are equivalent to parts per billion (ppb).

TABLE 14

Waste Stream, Inc.
Potsdam, NY

Surface Water Analytical Results for TAL Inorganic Constituents in Surface Water (ppb)

Sample ID: Date Collected:	Guidance Value or Standard	SW-201 06/21/01	SW-202 06/21/01	SW-203 06/21/01
Aluminum	None	78 U	85.7 B	342
Antimony	3	5 U	5 U	5 U
Arsenic	50	4 U	4 U	4 U
Barium	1000	83.8 B	164 B	158 B
Beryllium	3	1 U	1 U	1 U
Cadmium	5	2 U	2 U	2 U
Calcium	None	58000	90700	91600
Chromium	50	3 U	3 U	3 U
Cobalt	None	2 U	2 U	2 U
Copper	200	3 U	5.9 B	24.4 B
Cyanide	200	10 U	10 U	10 U
Iron	300	4270	6440	2980
Lead	50	2 U	5.7	38.7
Magnesium	35000	13700	22400	22800
Manganese	300	626	920	876
Mercury	0.7	0.1 U	0.1 U	0.1 U
Nickel	100	3 U	3.2 B	3.8 B
Potassium	None	1640 B	2850 B	3070 B
Selenium	10	4 U	4 U	4 U
Silver	50	2 U	2 U	2 U
Sodium	None	118000	166000	159000
Thallium	0.5	6 U	6 U	6 U
Vanadium	None	2 U	2 U	2 U
Zinc	2000	73.3	32.1	47

Notes:
1. Samples collected by Blasland Bouck & Lee, Inc. during June 2001.
2. Samples were analyzed by Galson Laboratories, Inc. using USEPA SW-846 Method 6010 for Inorganics, Method 7471 for Mercury and Method ILM 04.4 for Cyanide as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. Concentrations reported in micrograms per liter (ug/L), which are equivalent to parts per billion (ppb).
5. B = The reported value was obtained from a reading that was less that the Contract Required Detection Limit, but greater that or equal to the Instrument Detection Limit.
6. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
7. None = Surface Water Criteria not available for analyte.
8. Shaded values indicate an analyte concentration exceeding the surface water Class A Water Quality Standards or Guidance Values presented in the NYSDEC document entitled, Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, dated June 1998.

TABLE 15

Waste Stream, Inc.
Potsdam, NY

Surface Water Analytical Results for Detected VOCs and SVOCs (ppb)

Sample ID: / Date Collected:	Guidance Value or Standard	SW-201 06/21/01	SW-202 06/21/01	SW-203 06/21/01
Semi-Volatile Organic Compounds				
1,2,4-Trichlorobenzene	5	10 U	3 J	10 U
1,3-Dichlorobenzene	3	10 U	2 J	10 U
1,4-Dichlorobenzene	3	10 U	3 J	10 U
Bis(2-Ethylhexyl)Phthalate	5	10 U	10 U	10 JU
Volatile Organic Compounds				
1,2,4-Trichlorobenzene	5	10 U	6 J	10 U
1,3-Dichlorobenzene	3	10 U	5 J	10 U
1,4-Dichlorobenzene	3	10 U	6 J	10 U
Chlorobenzene	5	10 U	1 J	10 U
Methylene Chloride	5	10 U	10 U	10 U

Notes:
1. Samples collected by Blasland Bouck & Lee, Inc. during June 2001
2. Samples were analyzed by Galson Laboratories, Inc. using USEPA SW-846 Method 8260 for VOCs and Method 8270 for SVOCs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP)
3. B = Indicates analyte found in method blank as well as in the sample
4. J = The value presented in an estimated value
5. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit
6. Shaded values indicate an analyte concentration exceeding the Class A Water Quality Standards or Guidance Values presented in the NYSDEC document entitled, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations", dated June 1998
7. The table only presents detected VOCs and SVOCs. The analyte list does not represent all analytes which were analyzed
8. Concentrations reported in micrograms per liter (ug/L), which are equivalent to parts per billion (ppb)

TABLE 16

Waste Stream, Inc.
Potsdam, NY

Groundwater Analytical Results for Total PCBs (ppb)

Sample ID	Date Collected	Total PCBs
MW-201	06/21/01	0.05 U
MW-202	06/20/01	0.2
MW-202	02/20/02	0.47 U
MW-203	06/21/01	0.05 U
MW-204	06/21/01	0.68
MW-204	02/20/02	0.47 U
MW-205	06/20/01	0.05 U
MW-210 MW-205 (Dup)	06/20/01	0.05 U
MW-206	06/20/01	1.2
MW-206	02/20/02	1.2
Dup-Sup-1 (MW-206)	02/20/02	1.2
MW-206	04/22/03	1.1
DUP-1 (MW-206)	04/22/03	1.0
MW-206 (Filtered)	04/22/03	0.29
MW-207	06/22/01	0.05 U
MW-208	06/21/01	0.05 U
MW-209	06/22/01	0.05 U
MW-210	04/22/03	0.052 U
MW-211	04/22/03	0.053 U
MW-212	04/23/03	0.055 U

Notes:

1. Samples collected by Blasland, Bouck & Lee, Inc. on the dates indicated.
2. Samples collected during June 2001 were analyzed by Galson Laboratories, Inc. using USEPA SW-846 Method 8082 for PCBs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. Samples collected during February 2002 and April 2003 were analyzed by Severn Trent Laboratories using USEPA SW-84(Method 8082 for PCBs as referenced in NYSDEC 2002 ASP Analytical Service Protocol.
4. Concentrations reported in micrograms per liter (ug/L), which are equivalent to parts per billion (ppb)
5. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detectior limit.
6. Shaded values indicate a total PCB concentration exceeding the Class GA Groundwater Quality Standard of 0.09 ug/L as presented in the NYSDEC document entitled "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations", dated June 1998

TABLE 17

Waste Stream, Inc.
Potsdam, NY

Groundwater Analytical Results for TAL Inorganic Constituents (ppb)

Sample ID: Date Collected:	Guidance Value or Standard	MW-201 06/21/01	MW-202 06/20/01	MW-203 06/21/01	MW-204 06/21/01	MW-205 06/20/01	MW-210 6/20/2001 (MW-205 Dup)	MW-206 06/20/01	MW-207 06/22/01	MW-208 06/21/01	MW-209 06/22/01
Aluminum	None	78 U	242	79.7 B	231	251	226	388	295	82.3 B	78 U
Antimony	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Arsenic	25	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Barium	1000	147 B	112 B	110 B	168 B	260	259	57.5 B	86 B	228	54.8 B
Beryllium	3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3.5 B	1 U
Cadmium	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Calcium	None	115000	155000	127000	87300	125000	127000	66000	59300	137000	82800
Chromium	50	3 U	3 U	11.5	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Cobalt	None	2 U	3 B	13.5 B	2 U	3.9 B	3.8 B	7.5 B	2 U	2 U	2 U
Copper	200	3 U	3 U	4.4 B	3 U	3 U	3 U	19.1 B	3.1 B	6.4 B	3 U
Cyanide	200	10 U	10 U	10 U	10 U	34.9	35.7	10 U	10 U	10 U	10 U
Iron	300	28 U	307	28 U	12100	3920	3870	516	420	2760	2010
Lead	25	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2.2 B	2 U	2 U
Magnesium	35000	32900	45200	45000	17200	32600	32800	21200	15800	25200	28800
Manganese	300	156	1860	4240	681	417	415	1010	318	1060	285
Mercury	0.7	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	100	3 U	4 B	31.8 B	5.5 B	3 U	3.3 B	15.1 B	3.4 B	3.4 B	3 U
Potassium	None	2720 B	1680 B	3760 B	8170	3680 B	3710 B	2490 B	1320 B	3400 B	948 B
Selenium	10	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Silver	50	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Sodium	20000	367000	23700	395000	243000	128000	129000	428000	179000	227000	12400
Thallium	0.5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Vanadium	None	2 U	2 U	2 U	3.4 B	2 U	2 B	2 U	2 U	2 U	2 U
Zinc	2000	2 U	3.8 B	7.6 B	8.3 B	2.1 B	4.4 B	30	6.7 B	2.6 B	2.1 B

TABLE 17

Waste Stream, Inc.
Potsdam, NY

Groundwater Analytical Results for TAL Inorganic Constituents (ppb)

Notes:

1. Samples collected by Blasland Bouck & Lee, Inc. during June 2001.
2. Samples were analyzed by Galson Laboratories, Inc. using USEPA SW-846 Method 6010 for Inorganics, Method 7471 for Mercury and Method ILM 04.4 for Cyanide as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. Concentrations reported in micrograms per liter (ug/L), which are equivalent to parts per billion (ppb).
4. B = The reported value was obtained from a reading than was less that the Contract Required Detection Limit, but greater that or equal to the Instrument Detection Limit.
5. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
6. None = Groundwater Criteria for Class GA groundwater not available for analyte.
7. Shaded values indicate an analyte concentration exceeding the Class GA Groundwater Quality Standards or Guidance Values presented in the NYSDEC document entitled, Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, dated June 1998.

TABLE 18

Waste Stream, Inc.
Potsdam, NY

Groundwater Analytical Results for Detected VOCs and SVOCs (ppb)

Sample ID: Date Collected:	Guidance Value or Standard	Units	MW-201 06/21/01	MW-202 06/20/01	MW-203 06/21/01	MW-204 06/21/01	MW-205 06/20/01	MW-210 6/20/2001 (MW-205 Dup)	MW-206 06/20/01	MW-207 06/22/01	MW-207 04/23/03	DUP-2 (MW-207) 04/23/03
Semi-Volatile Organic Compounds												
2-Methylnaphthalene	None	ug/L	10 U	10 U	10 U	10 U	10 U	NA	10 UJ	10 U	NA	NA
Bis(2-Ethylhexyl)Phthalate	5	ug/L	25 U	10 U	10 U	16 U	10 U	NA	89 DJ	10 U	NA	NA
Isophorone	50	ug/L	10 U	10 U	10 U	10 U	10 U	NA	10 UJ	19	NA	NA
Naphthalene	10	ug/L	10 U	10 U	10 U	10 U	10 U	NA	10 UJ	10 U	NA	NA
Pentachlorophenol	1	ug/L	25 U	25 U	25 U	25 U	25 U	NA	25 UJ	700 D	18 J	18 J
Volatile Organic Compounds												
1,2-Dichloroethane	0.6	ug/L	10 U	10 U	2 J	10 U	10 U	10 U	10 U	10 U	NA	NA
Benzene	1	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA
Cyclohexane	None	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA
Ethylbenzene	5	ug/L	10 U	10 U	10 U	3 J	10 U	10 U	10 U	10 U	NA	NA
Isopropylbenzene	5	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA
Methylcyclohexane	None	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA
Methylene Chloride	5	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA
Methyltertbutylether	None	ug/L	10 U	10 U	2 J	10 U	10 U	10 U	10 U	10 U	NA	NA
Toluene	5	ug/L	10 U	10 U	10 U	1 J	10 U	10 U	10 U	10 U	NA	NA
Vinyl Chloride	2	ug/L	10 U	10 UJ	10 U	8 J	10 UJ	10 UJ	10 UJ	10 U	NA	NA
Xylene (Total)	5	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA

TABLE 18

Waste Stream, Inc.
Potsdam, NY

Groundwater Analytical Results for Detected VOCs and SVOCs (ppb)

Sample ID: Date Collected:	Guidance Value or Standard	MW-208 06/21/01	MW-209 06/22/01	TW-1 04/02/03	TW-2 04/02/03	TW-3 04/02/03	TW-4 04/02/03	DUP-2 (TW-4) 04/02/03	TW-5 04/02/03	TW-6 04/02/03	TW-7 04/02/03	TW-8 04/02/03
Semi-Volatile Organic Compounds												
2-Methylnaphthalene	None	10 U	13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	5	10 U	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	50	10 U	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	10	10 U	39	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	24 U	25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
1,2-Dichloroethane	0.6	10 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Benzene	1	10 U	75 J	4.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	None	10 U	21 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5	10 U	180 J	14	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Isopropylbenzene	5	10 U	16 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	None	10 U	10 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	5	10 U	10 UJ	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Methyltertbutylether	None	10 U	9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	5	10 U	480 D	7.1	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	2	10 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Xylene (Total)	5	10 U	990 D	9.6	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 18

Waste Stream, Inc.
Potsdam, NY

Groundwater Analytical Results for Detected VOCs and SVOCs (ppb)

Sample ID: Date Collected:	Guidance Value or Standard	TW-9 04/02/03	TW-10 04/02/03	TW-11 04/02/03	TW-12 04/02/03
Semi-Volatile Organic Compounds					
2-Methylnaphthalene	None	NA	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	5	NA	NA	NA	NA
Isophorone	50	NA	NA	NA	NA
Naphthalene	10	NA	NA	NA	NA
Pentachlorophenol	1	NA	NA	NA	NA
Volatile Organic Compounds					
1,2-Dichloroethane	0.6	2.0 U	2.0 U	2.0 U	2.0 U
Benzene	1	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	None	NA	NA	NA	NA
Ethylbenzene	5	4.0 U	4.0 U	4.0 U	4.0 U
Isopropylbenzene	5	NA	NA	NA	NA
Methylcyclohexane	None	NA	NA	NA	NA
Methylene Chloride	5	3.0 U	3.0 U	3.0 U	3.0 U
Methyltertbutylether	None	NA	NA	NA	NA
Toluene	5	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	2	5.0 U	5.0 U	5.0 U	5.0 U
Xylene (Total)	5	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 18

Waste Stream, Inc.
Potsdam, NY

Groundwater Analytical Results for Detected VOCs and SVOCs (ppb)

Notes:

1. Samples collected by Blasland Bouck & Lee, Inc. on dates indicated.
2. Samples collected during June 2001 were analyzed by Galson Laboratories, Inc. and samples collected during 2003 and 2003 were analyzed by Severn Trent Laboratories, Inc. using USEPA SW-846 Method 8260 for VOCs and Method 8270 for SVOCs as referenced in NYSDEC 2000 Analytical Services Protocol (ASP).
3. B = Indicates analyte found in method blank as well as in the sample.
4. U = The analyte was analyzed for but not detected. The value preceding the U indicates the detection limit.
5. J = The value presented in an estimated value.
6. D = Analyte analyzed at a secondary dilution.
7. None = Groundwater Criteria for Class GA groundwater not available for analyte.
8. Shaded values indicate an analyte concentration exceeding the Class GA Groundwater Quality Standards or Guidance Values presented in the NYSDEC document entitled, "Ambient Water Quality Standards and Guidance Values and Groundwater. Effluent Limitations", dated June 1998.
9. The table only presents detected VOCs and SVOCs. The analyte list does not represent all analytes which were analyzed.
10. Concentrations reported in micrograms per liter (ug/L), which are equivalent to parts per billion (ppb).