FINAL

FEASIBILITY STUDY FOR AREA OF CONCERN (AOC) 8 FORMER SCHENECTADY ARMY DEPOT – VOORHEESVILLE AREA (SADVA) GUILDERLAND, NEW YORK

FUDS Property Number C02NY0002

Prepared For:

US Army Corps of Engineers

New York District
190 State Highway 18 Suite 202
East Brunswick, New Jersey 08816

Prepared By:

PARSONS

301 Plainfield Road, Suite 350
Syracuse, New York 13212

REVIEWED AND APPROVED BY:

Project Manager: _____ 2/4/10
Date

Technical Manager: _____ 2/5/10
Date

FEBRUARY 2010

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS (CONTINUED)

PAGE

TABLE OF CONTENTS (CONTINUED)

PAGE

TABLE OF CONTENTS
(CONTINUED)

PAGE

TABLE OF CONTENTS (CONTINUED)

LIST OF TABLES

PAGE

LIST OF FIGURES

TABLE OF CONTENTS (CONTINUED)

PAGE

LIST OF APPENDICES

ABBREVIATIONS/ACRONYMS AND GLOSSARY

AMSL	Above Mean Sea Level – reference for vertical surveys.
AOC	Area of Concern – portion of a site designated for further study.
ARARs	Applicable or Relevant and Appropriate Requirements – Applicable requirements are cleanup standards, standards of control, and other substantive environmental protection requirements promulgated under Federal or state environmental law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at a CERCLA site. Relevant and appropriate requirements are promulgated cleanup standards that, while not "applicable", address situations sufficiently similar to those encountered at a CERCLA site that their use is well suited to the particular site. ARARs are a threshold standard for a CERCLA response action.
BEHP	bis(2-ethylhexyl)phthalate – a semivolatile organic compound.
C&D	construction and demolition – a type of landfill.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act – a statute, commonly known as "Superfund," that provides broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.
COC	Contaminant of Concern – contaminant suspected to be site-related.
CPAHs	Carcinogenic Polycyclic Aromatic Hydrocarbons – a class of carcinogenic organic compounds formed from the combustion of organic matter.
cy	cubic yards
DERP-FUDS	Defense Environmental Restoration Program for Formerly Used Defense Sites – Federal program that addresses Department of Defense-related hazards posed at former defense sites.
DNAPL	Dense Non-aqueous Phase Liquid – a heavier than water chemical.
DNSC	Defense National Stockpile Center – a Federal agency that stores commodities critical to national defense.
DoD	Department of Defense – A Federal agency that includes the military services.
EIS	Environmental Impact Statement - A document required of federal agencies by the National Environmental Policy Act for major projects or legislative proposals significantly affecting the environment.
FFS	Focused Feasibility Study – an evaluation of remedial alternatives for a limited number of media or exposure pathways that address hazards posed by a site.
FS	Feasibility Study - an evaluation of remedial alternatives that address hazards posed by a site.

ABBREVIATIONS/ACRONYMS AND GLOSSARY (CONTINUED)

FUDS	A facility or site (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. By the Department of Defense Environmental Restoration Program (DERP) policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986.
HHRA	Human Health Risk Assessment – an evaluation of the risk posed to humans from exposure to contaminants.
HSRC	Hazardous Substance Research Center - a national organization that carries out an active program of basic and applied research, technology transfer, and training.
LUC	Land Use Control – a means to control or limit certain uses of a site.
MCL	maximum contaminant level – The maximum permissible level of a contaminant in water delivered to any user of a public system. MCLs are enforceable standards.
MSSL	media-specific screening level – a concentration used to assess water or soil quality.
MW	monitoring well – a hollow pipe drilled into the ground, used to collect groundwater samples.
NCP	National Oil and Hazardous Substances Pollution Contingency Plan - A Plan that provides the regulatory framework for responses under CERCLA.
NEIP	Northeastern Industrial Park – current name for the property that was formerly the Schenectady Army Depot – Voorheesville Area.
NPAHs	Non-carcinogenic Polycyclic Aromatic Hydrocarbons – a class of non-carcinogenic organic compounds formed from the combustion of organic matter.
NYCRR	New York Code of Rules and Regulations – compilation of New York State regulations.
NYS	New York State – state in which the SADVA is located.
NYSDEC	New York State Department of Environmental Conservation – regulatory body for environmental issues in New York State.
NYSDOH	New York State Department of Health – regulatory body for health issues in New York State.
O&M	operation and maintenance – procedures to ensure an engineering or other site control remains effective.
PAHs	polycyclic aromatic hydrocarbons – PAHs are created when products like coal, oil, gas, and garbage are burned but the burning process is not complete.

ABBREVIATIONS/ACRONYMS AND GLOSSARY (CONTINUED)

PCBs	polychlorinated biphenyls - A group of toxic, persistent chemicals used in electrical transformers and capacitors for insulating purposes, and in gas pipeline systems as lubricant.
PCL	protective concentration level – a concentration of a particular chemical that is protective of human health or the environment.
PRGs	preliminary remediation goals - tools for evaluating and cleaning up contaminated sites. They are risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements.
RAB	Restoration Advisory Board – group of interested parties that participate in the assessment of a site and in the decision-making for site cleanup.
RAO	Remedial Action Objective – a goal that a remedial action is intended to achieve.
RCRA	Resource Conservation and Recovery Act - , A statute enacted in 1976 that promotes the protection of health and the environment. It regulates waste generation, treatment, storage, transportation, and disposal for facilities currently in operation.
RI	Remedial Investigation – a site characterization to assess soil, water and/or air quality.
SADVA	Schenectady Army Depot – Voorheesville Area
SARA	Superfund Amendments and Reauthorization Act - Federal law reauthorizing and expanding the jurisdiction of CERCLA.
SLERA	screening-level ecological risk assessment – an abbreviated form of an ecological risk assessment that assesses the health of plants and animals at a site.
SVOCs	semivolatile organic compounds – a class of organic chemicals.
TAGM	Technical and Administrative Guidance Memorandum – a series of guidance documents published by NYSDEC.
TBCs	"To Be Considered" – Advisories, criteria, or guidance that are not ARARs, but may be useful in developing CERCLA remedies.
TCEQ	Texas Commission on Environmental Quality – a regulatory body in Texas that has published sediment criteria for protection of human health.
µg/L	micrograms per liter - unit of measure for contaminants in water.
USACE	United States Army Corps of Engineers - A Federal agency whose authority includes response to releases or threatened releases of hazardous substances at formerly used defense sites.

ABBREVIATIONS/ACRONYMS AND GLOSSARY (CONTINUED)

USDOE	United States Department of Energy – A Federal agency; the Department of Energy's overarching mission is to advance the national, economic, and energy security of the United States; to promote scientific and technological innovation in support of that mission; and to ensure the environmental cleanup of the national nuclear weapons complex..
USEPA	United States Environmental Protection Agency - A Federal agency, whose mission is to protect human health and the environment.
VOCs	volatile organic compounds - Any organic compound that participates in atmospheric photochemical reactions.

EXECUTIVE SUMMARY

INTRODUCTION

This feasibility study (FS) comes under the authority of the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS). The DERP-FUDS program reflects the Department of Defense's (DoD's) commitment to reduce, in a timely and cost effective manner, the risk to human health, safety, and the environment from contamination resulting from past DoD activities. DoD's commitment is ongoing such that the United States Army Corps of Engineers (USACE) would address, at eligible sites with approved projects, DoD hazards found after planned response actions were completed. This FS presents findings of human health and environmental concerns in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and FUDS programs.

The DERP-FUDS program is designed to investigate and address, as appropriate, hazards attributable to former DoD activities. For instance, conditions that have been caused by post-DoD use of the site cannot be remediated under the DERP-FUDS program. The Schenectady Army Depot - Voorheesville Area (SADVA) DERP-FUDS site number is C02NY0002. Operations at the SADVA began in 1941 and continued under DoD for a period of 28 years. SADVA was closed in 1969 and the property was subsequently sold. Since that time, the property has been used as an industrial park, and is now known as the Northeastern Industrial Park (NEIP). The focus of the prior remedial investigation (RI) was on identifying land use over time to differentiate hazards caused by DoD-related activities (during the period 1941 to 1969) from conditions caused by post-DoD activities (during the period 1969 to the present). The Final RI Report, dated September 2007, documents the conditions onsite and has been submitted to the New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH) and other interested parties (Parsons, 2007).

Area of Concern (AOC) 8 (FUDS project number C02NY000203) is located in the Town of Guilderland, New York. AOC 8 is composed of Black Creek and the Western Ditch areas. Black Creek enters the SADVA from the south and flows north along the east side of the SADVA. Waters in Black Creek eventually flow into Watervliet Reservoir, which is the local drinking water supply source. The New York State Bureau of Watershed Management and the NYSDEC have classified the section of Black Creek in the area of the SADVA as a Class C stream. Even though other factors may limit the use for that purpose, Class C waters are suitable for fishing, fish propagation, and primary and secondary contact recreation. The Western Ditch is typically dry, and provides storm water drainage for the western side of the SADVA.

In 1998, USACE investigated Black Creek as part of a focused groundwater and surface water investigation at Building 60, now also known as AOC 9 (USACE, 1999). Building 60 is located in the northeast portion of the site, and was investigated because petroleum

contamination and an old oil/water separator were encountered during excavation for a new building by the present site owner. The investigation objectives were to determine whether petroleum-related contamination in the Building 60 area had impacted groundwater or Black Creek, and whether Black Creek had been impacted by any other COC at the SADVA site.

During the 1998 investigation, USACE found that the surface water of Black Creek had not been adversely impacted in the immediate vicinity of Building 60 area. Although lead was detected in creek sediment at concentrations that exceeded the Lowest Effect Level identified in the NYSDEC's Technical Guidance for Screening Contaminated Sediments (NYSDEC, 1999), there was not enough data to determine whether the observed concentrations exceeded background concentrations (USACE, 1999). USACE also assessed the overall quality of Black Creek, and there appeared to be an impact on the quality of the surface water in Black Creek. Lead and 1,1,2,2-tetrachloroethane were detected above the upstream concentrations and above the applicable state water quality standards at four locations located adjacent to the SADVA (USACE, 1999).

During the RI completed by Parsons in 2007, surface water quality and sediment quality in Black Creek and the Western Ditch were characterized by collecting and analyzing samples of water and sediment. In general, the surface water sample results showed that the Western Ditch has degraded water quality, primarily for metals. However, the two surface water samples collected downstream from all the AOCs at SADVA had no concentrations above regulatory criteria or above upstream concentrations. At the south end of SADVA, shallow sediment concentrations for most metals were above the NYSDEC sediment criteria, and tended to be higher than in the deeper sediment samples. In the main channel of Black Creek adjacent to the SADVA, the concentrations of most metals were generally below the NYSDEC sediment criteria. All onsite sediment sample concentrations were below the Part 375 soil cleanup objectives for industrial land use, with the exception of two locations in Black Creek (SD09 and SD18) that exceeded the industrial land use criteria for arsenic and/or manganese. Downstream of SADVA, off-site metals concentrations in both the shallow and deep sediment samples tended to be higher than the metals concentrations onsite. One downstream sample location (SD 32) had a concentration of benzo(a)pyrene that was above the Part 375 industrial land use soil cleanup objective. That downstream location is close to where Black Creek flows under School Road and the presence of benzo(a)pyrene may be attributable to vehicle traffic and exhaust because benzo(a)pyrene concentrations onsite met the Part 375 unrestricted land use criterion.

During the RI and during the Focused Feasibility Study (FFS) for AOCs 1 and 7, the impacts of the U.S. Army Southern Landfill (AOC 1) and Triangular Disposal Area (AOC 7) on Black Creek were assessed. The sediment and surface water quality data for Black Creek do not show impacts attributable to AOC 1 or AOC 7.

A quantitative human health risk assessment (HHRA) was completed for AOC 8, and based on available data there are no unacceptable risks to human health posed by the surface water and sediment. It is worth noting that the drinking water supply from Watervliet Reservoir is regularly tested by the Town of Guilderland and City of Watervliet Water Departments and is

safe for consumption, as determined by the New York State Department of Health drinking water supply requirements.

A qualitative ecological risk assessment was completed for AOC 8, and found that the site supports wildlife that is typical for the area and for the commercial/industrial setting that the site has maintained for over 60 years.

The RI concluded that an FS be performed for AOC 8 to evaluate the need for remedial action.

FEASIBILITY STUDY OBJECTIVES

The objectives of the FS are:

1) To assess remedial action alternatives for controlling any DoD-related potential human health risks posed by the impacted sediment found on the site.
2) To assess remedial action alternatives for controlling any DoD-related potential ecological risks posed by the surface water and sediment found on the site.
3) To work with the NYSDEC and the NYSDOH to develop a preferred remedy for AOC 8.

FS RESULTS

Chemical-specific, action-specific, and location-specific applicable or relevant and appropriate requirements (ARARs) applicable to AOC 8 were identified. Remedial action technologies applicable to AOC 8 were identified and evaluated based on implementability, effectiveness, and relative cost. Remedial action technologies were screened and retained for development of remedial action alternatives.

Three remedial action alternatives were developed: Alternative 1 (No Action), Alternative 2 (Partial Sediment Removal and Restoration) and Alternative 3 (Full Sediment Removal and Restoration). These three alternatives were evaluated based on the following CERCLA criteria (USEPA, 1988): protection of human health and the environment; compliance with ARARs; long-term effectiveness and permanence; implementability; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; and cost.

SECTION 1

INTRODUCTION

1.1 PROJECT AUTHORIZATION

1.1.1 This FS comes under the authority of the DERP-FUDS program. Authority for the DERP-FUDS program is derived from the following laws: CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) (codified at 42 U.S.C. §§ 9601-9675); and the Defense Environmental Restoration Program (codified at 10 U.S.C. §§ 2700-2710). The NEIP is the current name of the SADVA site. The DERP-FUDS site number is C02NY0002.

1.1.2 Under the DERP-FUDS program, only those hazards attributable to former DoD activities are investigated and addressed herein. Conditions which have been caused by post-DoD use of the site cannot be investigated or remediated under the DERP-FUDS program. For the purposes of this report, the "site" refers to the SADVA and its operations.

1.1.3 Operations at SADVA began in 1941 and continued for a period of 28 years. SADVA was closed in 1969 and the property was subsequently sold. Since that time, the property has been used as an industrial park, and is now known as the NEIP. Black Creek, which flows through the SADVA, and a drainage ditch known as the Western Ditch comprise AOC 8, which is the subject of this FS.

1.2 FS OBJECTIVES

1.2.1 The objectives of the FS are:

1) To assess remedial action alternatives for controlling any DoD-related potential human health risks posed by the impacted sediment found on the site.
2) To assess remedial action alternatives for controlling any DoD-related potential ecological risks posed by the surface water and sediment found on the site.
3) To work with the NYSDEC and the NYSDOH to develop a preferred remedy for AOC 8.

1.2.2 This FS addresses sediment and surface water quality at AOC 8. Once USACE identifies a preferred remedial alternative, it will submit a Proposed Remedial Action Plan (PRAP) for public review and comment. Once the public comment period has closed, and all comments have been considered, USACE will issue a Decision Document, which will specify the remedy for the site.

1.3 SITE LOCATION

SADVA is located south of New York State (NYS) Route 146 and east of County Route 201, approximately one-quarter mile southeast of the Village of Guilderland Center, Albany County, New York. The site is approximately 3 miles north of Voorheesville, 3 miles west of Guilderland, and 11 miles west of Albany (Figure 1.1).

1.4 SITE SETTING

1.4.1 The SADVA originally included approximately 650 acres, most of which was surrounded by a chain-link fence topped with barbed wire (Figure 1.2). A separate tract of approximately 40 acres, located west of County Route 201, was also included in the SADVA and has been designated AOC 2. The SADVA was primarily a warehouse and storage complex set on leveled and paved grounds. The area south of the SADVA warehouse complex borders NYSDEC Wetland V-19 and contains AOC 5 (Voorheesville Depot) and confirmed and suspected disposal areas including AOC 1 (U.S. Army Southern Landfill), AOC 4 (Construction and Demolition (C&D) Landfill), and AOC 7 (Triangular Disposal Area). The area north of the warehouse complex contains AOC 3 (Burn Pit Area), AOC 6 (Waste Water Treatment Plant), and AOC 9 (Building 60 Area). Black Creek (AOC 8) enters the SADVA between AOC 1 and AOC 5 and flows northward along the eastern side of the SADVA (Figures 1.1 and 1.2). A perimeter ditch collects water from the southern and western sides of the SADVA and discharges into Black Creek. The Town of Guilderland Central School is located adjacent to the northwest portion of the SADVA on School Road.

1.4.2 SADVA is situated in an area of generally low relief, at the base of the Helderberg Mountains, at an elevation of approximately 320 feet above mean sea level (AMSL). The SADVA is bordered by County Route 201 on the west and south, by State Route 146 on the north, by the Guilderland High School on the northwest, and by Black Creek and Penn Central Railroad tracks to the east. SADVA lies within the Normans Kill drainage basin, an area of about 180 square miles (Buttner, 1997). Most of the SADVA is paved and consists of warehouses. The dominant surface water features in the vicinity are Black Creek, the Bozen Kill, the Normans Kill, and the associated Watervliet Reservoir.

1.4.3 Black Creek is the primary drainage feature in the vicinity of SADVA. Black Creek drains a large part of the site vicinity, and passes through the site. Surface water drainage over the mostly impervious surface area of SADVA is diverted into Black Creek, which has a total drainage basin size of approximately 25 square miles (Buttner, 2000). Contributions from the SADVA site are a relatively small amount (less than 0.4 square miles or less than 2%) in relation to the rest of the Black Creek watershed. From its headwaters at the Helderberg Escarpment, Black Creek flows east, then north into the south end of SADVA. It flows through a man-made channel along the east side of the SADVA before exiting the SADVA channel at the north end of the site. A perimeter drainage ditch (the Western Ditch) collects surface water runoff from the southern and western sides of the site and directs it to Black Creek. This man-made ditch and the main channel for Black Creek were constructed at the time the SADVA was constructed (Black Creek previously flowed through the center of the SADVA site). After flowing north out of the SADVA, Black Creek meanders toward the northwest and discharges into the Bozen Kill, approximately 2 miles downstream of the site. The Bozen Kill empties into the Watervliet

Reservoir, which lies within the Normans Kill drainage area (Figure 1.1). The Watervliet Reservoir is the primary local drinking waters supply source. Downstream of the Reservoir, the Normans Kill flows southeast approximately 5 miles before it empties into the Hudson River.

1.4.4 The New York State Bureau of Watershed Management and the NYSDEC have classified the section of Black Creek adjacent to SADVA as a Class C stream. Even though other factors may limit the use for that purpose, Class C waters are suitable for fishing, fish propagation, and primary and secondary contact recreation. Black Creek flows north and joins the Bozen Kill, which enters the Watervliet Reservoir. The Watervliet Reservoir is a Class A water body which is suitable for drinking, culinary or food processing, and all other uses. The Watervliet Reservoir water supply serves a population of over 40,000 people. The municipal water supply system in the vicinity of SADVA was developed after SADVA operations ended. The public used domestic wells before the municipal water system was installed. Additionally, there may be surface water intakes possibly serving individual properties between SADVA and the Watervliet Reservoir (NYSDOH, 1982). Individuals were known to withdraw water from Black Creek just south of the Bozen Kill (Town of Guilderland, 2000). That stretch of the Black Creek is classified as a Class B waterway by the NYSDEC. Class B waters are suitable for primary contact recreation and for any other uses except: drinking water supply source and culinary or food processing purposes.

1.4.5 Most residences in the site vicinity are served by municipal drinking from Watervliet Reservoir; however, at the time of the RI, the homes east of SADVA were still on private, residential wells. Public water supply pipelines run along County Route 146 between State Route 201 and Ostrander Road, and along State Route 201 at least as far as the railroad tracks west of the intersection of Ostrander Road and State Route 201. The municipal water supply lines extend approximately 1,500 feet west along Meadowdale Road (Route 202). Homes west and southwest of SADVA, along the rest of Meadowdale Road, Frederick Road, and Hawes Road use private wells as a drinking water source, as do homes northwest of the intersection of State Route 201 and County Route 146 (Town of Guilderland, 2000). The NEIP and the Guilderland Central School are supplied with potable water by the Town of Guilderland Water Department. However, the school continues to use wells on its property to irrigate the athletic fields and school grounds.

1.5 SITE HISTORY

1.5.1 For the purposes of this FS, AOC 8 consists of Black Creek from its entry onto SADVA, until approximately ½ mile downstream of its exit from SADVA where the creek flows over a spillway/dam (Figure 1.1). Sediment samples were collected at this spillway during the RI. Also included as part of AOC 8 is the Western Ditch, which discharges to Black Creek. Black Creek flows near many of the AOCs and receives surface water runoff from most of the AOCs through the perimeter ditches or by direct inflow.

1.5.2 In 1998, USACE investigated Black Creek as part of a focused groundwater and surface water investigation at AOC 9 - Building 60 (USACE, 1999). Building 60 is located in the northeast portion of the site, and was investigated because petroleum contamination and an oil/water separator were encountered during excavation for a new building by the NEIP site

owner. The investigation objectives were to determine whether petroleum-related contamination in the Building 60 area had impacted groundwater or Black Creek, and whether Black Creek had been impacted by any other COC at the SADVA site.

1.5.3 During the 1998 investigation, USACE found that the surface water in Black Creek had not been adversely impacted in the immediate vicinity of Building 60 area. Although lead was detected in creek sediment at concentrations that exceeded the Lowest Effect Level identified in the NYSDEC's Technical Guidance for Screening Contaminated Sediments (NYSDEC, 1999), there was not enough data to determine whether the observed concentrations exceeded background concentrations (USACE, 1999).

1.5.4 USACE also assessed the overall quality of Black Creek. The analytical results of the surface water samples were compared to the ambient statewide surface water quality standards (NYSDEC, 1998). The analytical results were also compared to results for a single upstream sample. Based on these comparisons, there appeared to be an impact on the quality of the surface water in Black Creek. Lead and 1,1,2,2-tetrachloroethane were detected above the upstream concentration and above the applicable state water quality standards at four sampling locations adjacent to the SADVA (USACE, 1999).

1.5.5 One source of metals to Black Creek was the former Voorheesville Depot, known as AOC 5, which is connected to Black Creek by the southern portion of the Western Ditch. In the past. AOC 5 area would experience frequent flooding during storm events, which resulted in a temporary increase in the release of suspended sediments to the Western Ditch and Black Creek. To alleviate this flooding and associated sediment transport, remedial activities were completed by the Defense National Stockpile Center (DNSC) in 2004 to construct/enlarge new perimeter ditches and retention ponds. These actions, costing in excess of $1.1 million dollars funded by the Defense Logistics Agency, have successfully mitigated flow of suspended sediments from the AOC 5 area to Black Creek. The Voorheesville depot formerly held a State Pollutant Discharge Elimination System (SPDES) permit that was issued by NYSDEC for storm water releases from the site. Once the pond improvements were made and the depot ceased operations, NYSDEC allowed the permit to be terminated. The Voorheesville Depot is now inactive and a remedial investigation report for the site concluded that soil quality at the site meets the New York State restricted-industrial soil criteria and that no remedial action is necessary if the site use remains industrial.

1.6 NATURE AND EXTENT OF CONTAMINATION

1.6.1 The results for the sediment and surface water sampling, conducted during the RI between 2000 and 2004 and completed in 2007 by Parsons, are summarized in this section. Copies of the AOC 8 surface water/sediment analytical data tables and figures from the RI Report are provided in Appendix B of this FS Report. The sampling strategy for the RI was to determine whether past DoD activities at SADVA had contaminated surface water and/or sediment onsite and downstream of various AOCs. The sample results were used to assess surface water and sediment quality impacts in Black Creek. The New York Bureau of Watershed Management and the NYSDEC considers this section of Black Creek a Class C water body, suitable for fishing, fish propagation, and primary and secondary contact recreation.

Surface water results were therefore compared to NYSDEC Class C standards and upstream concentrations. Comparison to Class A standards and guidance values was also included in the RI for screening purposes only, because Black Creek is a tributary to Watervliet Reservoir (a Class A water body). For the purposes of this FS Report, only Class C standards and guidance values apply under the New York State regulations and therefore will be retained for evaluation. Sediment results were compared to NYSDEC sediment guidance values (NYSDEC, 1999) and background (upstream) ranges. All the Class C surface water standards and guidance values, and the sediment guidance values, are subsequently referred to as criteria in the text. The NYSDEC sediment guidance values are for protection of ecological resources, not human health. NYSDEC does not have sediment criteria for protection of human health.

1.6.2 The RI surface water characterization for AOC 8 included sampling surface water in 2000 and 2004 at 18 locations (see Figure 1.3) to characterize upstream and downstream surface water quality and to identify surface water impacts from the AOCs associated with the SADVA. Samples SW-19 and SW-20 were located at the points where the two branches of Black Creek enter the SADVA at the south end. Samples SW-12, SW-26, SW-15 and SW29 were collected in the southern portion of the Western Ditch that drains AOC 5 and the southern part of the SADVA. Samples SW-16, SW-17 and SW-18 were collected in the main channel of Black Creek, downstream and upstream of the southern confluence of the Western Ditch to assess impacts on water quality in the main branch of Black Creek. Samples SW-11, SW-24, and SW-10 were collected in the northern portion of the Western Ditch. SW07 and SW09 were collected upstream and downstream, respectively, of the northern confluence of the Western Ditch and Black Creek to assess the Western Ditch's impact on the main branch of Black Creek at the north end of SADVA.

1.6.3 In general, the RI surface water sample results showed that the Western Ditch has metal concentrations that exceed upstream concentrations in Black Creek. A limited number of samples exceeded the Class C surface water quality criteria, however, all of these criteria specify ionic, dissolved, or acid soluble forms of the metals. Available data are reported as total concentrations; therefore direct comparisons to the Class C standards are not applicable unless total concentration is specified. All metals concentrations were either within background concentrations, or did not exceed total-concentration-specific standards/guidance values. Note that after the RI Report was finalized in September 2007, NYSDEC eliminated the Class C iron standard for protection of aquatic life in February 2008. Therefore, that change is not reflected in the RI Report data tables and figures. Furthermore, the samples immediately downstream from the two points where the Western Ditch discharges to Black Creek (SW17 and SW09) shows all metals concentrations are below the upstream and/or the Class C standards for total metals. The SW17 sample, collected in 2004, had a concentration of silver above Class C standards and the upstream concentrations; however, the Class C standard is for the ionic form of silver and the sample result is total silver. The two samples collected downstream from all the AOCs (SW09 and SW25) had no concentrations that were above Class C standards/guidance values and upstream concentrations.

1.6.4 Volatile organic compounds (VOCs) were not detected above NYSDEC C surface water standards/guidance values and upstream concentrations in any surface water samples. One semivolatile organic compound (SVOC), bis(2-ethylhexyl)phthalate (BEHP) was frequently

detected; however, the BEHP concentrations onsite and downstream were within the range detected in the upstream samples (ND to 26 ug/L). Pesticides and polychlorinated biphenyls (PCBs) were not detected in any of the surface water samples.

1.6.5 Locations where sediment samples were collected in two phases during the RI are shown on Figure 1.4. In 2000, sediments were collected from 0 to 2 inches beneath the sediment surface at each of the surface water locations, plus location SD14 where a surface water sample could not be collected due to dry conditions. The sediment samples collected in 2000 were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. In 2004 at the request of NYSDEC, deeper sediment samples from 1 to 1.5 feet beneath the sediment surface were collected at nine existing sample locations to characterize deeper sediments. A deeper sample (SD30) was collected at SD25, located on the upstream side of the small dam on Black Creek. Two new sample pair locations (SD31 and SD32) were added between the small dam and SADVA. One upstream location (SD28) was added upstream of SD28 (2000) and Meadowdale Road. Sediment samples collected in 2004 were analyzed for SVOCs, pesticides, PCBs, and metals, because these were the analytes detected in 2000. The distribution and extent of metal concentrations in sediment samples collected during the RI are presented in Figures 3.40 and 3.41(a-g) of the RI Report (copies are provided in Appendix B of this FS Report). Also included is Figure 3.38 showing sediment concentrations from a 1998 sampling event conducted by USACE before the RI. In the following paragraphs, the RI sediment data are compared to NYSDEC sediment screening criteria, which are primarily based on protection of aquatic/ecological life. Tables showing how the sediment sample results compare to the NYSDEC sediment criteria are presented in Appendix B (Tables 3.36a and 3.36b). Comparisons are also made to the New York State Part 375 soil cleanup objectives, which are based on protection of human health and are specific to several types of land use – unrestricted, residential and industrial. Tables showing how the RI sediment sample results compare to the three sets of Part 375 soil criteria are included in Appendix B. Comparisons to NYSDEC sediment screening criteria are described in the following paragraphs, followed by comparisons to Part 375 soil cleanup objectives.

1.6.6 VOCs were not detected above NYSDEC sediment criteria and upstream ranges in any sediment sample. Four shallow sediment samples (SD19, SD25, SD31-0-0.5', and SD32-0-0.5') contained one or more SVOCs above sediment criteria and upstream concentration ranges. One of the four locations (SD19) is at the upstream end of SADVA, in Wetland V-19 where Black Creek enters the site. The other three sample locations (SD25, SD31-0-0.5', and SD32-0-0.5') are downstream and off-site of SADVA. Sample SD25 was collected on the upstream side of the small dam. Sample SD32-0-0.5' was collected downstream of the SADVA on the upstream side of the first spillway located along Route 146. Sample SD31-0-0.5' was collected between the first spillway and the small dam farther downstream. On the basis of sample locations, the elevated concentrations of SVOCs in SD25, SD31-0-0.5, and SD32-0-0.5' may not necessarily be attributable to the SADVA. Each of these samples was located near Route 146. SD32-0-0.5' is also located near an active driveway used by the Guilderland School District busses. SD31-0-0.5' is located downstream of the School Road crossing and the bus driveway. The detected SVOCs could be attributed to vehicle traffic and exhaust. SVOCs were below criteria or were not detected in all of the deep sediment samples collected onsite and off-site.

1.6.7 Pesticides were detected above sediment criteria and background ranges in ten sediment samples. Total pesticide concentrations were highest (288.7 ug/kg) in SD14. SD14 was a shallow sample collected from the Western Ditch, downstream of AOC 3. SD14 and deeper sample SD14-0.5-1' each contained 4,4'-DDE and 4,4'DDT. Both pesticides were also detected above sediment criteria in SD24, collected from the Western Ditch upstream of SD14. Pesticide concentrations in samples collected from the southern end of the SADVA were generally lower than in SD 24 and SD14. Pesticide concentrations at the downstream dam were low; alpha chlordane was the only pesticide detected above sediment criteria at SD25.

1.6.8 PCBs were only detected in one sample (SD29 in the western ditch) at a concentration of 110 ug/kg. That concentration is below the NYSDEC sediment criterion. The deeper sample collected at this location did not contain PCBs.

1.6.9 Nine metals were detected above sediment criteria and background ranges (arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc). The most metals above sediment criteria were detected in the shallow sample at SD18 (nine metals), collected in Black Creek near the C&D Landfill area. This sample location suggests the C&D Landfill area may be contributing metals to Black Creek. Metals exceeding criteria were also detected in the Western Ditch near the former open storage area adjacent to AOC 5, at SD12, (five metals), SD15 (8 metals), SD26 (six metals) and SD29 (seven metals). These results suggest the elevated metals in the Western Ditch have been impacted by runoff from AOC 5. It is noteworthy that at SD16 and SD17 the metals concentrations were much lower and did not exceed either the sediment criteria or upstream concentrations. SD16 and SD17 are located in Black Creek, downstream of where the Western Ditch enters Black Creek.

1.6.10 Downstream of SADVA, off-site metals concentrations in both the shallow and deep sediment samples tended to be higher than the metals concentrations onsite in the main channel of Black Creek at SD17 and SD07.

1.6.11 The following paragraphs present comparisons of the sediment data to Part 375 soil cleanup objectives for unrestricted land use, residential land use and industrial land use. All sediment sample concentrations were below the unrestricted land use soil criteria for VOCs.

1.6.12 All sediment sample concentrations met unrestricted criteria for SVOCs, with the exception of one offsite sample. Sample SD-32, located offsite near the intersection of Route 146 and School Road exceeded the industrial criterion for one carcinogenic PAH (CPAH) and residential criteria for 5 other CPAHs. The presence of these CPAHs is likely caused by road traffic and vehicle exhaust, because CPAH concentrations onsite met unrestricted criteria.

1.6.13 All sediment sample concentrations for pesticides and PCBs met the industrial and residential land use criteria. Eleven samples had pesticide/PCB concentrations above unrestricted criteria; three were offsite, downstream of the site gate (SD31 and 32) and at the spillway (SD25).

1.6.14 Most onsite and downstream sediment concentrations exceeded the unrestricted land use criteria for metals Three samples (SD09, 18 and PSED0001) exceeded residential criteria

(for arsenic, barium, chromium, manganese); all three sample locations are onsite. Two of those samples (SD18 and SD09) also had one or two metals that exceeded industrial criteria (for arsenic and/or manganese).

1.6.15 During the RI and during the Focused Feasibility Study (FFS) for AOCs 1 and 7, the impacts of the U.S. Army Southern Landfill (AOC 1) and Triangular Disposal Area (AOC 7) on Black Creek were assessed. The sediment and surface water quality data for Black Creek do not show impacts attributable to AOC 1 or AOC 7.

1.7 SUMMARY OF RISK ASSESSMENTS

1.7.1 Qualitative Ecological Risk Assessment

1.7.1.1 During the RI, a screening-level ecological risk assessment (SLERA) was conducted to evaluate potential adverse impacts to the ecological receptors at SADVA due to the presence of certain organic compounds and metals above applicable criteria in sediment and surface water at SADVA. The SLERA can be used to identify and evaluate the ecological risks at the site, if any. The objective of the SLERA was to evaluate whether unacceptable adverse risks may be present. This objective was met by characterizing ecological plant and animal communities at or near the site, defining and describing the contaminants present in the environmental media at the site, and identifying the potential pathways for exposure to contaminants at the site. The information used in the SLERA was largely taken from the Generic Environmental Impact Statement (EIS) prepared for the NEIP (Galesi Group, 2005), supplemented by the RI sampling data and site visits by risk assessment professionals.

1.7.1.2 An initial screening of chemicals was conducted by comparing sample concentrations to background (upstream) concentrations in any given media. If no background concentration was available, the chemical was retained in the analysis. Chemicals that do not bioaccumulate in the environment were screened based on a comparison to selected ecological benchmarks. For sediment, New York State sediment quality criteria were used. For surface water, United States Environmental Protection Agency (USEPA) Region 5 ecological screening levels were used because some of the New York State surface water quality standards are based on protection of human health, and therefore they were not applied to the ecological risk assessment. In the absence of any screening values from USEPA Region 2, USEPA Region 5 screening levels were chosen, because Region 5 provides screening levels for a large number of chemicals for the media evaluated in this study.

1.7.1.3 To determine if a chemical was retained for analysis, the following guidelines were used:

- If the chemical concentration was less than the background concentration, it was screened out of the analyses (eliminated).
- If the chemical concentration in sediment was greater than background concentration, but less than the NYS sediment screening guideline, it was eliminated.
- If the chemical concentration was greater than background, and greater than the USEPA Region 5 surface water screening level, it was retained for analysis.

- Compounds that bioaccumulate, such as PCBs and mercury, were retained in the analysis, regardless of whether they exceeded screening levels (either background or USEPA surface water screening levels).

1.7.1.4 The qualitative ecological risk assessment for the SADVA site, which included assessment of AOC 8, concluded that although there are chemicals in various media onsite that pose a potential risk to aquatic and terrestrial wildlife, the SADVA site appears to support wildlife typical for the area and for the commercial/industrial setting that the site has retained for over 60 years (see Appendix H1 of the RI Report). The highest risk is posed by bioaccumulating compounds such as pesticides and polynuclear aromatic hydrocarbons (PAHs). Metals can pose varying levels of risk, depending on the bioaccumulation and biomagnifying characteristics of the metal. These conclusions are reinforced by two other ecological assessments conducted at AOC 1, the U.S. Army Southern Landfill. The 2004 qualitative assessment of the diversity and condition of aquatic life in the pond located in AOC 1 found that the observed species composition seemed appropriate for the habitat and all species present appeared active (see Appendix H2 of the RI Report). The 2004 macroinvertebrate community analysis of the pond (Ichthyological Associates, 2004) found the sampling stations were only slightly impaired, a condition which is not unexpected given the artificially uniform nature of the man-made pond bottom (see Appendix H3 of the RI Report). The pond at AOC 1 is connected to Black Creek through a drainage ditch flowing through a wetland area.

1.7.2 Quantitative Human Health Risk Assessment

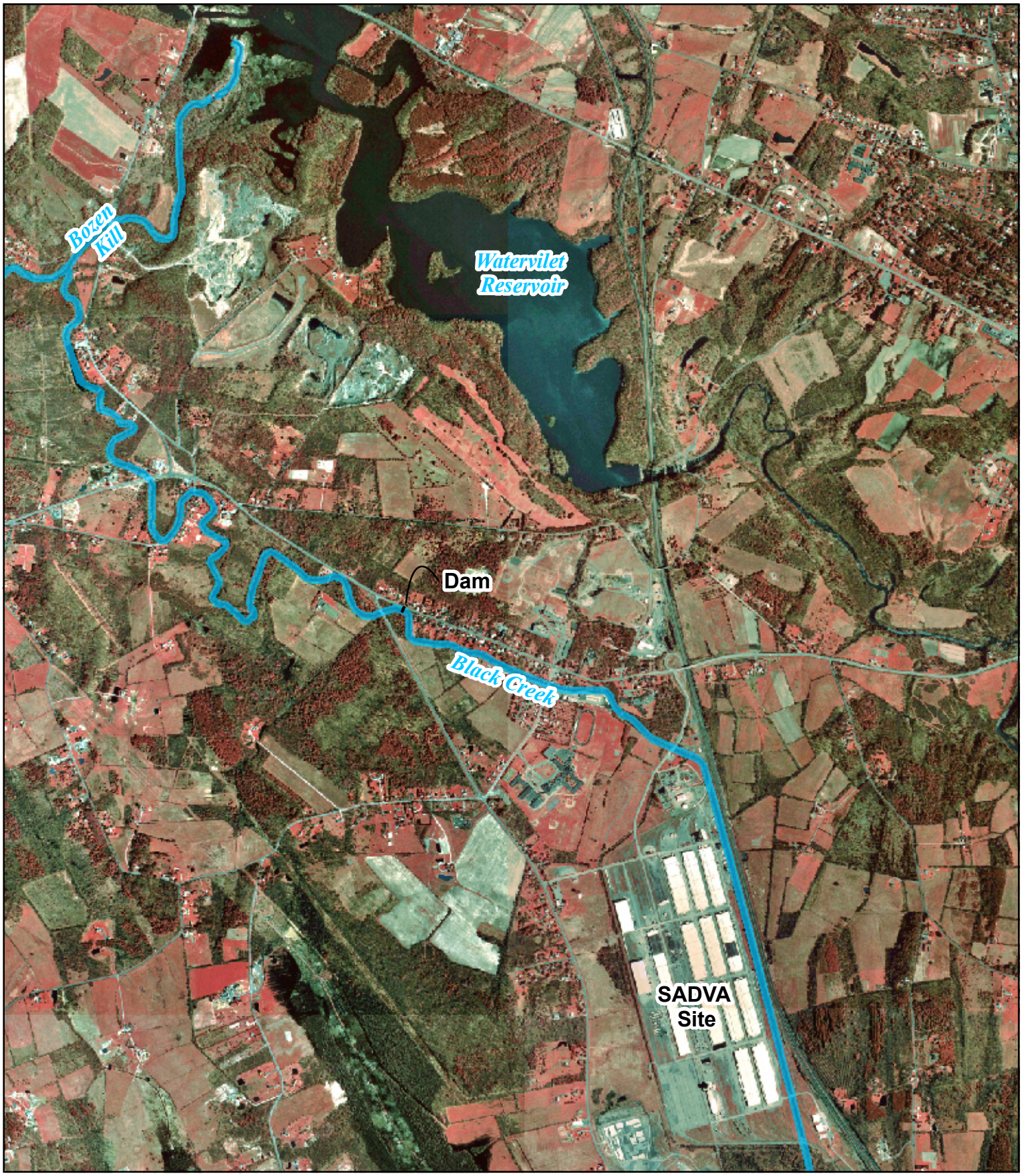
1.7.2.1 As stated in the RI Report (Parsons, 2007), and summarized above, certain organic compounds and metals were found to be above the NYSDEC surface water standards and sediment quality guidelines and/or background concentration ranges. Based on those results, a quantitative HHRA was prepared by Parsons for AOC 8 (Parsons, 2007). The specific objective of the HHRA was to provide a quantitative risk assessment of the sediment and surface water in Black Creek and the Western Ditch, and to determine whether an unacceptable risk to human health exists associated with exposure to surface water and sediment at AOC 8.

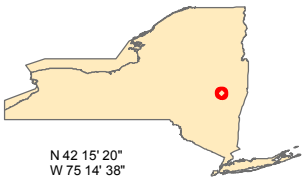
1.7.2.2 Due to the lack of human health screening levels for sediment from the USEPA, and because the NYSDEC criteria for sediment are for protection of aquatic life only, criteria protective of human health from the Tier 1 sediment protective concentration levels (PCLs) as developed by the Texas Commission on Environmental Quality (TCEQ) were used by Parsons in the risk assessment. Human health sediment screening values from any other source, including USEPA and other state regulatory agencies, were not known to be available. Based on the results of the HHRA, there are no unacceptable non-carcinogenic or carcinogenic risks associated with the sediments at AOC 8. The cumulative non-carcinogenic risk ratio for the site was 0.71, well below USEPA's maximum acceptable level of 1.0. The carcinogenic risk ratio results were 7.8×10^{-6}, within the USEPA acceptable risk range of one in one million (1.0×10^{-6}) to one in ten thousand (1.0×10^{-4}). The results indicate that there is no unacceptable risk from exposure to sediments. Because the results are based on residential exposure to contaminants (i.e., a person living at the site), these results provide a conservative (health-protective) evaluation for the current and/or future worker exposure scenarios and commercial/industrial land use expected for the site.

1.7.2.3 The risk ratio results show that there is no unacceptable non-carcinogenic risk for the surface water exposure pathway at AOC 8. The cumulative risk ratio result is 1, indicating that there is no unacceptable non-cancer risk for potential exposure to surface water. For the carcinogenic chemicals detected in surface water, the cumulative risk ratio result was 8.0×10^{-5}, within the USEPA acceptable risk range of 10^{-6} to 10^{-4}, indicating that there is no unacceptable risk from exposure to surface water. However, even this result is overly conservative in the estimate of potential risk. The single chemical driving the human health risk associated with surface water is arsenic. Arsenic was only detected in one of the surface water samples from Black Creek (SW-09, located at the far downstream end of the SADVA just before Black Creek leaves the site). The concentration detected was 3.6 micrograms per liter (µg/L or parts per billion). This arsenic concentration is well below the drinking water standard (*i.e.*, MCL) for arsenic (10 µg/L), and far below the NYSDEC Class A surface water criterion of 50 ug/L.

1.7.2.4 The HHRA identified several uncertainties associated with the surface water exposure pathway. New York State Class C surface water standards are not designed for use in quantitative risk assessments. Therefore, surface water sampling results were compared to the USEPA Region 6 "tap water" media-specific screening levels (MSSLs). These MSSLs assume residential exposure to surface water used as drinking water, and inhalation of volatiles from use of surface water in the home (*e.g.*, showering, laundering, and dish washing). USEPA Region 6 provides screening levels that are updated annually and provide screening values for a complete list of chemicals. Of the USEPA regions that provide human health screening values (Regions 3, 6, and 9), the Region 6 values have been updated most recently.

1.7.2.5 The comparison of surface water samples to residential (tap water) criteria was made for information purposes based on Restoration Advisory Board (RAB) concerns that contaminants from SADVA may migrate to the Watervliet Reservoir water supply. The Watervliet Reservoir is tested regularly by the NYSDOH and City of Watervliet to ensure a safe drinking water supply. In the immediate vicinity of the SADVA, Black Creek is not used as a drinking water source. The only detected concentration of arsenic in Black Creek was well below the maximum contaminant level (MCL) and NYSDEC surface water quality criterion. Based on these factors, surface water in Black Creek does not pose an unacceptable risk to human health.





The photo mosaic above, downloaded from the New York State Geospatial Clearinghouse, is a false color infrared image. One characteristic of this type of image is that most healthy vegetation (with the exclusion of many conifer species) appears in red instead of green. The "redness" indicates vegetation density, type and whether growing on dry land or in a swamp. Grasslands appear light red, deciduous trees and croplands appear red, and coniferous forests appear dark red or maroon. Paved areas and buildings can appear bluish green.

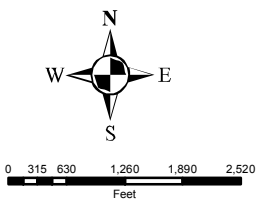


FIGURE 1.1

SADVA
Guilderland, New York

SITE AND VICINITY

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312; LIVERPOOL, NY 13088 PHONE: (315) 451-9560

N

TO U.S. ROUTE 20 & I-90

NYS ROUTE 146

TO ALTAMONT & I-88

TO NYS ROUTE 146

ENTRANCE AND GUARDHOUSE

AOC 6 WASTEWATER TREATMENT PLANT AREA

AOC 9 BUILDING 60 AREA

AOC 8 BLACK CREEK

AOC 1 US ARMY SOUTHERN LANDFILL

POND

AOC 7 TRIANGULAR DISPOSAL AREA

AOC4 C&D LANDFILL

AOC 3 BURN PIT AREA

APPROXIMATE LOCATION OF BUNKER

AOC 5 VOORHEESVILLE DEPOT

AOC 2 FORMER BIVOUAC AREA/POST COMMANDER'S LANDFILL

CONRAIL MAINLINE

BLACK CREEK (AOC 8)

BLACK CREEK

7TH STREET

6TH STREET

5TH STREET

4TH STREET

3RD STREET

2ND STREET

1ST STREET

AVENUE A

AVENUE B

AVENUE C

AVENUE D

AVENUE E

WESTERN DITCH

TOWN OF GUILDERLAND WATER TOWER

GUILDERLAND CENTER

GUILDERLAND CENTRAL SCHOOL

SCHOOL ROAD

ALBANY COUNTY ROAD 201

RR

HUDSON DELAWARE

US GOVERNMENT PROPERTY

APPROXIMATE LIMITS OF RESIDENTIAL PROPERTY

APPROXIMATE AOC BOUNDARIES

LEGEND

NORTHEASTERN INDUSTRIAL PARK BOUNDARY

FENCE LINE

BLACK CREEK

800' 400' 0 800'

Approximate Scale in Feet

SOURCES:
USGS 7.5 MINUTE QUADRANGLE
VOORHEESVILLE, N.Y. 1980 AND
SITE PLAN PREPARED BY
H & A OF N.Y. GEOTECHNICAL ENGINEERS
& ENVIRONMENTAL CONSULTANTS
COUNTY OF ALBANY, REAL PROPERTY
TAX SERVICE, 1997

P:\743440\cad\\ce\ri-fs\440C001.dwg, 5/9/06 CLW
No XREFs

FIGURE 1.2

FORMER SADVA
GUILDERLAND, NEW YORK

FORMER SADVA SITE PLAN

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

SW25 APPROXIMATELY 1/2 MILE FURTHER DOWNSTREAM

DEPTH	SW25 2000
VOCs	ND
SVOCs	11
PESTICIDES	ND
PCBs	ND
METALS	0

DEPTH	SW24 2000
VOCs	2.2
SVOCs	5.5
PESTICIDES	ND
PCBs	ND
METALS	1

DEPTH	SW11 1998
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	1

DEPTH	SW29 2000	SW29 2004
VOCs	ND	NA
SVOCs	ND	7.58
PESTICIDES	ND	NA
PCBs	ND	NA
METALS	5	5

DEPTH	SW15 2000
VOCs	ND
SVOCs	7.4
PESTICIDES	ND
PCBs	ND
METALS	5

GUILDERLAND HIGH SCHOOL

School Rd

BLACK CREEK

Depot Rd

VOOHEESVILLE DEPOT (AOC 5)

DRAINAGE DITCH TO BLACK CREEK

SW-11

SW-24

SW-10

SW-09

Route 146

SW-29

SW-15

SW-26

SW-12

FORMER SADVA

DEPTH	SW12 1998
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	1

DEPTH	SW26 2000
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	0

DEPTH	SW10 1998
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	1

DEPTH	SW28 2000	SW28 2004
VOCs	2.3	NA
SVOCs	ND	6.84
PESTICIDES	ND	NA
PCBs	ND	NA
METALS	3	2

DEPTH	SW21 2000
VOCs	ND
SVOCs	14
PESTICIDES	ND
PCBs	ND
METALS	2

DEPTH	SW22 2000
VOCs	ND
SVOCs	26
PESTICIDES	ND
PCBs	ND
METALS	2

SW28(2000) AND SW28(2004) ARE SEVERAL MILES UPSTREAM

SW-07

(AOC 8)

BLACK CREEK

DEPTH	SW09 1998	SW09 2004
VOCs	NA	NA
SVOCs	NA	3.1
PESTICIDES	NA	NA
PCBs	NA	NA
METALS	0	0

DEPTH	SW07 1998	SW07 2004
VOCs	NA	NA
SVOCs	NA	3.1
PESTICIDES	NA	NA
PCBs	NA	NA
METALS	0	2

SW-21

SW-19

SW-23

SW-22

SW-18

SW-17

SW-16

SW-20

C&D LANDFILL

(AOC7)

(AOC1)

Ostrander Rd

DEPTH	SW05 1998	SW16 2000
VOCs	NA	ND
SVOCs	NA	ND
PESTICIDES	NA	ND
PCBs	NA	ND
METALS	0	1

DEPTH	SW04 1998	SW17 2000	SW17 2004
VOCs	NA	ND	NA
SVOCs	NA	4.2	4
PESTICIDES	NA	ND	NA
PCBs	NA	ND	NA
METALS	0	0	1

DEPTH	SW03 1998	SW18 2000	SW18 2004
VOCs	NA	ND	NA
SVOCs	NA	4.8	7.71
PESTICIDES	NA	ND	NA
PCBs	NA	ND	NA
METALS	0	4	2

DEPTH	SW02 1998	SW19 2000
VOCs	NA	ND
SVOCs	NA	ND
PESTICIDES	NA	ND
PCBs	NA	ND
METALS	2	1

DEPTH	SW23 2000
VOCs	ND
SVOCs	7.5
PESTICIDES	ND
PCBs	ND
METALS	2

DEPTH	SW20 2000
VOCs	ND
SVOCs	ND
PESTICIDES	ND
PCBs	ND
METALS	0

LEGEND

DATE	SW15 2000
VOCs	ND
SVOCs	7.4
PESTICIDES	ND
PCBs	ND
METALS	5

SAMPLE ID
DATE
TOTAL VOCs (ug/L)
TOTAL SVOCs (ug/L)
TOTAL PESTICIDES (ug/L)
TOTAL PCBs (ug/L)
NUMBER OF METALS WHOSE CONCENTRAITONS EXCEED UPSTREAM AND CLASS "C" SURFACE WATER QUALITY CRITERIA

NA NOT ANALYZED
ND NOT DETECTED
* DUPLICATE SAMPLE ANALYZED, HIGHEST CONCENTRATION SHOWN

SAMPLE CONCENTRATIONS EXCEED CLASS "C" CONCENTRATION AND UPSTREAM CONCENTRATION

SURFACE WATER SAMPLE LOCATION

FENCING

CATCH BASINS AND FLOW DIRECTIONS

800 400 0 800 1600

Approximate Scale in Feet

FIGURE 1.3

SADVA
GUILDERLAND, NEW YORK

AOC 8 BLACK CREEK SURFACE WATER SAMPLE RESULTS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

P:\743440\cad\CE\RI-FS\AOC8-C007.DWG 3/10/08
No XREFs

DEPTH	SD28 (2000) 0–0.2'	SD28 (2004) 0–0.5'	SD28 (2004) 1–1.5'
VOCs	ND	NA	NA
SVOCs	5546	44	ND
CPAHs	2248	44	ND
NPAHs	3058	ND	ND
PAHs	5306	44	ND
PESTICIDES	ND	0.35	0.62
PCBs	ND	NA	NA
METALS	3	1	0

DEPTH	SD12 (1998) –	SD15 (2000) 0–0.2'	SD15 (2004) 1–1.5'
VOCs	NA	ND	NA
SVOCs	NA	552	ND
CPAHs	NA	211	ND
NPAHs	NA	201	ND
PAHs	NA	412	ND
PESTICIDES	NA	64.84	49.76
PCBs	NA	ND	NA
METALS	5	8	5

DEPTH	SD29 (2000) 0–0.2'	SD29 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	307	ND
CPAHs	164	ND
NPAHs	143	ND
PAHs	307	ND
PESTICIDES	21.48	ND
PCBs	110	ND
METALS	7	4

DEPTH	SD11 (1998) –
VOCs	NA
SVOCs	NA
CPAHs	NA
NPAHs	NA
PAHs	NA
PESTICIDES	NA
PCBs	NA
METALS	2

DEPTH	SD24 (2000) 0–0.2'
VOCs	ND
SVOCs	1357
CPAHs	600
NPAHs	658
PAHs	1258
PESTICIDES	115
PCBs	ND
METALS	2

DEPTH	SD25 (2000) 0–0.2'	SD30 (2004) 1–1.5'
VOCs	3.4	NA
SVOCs	1782	ND
CPAHs	944	ND
NPAHs	764	ND
PAHs	1708	ND
PESTICIDES	10.34	2.91
PCBs	ND	NA
METALS	1	4

SD25 & SD30–1–1.5 ARE CO–LOCATED AT THE SPILLWAY/DAM APPROXIMATELY 1/2 MILE FURTHER DOWNSTREAM

DEPTH	SD19 (2000) 0–0.2'
VOCs	ND
SVOCs	4947
CPAHs	2142
NPAHs	2696
PAHs	4838
PESTICIDES	1.1
PCBs	ND
METALS	0

DEPTH	SD26 (2000) 0–0.2'
VOCs	NA
SVOCs	NA
CPAHs	NA
NPAHs	NA
PAHs	NA
PESTICIDES	NA
PCBs	NA
METALS	6

DEPTH	SD21 (2000) 0–0.2'
VOCs	2.4
SVOCs	ND
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.13
PCBs	ND
METALS	2

DEPTH	SD22 (2000) 0–0.2'
VOCs	ND
SVOCs	150
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.23
PCBs	ND
METALS	4

DEPTH	SD12 (2000) 0–0.2'	SD12 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	NA	41
CPAHs	NA	ND
NPAHs	NA	ND
PAHs	NA	ND
PESTICIDES	NA	3.46
PCBs	NA	NA
METALS	5	0

DEPTH	SD16 (2000) 0–0.2'
VOCs	ND
SVOCs	ND
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.22
PCBs	ND
METALS	2

DEPTH	SD10 (1998) –
VOCs	NA
SVOCs	NA
CPAHs	NA
NPAHs	NA
PAHs	NA
PESTICIDES	NA
PCBs	NA
METALS	3

DEPTH	SD31 (2004) 0–0.5'	SD31 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	5616	ND
CPAHs	2796	ND
NPAHs	2820	ND
PAHs	5616	ND
PESTICIDES	30.39	0.93
PCBs	NA	NA
METALS	5	4

DEPTH	SD32 (2004) 0–0.5'	SD32 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	37030	2021
CPAHs	14570	776
NPAHs	21460	1143
PAHs	36030	1919
PESTICIDES	10.5	18.31
PCBs	NA	NA
METALS	3	3

DEPTH	SD14 (2000) 0–0.2'	SD14 (2004) 0.5–1'
VOCs	ND	NA
SVOCs	266	ND
CPAHs	143	ND
NPAHs	123	ND
PAHs	266	ND
PESTICIDES	288.7	134
PCBs	ND	NA
METALS	5	5

DEPTH	SD09 (1998) –	SD09 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	NA	42
CPAHs	NA	ND
NPAHs	NA	42
PAHs	NA	42
PESTICIDES	NA	3.9
PCBs	NA	NA
METALS	7	4

DEPTH	SD07 (1998) –	SD07 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	3701	ND
CPAHs	NA	ND
NPAHs	NA	ND
PAHs	NA	ND
PESTICIDES	299.6	0.9
PCBs	ND	NA
METALS	5	0

DEPTH	SD17 (2000) 0–0.2'	SD17 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	154	48
CPAHs	106	ND
NPAHs	27	ND
PAHs	133	ND
PESTICIDES	6.3	0.29
PCBs	ND	NA
METALS	2	0

DEPTH	SD20 (2000) 0–0.2'
VOCs	ND
SVOCs	220
CPAHs	90
NPAHs	75
PAHs	165
PESTICIDES	44.2
PCBs	ND
METALS	2

DEPTH	SD23 (2000) 0–0.2'
VOCs	ND
SVOCs	210
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.15
PCBs	ND
METALS	2

DEPTH	SD20 (2000) 0–0.2'
VOCs	ND
SVOCs	220
CPAHs	90
NPAHs	75
PAHs	165
PESTICIDES	44.2
PCBs	ND
METALS	2

DEPTH	SD18 (2000) 0–0.2'	SD18 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	346	ND
CPAHs	146	ND
NPAHs	156	ND
PAHs	302	ND
PESTICIDES	2.3	ND
PCBs	ND	NA
METALS	9	3

Depot Rd
School Rd
GUILDERLAND HIGH SCHOOL
BLACK CREEK
SD-31/SD-31D
SD32/SD32D
Route 146
VOOHEESVILLE DEPOT (AOC5)
DRAINAGE DITCH TO BLACK CREEK
FORMER SADVA
SD-11
SD-24
SD-10
SD-14
SD-9
SD-29
SD-15
SD-26
SD-12
SD-07
(AOC 8) BLACK CREEK
SD-16
SD-17
SD-18
SD-19
SD-21
SD-23
SD-22
SD-20
C&D LANDFILL
(AOC7)
(AOC1)
Ostrander Rd
SD28(2000) AND SD28(2004) ARE SEVERAL MILES UPSTREAM

LEGEND

SAMPLE ID (DATE)
DEPTH IN FEET
TOTAL VOCs (ug/kg)
TOTAL SVOCs (ug/kg)
TOTAL CPAHs (ug/kg)
TOTAL NPAHs (ug/kg)
TOTAL PAHs (ug/kg)
TOTAL PESTICIDES (ug/kg)
TOTAL PCBs (ug/kg)
NUMBER OF METALS WITH CONCENTRATIONS ABOVE NYSDEC SEDIMENT CRITERIA, UPSTREAM RANGES, OR SIDE RANGES.

– UNKNOWN
NA NOT ANALYZED
ND NOT DETECTED
* DUPLICATE SAMPLE ANALYZED, HIGHEST CONCENTRATION SHOWN

115 ONE OR MORE COMPOUNDS ABOVE NYSDEC SEDIMENT CRITERIA AND UPSTREAM RANGE

SURFACE WATER/SEDMENT SAMPLE LOCATION
SEDMENT SAMPLE LOCATION
FENCING
CATCH BASINS AND FLOW DIRECTIONS

800 400 0 800 1600
Approximate Scale in Feet

FIGURE 1.4

SADVA
GUILDERLAND, NEW YORK

AOC 8 BLACK CREEK SEDIMENT ANALYTICAL DATA MAP

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315–451–9560

P:\743440\cad\CE\RI–FS\AOC8–C008.DWG 3/10/08
No XREFs

SECTION 2

REMEDIAL ACTION OBJECTIVES

2.1 MEDIA AND PARAMETERS TO ADDRESS

2.1.1 The purpose of this section is to identify the preliminary remediation goals (PRGs) and remedial action objectives (RAOs) for AOC 8. PRGs provide an important basis for the analysis of remedial alternatives in Section 4 of this report. In accordance with USEPA guidance, the development of PRGs is an iterative process over the course of an FS; hence, there are "potential" PRGs as well as "interim" and "final" PRGs (USEPA, 1988). The interim PRGs are presented herein. The chemicals of concern are those identified in the RI Report as posing a potential impact on human health or a potential impact to ecological resources.

2.1.2 The development of RAOs and PRGs requires the identification of ARARs, which consist of promulgated Federal (or if more stringent, State) statutes and regulations. In addition to ARARs, the lead and support agencies may, as appropriate, identify other advisories, criteria, or guidance to be considered (TBC) that may be useful in developing CERCLA remedies. The ARARs and TBCs are evaluated in this section of the report to form RAOs and PRGs.

2.1.3 The results of the RI indicated the sediments in AOC 8 have concentrations of some contaminants above NYSDEC sediment quality criteria, which are based on ecological impacts, and above upstream concentration ranges for Black Creek. The NYSDEC sediment quality criteria are considered herein during development of PRGs and remedial alternatives.

2.1.4 USEPA does not have human health screening levels for sediments, and the NYSDEC sediment quality criteria are for protection of aquatic life and for protection of wildlife and human health from bioaccumulation. The HHRA indicated that no unacceptable human health risk occurs from the sediment at AOC 8. The HHRA used Tier 1 sediment PCLs developed by TCEQ, and these PCLs are considered during the development of PRGs and remedial alternatives.

2.1.5 The results of the RI indicated the surface waters in AOC 8 have concentrations of some contaminants above NYSDEC Class C water quality standards and guidance values. The NYSDEC water quality standards and guidance values are considered herein during development of PRGs and remedial alternatives.

2.2 EXPOSURE PATHWAYS

2.2.1 The possible exposure pathways include:

- Incidental ingestion of sediment;
- Dermal contact with sediment; and
- Ingestion of surface water as drinking water and/or inhalation of vapors from that water.

2.2.2 For purposes of this analysis, possible receptors were assumed to be current or future residents at the site. Residential receptors provide a conservative (health-protective) analysis and would be protective for any potential current or future industrial/commercial worker scenario. That is, by evaluating the site as though people live there, the evaluation will also incorporate and be protective of persons working at the site.

2.3 ARARS

2.3.1 Response for releases or threatened releases of hazardous substances at AOC 8 is subject to Federal and State environmental statutes and regulations in accordance with the CERCLA process for determining ARARs. Section 121(d)(1) of CERCLA generally requires that response action attain a degree of cleanup that assures protection of human health and the environment. Section 121(d)(2) and its implementing regulations in the National Contingency Plan (NCP – 40 CFR Part 300) further require that response actions at least attain Federal ARARs as well as any state ARARs that are more stringent than Federal ARARs (unless an ARAR waiver becomes necessary).

2.3.2 The term ARAR refers to "applicable" and "relevant and appropriate" standards, which are Federally promulgated (or State promulgated standards, if more stringent). "Applicable" requirements are cleanup standards, standards of control, and other substantive environmental protection requirements promulgated under Federal or state environmental law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at a CERCLA site. "Relevant and appropriate" requirements are promulgated cleanup standards that, while not "applicable", address situations sufficiently similar to those encountered at a CERCLA site that their use is well suited to the particular site. ARARs are a threshold standard for a CERCLA response action.

2.3.3 In addition to ARARs, the lead and support agencies may, as appropriate, identify other advisories, criteria, or guidance to be considered for a particular release, which are referred to as "To Be Considered" (TBC). The TBC category consists of advisories, criteria, or guidance that were developed by EPA, other Federal agencies, or States that may be useful in developing CERCLA remedies. Such TBCs may be incorporated into a selected remedy. In addition to ARARs and TBCs, "other criteria considered" may be identified and used to assess the potential risks posed to human health and the environment.

2.3.4 Three categories of ARARs and TBCs were reviewed for this site: chemical-specific, action-specific, and location-specific. Each one is described below. A summary of ARARs, TBCs and "other criteria considered" for AOC 8 is presented in Table 2.1.

2.3.1 Chemical-Specific ARARs

2.3.1.1 Chemical-specific ARARs are health-based or risk-based concentration limits, goals, or ranges in various environmental media for specific hazardous substances. Chemical-specific ARARs include remediation goals for designated media, such as sediment or surface water, which can be used in the development of remedial action objectives for site media.

2.3.1.2 The primary COCs in surface water at AOC 8 are the seven metals that were detected during the RI at concentrations above site-specific upstream concentrations and Class C criteria. However, as previously stated, comparison of available data to these standards is not applicable, as the criteria specify ionic, dissolved, or acid-soluble forms of the metals. Statutes, regulations, and guidelines have been used in the identification of chemical-specific ARARs for surface water. As Black Creek is considered a Class C water body, suitable for fishing, fish propagation, and primary and secondary contact recreation, the NYSDEC Class C standards are designated as chemical-specific ARARs in Tables 2.1 and 2.2.

2.3.1.3 The primary COCs in sediment at AOC 8 are the seven SVOCs, five pesticides and nine metals that were detected during the RI at concentrations above site-specific upstream concentrations and sediment criteria. There are no sediment ARARs in New York State; no promulgated standards for sediment quality are available for New York State. Sediment quality guidelines have been established by the NYSDEC in the Technical Guidance for Screening Contaminated Sediments (NYSDEC, 1999) to determine the need for further evaluation of sediments. These guidelines are protective of benthic aquatic life, wildlife bioaccumulation, and/or human bioaccumulation. The sediment guidelines are not promulgated standards and do not necessarily represent the final concentrations that must be achieved through sediment remediation. Comprehensive sediment testing and risk management are necessary to establish when remediation is appropriate and what final contaminant concentrations the sediment remediation efforts should achieve. However, the NYSDEC sediment guidance values were considered as part of the technology screening process and alternative selection and are presented in Table 2.3 as "Other Criteria Considered".

2.3.1.4 In addition to the New York State sediment quality guidelines discussed above, quantitative statewide soil cleanup objectives have been promulgated under 6 NYCRR Part 375. Four land use categories of cleanup objectives have been established: unrestricted; residential; commercial; and industrial. For the purposes of this FS, the Part 375 industrial land use criteria have been designated as chemical-specific "Other Criteria Considered" for sediment, and are presented in Table 2.3. Because Part 375 applies only to soil, it is not considered an ARAR for sediment. However, it has been incorporated into this FS as "Other Criteria Considered" because the New York State Department of Health uses Part 375 values as a basis of comparison to sediment concentrations, in the absence of promulgated standards.

2.3.1.5 Sediment guidelines for protection of human health are available from the Tier 1 sediment PCLs developed by the TCEQ. The sediment PCLs do not necessarily represent the final concentrations that must be achieved through sediment remediation. However, the sediment PCLs were considered as part of the technology screening process and alternative selection and are presented as "Other Criteria Considered" in Table 2.3. The TCEQ PCLs were included in this FS because they were used in the human health risks assessment conducted by Parsons during the RI, and they are the only human health risk-based criteria available.

2.3.2 Action-Specific ARARs

Action-specific ARARs are technology- or activity-based requirements or limitations pertaining to waste remediation. These ARARs are prompted by and apply to the implementation of particular remedial activities. No action-specific ARARs were identified for this site.

2.3.3 Location-Specific ARARs

2.3.3.1 Location-specific ARARs are restrictions placed based on specific locations. Potential location-specific ARARs include restrictions on certain land development activities in floodplains, federal- or state-delineated wetlands, and navigable waters of the United States; restrictions to protect critical habitats for endangered or threatened species; restrictions on activities in areas designated as wilderness, wildlife refuges, or sole-source aquifers for drinking water; and restrictions to preserve historic structures and properties. Statutes, regulations, and guidelines used in the identification of location-specific ARARs for the site are associated with rare/threatened/endangered species, historic structures, floodplain, wetland, water bodies, or sole-source aquifer resources.

2.3.3.2 Endangered Species/Critical Habitat: There are no known occurrences of endangered or threatened plant or animal species within or near AOC 8 (CHA, 2005).

2.3.3.3 Archaeological or Historic Structures: The site has not been surveyed for subsurface historical resources that could possibly exist at the site. Additionally, it is known that Black Creek was rerouted to its current position prior to construction of the depot, and there has been extensive development of the SADVA site over the years. Based on known information, the presence of undisturbed archeological or historic structures is unlikely.

2.3.3.4 Water Bodies: After flowing north out of the SADVA, Black Creek meanders toward the northwest and discharges into the Bozen Kill, approximately 2 miles downstream of the site. The Bozen Kill empties into the Watervliet Reservoir, which lies within the Normans Kill drainage area.

2.3.3.5 The regulations and requirements stated in 33 CFR § 320.4 provide federal regulations for discharges for dredged materials into “waters of the United States." These regulations provide policies evaluating Department of the Army (DA) permit applications required for the discharge of dredged materials. 33 CFR § 320.4 is an ARAR for any alternative that involves sediment removal at AOC 8.

2.3.3.6 Floodplains, Delineated Wetlands, Sole-Source Aquifer: Based on federal mapping for floodplains and wetlands, state mapping for wetlands, and sole-source aquifer designations, there are no Federally-regulated wetlands or sole-source aquifers within the AOC 8 boundaries. However, the site is bordered to the northwest by New York State Wetland V-19, through which Black Creek flows prior to entering SADVA property. The western portion of the site, a low-lying hardwood area, flows into this wetland area. According to FEMA Flood Insurance Rate Maps, the areas surrounding Black Creek and the Western Ditch on the SADVA property lie within the 100-year floodplain.

2.4 INTERIM SITE PRGs

2.4.1 PRGs are chemical-specific, long-range, target cleanup goals developed to assist in the selection of a preferred site remedy. USEPA risk assessment guidance describes the procedure for determining PRGs (USEPA, 1991). PRGs have the following four attributes:

1. Numeric concentration goals for specific media and land use combinations based on ARARs, quantitative estimates of risk, or reliable background concentrations;
2. Identified at the beginning of the evaluation;
3. Numeric goals that can be modified throughout the course of the investigation and engineering evaluation as site-specific information is accumulated; and
4. In their final form, they will serve as starting objectives for site remediation.

2.4.2 Tables 2.2 and 2.3 list the location and chemical-specific interim site PRGs for surface water and sediment, respectively.

2.5 REMEDIAL ACTION OBJECTIVES

2.5.1 Preliminary remedial action objectives were developed for the purpose of evaluating the applicability of remedial technologies and the effectiveness of remedial alternatives. These objectives consist of media-specific goals for protecting human health and the environment, and for meeting ARARs to the extent practicable in a cost-effective manner.

2.5.2 The preliminary remedial action objectives are established herein based on site-specific information, including the nature and extent of chemical constituents, PRGs, existing site conditions, and future land use plans. Remedial action objectives typically focus on controlling exposure of receptors (humans and wildlife at AOC 8) to chemicals of concern via exposure routes such as dermal contact, ingestion, and inhalation. The remedial action objectives also focus on controlling the release of hazardous substances into the environment (sediment and surface water). Technical feasibility and practicality of achieving the PRGs were also considered in developing the preliminary remedial action objectives. Final remedial action objectives are usually presented, along with the preferred remedy, by the lead agency (USACE) in conjunction with other State and local government entities with jurisdiction.

2.5.3 Preliminary remedial action objectives for AOC 8 are as follows:

- Eliminate or minimize, as warranted, the exposure route hazards to human health and the environment posed by impacted sediment and surface water at the site; and
- Minimize off-site migration of contaminants from the former depot.

Table 2.1
Former Schenectady Army Depot - Voorheesville Area, AOC 8
Summary of Applicable ARARs & TBCs

Media	Requirement Title/Pertinent Provision	Adopting Authority	Requirement Citation	ARAR Status & Applicability	Compliance with ARARs
Chemical Specific ARARs & TBCs					
Surface Water	Water Quality Standards - Surface Waters and Groundwaters, Class C	NYSDEC	6 NYCRR Part 703, Table 1	ARAR for all Remedial Alternatives (Alternatives 1-4)	Alternatives 1 through 4 all currently meet the surface water quality ARARs, based on the available data.
Sediment	No ARARs are available. Table 2.3 presents other sediment criteria considered.				
Location-Specific ARARs & TBCs					
Surface Water	Navigation and Navigable Waters: General Policies for Evaluating Permit Applications	USEPA	33 CFR 320.4	An ARAR for alternatives involving discharge or dredged or fill materials into waters of the US (Alternatives 3-4)	Alternatives 3 and 4 would meet this ARAR, if implemented

Table 2.2
Former Schenectady Army Depot - Voorheesville Area, AOC 8
Summary of Chemical Specific PRGs for Surface Water

	ARARs
Chemical Parameter	**NYSDEC Class C Surface Water Standards/Guidance Values (ug/L)**
Aluminum	100 (1) A(C)
Antimony	NS
Barium	NS
Beryllium	11 *
Chromium	52.7 (2) *A(C)
Cobalt	5 (3) A(C)
Copper	34.1 (2) *A(C)
Lead	19.8 (2) *A(C)
Magnesium	NS
Manganese	NS
Mercury	0.0007 (2) H(FC)
Nickel	36.5 (2) *A(C)
Silver	0.1 (1) A(C)
Vanadium	14
Zinc	197 (2) *A(C)

(1) - Ionic form
(2) - Dissolved form
(3) - based on acid-soluble form
Average Hardness: 479 mg/L
* - based on average hardness value
A(C) - Protection for Fish Propagation
ARARs - applicable or relevant and appropriate requirements
H(FC) - Protection for Human Consumption of Fish

Note: Only criteria values shown were metals exceeded in RI sampling. However, available data is reported in total concentration, and comparison to these criterion in ionic, dissolved, or acid-soluble form is inappropriate.

Table 2.3
Former Schenectady Army Depot - Voorheesville Area, AOC 8
Summary of Sediment Guidance Values, Cleanup Objectives, and PCLs

COMPOUND	NYSDEC Sediment Guidance Values (ug/kg)	TRRP Sediment Protective Concentration Levels (ug/kg)	NYSDEC Part 375 Industrial Land Use (ug/kg)
SEMIVOLATILES			
Benzo(a) anthracene	19 (H)	16,000	11,000
Benzo(a) pyrene	19 (H)	16,000	1,100
Benzo (b)fluoranthene	19 (H)	16,000	11,000
Chrysene	19 (H)	16,000	110,000
Benzo(k) flouranthene	19 (H)	16,000	110,000
Dibenz(a,h)anthracene	88 (LM)	16,000	1,100
Indeno(1,2,3-cd)pyrene	19 (H)	16,000	11,000
PESTICIDES			
4,4'-DDE	14.7 (W)	87,000	120,000
gamma-Chlordane	0.44 (C)	41,000	NC
4,4'-DDD	14.7 (W)	120,000	180,000
4,4'-DDT	14.7 (C)	87,000	47,000
alpha-Chlordane	0.44 (C)	41,000	
METALS (mg/kg)			
Arsenic	6 (L)	110	16
Cadmium	0.6 (L)	1,100	60
Chromium	26 (L)	36,000	6,800
Copper	16 (L)	21,000	10,000
Iron	20000 (L)	NS	NC
Lead	31 (L)	500	3,900
Manganese	460 (L)	14,000	10,000
Nickel	16 (L)	1,400	10,000
Zinc	120 (L)	76,000	10,000

TRRP = Texas Risk Reduction Program
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999)
H = Human Health Bioaccumulation (TOC Adjusted), (NYSDEC, 1999)
LM = Medium Effects Level (TOC Adjusted), (NYSDEC, 1999)
NS = No Standard
PCL = Protective Concentration Levels
ug/kg = micrograms per kilogram
mg/kg = milligrams per kilogram

SECTION 3

IDENTIFICATION AND SCREENING OF CONTROL METHODS AND REMEDIAL TECHNOLOGIES

3.1 INTRODUCTION

3.1.1 This section identifies and evaluates control methods and remedial technologies potentially capable of achieving the preliminary RAOs and PRGs identified in Section 2. These control methods and remedial technologies (collectively referred to as *technologies* in the remainder of this report) are identified based on a variety of technical sources, current and anticipated future site use, and site physical and chemical data. The most appropriate technologies are retained for use in developing remedial alternatives.

3.1.2 Conventional and innovative technologies are presented in this section. Innovative technologies are defined as those with limited full-scale experience and/or performance and cost data.

3.2 SOURCES FOR IDENTIFYING POTENTIALLY APPLICABLE TECHNOLOGIES

3.2.1 Information used in the identification and screening of potentially applicable technologies was gathered from a variety of sources, including technical reports, vendors, and contractors experienced with technology application. In addition, the following literature sources and databases were reviewed:

- USEPA Reach-It Program (http://www.epa.gov/tio/reachit.html)
- Federal Remediation Technologies Roundtable web site (http://www.frtr.gov)
- Hazardous Substance Research Center South and Southwest (HSRC, 2002) web site (http://www.hsrc-ssw.org)
- USEPA Superfund Innovative Technologies Evaluation Program (http://www.epa.gov/ORD/SITE/)
- United States Department of Ecology (USDOE) Office of Environmental Management website (http://www.em.doe.gov)

3.2.2 Many of these web sites include portals that allow access to additional databases.

3.3 GENERAL RESPONSE ACTIONS

General response actions are broad categories of media-specific actions that, by themselves or in combination with other general response actions, will satisfy the RAOs. Since the RI began in 2000, several new retention ponds were constructed at the Voorheesville Depot (AOC 5) by the operator of AOC 5, the DNSC. Discharge from these ponds was addressed by a State

Pollutant Discharge Elimination System Permit during the time that AOC 5 was operational. The ponds at AOC 5 discharged to the Western Ditch, and ultimately to Black Creek. AOC 5 is no longer operational and is now inactive. The discharge permit has therefore been terminated by NYSDEC. Any further impacts to the surface water in Black Creek or any of the drainage ditches discharging into Black Creek are assumed to be due to the presence of impacted sediment remaining in the ditches. Therefore, because there are no known surface water contamination sources related to DoD use of the site that are directly discharging to Black Creek, the general response actions and remedial alternatives presented in this FS will address the contaminated sediment only. General response actions that are potentially applicable at AOC 8 are:

- No Action
- Land Use Controls
- Monitored Natural Recovery
- Sediment Containment
- Hydraulic Isolation
- Sediment Removal
- Materials Management (Dewatering)
- Treatment
- Disposal

3.4 DEVELOPMENT AND SCREENING OF TECHNOLOGIES

3.4.1 Each general response action can be implemented using one or more remedial technologies. Potentially applicable technologies associated with the general response actions listed above are identified and evaluated ("screened") in this section of the FS. Technologies are screened with respect to effectiveness, implementability, and relative cost:

- Effectiveness – Ability to protect human health and the environment by reducing the toxicity, mobility or volume of contaminant.
- Implementability – Consideration of both technical and administrative feasibility.
- Costs – Capital and operating costs; a technology should not cost an order of magnitude more than other technologies that are providing comparable performance.

3.4.2 The screening of technologies, including the technical justification for retaining or not retaining each technology, is presented in Table 3.1. The retained technologies are summarized in Table 3.2 and are described in Sections 3.5 through 3.8. Table 3.3 shows how each retained technology addresses one or more of the remedial action objectives. Each retained technology has been incorporated into one of the remedial alternatives discussed in Section 3.9. Innovative technologies were considered, such as monitored natural attenuation and solvent extraction sediment treatment (Table 3.1).

3.5 NO ACTION

Under "No Action," no remedial action or further action of any type would be implemented. The no action alternative reflects site conditions as described in the RI report. The no action alternative is appropriate if the site poses no unacceptable current or future threat to human health or the environment from former depot operations, or if a previous response had eliminated the need for further remedial response. Where institutional (land use) controls or remediation are required to control risks, the no action remedy is inappropriate. Nonetheless, no action is retained in any FS as a general response action to serve as a baseline for comparison with other technologies.

3.6 LAND USE CONTROLS

Land Use Controls (LUCs) are widely recognized as suitable for use at sites affected with chemicals. Most LUCs are administrative or legal methods implemented by the owner or governing entities to discourage human exposures to site-related residuals. LUCs typically supplement active response actions by reducing effects to human health. By themselves, LUCs may not always effectively reduce effects on the environment or comply with remediation requirements, but they can be implemented effectively to supplement active response methods or technologies as part of a total remediation solution. The cost to implement LUCs can vary widely because of site-specific circumstances, and there are often economical methods for reducing the potential for human exposure to affected media. LUCs that are potentially applicable to AOC 8 are government controls, property use or access controls, and enforcement orders as described in the following subsections.

3.6.1 Government Controls

Government controls include Federal, state, and local government limits on site use. They can include requirements to control site use or site modifications and are implemented through zoning codes, property easements, or permits for building or excavation. These controls can be implemented at the discretion of the governing agency with jurisdiction over the site. They can be implemented by agency action or as court injunctions filed with a court of law. Government controls are retained for further evaluation.

3.6.2 Property Controls

Property controls consist of covenants in deeds for individual properties. They can limit, for example, future site use, restrict use of surface soil or groundwater, prohibit well drilling, and define precautions needed for intrusive activities onsite. Such environmental easements can be an effective and low-cost method for preventing human exposure to affected media. One example of property control includes the mandatory use of vapor intrusion barriers in new buildings. Environmental easements are retained for further evaluation.

3.6.3 Enforcement Orders

Enforcement orders are government-sponsored measures such as administrative orders that prevent actions that would affect or damage the completed remedy. These tools are directed to the site's responsible parties to require them to take actions that protect human health and the

environment. Enforcement tools are implemented at the discretion of the lead enforcement agency (NYSDEC for this site) and are retained for further evaluation.

3.6.4 Physical Controls

Physical controls, such as fences and signs, will be maintained by the property owner. The Northeastern Industrial Park currently maintains a security fence around the perimeter of the property and has posted "No Trespassing" on the fence, and these will continue to be maintained by the property owner and have been retained for further evaluation.

3.7 SEDIMENT CONTAINMENT TECHNOLOGIES

Permeable Sediment Cap

3.7.1 Sediment containment technologies can reduce potential exposure to human and ecological receptors by preventing direct contact with contaminated sediments and reducing the flux of chemicals into the water column. The most common aquatic containment technology is isolation capping (hereafter called capping). Capping contaminated sediments typically consists of placing a uniformly-thick layer of clean cap material (e.g., sand) over areas of contamination. Containment may also include erosion controls (e.g., coarse-sized rock, vegetative controls) needed to keep contaminated sediments isolated from potential physical impacts, such as erosion from currents and ice. If properly designed and constructed, a soil/sediment cap can be very effective in isolating contaminated material from surface water. Once in place, a cap would need to be monitored and maintained to assure long-term effectiveness.

3.7.2 Applicability of a permeable sediment cap at this site, without prior removal of sediments, may not be acceptable to NYSDEC regulations. Article 15 of the New York State Environmental Conservation Law (implemented through Title 6 of the NYCRR Part 608) and Section 404 of the Federal Clean Water Act together regulate protected waters alterations, such as dredging and filling. For example, any change to water depths in a navigable waterway due to dredging and capping would need to be assessed by NYSDEC and by USACE for compliance with these regulations. According to Part 608.5 of Title 6, a permit is required where a party desires to dredge and fill, or place a cap over sediments. Although this requirement to obtain a permit is exempted by CERCLA, actions resulting in the dredging, filling, or placement of a cap over sediment generally would still be required to abide by the underlying substantive requirements of Part 608.5. NYSDEC and USACE have demonstrated a reluctance to approve dredge and fill activities that involve losses in water depth if alternatives are available that would eliminate or reduce loss of water depth.

3.7.3 Applicability of this technology would likely be limited, as the application of a cap without sediment removal beforehand would result in significantly shallower water depths. For this reason, a permeable sediment cap, by itself, is not retained for further consideration at this site. However, this technology is retained if implemented in conjunction with sediment removal.

Impermeable Sediment Cap

3.7.4 An impermeable cap consists of clay, geomembrane material, and/or geosynthetic clay that forms a hydraulic barrier. It would be difficult to place a clay cap effectively underwater, because the clay needs to be compacted as it is placed. There is limited experience placing geomembrane material or geosynthetic clay effectively underwater, and most experience is in calm waters not subjected to constant movement such as in a creek. Water currents could significantly complicate placement of a geomembrane or geosynthetic clay cap. An impermeable cap would be effective at isolating impacted sediments beneath the cap. However, groundwater upwelling beneath the cap may migrate around the cap and eventually discharge to the creek downstream beyond the cap. Additionally, adherence to the requirements associated with Part 608.5 of Title 6, as described above in paragraph 3.7.2, would also be required for any action involving the construction of an impermeable sediment cap. For these reasons, an impermeable sediment cap is not retained for further evaluation for this site.

3.8 SEDIMENT REMOVAL

Source removal options evaluated for sediments included use of backhoes and excavators. Although surface water would likely need to be diverted, unconventional equipment would not likely be needed. Odors and volatile organic concentrations would be monitored and controlled, as needed. Sediment removal is retained for consideration to prevent long-term direct contact with impacted sediments. Technologies for diverting flow in the Black Creek that have been retained for further evaluation are a dam with temporary water bypass, and bypass pumping.

3.9 SEDIMENT DEWATERING

3.9.1 Draining and dewatering technologies are commonly used to reduce the amount of water in dredged or excavated sediment, and to prepare the sediment for further treatment or disposal. Although there are no governing regulations or criteria regarding dewatering sediments, there are several considerations that would need to be evaluated for any dewatering application (Table 2.1). Dewatered material would be required to meet transportation requirements if the material were to be transported for off-site disposal. Water from the dewatering operation would likely be required to meet certain requirements as well. Water discharged back into any waterways, including Black Creek, would likely need to meet SPDES substantive requirements. Water directed to any local publicly owned treatment works would likely be required to meet criteria for discharge into the sewer collection system. The two dewatering techniques retained for AOC 8 are gravity dewatering and solidification.

Gravity Dewatering

3.9.2 Natural settling, evaporation, consolidation, and drainage are employed to remove water. The process can handle large volumes of sediment and variable flow rates; however it requires sufficient land area and time, depending on the physical characteristics of the sediment. The process can typically achieve up to 50% solids by weight for the dewatered sediments. Gravity dewatering is an effective and implementable method for dewatering sediments, and is retained for consideration in the development of remedial alternatives.

Solidification

3.9.3 Solidification involves adding and blending stabilizing compounds with sediment such as fly ash, lime, or cement. Adding a solidification agent can improve material handling or provide more soil-like properties for disposal. Adding a solidification agent may increase material volume and overall material weight, which would lead to increased transport, disposal, and other waste management-related costs. However these costs are not anticipated to be excessive. Sediment solidification is an effective and implementable sediment dewatering technique, and it can be used in conjunction with gravity dewatering to expedite the process. Solidification is retained for consideration in the development of remedial alternatives.

3.10 SEDIMENT DISPOSAL OPTIONS

Off-site disposal options have been identified for the remediation of sediments from the site. Off-site disposal options were considered applicable for sediments that could be excavated from the site, and have been retained for further evaluation. Sediments can be excavated, solidified/stabilized, transported by truck, and disposed at an approved landfill permitted to receive these materials. On-site or off-site disposal of construction water generated during the sediment removal has been retained for further evaluation.

3.11 RETAINED TECHNOLOGIES

3.11.1 Based on the analysis discussed in Sections 3.2 through 3.10, the following technologies have been retained for further evaluation as a part of site remedial alternatives:

- No Action
- Land Use Controls
- Containment
  - Permeable Sediment Cap
- Source Removal
  - Hydraulic Isolation
  - Sediment Excavation
  - Sediment Dewatering
- Off-site Disposal
  - Off-site disposal of sediment
  - Off-site or on-site disposal of construction water

3.11.2 Table 3.2 categorizes the retained technologies. Table 3.3 briefly summarizes how the "retained" technologies address one or more RAOs. Each technology has been incorporated into one of the remedial alternatives discussed in the following section.

3.12 REMEDIAL ALTERNATIVES

3.12.1 The potentially applicable technologies for remediating the sediment impacted by former depot operations have been incorporated into three alternatives. The alternatives meet the RAOs of eliminating or minimizing the exposure route hazards posed by impacted sediment and surface water at the site, minimizing off-site migration of contaminants, and maintaining Class C surface water quality in Black Creek.

3.12.2 The three remedial alternatives meet the RAOs using various combinations of the retained technologies. The remedial alternatives incorporate the elements of no action, containment, source removal, and disposal. A brief description of each alternative is provided below:

Alternative 1 – No Action (allow the site to remain as-is.) This alternative is retained as a baseline to compare with other alternatives.

Alternative 2 – Sediment Removal within Focused Target Area, Off-site Disposal and Backfill/Restoration

- Remove sediment over approximately 400 linear feet of selected area within AOC 8. The areas for sediment removal under this alternative are locations where the Part 375 industrial land use cleanup objectives were exceeded. For the purpose of this FS, a depth of excavation of approximately 2.5 feet has been selected based on previous sampling results from AOC 8. The targeted remedial areas are located at sampling locations SD-18 and SD-9, and have been designated on Figure 4.1 as:
  - Area A (location SD-18) – total excavated material (~200 feet long x 15 feet wide) = 278 cubic yards (cy).
  - Area B (location SD-9) – total excavated material (~200 feet long x 15 feet wide) = 278 cy.
- Gravity dewatering and/or solidification of excavated sediment as needed;
- Transport excavated sediment off-site to a suitably-permitted landfill;
- Replace excavated sediment with clean soil to pre-excavation grade; and
- Place a four-inch layer of fill on top of the backfilled soil to act as an erosion protector and as a medium to encourage habitat reestablishment following sediment removal. The fill thickness assumption is based on a requirement for erosion protection; further design and analysis would be required to determine actual thickness required.
- Five-year site reviews would be conducted for as long as is reasonably needed (typically no longer than 30 years) to verify the effectiveness of the remedial action.

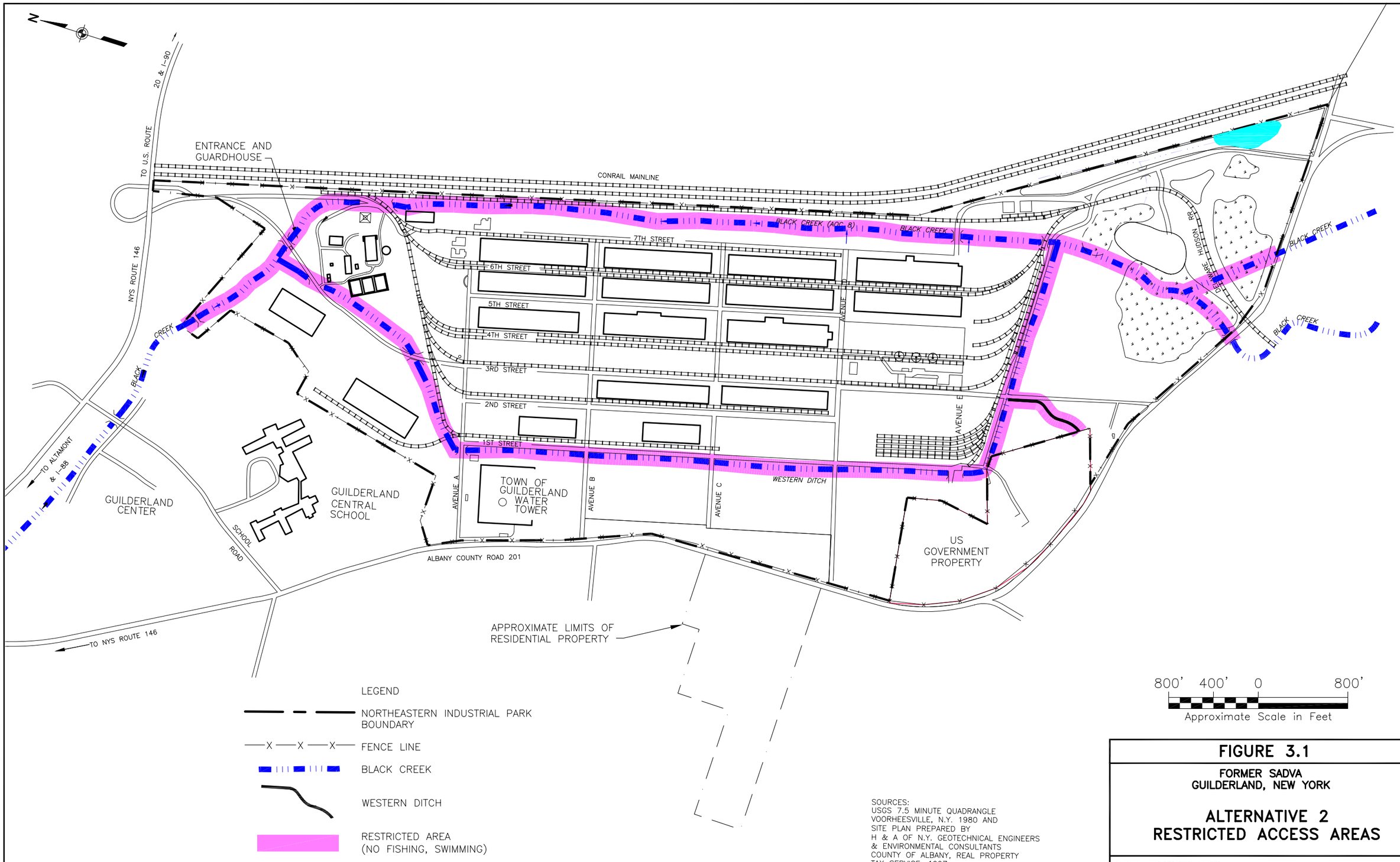
Alternative 3 – Full Sediment Removal, Off-site Disposal and Backfill/Restoration

- Remove sediments exceeding NYSDEC sediment quality criteria and/or Part 375 industrial land use cleanup objectives within AOC 8, assumed to include entire length of Black Creek and the Western Ditch (~20,000 ft) within the SADVA site limits. For the purpose of this alternative, it is assumed that there could be areas of sediment that

exceed the NYSDEC sediment quality criteria and/or Part 375 industrial land use cleanup objectives in between the existing sediment sample locations, including those locations/depths that had no criteria exceeded. A depth of excavation of approximately 2.5 feet has been selected based on previous sampling results from AOC 8. The targeted remedial areas are designated on Figure 4.2 as:

  - Area A (AOC 5 drainage ditch) – total excavated material = 1,600 cy.
  - Area D (Entire Western Ditch) – total excavated material = 12,000 cy.
  - Area E Black Creek (entire length within SADVA) – total excavated material = 48,000 cy.

- Temporary hydraulic isolation of Black Creek sediments (i.e., flow diversion) while sediment is being removed.
- Gravity dewatering and/or solidification of excavated sediment, as needed.
- Transport excavated sediment off-site to a suitably-permitted landfill.
- Replace excavated sediment with clean soil to pre-excavation grade.
- Place a four-inch layer of fill on the top of the backfilled soil for erosion protection and as a medium to encourage habitat to reestablish.
- Five-year site reviews would be conducted for as long as is reasonably needed (typically no longer than 30 years) to verify the effectiveness of the remedial action.



SOURCES:
USGS 7.5 MINUTE QUADRANGLE
VOORHEESVILLE, N.Y. 1980 AND
SITE PLAN PREPARED BY
H & A OF N.Y. GEOTECHNICAL ENGINEERS
& ENVIRONMENTAL CONSULTANTS
COUNTY OF ALBANY, REAL PROPERTY
TAX SERVICE, 1997

FIGURE 3.1

FORMER SADVA
GUILDERLAND, NEW YORK

ALTERNATIVE 2
RESTRICTED ACCESS AREAS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

P:\743440\cad\\ce\ri-fs\FIGURE 3.1.dwg, 10/14/08 CLW
No XREFs

TABLE 3.1
IDENTIFICATION AND SCREENING OF REMEDIAL TECHNOLOGIES FOR CONTAMINATED MEDIA
ASSOCIATED WITH SCHENECTADY ARMY DEPOT SITE AOC 8

RESPONSE ACTION	TECHNOLOGY TYPE	TECHNOLOGY	EFFECTIVENESS	IMPLEMENTABILITY	RELATIVE COST [1]	RETAINED OR NOT RETAINED FOR FURTHER EVALUATION [2]
No Action	None	None	No risk to human health or ecological are currently posed by sediments, No Action would be sufficient to maintain protection of human health and the environment.	Readily implementable.	None	Retained
Land Use Controls	Access Control	Fencing/Posting	Does not reduce contamination. Allows natural attenuation to occur. Provides additional protection of human health by restricting use of Black Creek for fishing or recreation with I limits of site.	Readily implementable.	Variable	Retained
Natural Recovery	Monitored Natural Recovery	Monitored Natural Recovery	Can be effective at enahcing sediment, soil, surface water and biota in depositional areas over time. Not effective for erosional areas. Western Ditch and Black Creek likely not depositional areas, limiting effectiveness of MNR.	Implementable for depositional areas - which are assumed to be limited at AOC 8.	Low	Not Retained
	Enhanced Natural Recovery	Placement of natural or reactive material to enhance naturally occuring recovery of sediments.	Same as for MNR above.	Same as for MNR above.	Low - Medium	Not Retained
Containment	Sediment Capping	Permeable Cap	Effective for isolating shallow material from exposure. Limited effectiveness for minimizing infiltration.	Although requires time to implement, still readily implementable. Very difficult to implement in compliance with Part 608 without prior excavation.	Low	Retained if implemented in conjunction with sediment removal
		Impermeable Cap	Most effective and reliable as a physical and hydraulic impermeable barrier. Effective at minimizing direct contact and infiltration. Not effective at controlling impacts from sediment below the water table to downgradient groundwater.	Implementable, although it restricts land use at the site. Very difficult to implement in compliance with Part 608.	Medium	Not Retained
Hydraulic Isolation	Temporary Flow Diversion	Dam with temporary water bypass	May be effective to facilitate sediment removal, depending on soil characteristics and water depths.	Potentially implementable for contianing shallow water depths. Water can be diverted via temporary channel or piping.	Medium	Retained
		Bypass pumping	Effective for flows up to approximately 80,000 gpm (180 cfs) based on pumping capacity.	Potentially implementable for the periodic flow of the Western Ditch, likely not implementable for the flow of Black Creek.	Low - Medium	Retained
		Temporary Creek Rerouting	Effective where land and topographic elevation change are available.	Land use, property owndership, and utilities would need to be evaluated. Likely difficult to implement.	High	Not Retained
Source Removal	Excavation of Sediments	Mechanical Excavation	Large scale (heavy equipment) mechanical excavation is reliable and effective. Flow diversion and runon/runoff control often required.	Implementable using conventional earth moving equipment.	Medium	Retained
Materials Management	Dewatering	Gravity draining	Effective for drainable solids, such as gravel, sand, and coarse silt.	Implementable. Staging area is required.	Low	Retained
		Filter presses (mechanical dewatering)	Plate and frame presses or belt filter presses are proven for sand an coarse silt. Belt filter presses are more susceptible to inflow changes.	Implementable - however nature of sediments likely does not warrant use of Filter press	Medium - High	Not Retained
		Solidification (cement, lime, kiln dust)	Effective for improving sediment handling and strength following excavation.	Implementable. Some volume increase is likely due to agent addition. Solidification agent can be added during or following excavation and staging.	Low	Retained

TABLE 3.1
IDENTIFICATION AND SCREENING OF REMEDIAL TECHNOLOGIES FOR CONTAMINATED MEDIA
ASSOCIATED WITH SCHENECTADY ARMY DEPOT SITE AOC 8

RESPONSE ACTION	TECHNOLOGY TYPE	TECHNOLOGY	EFFECTIVENESS	IMPLEMENTABILITY	RELATIVE COST [1]	RETAINED OR NOT RETAINED FOR FURTHER EVALUATION [2]
Treatment	Sediment Treatment	Solvent Extraction	Limited effectiveness for removing metals sorbed to soils/sediments.	Potentially implementable.	Medium - High	Not Retained
Disposal	Off-Site	Solid Waste Landfill	Reliable and effective for disposal of non-hazardous material and soil in a permitted landfill. Does not destroy chemicals of concern.	Potentially implementable for disposal of non-hazardous materials.	Medium	Retained
		Hazardous Waste or TSCA Landfill	Effective if managed properly at a RCRA- or TSCA-permitted landfill for isolating wastes from exposure to human health or the environment.	Implementable for disposal of hazardous wastes. Sediments at AOC 8 not anticipated to be characterized as hazardous	High	Not Retained
	On-Site or Off-Site	Construction Water	Effective	Implementable based on discharge limits.	Low	Retained

NOTES:

1. The cost presented represents the cost to implement a technology and does not represent the overall remedial cost to achieve a remedial action objective. The relative cost of technologies is presented as follows:
   - "None"
   - "Inadequate Information"
   - "Variable"
   - "Low": Less than $100/ton | Less than $150/CY | Less than $2/SF of land area
   - "Medium": $100-$300/ton | $150 to $450/CY | $2 to $5/SF of land area
   - "High": More than $300/ton | More than $450/CY | More than $5/SF of land area

   A typical conversion factor of 1.5 tons per CY was assumed to generate the cost categories based on CYs.
   Overall cost represents design, construction, and O&M costs of the core process that defines each technology, exclusive of mob/demob, and pre- and post-treatment including transportation. Rating levels based on tonnage are based on EPA/542/B-93/005 document, Remediation Technologies Screening Matrix and Reference Guide, July 1993.
2. Technologies "not retained" will not be considered for further evaluation at the Site.

TABLE 3.2
POTENTIALLY APPLICABLE TECHNOLOGIES RETAINED FOR REMEDIATING SEDIMENTS AT THE FORMER SCHENECTADY ARMY DEPOT SITE AOC 8

CONTAINMENT	SOURCE REMOVAL	DISPOSAL
Deed Restriction	Hydraulic Isolation - Dam with temporary bypass - Bypass pumping	Offsite - Solid Waste landfill
Permeable sediment cap (if used in conjunction with sediment removal)	Excavation of Sediments - Mechanical excavation	Onsite or Offsite - Construction Water
	Sediment Dewatering - Gravity dewatering - Solidification	

TABLE 3.3
GENERAL RESPONSE ACTIONS
APPLICABLE TO SCHENECTADY ARMY DEPOT SITE AOC 8

GENERAL RESPONSE ACTION/ TECHNOLOGY TYPE	APPLICABILITY TO REMEDIAL ACTION OBJECTIVE
No Action	No activities conducted to address contamination. The no action response is required for analysis.
CONTAINMENT	
Land Use Controls (LUCs)	Implementation of administrative or legal methods implemented by the owner or governing entities to discourage human exposures to site-related residuals. LUCs typically supplement active response actions by reducing effects to human health
Permeable Sediment Cap	Isolation of contaminated media to reduce potential exposure. A sediment cap can be placed over impacted sediments to minimize the risk of contact, off-site migration, and impacts to surface water of the impacted sediment.
SOURCE REMOVAL	
Hydraulic Isolation and Sediment Excavation	Excavation of the impacted sediment. Excavation can be employed to reduce the risk of contact and off-site migration of the impacted sediments. Excavation could be conducted with the creek flow diverted.
Sediment Dewatering	Dewatering and/or stabilization of the excavated sediment. Dewatering would reduce the mobility of the contaminants within the excavated materials, and would prepare the material for off-site transportation and disposal.
DISPOSAL	
Off-site Disposal of Sediment On-site or Off-site Disposal of Construction Water	Off-site disposal of excavated materials would reduce the mobility of the contaminants, and reduce the risk of contact with the material. Off-site disposal would require a disposal facility permitted to accept the type of materials that would be generated from an on-site excavation operation.

SECTION 4

DETAILED EVALUATION OF SCREENED REMEDIAL ALTERNATIVES

4.1 OVERVIEW

4.1.1 The three alternatives have been evaluated using the nine evaluation criteria outlined in the NCP, 40 CFR Section 300.430, the USEPA *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (USEPA, 1988) as provided in Table 4.1, and the NYSDEC TAGM 4030 *Selection of Remedial Actions at Inactive Hazardous Waste Sites* (NYSDEC, 1990). The criteria include:

Threshold Criteria

- Overall protection of human health and the environment
- Compliance with ARARs

Primary Balancing Criteria

- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume through treatment
- Short-term effectiveness
- Implementability
- Cost

Modifying Criteria

- State Acceptance
- Community Acceptance

4.1.2 The criterion of cost is assessed by estimating relative costs for the alternatives. The modifying criteria of state acceptance and community acceptance are not addressed in this analysis. Instead, they will be evaluated based on state and public review periods following submission of this FS and the ensuing issuance of the ROD. For an alternative to be eligible for selection, it must meet the threshold criteria. If these criteria are met, the primary balancing criteria are evaluated to provide the best balance of trade-offs among alternatives.

4.1.1 Overall Protection of Human Health and the Environment

The overall protection of human health and the environment criterion entails determining whether risks from impacts at the site to human health and the environment are eliminated,

reduced, or controlled. This assessment is based on the assessment of other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with standards, criteria, and guidelines.

4.1.2 Compliance with ARARs

This evaluation criterion is used to determine whether an alternative complies with the chemical-specific, location-specific, and action-specific ARARs identified in Section 2.

4.1.3 Long-term Effectiveness and Permanence

The long-term effectiveness and permanence of a remedial action depends on the following aspects:

- Permanence of the remedial alternative;
- Magnitude of the risk remaining after remediation; and
- Adequacy and reliability of controls, if any, used to manage treatment residuals or untreated wastes that remain at the site following remediation.

4.1.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

This criterion measures the effectiveness of treatment technologies in eliminating any significant threats at a site via destruction of toxic contaminants, reduction of their total mass, or irreversible reduction of the total volume of contaminated media. Evaluating the reduction of toxicity, mobility, or volume involves considering the following criteria:

- Type of treatment or recycling process and type of materials;
- Amount of hazardous materials that would be destroyed or treated, including how principal threats would be addressed;
- Degree of expected reduction in toxicity, mobility, or volume estimated wherever reasonably possible as a percent reduction;
- Degree to which treatment would be irreversible;
- Type and quantity of residuals that would be present following treatment; and
- Fulfillment of the preference for treatment as a principal element.

4.1.5 Short-term Effectiveness

Short-term effectiveness encompasses the effects of an alternative on human health and the environment during the construction and implementation phase until remedial action objectives are met. The following elements are usually considered:

- Protection of the community during remedial construction activities;
- Impacts to site residents and remediation workers during remedial construction activities; and

- Time until remedial response objectives would be achieved.

4.1.6 Implementability

Implementability considers the technical and administrative feasibility of implementing an alternative and the availability of the services and materials required during its implementation. The following issues are usually examined:

- Implementation efforts during construction and operation;
- Reliability of technology;
- Monitoring considerations;
- Ease of undertaking additional remedial actions;
- Activities needed to coordinate with other offices and agencies;
- Availability of adequate off-site treatment, storage capacity, and disposal services; and
- Availability of necessary equipment, specialists, skilled operators, and provisions to ensure any necessary additional resources.

4.1.7 Cost

The cost evaluation assesses estimated capital costs and annual operation and maintenance (O&M) costs. Capital costs consist of present, future, direct and indirect expenses. Direct capital costs include engineering, labor, equipment, and material expenses. Indirect capital costs include expenditures for engineering, licenses, permits, contingency allowances, and other services not part of the actual installation costs. O&M costs are the annual costs incurred after the remedial actions are constructed and may include, but are not limited to, operating labor, energy, chemicals, and sampling and analysis. O&M costs are included for 30 years following completion of the remedial action. The approximate accuracy of the costs is minus 30 percent to plus 50 percent, as suggested in USEPA guidance (1988). The annual discount rate assumed for all net present value calculations is seven percent.

The alternatives presented below incorporate sediment capping and/or removal. A combination of components from these alternatives can be used as the recommended alternative.

4.2 EVALUATION OF ALTERNATIVE 1 – NO ACTION

4.2.1 Description

Alternative 1 consists of the following components:

- Allow the area to remain in its present condition; and
- Do not install any form of land use control to the affected area(s).

4.2.2 Overall Protection of Human Health and the Environment

Several steps have already been taken by DNSC at AOC 5 (Voorheesville Depot) which have led to a reduction in the impacts to Black Creek. As described in Section 1.5, in 2004 DNSC successfully implemented a $1.1 million site improvement effort to excavate and expand onsite perimeter ditches and retention ponds - all designed to alleviate onsite flooding and to reduce the transportation of suspended sediment and surface soils from the AOC 5 area to Black Creek. By 2006, all metals commodities had been removed from the site, and DNSC ended all operations there. In addition, soil characterization at the depot during the Voorheesville Depot RI has shown that metals concentrations are below the Part 375 restricted-industrial land use soil criteria, and the site is acceptable for industrial use with appropriate institutional controls and other land use restrictions (Parsons, 2007b). Elimination of the source, and transport mechanisms, for one of the major potential metal sources to Black Creek should substantially reduce the metals loading to the Creek, and positively impact the overall quality of surface water and sediments.

Based on the results of the human health risk assessment presented in the SADVA RI Report (Parsons, 2007), concentrations of contaminants in surface water and sediment within AOC 8 do not pose an unacceptable risk to human health. This analysis included consideration that the waters from Black Creek are migrating to the Watervliet Reservoir and the municipal water supply.

Based on the results of the qualitative ecological risk assessment, ecological use of the site appears to be consistent with that expected of the surrounding area and the commercial/industrial nature of the site.

Currently, site access is controlled, and unauthorized access to Black Creek within the NEIP facility is prohibited. The site owner has expressed a commitment to allow implementation of an environmental easement, so the likelihood of site access continuing to be controlled is high. As such, based on actions taken to date and existing conditions, a No Action alternative would continue to be protective of human health and the environment.

4.2.3 Compliance with ARARs

4.2.3.1 The RI Report identified surface water sample concentrations that exceeded New York State Class C surface water standards and upstream concentrations at a limited number of locations in Black Creek and the Western Ditch within AOC 8, primarily for metals. However, as previously described, the Class C standards for the metals of concern specify ionic, dissolved, or acid soluble forms, and there were no other metals in which a total metal concentration standard was exceeded. Note that NYSDEC eliminated the Class C standard for iron in February 2008, after the RI Report was finalized. Furthermore, the two samples collected downstream from the SADVA site (SW-09 and SW-25) had no concentrations above Class C standards and upstream concentrations. As the water quality in Black Creek downstream of the site meets Class C standards, there is no evidence the site is adversely affecting water quality in Black Creek. Therefore, this alternative would satisfy the chemical-specific surface water ARARs.

4.2.3.2 NYSDEC's sediment quality criteria and upstream concentrations are exceeded at AOC 8 for certain metals (e.g., arsenic, cadmium, chromium, copper, lead, manganese, nickel and zinc). The highest concentrations that exceed criteria are primarily in the Western Ditch. Despite these conditions, the HHRA and SLERA conducted for AOC 8 during the RI by Parsons determined that there were no unacceptable risks to human health, and the health and diversity of wildlife in the AOC 8 area was consistent with the surrounding region and the commercial/industrial setting the site has had over the past 60 years. The NYSDEC sediment criteria are not promulgated standards, but are screening criteria meant to protect aquatic life from adverse effects. These criteria were developed based on studies of other freshwater systems in various parts of the U.S. The SLERA conducted by Parsons during the RI was a site-specific evaluation of impacts that evaluated the health and diversity of wildlife at the site, and provided a more practical assessment of environmental impacts than the sediment screening criteria comparisons. This alternative would not satisfy the NYSDEC's sediment quality criteria for ecological protection. Part 375 industrial land use cleanup objectives are currently exceeded at two locations in AOC 8 (SD-9 and SD-18) for metals. Part 375 industrial land use cleanup objectives were also exceeded in one downstream location, SD-32, for PAHs. However, this exceedance is likely attributable to vehicle/traffic exhaust from the nearby road, as PAHs do not exceed industrial land use cleanup objectives at the SADVA site. As such, this alternative would not result in compliance with the Part 375 industrial land use cleanup objectives (which are "other criteria considered" and not ARARs). The human-health based PCLs developed by TCEQ are "other criteria considered" and were used in the HHRA; these criteria were not exceeded at AOC 8.

4.2.3.3 The location-specific ARAR listed in Table 2.1 is not applicable to this alternative since there is no associated sediment removal.

4.2.4 Long-term Effectiveness and Permanence

Although the No Action alternative would not result in any additional compliance of ARARs, it would be effective long term because there is no existing unacceptable human health risk or identified adverse environmental impact, and would be permanent.

4.2.5 Reduction of Toxicity, Mobility, or Volume Through Treatment

A No Action alternative would not reduce the toxicity, mobility, or volume of the impacted material, beyond steps taken by DNSC at AOC 5 to date.

4.2.6 Short-term Effectiveness

A No Action alternative would not result in any short-term effects on human health or the environment.

4.2.7 Implementability

Alternative 1 would be easily implemented.

4.2.8 Cost

The estimated cost for the implementation of Alternative 1 is $0.

4.3 EVALUATION OF ALTERNATIVE 2 – FOCUSED SEDIMENT REMOVAL AND OFF-SITE DISPOSAL

4.3.1 Description

Alternative 2 focuses on the removal of impacted sediments from two targeted areas where concentrations of several metals exceeded Part 375 industrial land use cleanup objectives. The approximate dimensions of these areas and removal depths are based on sample results (see Figure 4.1). This alternative consists of the following components:

- Remove sediment over approximately 400 linear feet of selected area within AOC 8. The areas for sediment removal under this alternative were determined based on exceedances of the Part 375 industrial land use cleanup objectives. For the purpose of this FS, a depth of excavation of approximately 2.5 feet has been selected based on previous sampling results from AOC 8. The targeted remedial areas are located at sampling locations SD-18 and SD-9, and have been designated on Figure 4.1 as:
  - Area A (location SD-18) – total excavated material (~200 feet long x 15 feet wide) = 278 cubic yards (cy).
  - Area B (location SD-9) – total excavated material (~200 feet long x 15 feet wide) = 278 cy.
- Gravity dewatering and/or solidification of excavated sediment as needed;
- Transport excavated soil off-site to a suitably-permitted landfill;
- Replace excavated sediment with clean soil to pre-excavation grade; and.
- Place a four-inch layer of fill on the top of the soil backfill to act as erosion protection and as a medium to encourage habitat to reestablish. The fill thickness assumption is based on a requirement for erosion protection. Further design and analysis would be needed to determine the actual thickness required.
- Five-year site reviews would be conducted for as long as is reasonably needed (typically no longer than 30 years) to verify the effectiveness of the remedial action.

4.3.2 Overall Protection of Human Health and the Environment

4.3.2.1 Based on the results of the HHRA, concentrations of contaminants in surface water and sediment within AOC 8 do not pose an unacceptable risk to human health. This analysis included consideration that the waters from Black Creek are migrating to the Watervliet Reservoir and the municipal water supply. Based on the results of the qualitative ecological risk assessment, ecological use of the site appears to be consistent with that expected of the surrounding area and the commercial/industrial nature of the site. This alternative would decrease the potential for the impacted sediments to be exposed to the environment. Therefore, this alternative would be protective of the environment.

4.3.2.2 There is a potential for impacted sediments to be spilled onto roadways and other areas during sediment removal and off-site transportation for disposal. Preventive measures, such as using tarps to cover the trucks before they leave the site, would minimize the potential for adverse impacts.

4.3.2.3 Temporary preventive measures would be implemented to minimize adversely releasing sediments into the water column while sediment is being removed.

4.3.3 Compliance with ARARs

4.3.3.1 The RI Report identified surface water sample concentrations that exceeded New York State Class C surface water standards and upstream concentrations at a limited number of locations in Black Creek and the Western Ditch within AOC 8, primarily for metals. However, as previously described, the Class C standards for those metals specify ionic, dissolved, or acid soluble forms. Available data are reported as total concentrations; therefore direct comparisons to the Class C standards are not applicable unless total concentration is specified. All metals concentrations were either within background concentrations, or did not exceed total-concentration-specific standards/guidance values. In no case was a total metal concentration standard exceeded in Black Creek. Therefore, this alternative would satisfy the chemical-specific surface water ARAR.

4.3.3.2 This alternative includes sediment removal and off-site disposal, so the location-specific ARAR listed in Table 2.1 would apply.

4.3.3.3 The location-specific ARAR would be achieved by complying with substantive discharge standards, such as would typically be required for a permit pursuant to 33 C.F.R. § 320.4.

4.3.3.4 NYSDEC's sediment quality criteria, which are not ARARs, and upstream concentrations are exceeded at AOC 8 for certain metals (e.g., arsenic, cadmium, chromium, copper, lead, manganese, nickel and zinc). The highest concentrations that exceed criteria are primarily in the Western Ditch. Despite these conditions, the HHRA and SLERA conducted for AOC 8 during the RI by Parsons determined that there were no unacceptable risks to human health, and the health and diversity of wildlife in the AOC 8 area was consistent with the surrounding region and the commercial/industrial setting the site has had over the past 60 years. The NYSDEC sediment criteria are meant to protect aquatic life from adverse effects. These criteria were developed based on studies of other freshwater systems in various parts of the U.S. In contrast, the SLERA was a site-specific evaluation of impacts that evaluated the health and diversity of wildlife at the site, and provided a more practical assessment of environmental impacts than the sediment screening criteria comparisons. This alternative would remove a portion of the sediments exceeding the NYSDEC sediment criteria, but not all sediments that exceed the criteria. The human-health based PCLs developed by TCEQ and used in the HHRA are not exceeded at AOC 8. This alternative would remove all on-site sediments exceeding the Part 375 industrial land use cleanup objectives.

4.3.4 Long-term Effectiveness and Permanence

Removal of the identified volumes of impacted sediments would provide a high degree of long-term effectiveness and permanence.

4.3.5 Reduction of Toxicity, Mobility, or Volume Through Treatment

Removal of the impacted sediment would not reduce the toxicity or volume of the impacted sediment unless the excavated material is treated to meet requirements at the landfill, which is not anticipated. However, placement of the material in a landfill would reduce the mobility of the impacted sediment.

4.3.6 Short-term Effectiveness

4.3.6.1 Excavation and disposal of the impacted sediment could be conducted within a time period of approximately three to four months.

4.3.6.2 Short-term risks could be minimized by implementing controls for sediment resuspension, worker exposure, storm water run off, fugitive dust, and potential for spillage. Controls include silt fence/silt curtains, precautionary personal protective equipment, odor and dust suppression (e.g., in-stream erosion control as needed, watering of soils, placing tarps over stockpiled soil), and spill controls (e.g., placing tarps over truck payloads prior to transportation off-site). Ambient air monitoring would be performed to monitor volatile and particulate emissions during remediation, and a fence surrounding the site would be maintained to control access.

4.3.7 Implementability

4.3.7.1 Alternative 2 consists of excavating sediments to depths of approximately 2.5 feet below the top of sediment (based on sampling results), and would require excavating side slopes and possibly dewatering the saturated material. These types of shallow excavations are common. Sediment removal in Black Creek could require that water flow be diverted at certain times of the year. Timing the remedial action with drier times of the year, such as during summer, could eliminate the need for diverting flow. Construction water would potentially be sent to the local publicly owned treatment works (POTW); if so, compliance with all POTW regulations would be required.

4.3.7.2 Transporting the excavated material could require significant time and coordination, but the same effort has been done for many other sites. With regards to off-site facilities, compliance with all applicable landfill requirements (see 40 CFR Part 264, Subpart M) would be required. Backfill and re-vegetation of the site would be easily implementable.

4.3.8 Cost

The estimated cost for the implementation of Alternative 2 is $480,000 (see Table 4.2). Key factors affecting costs include sediment removal, off-site treatment of construction water, transport and disposal of contaminated soil, and backfill procurement and placement. Additional details pertaining to cost estimates are presented in Appendix A.

4.4 EVALUATION OF ALTERNATIVE 3 – FULL SEDIMENT REMOVAL AND OFF-SITE DISPOSAL

4.4.1 Description

Alternative 3 focuses on the removal of all sediments exceeding NYSDEC sediment quality criteria and/or Part 375 industrial land use cleanup objectives in AOC 8 (see Figure 4.2). This alternative consists of the following components:

- Remove sediments exceeding NYSDEC sediment quality criteria and/or Part 375 industrial land use cleanup objectives within AOC 8, assumed to include entire length of Black Creek and the Western Ditch (~20,000 lf) within the SADVA site limits. For the purpose of this alternative, it is assumed that there could be areas of sediment that exceed the NYSDEC sediment quality criteria and/or Part 375 industrial land use cleanup objectives in between the existing sediment sample locations, including those locations/depths that had no criteria exceeded. A depth of excavation of approximately 2.5 feet has been selected based on previous sampling results from AOC 8. The targeted remedial areas are designated on Figure 4.2 as:
  - Area A (AOC 5 drainage way) – total excavated material = 1,600 cy.
  - Area D (Entire Western Ditch) – total excavated material = 12,000 cy.
  - Area E Black Creek (entire length within SADVA) – total excavated material = 48,000 cy.
- Temporary hydraulic isolation of Black Creek sediments (i.e., flow diversion) while sediment is being removed.
- Gravity dewatering and/or solidification of excavated sediment, as needed.
- Transport excavated sediment off-site to a suitably-permitted landfill.
- Replace excavated sediment with clean soil to pre-excavation grade.
- Place a four-inch layer of fill on the top of the backfilled soil for erosion protection and as a medium to encourage habitat to reestablish.
- Five-year site reviews would be conducted for a period of 30 years to verify the effectiveness of the remedial action.

4.4.2 Overall Protection of Human Health and the Environment

4.4.2.1 Based on the results of the HHRA, concentrations of contaminants in surface water and sediment within AOC 8 do not pose an unacceptable risk to human health. This analysis included consideration that the waters from Black Creek are migrating to the Watervliet Reservoir and the municipal water supply. This alternative would eliminate the potential for exposure of the impacted sediments to humans. Therefore, this alternative would provide protection of human health. Based on the results of the qualitative ecological risk assessment, ecological use of the site appears to be consistent with that expected of the surrounding area and the commercial/industrial nature of the site. Similarly, this alternative would also eliminate the

potential for exposure of the impacted sediments to the environment. Therefore, this alternative would be protective of the environment.

4.4.2.2 There is the potential risk of spillage during sediment removal and transportation for off-site disposal. Preventive measures, such as using tarps to cover the sediment before the trucks leave the site, would minimize adverse impacts.

4.4.2.3 Preventive measures such as temporary stream rerouting and proper erosion control measures would minimize release of sediment while removal is ongoing.

4.4.3 Compliance with ARARs

4.4.3.1 The RI Report identified surface water sample concentrations that exceeded New York State Class C surface water standards and upstream concentrations at a limited number of locations in Black Creek and the Western Ditch within AOC 8, primarily for metals. However, as previously described, the Class C standards for those metals specify ionic, dissolved, or acid soluble forms. In no case was a total metal concentration standard exceeded in Black Creek. Therefore, this alternative would satisfy the ARAR.

4.4.3.2 This alternative includes sediment removal and off-site disposal, so the location-specific ARAR listed in Table 2.1 would apply. The location-specific ARAR would be achieved by complying with substantive discharge standards, such as would typically be required for a permit pursuant to 33 C.F.R. § 320.4.

4.4.3.3 All sediment exceeding NYSDEC's sediment screening criteria and Part 375 industrial land use cleanup objectives (these are "other criteria considered", and not ARARs) would be removed as part of this alternative. The human-health based PCLs developed by TCEQ and used in the HHRA are not exceeded at AOC 8.

4.4.4 Long-term Effectiveness and Permanence

Removal of the impacted sediments would provide a high degree of long-term effectiveness and permanence.

4.4.5 Reduction of Toxicity, Mobility, or Volume Through Treatment

Removal of the impacted sediment would not reduce the toxicity or volume of the impacted sediment, unless the excavated material needs to be treated to meet requirements at the landfill, which is not anticipated. However, placement of the material in a landfill would reduce the mobility of the impacted sediment.

4.4.6 Short-term Effectiveness

4.4.6.1 Excavation and disposal of the impacted sediment could be conducted within a time period of approximately 12 to 15 months, over two construction seasons. As sediments would be removed from the main channel of Black Creek, it would be expected that the flow of the creek would need to be diverted (e.g., piped) to allow the sediments to be removed "in the dry". This

would have a short-term impact on wildlife (e.g., fish, birds) which may use the creek as a habitat or food source.

4.4.6.2 Short-term risks could be minimized by implementing controls for sediment resuspension, worker exposure, storm water runoff, fugitive dust, and potential for spillage. Controls include silt fence/silt curtains, personal protective equipment, odor and dust suppression (e.g., watering of soils, placing tarps over stockpiled soil), and spill controls (e.g., placing tarps over truck payloads prior to transportation off-site). Ambient air monitoring would be performed to monitor volatile and particulate emissions during remediation, and a fence surrounding the site would be maintained to control access.

4.4.7 Implementability

4.4.7.1 Alternative 3 consists of excavation of sediments to depths of approximately 2.5 feet (based on sampling results), and would require the excavation of side slopes and possibly some drying of saturated material. These types of shallow excavations are common. Surface water would likely need to be diverted prior to sediment removal. Portions of the Western Ditch are known to be dry (i.e., no standing/flowing water) except immediately following precipitation events. However, portions of the Western Ditch close to Black Creek, and Black Creek itself, would likely require dewatering and flow diversion prior to sediment removal. This diversion would likely be complicated, given the volume of flow in Black Creek. Construction water would potentially be sent to the local publicly owned treatment works (POTW); if so, compliance with all POTW regulations would be required.

4.4.7.2 Transporting the excavated material could require significant time and coordination, but the same effort has been done for many other sites. With regards to off-site facilities, compliance with all applicable landfill requirements (see 40 CFR Part 264, Subpart M) would be required. Backfill and re-vegetation of the site would be easily implemented.

4.4.8 Cost

The estimated cost for the implementation of Alternative 3 is $20,750,000 (see Table 4.3). Key factors affecting costs include sediment removal, stockpiling and decanting excavated sediment, flow diversion, off-site treatment of construction water, transport and disposal of contaminated soil, backfill procurement and placement, and armoring of creek banks. Additional details pertaining to the cost estimates are provided in Appendix A.

4.5 COMPARISON OF ALTERNATIVES

4.5.1 Overall Protection of Human Health and the Environment

Contaminant concentrations in sediment and surface water do not currently pose an unacceptable risk to human health. Furthermore, based on the qualitative ecological risk assessment, ecological use of the site appears consistent with the vicinity and commercial/industrial nature of the site. As such, all alternatives would provide overall protection of human health and the environment. Alternatives 2 and 3 would offer additional

protection by removing some or all of the sediments that exceed Part 375 industrial land use soil cleanup objectives.

4.5.2 Compliance with ARARs

4.5.2.1 All remedial alternatives would meet chemical-specific surface water ARARs. The location-specific surface water ARAR is applicable only to Alternatives 2 and 3, and would be met for both alternatives. Therefore, all alternatives satisfy all applicable surface water ARARs.

4.5.2.2 All alternatives would meet the TECQ PCLs for sediment (for protection of human health). Alternative 1 would not satisfy the NYSDEC sediment quality criteria (for protection of aquatic life and for protection of wildlife and human health from bioaccumulation), because areas of sediment with concentrations exceeding the criteria would be left onsite. Alternative 2 would remove some of the sediment with concentrations exceeding NYSDEC sediment criteria, however, not all. Alternative 3 would meet the NYSDEC sediment quality criteria, as all sediment exceeding these values would be removed. However, as stated earlier in this FS, the NYSDEC's sediment quality criteria are not ARARs for the site and are used for comparative purposes only; in addition, no risks to human health or the environment have been identified for sediment at the site. Alternative 1 would not meet the Part 375 industrial land use cleanup objectives, as sediment exceeding these criteria would remain onsite. Alternatives 2 and 3 would result in compliance with this "other criteria considered", as sediments exceeding the industrial land use cleanup objectives would be removed.

4.5.3 Long-term Effectiveness and Permanence

Concentrations of sediments currently do not pose an unacceptable risk to human health or the environment; therefore all alternatives provide long-term effectiveness and permanence.

4.5.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternative 1 would not reduce the toxicity, mobility, or volume of impacted sediment. Alternatives 2 and 3 would not reduce the toxicity or volume of impacted sediment, unless the soil is treated at the landfill to meet the landfill's permit requirements. Mobility would be reduced by removal of the impacted sediment and disposal in a landfill (Alternatives 2 and 3).

4.5.5 Short-term Effectiveness

There would be no significant short-term risks to the community, the environment, or site workers associated with Alternative 1. Increased short-term risks related to sediment removal and transportation would be associated with Alternatives 2 and 3. The impacts of some of these risks could be mitigated with controls, however not all risks can be completely mitigated.

4.5.6 Implementability

Alternative 1 could be easily implemented. Sediment removal from the limited areas included in Alternative 2 would also be easily implemented. With regards to alternatives that require the use of off-site hazardous waste facilities (Alternatives 2 and 3), compliance with all applicable landfill requirements (see 40 CFR Part 264, Subpart M) would be required.

Construction water generated in alternatives 2 and 3 would potentially be sent to the local publicly owned treatment works (POTW); if so, compliance with all POTW regulations would be required. Alternative 3 could be implemented; however, diversion of the flow in Black Creek would be a significant engineering and construction challenge.

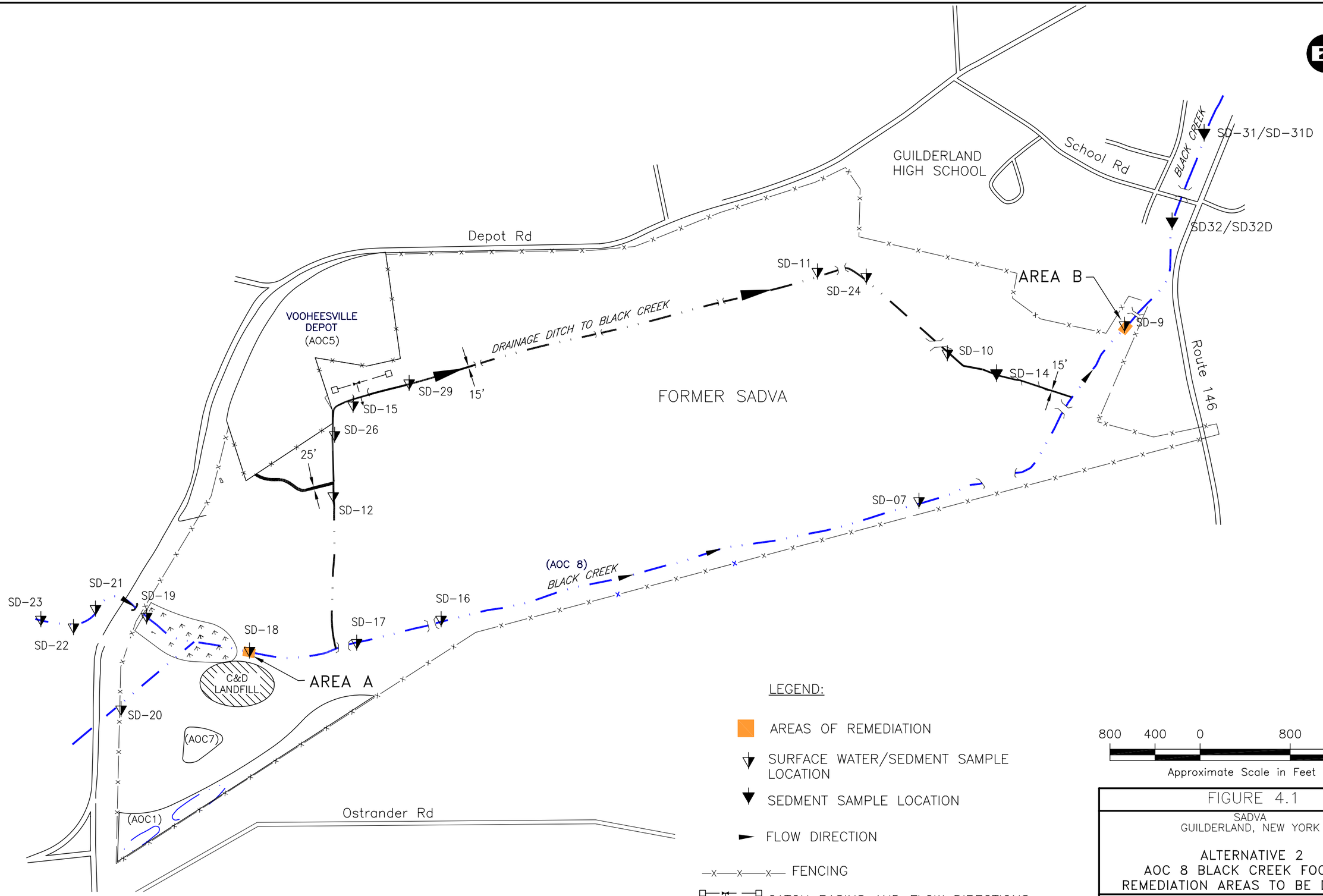
4.5.7 Cost

The estimated present worth costs of the alternatives is as follows:

Alternative 1 (No Action): $0

Alternative 2 (Targeted Sediment Removal & Off-site Disposal): $480,000

Alternative 3 (Full Sediment Removal & Off-site Disposal): $20,750,000



LEGEND:

- AREAS OF REMEDIATION
- SURFACE WATER/SEDMENT SAMPLE LOCATION
- SEDMENT SAMPLE LOCATION
- FLOW DIRECTION
- FENCING
- CATCH BASINS AND FLOW DIRECTIONS

800 400 0 800 1600

Approximate Scale in Feet

FIGURE 4.1

SADVA
GUILDERLAND, NEW YORK

ALTERNATIVE 2
AOC 8 BLACK CREEK FOCUSED
REMEDIATION AREAS TO BE DREDGED

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

FILE NAME: P:\743440 (SADVA)\CAD\CE\RI-FS\AOC8-C009.DWG
PLOT DATE: 7/24/2009 2:33 PM PLOTTED BY: WINTERS, CHRIS

Depot Rd

VOOHEESVILLE
DEPOT
(AOC5)

15' TYP

DRAINAGE DITCH TO BLACK CREEK

SD-29

SD-15

SD-26

AREA A

25'

SD-12

AREA D –
WESTERN DITCH

FORM

AREA E

(AOC 8)
BLACK CREEK

SD-16

SD-17

LEGEND:

AREA A

AREA D

SURFACE WATER/SEDMENT SAMPLE LOCATION

SEDMENT SAMPLE LOC

FLOW DIRECTION

FENCING

CATCH BASINS AND FLOW DIRECTIONS

800 400 0 800 1600

Approximate Scale in Feet

FIGURE 4.2

SADVA

ERLAND, NEW YORK

TIVE 3

FILE NAME: P:\743440 (SADVA)\CAD\CE\RI-FS\AOC8-C005.DWG
PLOT DATE: 7/24/2009 2:34 PM PLOTTED BY: WINTERS, CHRIS

TABLE 4.1

NINE CRITERIA FOR REMEDIAL ALTERNATIVES EVALUATON

THRESHOLD CRITERIA

1 Overall Protection of Human Health and the Environment

- How the Alternative Provides Human Health and Environmental Protection

2 Compliance with ARARs

- Compliance with Chemical-Specific ARARs
- Compliance with Location-Specific ARARs
- Compliance with Action-Specific ARARs
- Compliance with Other Criteria, Advisories, and guidance

PRIMARY BALANCING CRITERIA

3 Long-Term Effectiveness and Permanence

- Magnitude of Residual Risk
- Adequacy and Reliability of Controls

4 Reduction of Toxicity, Mobility, or Volume Through Treatment

- Treatment Process Used and Materials Treated
- Amount of Hazardous Materials Destroyed or Treated
- Degree of Expected Reductions n Toxicity, Mobility, or Volume
- Degree to Which Treatment is Irreversible
- Type and Quantity of Residuals Remaining After Treatment

5 Short-Term Effectiveness

- Protection of Community During Remedial Actions
- Protection of Workers During Remedial Actions
- Environmental Impacts
- Time Until Remedial Action Objectives are Achieved

6 Implementability

- Ability to Construct and Operate the Technology
- Reliability of the Technology
- Ease of Undertaking Additional Remedial Actions, if Necessary
- Ability to Monitor Effectiveness of Remedy
- Ability to Obtain Approvals from Other Agencies
- Coordination with Other Agencies
- Ability to Off-Site Treatment, Storage, and Disposal Services and Capacity
- Availability of Necessary Equipment and specialists
- Availability of Prospective Technologies

7 Cost

- Estimated Capital Costs
- Estimated Annual Operation and Maintenance Costs
- Estimated Present Worth Costs

MODIFYING CRITERIA[1]

8 State Acceptance

- Features of the Alternatives the State supports
- Features of the Alternative About Which the State has Reservations
- Elements of the Alternative the state Strongly Opposes

9 Community Acceptance

- Features of the Alternative the community Supports
- Features of the Alternative About Which the community has Reservations
- Elements of the Alternative the community Strongly Opposes

[1] These criteria are fully assessed following comment on the RI/FS Reports and the Proposed Plan, and are fully address in the ROD.

Table 4.2
Cost Estimate for Alternative 2
AOC 8 – Black Creek and Western Ditch

	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
1.0	***Mobilization/Site Preparation***				
1.1	Plans/Methods Statement/Permits	LS	1	$15,000	$15,000
1.2	Office Trailers/Furniture/Equipment/Utilities	LS	1	$10,000	$10,000
1.3	Mobilize Equipment and Workers	LS	1	$10,000	$10,000
1.4	Temporary Fencing/Erosion Control/Clearing and Grubbing	LS	1	$15,000	$15,000
1.5	Surveying	LS	1	$10,000	$10,000
1.6	Health and Safety Equipment/Supplies (Assume Level D)	LS	1	$30,000	$30,000
1.7	Decontamination Pad/Site Haul Roads/Turnarounds	LS	1	$27,000	$27,000
	Task Subtotal				**$117,000**
2.0	***Excavation of Targeted Sediment***				
2.1	Sediment Removal (does not include flow diversion but includes erosion controls)	CY	556	$30	$16,667
2.2	Stockpile & Decant Excavated Material	CY	556	$7	$3,889
2.3	Off-site Treatment of Water from Removed Sediments	GAL	39,000	$0.40	$15,600
2.4	Transport & Disposal of Impacted Soils as Non-Hazardous (Assumes 1.5 tons/cy)	TON	833	$92	$76,667
	Task Subtotal				**$112,822**
3.0	***Placement of Backfill Material***				
3.1	Delivery & Placement of Soil	CY	556	$25	$13,889
3.2	Armoring of Creek Banks (4" assumed)	CY	1,906	$55	$104,830
3.3	Restoration & Seeding	LS	1	$5,000	$5,000
	Task Subtotal				**$123,719**
4.0	***Demobilization***				
4.1	Removal of Temporary Fencing, Erosion Controls, Utilities, Trailers	LS	1	$7,000	$7,000
4.2	Demobilization of Workers, Equipment, Extra Materials	LS	1	$5,000	$5,000
	Task Subtotal				**$12,000**
5.0	***Bond***				
5.1	Bond (1% of total Capital Costs)	LS	1	$3,655	$3,655
	Task Subtotal				**$3,655**
	Subtotal				**$369,167**
	Engineering/Oversight (10%)				$36,920
	Contingency (15%)				$55,379
	Subtotal				**$461,496**
	Present Value of 30-Year Site Review Costs				**$17,000**
	Total Cost				**$480,000**

Notes:
1. See Appendix A for Cost Estimate Assumptions.

Table 4.3
Cost Estimate for Alternative 3
AOC 8 – Black Creek and Western Ditch

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
1.0	***Mobilization/Site Preparation***				
1.1	Plans/Methods Statement/Permits	LS	1	$25,000	$25,000
1.2	Office Trailers/Furniture/Equipment/Utilities	LS	1	$20,000	$20,000
1.3	Mobilize Equipment and Workers	LS	1	$20,000	$20,000
1.4	Temporary Fencing/Erosion Control/Clearing and Grubbing	LS	1	$30,000	$30,000
1.5	Surveying	LS	1	$15,000	$15,000
1.6	Health and Safety Equipment/Supplies (Assume Level D)	LS	1	$30,000	$30,000
1.7	Decontamination Pad/Site Haul Roads/Turnarounds	LS	1	$40,000	$40,000
	Task Subtotal				**$180,000**
2.0	***Excavation of Targeted Sediment***				
2.1	Channel Dewatering / Flow Diversion	LS	1	$800,000	$800,000
2.2	Sediment Removal	CY	62,292	$30	$1,868,751
2.3	Stockpile & Decant Excavated Material	CY	62,292	$7	$436,042
2.4	Off-site Treatment of Water from Removed Sediments	GAL	4,403,000	$0.40	$1,761,200
2.5	Transport & Disposal of Impacted Soils as Non-Hazardous (Assumes 1.5 tons/cy)	TON	93,438	$92	$8,596,255
	Task Subtotal				**$13,462,248**
3.0	***Placement of Backfill Material***				
3.1	Delivery & Placement of Soil	CY	62,292	$25	$1,557,293
3.2	Armoring of Creek Banks (4” assumed)	CY	20,764	$55	$1,142,015
3.3	Restoration & Seeding	LS	1	$25,000	$25,000
	Task Subtotal				**$2,724,308**
4.0	***Demobilization***				
4.1	Removal of Temporary Fencing, Erosion Controls, Utilities, Trailers	LS	1	$15,000	$15,000
4.2	Demobilization of Workers, Equipment, Extra Materials	LS	1	$10,000	$10,000
	Task Subtotal				**$25,000**
5.0	***Bond***				
5.1	Bond (1% of total Capital Costs)	LS	1	$163,916	$163,916
	Task Subtotal				**$163,916**
	Subtotal				**$16,555,470**
	Engineering/Oversight (10%)				$1,655,547
	Contingency (15%)				$2,483,321
	Subtotal				**$20,694,338**
	Present Value of 30-Year Site Review Costs				**$58,000**
	Total Cost				**$20,750,000**

Notes:
1. See Appendix A for Cost Estimate Assumptions.

SECTION 5

REFERENCES

Buttner, 1997. "In Guilderland, Soils Control Density of Development", Peter J.R. Buttner, Ph.D. from "The Watershed-Drainage Basins of the Watervliet Reservoir".

Buttner, 2000. Personal Communication from J.R. Buttner, June 5, 2000.

Clough, Harbour & Associated LLP, 2005. Draft Generic Environmental Impact Statement, Northeastern Industrial Park, Town of Guilderland, Albany County, New York. Prepared for Galesi Group, Guilderland Center, New York. June 6, 2005.

Galesi Group 2005**.** Draft Generic Environmental Impact Statement, Northeastern Industrial Park, June 2005.

Hazardous Substance Research Center South and Southwest (HSRC, 2002) web site.

Ichthyological Associates, Inc., 2004. Analysis of the Aquatic Macroinvertebrate Community of the Pond within the Boundaries of the Former Schenectady Army Depot, Guilderland, New York. 10 September 2004.

NYSDEC, 1990. TAGM 4030 – Selection of Remedial Actions at Inactive Hazardous Waste Sites. May 15, 1990.

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations T.O.G.S. 1.1.1. October 1998.

NYSDEC, 1999. Technical Guidance for Screening Contaminated Sediments, NYSDEC. January 25, 1999.

NYSDOH (1982), New York State Atlas of Community Water System Sources. Prepared by the New York State Department of Health, Division of Environmental Protection, Bureau of Public Water Supply Protection.

Parsons, 2007. Remedial Investigation Report, Former Schenectady Army Depot - Voorheesville Area. September, 2007.

Parsons, 2007b. Remedial Investigation Report, DNSC Voorheesville Depot. July, 2007

Town of Guilderland, 2000. Public Water Supply coverage. Personal communication with William West of the Guilderland Water Department, November 16, 2000

USACE, 1999. "Draft Phase II Work Plan for Former Schenectady Army Depot – Voorheesville Area", prepared by USACE Baltimore District. June 1999.

USEPA, 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (interim final). OSWER Directive 9355.3.01. October 1988.

USEPA, 1991. Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual, Part B – Development of Risk-based Preliminary Remediation Goals (interim). Office of Emergency and Remedial Response. Publication 9285-7.01B. December 1991.

APPENDIX A

COST ESTIMATE ASSUMPTIONS

Table A.1
Cost Estimate for Alternative 2 - Partial Sediment Removal (Targeted Hot Spots)
AOC 8 - Black Creek

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
1.0	***Mobilization/Site Preparation***				
1.1	Plans/Methods Statement/Permits	LS	1	$15,000	$15,000
1.2	Office Trailers/Furniture/Equipment/Utilities	LS	1	$10,000	$10,000
1.3	Mobilize Equipment and Workers	LS	1	$10,000	$10,000
1.4	Temporary Fencing/Erosion Control/Clearing and Grubbing	LS	1	$15,000	$15,000
1.5	Surveying	LS	1	$10,000	$10,000
1.6	Health and Safety Equipment/Supplies (Assume Level D)	LS	1	$30,000	$30,000
1.7	Decontamination Pad/Site Haul Roads/Turnarounds	LS	1	$27,000	$27,000
	Task Subtotal				**$117,000**
2.0	***Excavation of Targeted Sediment***				
2.1	Sediment Removal [(1)]	CY	556	$30	$16,667
2.2	Stockpile & Decant Excavated Material	CY	556	$7	$3,889
2.3	Offsite Treatment of Water from Removed Sediment**	GAL	39,000	$0.40	$15,600
2.4	Transport and Disposal of Impacted Soils as Non-hazardous (Assume 1.5 tons/cy)	Ton	833	$92	$76,667
	Task Subtotal				**$112,822**
3.0	***Placement of Backfill Material***				
3.1	Importing & Placement of backfill	CY	556	$25	$13,889
3.2	Armoring of Creek Banks(4")	CY	1,906	$55	$104,830
3.3	Restoration & Seeding	LS	1	$5,000	$5,000
	Task Subtotal				**$123,719**
4.0	***Demobilization***				
4.1	Removal of Temporary Fencing, Erosion Controls, Utilities, Trailers	LS	1	$7,000	$7,000
4.2	Demobilization of Workers, Equipment, Extra Materials	LS	1	$5,000	$5,000
	Task Subtotal				**$12,000**
5.0	***Alternate***				
5.1	Bond (1% of total Capital Costs)	LS	1	$3,655	$3,655
	Task Subtotal				**$3,655**

Subtotal	**$369,197**
Engineering/Oversight (10%)	$36,920
Contingency (15%)	$55,379
Subtotal	**$461,496**

Site Year Site Review

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
1	Project Management, Administration, and Reportion	LS	1	$1,500	$1,500
2	Confirmatory Sampling	LS	1	$6,000	$6,000

Subtotal Site Year Review Costs	**$7,500**
Total Annual Cost	$7,500
Total 30-year Site Review Cost	**$45,000**
Net Present Value of Site Review Costs (Assumes annual discount rate of 7%)	**$17,000**
Total Implementation Cost	**$480,000**

Table A.2
Cost Calculations for Alternative 2, Continued
AOC 8 - Black Creek

Sediment Removal						
		Length (ft)	Width (ft)	Area (SF)	Depth Removed (ft)	**Volume (CY)**
non-hazardous	**Area A**	200	15	3,000	2.5	**278**
	Area B	200	15	3,000	2.5	**278**
	Sum - NonHaz			**6,000**		**556**

Cost/Schedule Assumptions

Assume:

	Duration		Percent Work Overlap	Total Schedule Impact
20 work days per month				
500 cy excavated/day	1	removal time (days)	0%	1
500 cy backfilled/day	1	backfill time (days)	25%	1
250 cy creek armor installed/day	8	armor installation time (days)	25%	6
	5	Restoration	0%	5
			Total Schedule Estimate (days)	**13**
			Total Schedule Estimate (month)	**1**

Water Handling Volume

Water content of excavated material assumed 35%.

Water Volume: $V_{sediment}$*27 ft^3/cy*7.48 gal/ft^3*water content = **39,000 gallons**

Creek Flow Diversion

Cost for Alternative 3 assumes excavation can be completed in dry, no flow diversion necessary.

Sediment Disposal

Cost estimate assumes all excavated materials are landfillable non-hazardous waste that can be transported and disposed of in bulk at the High Acres Landfill facility.

Table A.3
Cost Estimate for Alternative 3 - Total Sediment Removal (All Channel Bottom in AOC 8)
AOC 8 - Black Creek

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
1.0	***Mobilization/Site Preparation***				
1.1	Plans/Methods Statement/Permits	LS	1	$25,000	$25,000
1.2	Office Trailers/Furniture/Equipment/Utilities	LS	1	$20,000	$20,000
1.3	Mobilize Equipment and Workers	LS	1	$20,000	$20,000
1.4	Temporary Fencing/Erosion Control/Clearing and Grubbing	LS	1	$30,000	$30,000
1.5	Surveying	LS	1	$15,000	$15,000
1.6	Health and Safety Equipment/Supplies (Assume Level D)	LS	1	$30,000	$30,000
1.7	Decontamination Pad/Site Haul Roads/Turnarounds	LS	1	$40,000	$40,000
	Task Subtotal				**$180,000**
2.0	***Excavation of Targeted Sediment***				
2.1	Channel dewatering / flow diversion*	LS	1	$800,000	$800,000
2.2	Sediment Removal [(1)]	CY	62,292	$30	$1,868,751
2.3	Stockpile & Decant Excavated Material	CY	62,292	$7	$436,042
2.4	Offsite Treatment of Water from Removed Sediment**	GAL	4,403,000	$0.40	$1,761,200
2.5	Transport and Disposal of Impacted Soils as Non-hazardous (Assume 1.5 tons/cy)	Ton	93,438	$92	$8,596,255
	Task Subtotal				**$13,462,248**
3.0	***Placement of Backfill Material***				
3.1	Importing & Placement of backfill	CY	62,292	$25	$1,557,293
3.2	Armoring of Creek Banks	CY	20,764	$55	$1,142,015
3.3	Restoration & Seeding	LS	1	$25,000	$25,000
	Task Subtotal				**$2,724,307**
4.0	***Demobilization***				
4.1	Removal of Temporary Fencing, Erosion Controls, Utilities, Trailers	LS	1	$15,000	$15,000
4.2	Demobilization of Workers, Equipment, Extra Materials	LS	1	$10,000	$10,000
	Task Subtotal				**$25,000**
5.0	***Alternate***				
5.1	Bond (1% of total Capital Costs)	LS	1	$163,916	$163,916
	Task Subtotal				**$163,916**

Subtotal	**$16,555,470**
Engineering/Oversight (10%)	$1,655,547
Contingency (15%)	$2,483,321
Subtotal	**$20,694,338**

Site Year Site Review

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
1	Project Management, Administration, and Reportion	LS	1	$1,500	$1,500
2	Confirmatory Sampling	LS	1	$25,000	$25,000

Subtotal Site Year Review Costs	**$26,500**
Total Annual Cost	$26,500
Total 30-year Site Review Cost	**$159,000**
Net Present Value of Site Review Costs (Assumes annual discount rate of 7%)	**$58,000**

Total Implementation Cost **$20,750,000**

Notes:

* Dewatering and pumping to bypass that section of black creek will be needed

** Assuming the water content in the average sediment will be 35%

Table A.4
Cost Calculations for Alternative 3, Continued
AOC 8 - Black Creek

Sediment Removal						
		Length (ft)	Width (ft)	Area (SF)	Depth Removed (ft)	**Volume (CY)**
non-hazardous	**Area A**	700	25	17,500	2.5	**1,620**
	Area B	8850	15	132,750	2.5	**12,292**
	Area C	10450	50	522,500	2.5	**48,380**
	Sum - NonHaz			**672,750**		**62,292**

Cost/Schedule Assumptions

Assume:

	Duration		Percent Work Overlap	Total Schedule Impact
20 work days per month				
500 cy excavated/day	125	removal time (days)	0%	125
500 cy backfilled/day	125	backfill time (days)	50%	62
250 cy creek armor installed/day	83	armor installation time (days)	50%	42
	10	Flow diversion	0%	10
	15	Restoration	0%	15
		Total Schedule Estimate (days)		**253**
		Total Schedule Estimate (month)		**13**

Water Handling Volume

Water content of excavated material assumed 35%.

Water Volume: $V_{sediment}$*27 ft^3/cy*7.48 gal/ft^3*water content = **4,403,000**

Creek Flow Diversion

Pump Cost Estimate provided by Goodwin Pumps

Mobilization/Installation	$	50,348.00	LS cost	$	50,348.00	
First Monthly Rental	$	66,146.00	LS cost for first month	$	66,146.00	
Additional Monthly Rental	$	47,746.00	price per month	$	557,202.74	
Assume 1 Laborer full time ($50/hr)	$	8,000.00	price per month	$	101,361.16	
			Subtotal	**$**	**775,057.90**	
				$	**25,000.00**	Fuel, contingency
			Creek Flow Diversion Total Cost	**$**	**800,000.00**	

Sediment Disposal

Cost estimate assumes all excavated materials are landfillable non-hazardous waste that can be transported and disposed of in bulk at the High Acres Landfill facility.

APPENDIX B

RI DATA TABLES AND FIGURES FOR SURFACE WATER AND SEDIMENT SAMPLES FROM AOC 8

TABLE 3.35a
SADVA AOC 8 SURFACE WATER RESULTS (2000)

Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		Upstream/ Background Ranges	NYSDEC Class A Surface Water Standards/Guidance Values	NYSDEC Class C Surface Water Standards/Guidance Values		Open Storage Area (AOC 5)		Southern SADVA		
					SAMPLE ID:	SW15	SW29	SW16	SW17	SW18
					LAB ID:	C0G190251002	C0J060306001	C0G190251001	C0G140162005	C0G200279001
					SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
					SDG:	SADVA2	SADVA20	SADVA2	SADVA2	SADVA2
					MATRIX:	WATER	WATER	WATER	WATER	WATER
					SAMPLED:	7/18/2000	10/5/2000	7/18/2000	7/13/2000	7/19/2000
					VALIDATED:	10/10/2000	12/3/2000	10/10/2000	10/10/2000	10/10/2000
CAS NO.	COMPOUND			H(FC)	UNITS:					
	VOLATILES									
67-64-1	Acetone	ND-2.3	50 H(WS)	NS	ug/L	ND	ND	ND	ND	ND
78-93-3	2-Butanone	ND	50 H(WS)	NS	ug/L	ND	ND	ND	ND	ND
	Total VOCs				**ug/L**	**ND**	**ND**	**ND**	**ND**	**ND**
	SEMIVOLATILES									
117-81-7	bis(2-Ethylhexyl) phthalate	ND-26	0.6 A(C)	0.6 A(C)	ug/L	7.4 J	ND	ND	4.2 J	4.8 J
	Total SVOCs				**ug/L**	**7.4**	**ND**	**ND**	**4.2**	**4.8**
	PESTICIDES									
	None Detected				ug/L	ND	ND	ND	ND	ND
	PCBs									
	None Detected				ug/L	ND	ND	ND	ND	ND
	METALS									
7429-90-5	Aluminum	23.4-346	100 (1) A(C)	100 (1) A(C)	ug/L	22.7 J	346	145 J	85.3 J	206
7440-36-0	Antimony	ND	3 H(WS)	NS	ug/L	ND	1.8 J	ND	ND	ND
7440-39-3	Barium	22.6-43.5	1000 H(WS)	NS	ug/L	49.4 J	45.7 J	22.2 J	27.4 J	51.2 J
7440-41-7	Beryllium	0.14-0.96	3 H(WS)	11 *A(C)	ug/L	0.09 J	0.13 J	ND	ND	0.1 J
7440-70-2	Calcium	60500-64400	NS	NS	ug/L	210000	132000	40100	63000	172000
7440-47-3	Chromium	ND-1.4	50 H(WS)	52.7 (2) *A(C)	ug/L	1.5 J	1.4 J	1.3 J	ND	ND
7440-48-4	Cobalt	ND	5 (3) A(C)	5 (3) A(C)	ug/L	5.1 J	ND	ND	ND	ND
7440-50-8	Copper	ND-2.5	200 H(WS)	6.3 (2) *A(C)	ug/L	9.9 J	6.8 J	ND	ND	17.9 J
7439-89-6	Iron	497-998	300 A(C)	300 A(C)	ug/L	555	2380	611	544	1360
7439-92-1	Lead	ND	50 H(WS)	2.4 (2) *A(C)	ug/L	2.6 J	4.5	ND	ND	ND
7439-95-4	Magnesium	8810-11500	35000 H(WS)	NS	ug/L	41200	35800	6760	11200	12000
7439-96-5	Manganese	105-691	300 E	NS	ug/L	2020	107	33.8	107	1020
7439-97-6	Mercury	0.065-0.093	0.7 (2) H(WS)	0.0007 (2) H(FC)	ug/L	0.051 J	0.046 J	ND	ND	0.064 J
7440-02-0	Nickel	ND-6.2	100 H(WS)	36.5 (2) *A(C)	ug/L	ND	ND	ND	ND	ND
7440-09-7	Potassium	796-2640	NS	NS	ug/L	3730 J	2560 J	1740 J	642 J	1510 J
7440-22-4	Silver	ND-0.31	50 H(WS)	0.1 (1) A(C)	ug/L	ND	ND	0.94	ND	ND
7440-23-5	Sodium	9710-15000	NS	NS	ug/L	12500	11100	10700	18600	20600
7440-62-2	Vanadium	ND-3.4	14 (3) A(C)	14 (3) A(C)	ug/L	ND	4.6 J	ND	ND	ND
7440-66-6	Zinc	3.9-22.1	2000 H(WS)	58 (2) *A(C)	ug/L	139	75.2	21.2	15.8 J	13.1 J

(1) - Ionic form

(2) - Dissolved form - all sample data are total metals.

* - based on average hardness value

(3) - based on acid soluble form

Average Hardness: 65.9 mg/L

A(C) - Protection fo Fish Propagation

H(FC) - Protection for Human Consumption of Fish

H(WS) - Protection of drinking water source.

E - aesthetic

ND- Not Detected.

NA - Not Analyzed

J - Estimated Value

R - Data Rejected During Validation

Concentration above NYSDEC Class C Standard and upstream concentration range.

TABLE 3.35a
SADVA AOC 8 SURFACE WATER RESULTS (2000)

Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		Upstream/ Background Ranges	NYSDEC Class A Surface Water Standards/Guidance Values	NYSDEC Class C Surface Water Standards/Guidance Values	SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	Southern SADVA SW19 C0G200279002 STL Pittsburgh SADVA2 WATER 7/19/2000 10/10/2000	 SW20 C0G200279003 STL Pittsburgh SADVA2 WATER 7/19/2000 10/10/2000	NW SADVA SW24 C0G200279004 STL Pittsburgh SADVA2 WATER 7/19/2000 10/10/2000	Downstream SW25 C0G200279005 STL Pittsburgh SADVA2 WATER 7/19/2000 10/10/2000
CAS NO.	COMPOUND			H(FC)	UNITS:				
	VOLATILES								
67-64-1	Acetone	ND-2.3	50 H(WS)	NS	ug/L	ND	ND	2.2 J	ND
78-93-3	2-Butanone	ND	50 H(WS)	NS	ug/L	ND	ND	ND	ND
	Total VOCs				**ug/L**	**ND**	**ND**	**2.2**	**ND**
	SEMIVOLATILES								
117-81-7	bis(2-Ethylhexyl) phthalate	ND-26	0.6 A(C)	0.6 A(C)	ug/L	ND	ND	5.5 J	11
	Total SVOCs				**ug/L**	**ND**	**ND**	**5.5**	**11**
	PESTICIDES								
	None Detected				ug/L	ND	ND	ND	ND
	PCBs								
	None Detected				ug/L	ND	ND	ND	ND
	METALS								
7429-90-5	Aluminum	23.4-346	100 (1) A(C)	100 (1) A(C)	ug/L	27.3 J	57.2 J	319	52.7 J
7440-36-0	Antimony	ND	3 H(WS)	NS	ug/L	ND	ND	ND	ND
7440-39-3	Barium	22.6-43.5	1000 H(WS)	NS	ug/L	20.3 J	21.3 J	24.6 J	21.1 J
7440-41-7	Beryllium	0.14-0.96	3 H(WS)	11 *A(C)	ug/L	ND	ND	0.09 J	ND
7440-70-2	Calcium	60500-64400	NS	NS	ug/L	39600	40600	46500	40500
7440-47-3	Chromium	ND-1.4	50 H(WS)	52.7 (2) *A(C)	ug/L	ND	1.1 J	1.1 J	ND
7440-48-4	Cobalt	ND	5 (3) A(C)	5 (3) A(C)	ug/L	ND	ND	ND	ND
7440-50-8	Copper	ND-2.5	200 H(WS)	6.3 (2) *A(C)	ug/L	41	ND	3.7 J	2.5 J
7439-89-6	Iron	497-998	300 A(C)	300 A(C)	ug/L	425	474	974	432
7439-92-1	Lead	ND	50 H(WS)	2.4 (2) *A(C)	ug/L	ND	ND	2.1 J	ND
7439-95-4	Magnesium	8810-11500	35000 H(WS)	NS	ug/L	6680	6820	9150	6880
7439-96-5	Manganese	105-691	300 E	NS	ug/L	34	40.3	299	40.3
7439-97-6	Mercury	0.065-0.093	0.7 (2) H(WS)	0.0007 (2) H(FC)	ug/L	ND	ND	ND	0.058 J
7440-02-0	Nickel	ND-6.2	100 H(WS)	36.5 (2) *A(C)	ug/L	ND	ND	ND	ND
7440-09-7	Potassium	796-2640	NS	NS	ug/L	1340 J	1390 J	4220 J	1530 J
7440-22-4	Silver	ND-0.31	50 H(WS)	0.1 (1) A(C)	ug/L	ND	ND	ND	ND
7440-23-5	Sodium	9710-15000	NS	NS	ug/L	10500	13200	26300	11400
7440-62-2	Vanadium	ND-3.4	14 (3) A(C)	14 (3) A(C)	ug/L	ND	ND	ND	ND
7440-66-6	Zinc	3.9-22.1	2000 H(WS)	58 (2) *A(C)	ug/L	28.1	3.3 J	12.7 J	8.1 J

(1) - Ionic form

(2) - Dissolved form - all sample data are total metals.

* - based on average hardness value

(3) - based on acid soluble form

Average Hardness: 65.9 mg/L

A(C) - Protection fo Fish Propagation

H(FC) - Protection for Human Consumption of Fish

H(WS) - Protection of drinking water source.

E - aesthetic

ND- Not Detected.

NA - Not Analyzed

J - Estimated Value

R - Data Rejected During Validation

Concentration above NYSDEC Class C Standard and upstream concentration range.

TABLE 3.35a
SADVA AOC 8 SURFACE WATER RESULTS (2000)

Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		Upstream/ Background Ranges	NYSDEC Class A Surface Water Standards/Guidance Values	NYSDEC Class C Surface Water Standards/Guidance Values	SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	UPSTREAM SAMPLES SW21 C0H080193002 STL Pittsburgh SADVA9 WATER 8/7/2000 10/30/2000	SW22 C0H080193005 STL Pittsburgh SADVA9 WATER 8/7/2000 10/30/2000	SW23 C0H080193003 STL Pittsburgh SADVA9 WATER 8/7/2000 10/30/2000	Dup of SW23 SW27 C0H080193001 STL Pittsburgh SADVA9 WATER 8/7/2000 10/30/2000	SW28 (2000) C0J050207001 STL Pittsburgh SADVA20 WATER 10/4/2000 12/3/2000
CAS NO.	COMPOUND			H(FC)	UNITS:					
	VOLATILES									
67-64-1	Acetone	ND-2.3	50 H(WS)	NS	ug/L	ND	ND	ND	ND	2.3 J
78-93-3	2-Butanone	ND	50 H(WS)	NS	ug/L	R	R	R	R	ND
	Total VOCs				**ug/L**	**ND**	**ND**	**ND**	**ND**	**2.3**
	SEMIVOLATILES									
117-81-7	bis(2-Ethylhexyl) phthalate	ND-26	0.6 A(C)	0.6 A(C)	ug/L	14	26	7.5 J	ND	ND
	Total SVOCs				**ug/L**	**14**	**26**	**7.5**	**ND**	**ND**
	PESTICIDES									
	None Detected				ug/L	ND	ND	ND	ND	ND
	PCBs									
	None Detected				ug/L	ND	ND	ND	ND	ND
	METALS									
7429-90-5	Aluminum	23.4-346	100 (1) A(C)	100 (1) A(C)	ug/L	24.3 J	23.4 J	37.5 J	39.7 J	158 J
7440-36-0	Antimony	ND	3 H(WS)	NS	ug/L	ND	ND	ND	ND	ND
7440-39-3	Barium	22.6-43.5	1000 H(WS)	NS	ug/L	22.6 J	26.3 J	23.5 J	22.5 J	25.8 J
7440-41-7	Beryllium	0.14-0.96	3 H(WS)	11 *A(C)	ug/L	0.16 J	0.15 J	0.15 J	0.18 J	0.14 J
7440-70-2	Calcium	60500-64400	NS	NS	ug/L	61300	61800	60500	58700	64400
7440-47-3	Chromium	ND-1.4	50 H(WS)	52.7 (2) *A(C)	ug/L	ND	ND	ND	ND	1.4 J
7440-48-4	Cobalt	ND	5 (3) A(C)	5 (3) A(C)	ug/L	ND	ND	ND	ND	ND
7440-50-8	Copper	ND-2.5	200 H(WS)	6.3 (2) *A(C)	ug/L	ND	2.5 J	ND	ND	ND
7439-89-6	Iron	497-998	300 A(C)	300 A(C)	ug/L	660	998	691	670	497
7439-92-1	Lead	ND	50 H(WS)	2.4 (2) *A(C)	ug/L	ND	ND	ND	ND	ND
7439-95-4	Magnesium	8810-11500	35000 H(WS)	NS	ug/L	9770	9600	9510	9200	11500
7439-96-5	Manganese	105-691	300 E	NS	ug/L	164	691	387	376	105
7439-97-6	Mercury	0.065-0.093	0.7 (2) H(WS)	0.0007 (2) H(FC)	ug/L	0.065 J	0.086 J	0.075 J	0.057 J	0.093 J
7440-02-0	Nickel	ND-6.2	100 H(WS)	36.5 (2) *A(C)	ug/L	ND	ND	6.2 J	ND	ND
7440-09-7	Potassium	796-2640	NS	NS	ug/L	1020 J	1120 J	1450 J	1370 J	2640 J
7440-22-4	Silver	ND-0.31	50 H(WS)	0.1 (1) A(C)	ug/L	ND	ND	ND	ND	ND
7440-23-5	Sodium	9710-15000	NS	NS	ug/L	15000	14600	14300	13800	13800
7440-62-2	Vanadium	ND-3.4	14 (3) A(C)	14 (3) A(C)	ug/L	ND	3.4 J	ND	3.7 J	2 J
7440-66-6	Zinc	3.9-22.1	2000 H(WS)	58 (2) *A(C)	ug/L	22.1	7 J	4.2 J	3.9 J	3.9 J

(1) - Ionic form

(2) - Dissolved form - all sample data are total metals.

* - based on average hardness value

(3) - based on acid soluble form

Average Hardness: 65.9 mg/L

A(C) - Protection fo Fish Propagation

H(FC) - Protection for Human Consumption of Fish

H(WS) - Protection of drinking water source.

E - aesthetic

ND- Not Detected.

NA - Not Analyzed

J - Estimated Value

R - Data Rejected During Validation

Concentration above NYSDEC Class C Standard and upstream concentration range.

TABLE 3.35b
SADVA AOC 8 SURFACE WATER RESULTS (2004)

USACE-Schenectady Depot Validated Surface Water Analytical Data AOC 8 Detected Compound Summary		Site Specific Background Range	NYSDEC Class A Surface Water Standards/Guidance Values	NYSDEC Class C Surface Water Standards/Guidance Values	Sample ID: Lab Sample ID Source: SDG: Matrix: Sampled: Validated: UNITS:	SW07 C4G150227012 STL Pittsburgh C4G150227 WATER 7/14/2004 9/17/2004	SW09 C4G150227011 STL Pittsburgh C4G150227 WATER 7/14/2004 9/17/2004	SW17 C4G160332009 STL Pittsburgh C4G160332 WATER 7/15/2004 9/18/2004	SW18 C4G160332007 STL Pittsburgh C4G160332 WATER 7/15/2004 9/18/2004	UPSTREAM SW28 (2004) C4G150227010 STL Pittsburgh C4G150227 WATER 7/14/2004 9/17/2004	SW29 C4G160332006 STL Pittsburgh C4G160332 WATER 7/15/2004 9/18/2004
CAS NO.	COMPOUND										
	SEMIVOLATILES										
117-81-7	bis(2-Ethylhexyl) phthalate	ND-26	0.6 A(C)	0.6 A(C)	ug/L	3.1 J	3.1 J	4 J	7.4	6.2	6.5
84-66-2	Diethyl phthalate	ND	50 (G) H(WS)	NS	ug/L	ND	ND	ND	ND	ND	0.33 J
84-74-2	Di-n-butyl phthalate	ND-0.64	50 (G) H(WS)	NS	ug/L	ND	ND	ND	0.31 J	0.64 J	0.4 J
117-84-0	Di-n-octyl phthalate	ND	50 (G) H(WS)	NS	ug/L	ND	ND	ND	ND	ND	0.35 J
	Total SVOCs					3.1	3.1	4	7.71	6.84	7.58
	METALS										
7429-90-5	Aluminum	23.4-346	100 (1) A(C)	100 (1) A(C)	ug/L	401	92.2 J	109 J	158 J	346	862 J
7440-36-0	Antimony	ND	3 H(WS)	NS	ug/L	ND	ND	ND	ND	ND	3.2 J
7440-38-2	Arsenic	ND	50 H(WS)	150 (2) A(C)	ug/L	ND	3.6 J	ND	ND	ND	ND
7440-39-3	Barium	22.6-43.5	1000 H(WS)	NS	ug/L	79.4 J	27.9 J	38.1 J	41.6 J	43.5 J	108 J
7440-41-7	Beryllium	0.14-0.96	3 H(WS)	11 * A(C)	ug/L	0.88 J	0.87 J	0.84 J	0.83 J	0.96 J	0.66 J
7440-43-9	Cadmium	ND	5 H(WS)	7.1 (2) *A(C)	ug/L	ND	ND	ND	ND	ND	1.2 J
7440-70-2	Calcium	60500-64400	NS	NS	ug/L	88600	66200	58700	60700	56700	431000
7440-47-3	Chromium	ND-1.4	50 H(WS)	267 (2) *A(C)	ug/L	ND	ND	ND	ND	ND	1.2 J
7440-48-4	Cobalt	ND	5 (3) A(C)	5 (3) A(C)	ug/L	ND	ND	ND	ND	ND	8.6 J
7440-50-8	Copper	ND-2.5	200 H(WS)	34.1 (2) *A(C)	ug/L	ND	ND	ND	ND	ND	23.3 J
7439-89-6	Iron	497-998	300 A(C)	300 A(C)	ug/L	1800	587	731	885	767	8690
7439-92-1	Lead	ND	50 H(WS)	19.8 (2) *A(C)	ug/L	6.3	ND	1.7 J	ND	ND	14.8
7439-95-4	Magnesium	8810-11500	35000 H(WS)	NS	ug/L	20200	14600	11300	11800	8810	100000
7439-96-5	Manganese	105-691	300 A(C)	NS	ug/L	1410	903	705	718	480	578
7440-02-0	Nickel	ND-6.2	100 H(WS)	196 (2) *A(C)	ug/L	1.4 J	ND	ND	ND	ND	35.7 J
7440-09-7	Potassium	796-2640	NS	NS	ug/L	1110 J	1040 J	823 J	795 J	796 J	6010
7440-22-4	Silver	ND-0.31	50 H(WS)	0.1 (1) A(C)	ug/L	ND	0.31 J	0.33 J	0.4 J	0.31 J	0.38 J
7440-23-5	Sodium	9710-15000	NS	NS	ug/L	35700	39100	23600	23700	9710	16700
7440-62-2	Vanadium	ND-3.4	14 (3) A(C)	14 (3) A(C)	ug/L	1.2 J	ND	ND	ND	1.1 J	2.8 J
7440-66-6	Zinc	3.9-22.1	2000 H(WS)	197 (2) *A(C)	ug/L	10.2 J	4.5 J	5.9 J	ND	7.7 J	2780
	OTHER										
Q1925	Hardness		NS	NS	mg/L	304	225	NA	200	178	1490

(1) - Ionic form
(2) - Dissolved form - all sample results are total metals
* - based on average hardness value
(3) - based on acid-soluble form
Average Hardness: 479 mg/L
A(C) - Protection for Fish Propagation
H(FC) - Protection for Human Consumption of Fish
H(WS) - Protection of drinking water sources.
U = Analyte not detected; the number is the analytical reporting limit.
ND- Not Detected.
NA - Not Analyzed
J - Estimated Value
R - Data Rejected During Validation
Concentration above NYSDEC Class C Standard and upstream concentration in SW28.

TABLE 3.36a
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		Black Creek Upstream Ranges	NYSDEC Sediment Criteria	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	Ditch Leading From AOC 5				Southern Ditch Near AOC 5	
					PSED001 C5J200220001 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	PSED002 C5J200220002 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	PSED003 C5J200220003 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	PSED004 C5J200220004 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	SD12 COH180273-004 0-0.2 STL Pittsburgh SADVA12 Soil 8/17/2000 9/28/2000	SD26 COG200286-001 0-0.2 STL Pittsburgh SADVA4 Soil 7/19/2000 9/27/2000
CAS NO.	COMPOUND			UNITS:						
	VOLATILES									
67-64-1	Acetone	ND-14	NS	ug/kg	NA	NA	NA	NA	NA	NA
74-83-9	Bromomethane	ND	NS	ug/kg	NA	NA	NA	NA	NA	NA
75-00-3	Chloroethane	ND	NS	ug/kg	NA	NA	NA	NA	NA	NA
108-88-3	Toluene	ND-2.4	720 (C)	ug/kg	NA	NA	NA	NA	NA	NA
	Total VOCs			**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	SEMIVOLATILES									
106-44-5	4-Methylphenol	ND	7 (C)	ug/kg	NA	NA	NA	NA	NA	NA
117-81-7	bis(2-Ethylhexyl) phthalate	ND	2925 (C)	ug/kg	NA	NA	NA	NA	NA	NA
132-64-9	Dibenzofuran	ND-50	NS	ug/kg	NA	NA	NA	NA	NA	NA
	CPAHs				NA	NA	NA	NA	NA	NA
56-55-3	Benzo(a)anthracene	ND-310	19 (C)	ug/kg	NA	NA	NA	NA	NA	NA
50-32-8	Benzo(a)pyrene	ND-330	19 (H)	ug/kg	NA	NA	NA	NA	NA	NA
205-99-2	Benzo(b)fluoranthene	ND-440	19 (H)	ug/kg	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	ND-360	19 (H)	ug/kg	NA	NA	NA	NA	NA	NA
218-01-9	Chrysene	ND-730	19 (H)	ug/kg	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz(a,h)anthracene	ND	88 (LM)	ug/kg	NA	NA	NA	NA	NA	NA
193-39-5	Indeno(1,2,3-cd)pyrene	ND-78	19 (H)	ug/kg	NA	NA	NA	NA	NA	NA
	Total CPAHs			**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	NPAHs									
83-32-9	Acenaphthene	ND-92	2058 (C)	ug/kg	NA	NA	NA	NA	NA	NA
120-12-7	Anthracene	ND-170	1573 (C)	ug/kg	NA	NA	NA	NA	NA	NA
191-24-2	Benzo(ghi)perylene	ND-66	NS	ug/kg	NA	NA	NA	NA	NA	NA
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	NA	NA	NA	NA	NA	NA
91-20-3	Naphthalene	ND-210	441 (C)	ug/kg	NA	NA	NA	NA	NA	NA
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	NA	NA	NA	NA	NA	NA
	Total NPAHs		**35000 (LM)**	**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	Total PAHs			**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	Total SVOCs			**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	PESTICIDES									
319-84-6	alpha-BHC	ND		ug/kg	NA	NA	NA	NA	NA	NA
60-57-1	Dieldrin	ND	1.47 (C)	ug/kg	NA	NA	NA	NA	NA	NA
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	NA	NA	NA	NA	NA	NA
72-20-8	Endrin	ND	59 (C)	ug/kg	NA	NA	NA	NA	NA	NA
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	NA	NA	NA	NA	NA	NA
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	NA	NA	NA	NA	NA	NA
5103-71-9	alpha-Chlordane	ND	0.44 (C)	ug/kg	NA	NA	NA	NA	NA	NA
5103-74-2	gamma-Chlordane	ND	0.44 (C)	ug/kg	NA	NA	NA	NA	NA	NA
	Total Pesticides			**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	PCBs									
11097-69-1	Aroclor 1254	ND	284 (C)	ug/kg	NA	NA	NA	NA	NA	NA
	Total PCBs			**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

FOOTNOTES: See Next Page

TABLE 3.36a
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		Black Creek Upstream Ranges	NYSDEC Sediment Criteria	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED: UNITS:	Ditch Leading From AOC 5				Southern Ditch Near AOC 5	
					PSED001 C5J200220001 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	PSED002 C5J200220002 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	PSED003 C5J200220003 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	PSED004 C5J200220004 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	SD12 COH180273-004 0-0.2 STL Pittsburgh SADVA12 Soil 8/17/2000 9/28/2000	SD26 COG200286-001 0-0.2 STL Pittsburgh SADVA4 Soil 7/19/2000 9/27/2000
CAS NO.	COMPOUND									
	METALS									
7429-90-5	Aluminum	8040-17900	NS	mg/kg	11200	12700	15000	13700	10000	14800
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	ND	ND	ND	ND	ND	ND
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	10.6	10.3	8.6	13	7.3	6.2
7440-39-3	Barium	53.9-141	NS	mg/kg	65.5	55.3	57.5	72.9	47.4 J	84
7440-41-7	Beryllium	0.62-0.92	NS	mg/kg	0.81	1	1.1	1	0.55 J	0.9 J
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	0.37 J	0.15 J	0.39 J	0.18 J	0.47 J	0.34 J
7440-70-2	Calcium	2660-6700	NS	mg/kg	31800	2860	4840	3260	52200	4760
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	44.2	26.7	28.4	26.8	18.9 J	22.3
7440-48-4	Cobalt	7.1-14	NS	mg/kg	12.7	13	14	15.7	12.1	15.8
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	66.9 J	54.6 J	118 J	50.9 J	35	43.4
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	28200	34100	32100	36800	25700	31800
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	62.6 J	35.1 J	58.9 J	20.7 J	34.8 J	34.4
7439-95-4	Magnesium	3190-5190	NS	mg/kg	20800 J	6090 J	9520 J	8350 J	7300 J	5570
7439-96-5	Manganese	328-647	460 (L)	mg/kg	494	379	253	378	586 J	538
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	0.049	0.053	0.08	0.073	0.04 J	0.061
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	25.6	30	39.1	36.2	26.2	32.5
7440-09-7	Potassium	734-1530	NS	mg/kg	1730 J	1260 J	2390 J	1850 J	1100	1430
7782-49-2	Selenium	ND-0.81	NS	mg/kg	0.37 U	0.35 U	0.48 J	0.42 U	0.41 J	ND
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	0.17 J	0.14 J	0.25 J	0.17 J	ND	ND
7440-23-5	Sodium	71.6-790	NS	mg/kg	119 J	101 J	147 J	150 J	116 J	135 J
7440-28-0	Thallium	ND-1.5	NS	mg/kg	0.64 U	0.6 U	0.71 U	0.73 U	ND	ND
7440-62-2	Vanadium	14.6-28.4	NS	mg/kg	24.3	25	29.5	24.4	18.2	25.3
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	176 J	131 J	176 J	99.7 J	108 J	139

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
H = Human Health Bioaccumulation (TOC Adjusted), (NYSDEC, 1999).
LM = Medium Effects Level (TOC Adjusted), (Long and Morgan, 1990).
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999).
NS = No sediment criteria.
NA / ND = Not analyzed or detected (USACE report does not report these metals).
J = Estimated Concentration
R = Rejected during data validation
N = Presumptive Evidence
Concentration is above NYSDEC Criteria and Upstream Ranges

TABLE 3.36a
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		Black Creek Upstream Ranges	NYSDEC Sediment Criteria	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	Western Ditch SD15 C0G190235009 0.2' STL Pittsburgh SADVA1 SOIL 7/18/2000 10/4/2000	 SD29 C0J060292005 0.2' STL Pittsburgh SADVA19 SOIL 10/5/2000 12/3/2000	Black Creek - Southern SADVA SD16 C0G190235008 0.2' STL Pittsburgh SADVA1 SOIL 7/18/2000 10/4/2000	 SD17 C0G140158006 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	 SD18 C0G200278002 0.2' STL Pittsburgh SADVA1 SOIL 7/19/2000 10/4/2000
CAS NO.	COMPOUND			UNITS:					
	VOLATILES								
67-64-1	Acetone	ND-14	NS	ug/kg	ND	ND	ND	ND	ND
74-83-9	Bromomethane	ND	NS	ug/kg	R	ND	R	R	R
75-00-3	Chloroethane	ND	NS	ug/kg	R	ND	R	ND	R
108-88-3	Toluene	ND-2.4	720 (C)	ug/kg	ND	ND	ND	ND	ND
	Total VOCs			**ug/kg**	**ND**	**ND**	**ND**	**ND**	**ND**
	SEMIVOLATILES								
106-44-5	4-Methylphenol	ND	7 (C)	ug/kg	ND	ND	ND	ND	ND
117-81-7	bis(2-Ethylhexyl) phthalate	ND	2925 (C)	ug/kg	140 J	ND	ND	21 J	44 J
132-64-9	Dibenzofuran	ND-50	NS	ug/kg	ND	ND	ND	ND	ND
	CPAHs								
56-55-3	Benzo(a)anthracene	ND-310	19 (C)	ug/kg	27 J	26 J	ND	20 J	41 J
50-32-8	Benzo(a)pyrene	ND-330	19 (H)	ug/kg	33 J	29 J	ND	21 J	ND
205-99-2	Benzo(b)fluoranthene	ND-440	19 (H)	ug/kg	36 J	35 J	ND	27 J	52 J
207-08-9	Benzo(k)fluoranthene	ND-360	19 (H)	ug/kg	40 J	31 J	ND	13 J	ND
218-01-9	Chrysene	ND-730	19 (H)	ug/kg	50 J	43 J	ND	25 J	53 J
53-70-3	Dibenz(a,h)anthracene	ND	88 (LM)	ug/kg	ND	ND	ND	ND	ND
193-39-5	Indeno(1,2,3-cd)pyrene	ND-78	19 (H)	ug/kg	25 J	ND	ND	ND	ND
	Total CPAHs			**ug/kg**	**211**	**164**	**ND**	**106**	**146**
	NPAHs								
83-32-9	Acenaphthene	ND-92	2058 (C)	ug/kg	ND	ND	ND	ND	ND
120-12-7	Anthracene	ND-170	1573 (C)	ug/kg	ND	ND	ND	ND	ND
191-24-2	Benzo(ghi)perylene	ND-66	NS	ug/kg	24 J	ND	ND	ND	ND
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	79 J	57 J	ND	ND	100 J
91-20-3	Naphthalene	ND-210	441 (C)	ug/kg	ND	ND	ND	ND	ND
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	42 J	34 J	ND	ND	ND
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	56 J	52 J	ND	27 J	56 J
	Total NPAHs		**35000 (LM)**	**ug/kg**	**201**	**143**	**ND**	**27**	**156**
	Total PAHs			**ug/kg**	**412**	**307**	**ND**	**133**	**302**
	Total SVOCs			**ug/kg**	**552**	**307**	**ND**	**154**	**346**
	PESTICIDES								
319-84-6	alpha-BHC	ND		ug/kg	ND	ND	ND	ND	ND
60-57-1	Dieldrin	ND	1.47 (C)	ug/kg	ND	0.48 JN	ND	ND	ND
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	43 J	12 J	0.22 JN	1.5 J	1.2 JN
72-20-8	Endrin	ND	59 (C)	ug/kg	ND	3.4 J	ND	ND	ND
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	10 J	ND	ND	4.8	ND
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	11 J	4.1 JN	ND	ND	ND
5103-71-9	alpha-Chlordane	ND	0.44 (C)	ug/kg	ND	1.5 J	ND	ND	1.1 JN
5103-74-2	gamma-Chlordane	ND	0.44 (C)	ug/kg	0.84 JN	ND	ND	ND	ND
	Total Pesticides			**ug/kg**	**64.84**	**21.48**	**0.22**	**6.3**	**2.3**
	PCBs								
11097-69-1	Aroclor 1254	ND	284 (C)	ug/kg	ND	110 J	ND	ND	ND
	Total PCBs			**ug/kg**	**ND**	**110**	**ND**	**ND**	**ND**

FOOTNOTES: See Next Page

TABLE 3.36a
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		Black Creek Upstream Ranges	NYSDEC Sediment Criteria	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	Western Ditch		Black Creek - Southern SADVA		
					SD15 C0G190235009 0.2' STL Pittsburgh SADVA1 SOIL 7/18/2000 10/4/2000	SD29 C0J060292005 0.2' STL Pittsburgh SADVA19 SOIL 10/5/2000 12/3/2000	SD16 C0G190235008 0.2' STL Pittsburgh SADVA1 SOIL 7/18/2000 10/4/2000	SD17 C0G140158006 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	SD18 C0G200278002 0.2' STL Pittsburgh SADVA1 SOIL 7/19/2000 10/4/2000
CAS NO.	COMPOUND			UNITS:					
	METALS								
7429-90-5	Aluminum	8040-17900	NS	mg/kg	12100 J	10700 J	10600	12100	8540 J
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	0.84 J	1.1 J	ND	0.33 J	0.72 J
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	9.3 J	9.1 J	8.5	5.8	17.3 J
7440-39-3	Barium	53.9-141	NS	mg/kg	66.7 J	55.7 J	55	63.2	99.1 J
7440-41-7	Beryllium	0.62-0.92	NS	mg/kg	0.77 J	0.69 J	0.66 J	0.72	0.62 J
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	0.87 J	0.69 J	0.29 J	0.42 J	0.97 J
7440-70-2	Calcium	2660-6700	NS	mg/kg	8020 J	12200 J	29100	8760	4560 J
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	28.3 J	21.2 J	12.9	14.5	149 J
7440-48-4	Cobalt	7.1-14	NS	mg/kg	15.8 J	17.9 J	13.1	13.6	34.8 J
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	205 J	142 J	23.7	23.8	116 J
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	32800 J	32300 J	26600	28900	32400 J
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	182 J	180 J	8.9 J	11.5 J	44.4 J
7439-95-4	Magnesium	3190-5190	NS	mg/kg	8310 J	8010 J	7020	4930	4800 J
7439-96-5	Manganese	328-647	460 (L)	mg/kg	324 J	681 J	516	503	762 J
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	0.092 J	0.056 J	0.036 J	0.036 J	0.089 J
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	35.5 J	34.6 J	21.8	22.6	33.2 J
7440-09-7	Potassium	734-1530	NS	mg/kg	1720 J	1190 J	1140	1000	1440 J
7782-49-2	Selenium	ND-0.81	NS	mg/kg	0.65 J	1.5 J	ND	ND	0.83 J
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	ND	ND	ND	ND	0.32 J
7440-23-5	Sodium	71.6-790	NS	mg/kg	146 J	72.3 J	163 J	130 J	193 J
7440-28-0	Thallium	ND-1.5	NS	mg/kg	ND	ND	0.96 J	ND	ND
7440-62-2	Vanadium	14.6-28.4	NS	mg/kg	26.8 J	26.3 J	26	24.4	21.5 J
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	556 J	563 J	67.6	184	668 J

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
H = Human Health Bioaccumulation (TOC Adjusted), (NYSDEC, 1999).
LM = Medium Effects Level (TOC Adjusted), (Long and Morgan, 1990).
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999).
NS = No sediment criteria.
NA / ND = Not analyzed or detected (USACE report does not report these metals).
J = Estimated Concentration
R = Rejected during data validation
N = Presumptive Evidence
Concentration is above NYSDEC Criteria and Upstream Ranges

TABLE 3.36a
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)

					Black Creek - Southern SADVA		West Ditch - Northern SADVA		Black Creek Downstream
Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary				SAMPLE ID:	SD19	SD20	SD14	SD24	SD25
				LAB ID:	C0G200278003	C0G200278004	C0G200278001	C0G200278005	C0G200280001
				DEPTH:	0.2'	0.2'	0.2'	0.2'	0.2'
				SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	SADVA1	SADVA1	SADVA1	SADVA1	SADVA5
				MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		Black Creek Upstream	NYSDEC Sediment	SAMPLED:	7/19/2000	7/19/2000	7/19/2000	7/19/2000	7/19/2000
				VALIDATED:	10/4/2000	10/4/2000	10/4/2000	10/4/2000	10/12/2000
CAS NO.	COMPOUND	Ranges	Criteria	UNITS:					
	VOLATILES								
67-64-1	Acetone	ND-14	NS	ug/kg	ND	ND	ND	ND	3.4 J
74-83-9	Bromomethane	ND	NS	ug/kg	R	R	R	R	R
75-00-3	Chloroethane	ND	NS	ug/kg	R	R	R	R	ND
108-88-3	Toluene	ND-2.4	720 (C)	ug/kg	ND	ND	ND	ND	ND
	Total VOCs			**ug/kg**	**ND**	**ND**	**ND**	**ND**	**3.4**
	SEMIVOLATILES								
106-44-5	4-Methylphenol	ND	7 (C)	ug/kg	ND	ND	ND	ND	ND
117-81-7	bis(2-Ethylhexyl) phthalate	ND	2925 (C)	ug/kg	74 J	55 J	ND	99 J	74 J
132-64-9	Dibenzofuran	ND-50	NS	ug/kg	35 J	ND	ND	ND	ND
	CPAHs								
56-55-3	Benzo(a)anthracene	ND-310	19 (C)	ug/kg	440 J	ND	26 J	110 J	140 J
50-32-8	Benzo(a)pyrene	ND-330	19 (H)	ug/kg	380 J	ND	26 J	ND	160 J
205-99-2	Benzo(b)fluoranthene	ND-440	19 (H)	ug/kg	410 J	44 J	32 J	160 J	170 J
207-08-9	Benzo(k)fluoranthene	ND-360	19 (H)	ug/kg	350 J	ND	24 J	140 J	170 J
218-01-9	Chrysene	ND-730	19 (H)	ug/kg	470 J	46 J	35 J	150 J	180 J
53-70-3	Dibenz(a,h)anthracene	ND	88 (LM)	ug/kg	ND	ND	ND	ND	26 J
193-39-5	Indeno(1,2,3-cd)pyrene	ND-78	19 (H)	ug/kg	92 J	ND	ND	40 J	98 J
	Total CPAHs			**ug/kg**	**2142**	**90**	**143**	**600**	**944**
	NPAHs								
83-32-9	Acenaphthene	ND-92	2058 (C)	ug/kg	98 J	ND	ND	ND	ND
120-12-7	Anthracene	ND-170	1573 (C)	ug/kg	170 J	ND	ND	ND	24 J
191-24-2	Benzo(ghi)perylene	ND-66	NS	ug/kg	88 J	ND	ND	38 J	100 J
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	1100	75 J	63 J	330 J	260 J
91-20-3	Naphthalene	ND-210	441 (C)	ug/kg	ND	ND	ND	ND	ND
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	680	ND	28 J	120 J	120 J
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	560 J	ND	32 J	170 J	260 J
	Total NPAHs		**35000 (LM)**	**ug/kg**	**2696**	**75**	**123**	**658**	**764**
	Total PAHs			**ug/kg**	**4838**	**165**	**266**	**1258**	**1708**
	Total SVOCs			**ug/kg**	**4947**	**220**	**266**	**1357**	**1782**
	PESTICIDES								
319-84-6	alpha-BHC	ND		ug/kg	0.17 J	ND	ND	ND	ND
60-57-1	Dieldrin	ND	1.47 (C)	ug/kg	ND	ND	ND	ND	ND
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	0.93 J	28 J	190	72	2.5
72-20-8	Endrin	ND	59 (C)	ug/kg	ND	ND	ND	ND	ND
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	ND	4.3 JN	5.7 JN	22	2.8
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	ND	9.9 J	93	21	3.6
5103-71-9	alpha-Chlordane	ND	0.44 (C)	ug/kg	ND	2 J	ND	ND	1.1 J
5103-74-2	gamma-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	0.34 JN
	Total Pesticides			**ug/kg**	**1.1**	**44.2**	**288.7**	**115**	**10.34**
	PCBs								
11097-69-1	Aroclor 1254	ND	284 (C)	ug/kg	ND	ND	ND	ND	ND
	Total PCBs			**ug/kg**	**ND**	**ND**	**ND**	**ND**	**ND**

FOOTNOTES: See Next Page

TABLE 3.36a
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary					Black Creek - Southern SADVA		West Ditch - Northern SADVA		Black Creek Downstream
				SAMPLE ID:	SD19	SD20	SD14	SD24	SD25
				LAB ID:	C0G200278003	C0G200278004	C0G200278001	C0G200278005	C0G200280001
				DEPTH:	0.2'	0.2'	0.2'	0.2'	0.2'
				SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	SADVA1	SADVA1	SADVA1	SADVA1	SADVA5
				MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		Black Creek Upstream	NYSDEC Sediment	SAMPLED:	7/19/2000	7/19/2000	7/19/2000	7/19/2000	7/19/2000
				VALIDATED:	10/4/2000	10/4/2000	10/4/2000	10/4/2000	10/12/2000
CAS NO.	COMPOUND	Ranges	Criteria	UNITS:					
	METALS								
7429-90-5	Aluminum	8040-17900	NS	mg/kg	5520	8190 J	14200	11200	8700
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	ND	ND	0.22 J	0.54 J	0.26 J
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	3.3	4 J	7.7	6.2	4.1
7440-39-3	Barium	53.9-141	NS	mg/kg	54.7	137 J	63.6	74.8	41.6
7440-41-7	Beryllium	0.62-0.92	NS	mg/kg	0.36 J	0.64 J	0.83	0.81 J	0.47 J
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	0.35 J	0.57 J	0.39 J	0.43 J	0.63 J
7440-70-2	Calcium	2660-6700	NS	mg/kg	23000	118000 J	3290	3350	17900
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	11.1	14.4 J	18	13.8	19.3
7440-48-4	Cobalt	7.1-14	NS	mg/kg	6.4 J	7.1 J	17	13.4	9.8
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	17.1	24.6 J	28.3	25	25.3
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	17800	18200 J	34200	27600	21700
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	22.6 J	32.5 J	20.1 J	25.3 J	95.5
7439-95-4	Magnesium	3190-5190	NS	mg/kg	4570	48500 J	5810	3470	7490
7439-96-5	Manganese	328-647	460 (L)	mg/kg	597	256 J	810	528	293
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	0.04 J	0.12 J	0.044	0.049 J	0.098
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	13.2	17.2 J	32.4	22.9	19.4
7440-09-7	Potassium	734-1530	NS	mg/kg	548 J	960 J	1340	1040	709 J
7782-49-2	Selenium	ND-0.81	NS	mg/kg	ND	1.1 J	ND	0.41 J	0.33 J
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	ND	ND	ND	ND	ND
7440-23-5	Sodium	71.6-790	NS	mg/kg	158 J	674 J	109 J	134 J	335 J
7440-28-0	Thallium	ND-1.5	NS	mg/kg	ND	ND	0.59 J	ND	ND
7440-62-2	Vanadium	14.6-28.4	NS	mg/kg	10.5	22.6 J	27.2	27.8	19.1
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	72.3	193 J	116	96.3	113

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
H = Human Health Bioaccumulation (TOC Adjusted), (NYSDEC, 1999).
LM = Medium Effects Level (TOC Adjusted), (Long and Morgan, 1990).
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999).
NS = No sediment criteria.
NA / ND = Not analyzed or detected (USACE report does not report these metals).
J = Estimated Concentration
R = Rejected during data validation
N = Presumptive Evidence
Concentration is above NYSDEC Criteria and Upstream Ranges

TABLE 3.36a
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)

					Upstream Samples				
								Dup of SD23	
Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		Black Creek Upstream Ranges	NYSDEC Sediment Criteria	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	SD21 C0H080195001 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD22 C0H080195004 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD23 C0H080195002 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD27 C0H080195003 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD28 (2000) C0J050202003 0.2' STL Pittsburgh SADVA19 SOIL 10/4/2000 12/3/2000
CAS NO.	COMPOUND			UNITS:					
	VOLATILES								
67-64-1	Acetone	ND-14	NS	ug/kg	ND	ND	ND	ND	ND
74-83-9	Bromomethane	ND	NS	ug/kg	R	R	R	R	ND
75-00-3	Chloroethane	ND	NS	ug/kg	ND	ND	ND	ND	ND
108-88-3	Toluene	ND-2.4	720 (C)	ug/kg	2.4 J	ND	ND	ND	ND
	Total VOCs			**ug/kg**	**2.4**	**ND**	**ND**	**ND**	**ND**
	SEMIVOLATILES								
106-44-5	4-Methylphenol	ND	7 (C)	ug/kg	ND	150 J	210 J	ND	190 J
117-81-7	bis(2-Ethylhexyl) phthalate	ND	2925 (C)	ug/kg	ND	ND	ND	ND	ND
132-64-9	Dibenzofuran	ND-50	NS	ug/kg	ND	ND	ND	ND	50 J
	CPAHs								
56-55-3	Benzo(a)anthracene	ND-310	19 (C)	ug/kg	ND	ND	ND	ND	310 J
50-32-8	Benzo(a)pyrene	ND-330	19 (H)	ug/kg	ND	ND	ND	ND	330 J
205-99-2	Benzo(b)fluoranthene	ND-440	19 (H)	ug/kg	ND	ND	ND	ND	440 J
207-08-9	Benzo(k)fluoranthene	ND-360	19 (H)	ug/kg	ND	ND	ND	ND	360 J
218-01-9	Chrysene	ND-730	19 (H)	ug/kg	ND	ND	ND	ND	730 J
53-70-3	Dibenz(a,h)anthracene	ND	88 (LM)	ug/kg	ND	ND	ND	ND	ND
193-39-5	Indeno(1,2,3-cd)pyrene	ND-78	19 (H)	ug/kg	ND	ND	ND	ND	78 J
	Total CPAHs			**ug/kg**	**ND**	**ND**	**ND**	**ND**	**2248**
	NPAHs								
83-32-9	Acenaphthene	ND-92	2058 (C)	ug/kg	ND	ND	ND	ND	92 J
120-12-7	Anthracene	ND-170	1573 (C)	ug/kg	ND	ND	ND	ND	170 J
191-24-2	Benzo(ghi)perylene	ND-66	NS	ug/kg	ND	ND	ND	ND	66 J
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	ND	ND	ND	ND	1200 J
91-20-3	Naphthalene	ND-210	441 (C)	ug/kg	ND	ND	ND	ND	210 J
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	ND	ND	ND	ND	400 J
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	ND	ND	ND	ND	920 J
	Total NPAHs		**35000 (LM)**	**ug/kg**	**ND**	**ND**	**ND**	**ND**	**3058**
	Total PAHs			**ug/kg**	**ND**	**ND**	**ND**	**ND**	**5306**
	Total SVOCs			**ug/kg**	**ND**	**150**	**210**	**ND**	**5546**
	PESTICIDES								
319-84-6	alpha-BHC	ND		ug/kg	ND	ND	ND	ND	ND
60-57-1	Dieldrin	ND	1.47 (C)	ug/kg	ND	ND	ND	ND	ND
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	0.13 JN	0.23 JN	0.15 JN	0.18 JN	ND
72-20-8	Endrin	ND	59 (C)	ug/kg	ND	ND	ND	ND	ND
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	ND	ND	ND	ND	ND
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	ND	ND	ND	ND	ND
5103-71-9	alpha-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	ND
5103-74-2	gamma-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	ND
	Total Pesticides			**ug/kg**	**0.13**	**0.23**	**0.15**	**0.18**	**ND**
	PCBs								
11097-69-1	Aroclor 1254	ND	284 (C)	ug/kg	ND	ND	ND	ND	ND
	Total PCBs			**ug/kg**	**ND**	**ND**	**ND**	**ND**	**ND**

FOOTNOTES: See Next Page

TABLE 3.36a
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		Black Creek Upstream Ranges	NYSDEC Sediment Criteria	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED: UNITS:	Upstream Samples SD21 C0H080195001 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD22 C0H080195004 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD23 C0H080195002 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	Dup of SD23 SD27 C0H080195003 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD28 (2000) C0J050202003 0.2' STL Pittsburgh SADVA19 SOIL 10/4/2000 12/3/2000
CAS NO.	COMPOUND								
	METALS								
7429-90-5	Aluminum	8040-17900	NS	mg/kg	12000	17900	14000	16600	9830 J
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	0.24 J	0.41 J	0.44 J	0.31 J	0.42 J
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	3.6	3.6	3.1	2.7	4.5
7440-39-3	Barium	53.9-141	NS	mg/kg	101	141	119	130	71.9
7440-41-7	Beryllium	0.62-0.92	NS	mg/kg	0.67	0.92	0.79 J	0.89 J	0.62 J
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	0.39 J	0.75 J	0.48 J	0.52 J	0.4 J
7440-70-2	Calcium	2660-6700	NS	mg/kg	4370	5630	4810	4850	6700 J
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	15.4 J	22 J	15.3 J	17.2 J	16.4 J
7440-48-4	Cobalt	7.1-14	NS	mg/kg	10	14	7.4 J	8.5 J	11 J
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	22.2	27.7	17.2	19.6	20.6 J
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	20200	25400	18300	18800	24900 J
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	15.8 J	18.7 J	20.9 J	24.4 J	20 J
7439-95-4	Magnesium	3190-5190	NS	mg/kg	3930	5190	3240	3630	4150 J
7439-96-5	Manganese	328-647	460 (L)	mg/kg	328	647	386	314	624 J
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	0.067	0.091	0.079	0.083	0.06 J
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	21 J	24.5 J	17.2 J	18 J	20.5 J
7440-09-7	Potassium	734-1530	NS	mg/kg	900 J	1530 J	891 J	927 J	734 J
7782-49-2	Selenium	ND-0.81	NS	mg/kg	0.53 J	0.72 J	0.81 J	0.71 J	0.67 J
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	0.16 J	0.5 J	ND	ND	ND
7440-23-5	Sodium	71.6-790	NS	mg/kg	268 J	186 J	255 J	154 J	790 J
7440-28-0	Thallium	ND-1.5	NS	mg/kg	ND	1.5 J	1.3 J	1.3 J	ND
7440-62-2	Vanadium	14.6-28.4	NS	mg/kg	19.2 J	28.4 J	24.4 J	27 J	18.2 J
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	77.3	118	72.3	80	98.7 J

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
H = Human Health Bioaccumulation (TOC Adjusted), (NYSDEC, 1999).
LM = Medium Effects Level (TOC Adjusted), (Long and Morgan, 1990).
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999).
NS = No sediment criteria.
NA / ND = Not analyzed or detected (USACE report does not report these metals).
J = Estimated Concentration
R = Rejected during data validation
N = Presumptive Evidence
Concentration is above NYSDEC Criteria and Upstream Ranges

TABLE 3.36b
SADVA AOC 8 SEDIMENT RESULTS (2004)

					BLACK CREEK - EAST SIDE		WESTERN DITCH		
USACE-Schenectady Depot				Sample ID:	SD07-1-1.5	SD09-1-1.5	SD12-1-1.5	SD14-0.5-1	SD15-1-1.5
Validated Sediment Analytical Data				Lab Sample ID	C4G150227009	C4G150227008	C4G210269012	C4G220161002	C4G220161001
AOC 8				Depth:	1-1.5'	1-1.5'	1-1.5	0.5-1'	1-1.5'
Detected Compound Summary				Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	C4G150227	C4G150227	C4G210269	C4G220161	C4G220161
				Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
		Black Creek	NYSDEC	Sampled:	7/14/2004	7/14/2004	7/20/2004	7/20/2004	7/20/2004
		Upstream	Sediment	Validated:	9/17/2004	9/17/2004	9/19/2004	9/19/2004	9/19/2004
CAS NO.	COMPOUND	Ranges	Criteria	UNITS:					
	SEMIVOLATILES								
117-81-7	bis(2-Ethylhexyl) phthalate	ND	2925 (C)	ug/kg	ND	ND	ND	ND	ND
86-74-8	Carbazole	ND	NS	ug/kg	ND	ND	ND	ND	ND
84-74-2	Di-n-butyl phthalate	ND	NS	ug/kg	ND	ND	41 J	ND	ND
132-64-9	Dibenzofuran	ND-50	NS	ug/kg	ND	ND	ND	ND	ND
108-95-2	Phenol			ug/kg	ND	ND	ND	ND	ND
	CPAHs								
56-55-3	Benzo(a)anthracene	ND-310	19 (C)	ug/kg	ND	ND	ND	ND	ND
50-32-8	Benzo(a)pyrene	ND-330	19 (H)	ug/kg	ND	ND	ND	ND	ND
205-99-2	Benzo(b)fluoranthene	ND-440	19 (H)	ug/kg	ND	ND	ND	ND	ND
207-08-9	Benzo(k)fluoranthene	ND-360	19 (H)	ug/kg	ND	ND	ND	ND	ND
218-01-9	Chrysene	ND-730	19 (H)	ug/kg	ND	ND	ND	ND	ND
53-70-3	Dibenz(a,h)anthracene	ND	88 (LM)	ug/kg	ND	ND	ND	ND	ND
193-39-5	Indeno(1,2,3-cd)pyrene	ND-78	19 (H)	ug/kg	ND	ND	ND	ND	ND
	Total CPAHs				**ND**	**ND**	**ND**	**ND**	**ND**
	NPAHs								
83-32-9	Acenaphthene	ND-92	2058 (C)	ug/kg	ND	ND	ND	ND	ND
120-12-7	Anthracene	ND-170	1573 (C)	ug/kg	ND	ND	ND	ND	ND
191-24-2	Benzo(ghi)perylene	ND-66	1573 (C)	ug/kg	ND	ND	ND	ND	ND
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	ND	42 J	ND	ND	ND
86-73-7	Fluorene	ND	14994 (C)	ug/kg	ND	ND	ND	ND	ND
91-20-3	Naphthalene	ND-210	441 (C)	ug/kg	ND	ND	ND	ND	ND
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	ND	ND	ND	ND	ND
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	ND	ND	ND	ND	ND
	Total NPAHs				**ND**	**42**	**ND**	**ND**	**ND**
	Total PAHs		**35000 (LM)**		**ND**	**42**	**ND**	**ND**	**ND**
	Total SVOCs				**ND**	**42**	**41**	**ND**	**ND**

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
U = Analyte not detected; the number is the analytical reporting limit.
J = Estimated Value
ND = Not Detected
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999)
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
NS = No Standard
N = Presumptive Evidence
- concentration above NYSDEC Sediment criteria and upstream range.

TABLE 3.36b
SADVA AOC 8 SEDIMENT RESULTS (2004)

					BLACK CREEK - EAST SIDE		WESTERN DITCH		
USACE-Schenectady Depot				Sample ID:	SD07-1-1.5	SD09-1-1.5	SD12-1-1.5	SD14-0.5-1	SD15-1-1.5
Validated Sediment Analytical Data				Lab Sample ID	C4G150227009	C4G150227008	C4G210269012	C4G220161002	C4G220161001
AOC 8				Depth:	1-1.5'	1-1.5'	1-1.5	0.5-1'	1-1.5'
Detected Compound Summary				Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	C4G150227	C4G150227	C4G210269	C4G220161	C4G220161
				Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
		Black Creek	NYSDEC	Sampled:	7/14/2004	7/14/2004	7/20/2004	7/20/2004	7/20/2004
		Upstream	Sediment	Validated:	9/17/2004	9/17/2004	9/19/2004	9/19/2004	9/19/2004
CAS NO.	COMPOUND	Ranges	Criteria	UNITS:					
	PESTICIDES								
319-85-7	beta-BHC	ND	NS	ug/kg	ND	ND	ND	ND	0.36 JN
5103-71-9	alpha-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	ND
5103-74-2	gamma-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	ND
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	0.66 J	1.7 JN	1.2 J	11 J	14
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	ND	0.9 JN	1.5 J	79	26
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	0.24 J	1.3 J	0.76 JN	44	8.4
60-57-1	Dieldrin	ND	1.47 (C)	ug/kg	ND	ND	ND	ND	0.26 J
33213-65-9	Endosulfan II	ND	NS	ug/kg	ND	ND	ND	ND	1.1 J
1031-07-8	Endosulfan sulfate	ND	NS	ug/kg	ND	ND	ND	ND	ND
72-20-8	Endrin	ND	59 (C)	ug/kg	ND	ND	ND	ND	ND
7421-93-4	Endrin aldehyde	ND	NS	ug/kg	ND	ND	ND	ND	ND
1024-57-3	Heptachlor epoxide	ND	1.47 (C)	ug/kg	ND	ND	ND	ND	ND
	Total Pesticides				**0.9**	**3.9**	**3.46**	**134**	**49.76**
	PCBS								
	None Detected				NA	NA	NA	NA	NA
	METALS								
7429-90-5	Aluminum	8040-17900	NS	mg/kg	7720	12600	8080	12000	11700
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	ND	0.44 J	ND	ND	ND
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	4.6	22.5	4.4	6.3	6.5
7440-39-3	Barium	53.9-141	NS	mg/kg	28.6	1030	59.5	61.2	60
7440-41-7	Beryllium	0.62-0.92	NS	mg/kg	0.75	1	0.83	0.97	0.9
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	ND	0.24 J	0.23 J	0.27 J	0.33 J
7440-70-2	Calcium	2660-6700	NS	mg/kg	2290	4740	35300	2430	8400
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	11.9	21.8	12.7	16.5	19.8
7440-48-4	Cobalt	7.1-14	NS	mg/kg	8.5	14.1	7	13.2	11.5
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	24.1	22.6	20.7	28	55.7
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	19600	61100	18200	26600	27500
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	7.3	17	11.2	16.6	30.3
7439-95-4	Magnesium	3190-5190	NS	mg/kg	2960	5210	6580	4330	6570
7439-96-5	Manganese	328-647	460 (L)	mg/kg	134	10100	329	739	357
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	0.022 J	ND	0.035 J	0.03 J	0.031 J
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	18	31.4	15.7	26.7	28.5
7440-09-7	Potassium	734-1530	NS	mg/kg	865	1270	759	1110	1400
7782-49-2	Selenium	ND-0.81	NS	mg/kg	0.34 J	ND	ND	ND	ND
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	ND	0.58 J	0.055 J	0.13 J	0.12 J
7440-23-5	Sodium	71.6-790	NS	mg/kg	166 J	95.1 J	166 J	125 J	102 J
7440-28-0	Thallium	ND-1.5	NS	mg/kg	ND	ND	ND	ND	ND
7440-62-2	Vanadium	14.6-28.4	NS	mg/kg	21.5	25.2	20.7	24.6	22.5
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	45.5	87	42.1	102	150

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
J = Estimated Value
ND = Not Detected
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999)
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
NS = No Standard
N = Presumptive Evidence
- concentration above NYSDEC Sediment criteria and background.

TABLE 3.36b
SADVA AOC 8 SEDIMENT RESULTS (2004)

					BLACK CREEK - EAST SIDE OF SADVA		UPSTREAM - BLACK CREEK		WESTERN DITCH
USACE-Schenectady Depot				Sample ID:	SD17-1-1.5	SD18-1-1.5	SD28-0-0.5 (2004)	SD28-1-1.5 (2004)	SD29-1-1.5
Validated Sediment Analytical Data				Lab Sample ID	C4G210269013	C4G170276005	C4G150227006	C4G150227007	C4G170276006
AOC 8				Depth:	1-1.5	1-1.5'	0-0.5'	1-1.5'	1-1.5'
Detected Compound Summary				Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	C4G210269	C4G170276	C4G150227	C4G150227	C4G170276
				Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
		Black Creek	NYSDEC	Sampled:	7/20/2004	7/16/2004	7/14/2004	7/14/2004	7/16/2004
		Upstream	Sediment	Validated:	9/19/2004	9/18/2004	9/17/2004	9/17/2004	9/18/2004
CAS NO.	COMPOUND	Ranges	Criteria	UNITS:					
	SEMIVOLATILES								
117-81-7	bis(2-Ethylhexyl) phthalate	ND	2925 (C)	ug/kg	ND	ND	ND	ND	ND
86-74-8	Carbazole	ND	NS	ug/kg	ND	ND	ND	ND	ND
84-74-2	Di-n-butyl phthalate	ND	NS	ug/kg	ND	ND	ND	ND	ND
132-64-9	Dibenzofuran	ND-50	NS	ug/kg	ND	ND	ND	ND	ND
108-95-2	Phenol			ug/kg	ND	ND	ND	ND	ND
	CPAHs								
56-55-3	Benzo(a)anthracene	ND-310	19 (C)	ug/kg	ND	ND	ND	ND	ND
50-32-8	Benzo(a)pyrene	ND-330	19 (H)	ug/kg	ND	ND	ND	ND	ND
205-99-2	Benzo(b)fluoranthene	ND-440	19 (H)	ug/kg	ND	ND	ND	ND	ND
207-08-9	Benzo(k)fluoranthene	ND-360	19 (H)	ug/kg	ND	ND	ND	ND	ND
218-01-9	Chrysene	ND-730	19 (H)	ug/kg	ND	ND	44 J	ND	ND
53-70-3	Dibenz(a,h)anthracene	ND	88 (LM)	ug/kg	ND	ND	ND	ND	ND
193-39-5	Indeno(1,2,3-cd)pyrene	ND-78	19 (H)	ug/kg	ND	ND	ND	ND	ND
	Total CPAHs				**ND**	**ND**	**44**	**ND**	**ND**
	NPAHs								
83-32-9	Acenaphthene	ND-92	2058 (C)	ug/kg	ND	ND	ND	ND	ND
120-12-7	Anthracene	ND-170	1573 (C)	ug/kg	ND	ND	ND	ND	ND
191-24-2	Benzo(ghi)perylene	ND-66	1573 (C)	ug/kg	ND	ND	ND	ND	ND
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	ND	ND	ND	ND	ND
86-73-7	Fluorene	ND	14994 (C)	ug/kg	ND	ND	ND	ND	ND
91-20-3	Naphthalene	ND-210	441 (C)	ug/kg	ND	ND	ND	ND	ND
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	ND	ND	ND	ND	ND
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	ND	ND	ND	ND	ND
	Total NPAHs				**ND**	**ND**	**ND**	**ND**	**ND**
	Total PAHs		**35000 (LM)**		**ND**	**ND**	**44**	**ND**	**ND**
	Total SVOCs				**ND**	**ND**	**44**	**ND**	**ND**

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
U = Analyte not detected; the number is the analytical reporting limit.
J = Estimated Value
ND = Not Detected
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999)
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
NS = No Standard
N = Presumptive Evidence
- concentration above NYSDEC Sediment criteria and upstream range.

TABLE 3.36b
SADVA AOC 8 SEDIMENT RESULTS (2004)

					BLACK CREEK - EAST SIDE OF SADVA		UPSTREAM - BLACK CREEK		WESTERN DITCH
USACE-Schenectady Depot				Sample ID:	SD17-1-1.5	SD18-1-1.5	SD28-0-0.5 (2004)	SD28-1-1.5 (2004)	SD29-1-1.5
Validated Sediment Analytical Data				Lab Sample ID	C4G210269013	C4G170276005	C4G150227006	C4G150227007	C4G170276006
AOC 8				Depth:	1-1.5	1-1.5'	0-0.5'	1-1.5'	1-1.5'
Detected Compound Summary				Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	C4G210269	C4G170276	C4G150227	C4G150227	C4G170276
				Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
		Black Creek	NYSDEC	Sampled:	7/20/2004	7/16/2004	7/14/2004	7/14/2004	7/16/2004
		Upstream	Sediment	Validated:	9/19/2004	9/18/2004	9/17/2004	9/17/2004	9/18/2004
CAS NO.	COMPOUND	Ranges	Criteria	UNITS:					
	PESTICIDES								
319-85-7	beta-BHC	ND	NS	ug/kg	ND	ND	ND	ND	ND
5103-71-9	alpha-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	ND
5103-74-2	gamma-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	ND
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	0.29 J	ND	ND	0.21 JN	ND
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	ND	ND	ND	ND	ND
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	ND	ND	0.35 J	0.62 J	ND
60-57-1	Dieldrin	ND	1.47 (C)	ug/kg	ND	ND	ND	ND	ND
33213-65-9	Endosulfan II	ND	NS	ug/kg	ND	ND	ND	ND	ND
1031-07-8	Endosulfan sulfate	ND	NS	ug/kg	ND	ND	ND	ND	ND
72-20-8	Endrin	ND	59 (C)	ug/kg	ND	ND	ND	ND	ND
7421-93-4	Endrin aldehyde	ND	NS	ug/kg	ND	ND	ND	ND	ND
1024-57-3	Heptachlor epoxide	ND	1.47 (C)	ug/kg	ND	ND	ND	ND	ND
	Total Pesticides				**0.29**	**ND**	**0.35**	**0.62**	**ND**
	PCBS								
	None Detected				NA	NA	NA	NA	ND
	METALS								
7429-90-5	Aluminum	8040-17900	NS	mg/kg	9690	13300	8040	9660	12600
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	ND	ND	ND	ND	ND
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	5.3	3.2	5.1	4.2	7.6
7440-39-3	Barium	53.9-141	NS	mg/kg	47.1	79.7	53.9	48.2	68.5
7440-41-7	Beryllium	0.62-0.92	NS	mg/kg	0.86	1.3	0.7	0.69	0.87
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	0.23 J	ND	ND	0.19 J	0.23 J
7440-70-2	Calcium	2660-6700	NS	mg/kg	14000	3510	2660	35200	24300
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	13.4	18.9	11.2	16.1	21
7440-48-4	Cobalt	7.1-14	NS	mg/kg	9.1	13.6	7.1	8.7	11.8
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	24.1	31.4 J	13	25	39.2 J
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	23400	29200	20800	21500	31000
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	9.3	10.5	7.8	9.1	13.1
7439-95-4	Magnesium	3190-5190	NS	mg/kg	5590	4620	3190	17100	9570
7439-96-5	Manganese	328-647	460 (L)	mg/kg	310	207	363	528	518
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	0.019 J	0.024 J	0.027 J	0.032 J	ND
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	20.5	29	15.6	21.8	31.2
7440-09-7	Potassium	734-1530	NS	mg/kg	817	1270	901	1150	1740
7782-49-2	Selenium	ND-0.81	NS	mg/kg	ND	ND	ND	ND	ND
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	0.094 J	0.046 J	0.075 J	0.079 J	0.17 J
7440-23-5	Sodium	71.6-790	NS	mg/kg	111 J	148 J	71.6 J	89.1 J	138 J
7440-28-0	Thallium	ND-1.5	NS	mg/kg	ND	ND	ND	ND	ND
7440-62-2	Vanadium	14.6-28.4	NS	mg/kg	20.8	34.6	14.6	18.5	24.8
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	59.6	70.2	47.7	73.5	85.9

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
J = Estimated Value
ND = Not Detected
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999)
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
NS = No Standard
N = Presumptive Evidence
- concentration above NYSDEC Sediment criteria and background.

TABLE 3.36b
SADVA AOC 8 SEDIMENT RESULTS (2004)

					BLACK CREEK DAM	BLACK CREEK - NEAR ENTRANCE TO INDUSTRIAL PARK			
USACE-Schenectady Depot				Sample ID:	SD30-1-1.5	SD31-0-0.5	SD31-1-1.5	SD32-0-0.5	SD32-1-1.5
Validated Sediment Analytical Data				Lab Sample ID	C4G150227001	C4G150227002	C4G150227003	C4G150227004	C4G150227005
AOC 8				Depth:	1-1.5'	0-0.5'	1-1.5'	0-0.5'	1-1.5'
Detected Compound Summary				Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	C4G150227	C4G150227	C4G150227	C4G150227	C4G150227
				Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
		Black Creek	NYSDEC	Sampled:	7/14/2004	7/14/2004	7/14/2004	7/14/2004	7/14/2004
		Upstream	Sediment	Validated:	9/17/2004	9/17/2004	9/17/2004	9/17/2004	9/17/2004
CAS NO.	COMPOUND	Ranges	Criteria	UNITS:					
	SEMIVOLATILES								
117-81-7	bis(2-Ethylhexyl) phthalate	ND	2925 (C)	ug/kg	ND	ND	ND	240 J	58 J
86-74-8	Carbazole	ND	NS	ug/kg	ND	ND	ND	650 J	44 J
84-74-2	Di-n-butyl phthalate	ND	NS	ug/kg	ND	ND	ND	ND	ND
132-64-9	Dibenzofuran	ND-50	NS	ug/kg	ND	ND	ND	110 J	ND
108-95-2	Phenol			ug/kg	ND	ND	ND	ND	ND
	CPAHs								
56-55-3	Benzo(a)anthracene	ND-310	19 (C)	ug/kg	ND	490 J	ND	2200	150 J
50-32-8	Benzo(a)pyrene	ND-330	19 (H)	ug/kg	ND	480 J	ND	2900	140 J
205-99-2	Benzo(b)fluoranthene	ND-440	19 (H)	ug/kg	ND	520 J	ND	3700	170 J
207-08-9	Benzo(k)fluoranthene	ND-360	19 (H)	ug/kg	ND	220 J	ND	1300	64 J
218-01-9	Chrysene	ND-730	19 (H)	ug/kg	ND	660 J	ND	3000	190 J
53-70-3	Dibenz(a,h)anthracene	ND	88 (LM)	ug/kg	ND	96 J	ND	270 J	ND
193-39-5	Indeno(1,2,3-cd)pyrene	ND-78	19 (H)	ug/kg	ND	330 J	ND	1200	62 J
	Total CPAHs				**ND**	**2796**	**ND**	**14570**	**776**
	NPAHs								
83-32-9	Acenaphthene	ND-92	2058 (C)	ug/kg	ND	ND	ND	160 J	ND
120-12-7	Anthracene	ND-170	1573 (C)	ug/kg	ND	ND	ND	670 J	54 J
191-24-2	Benzo(ghi)perylene	ND-66	1573 (C)	ug/kg	ND	420 J	ND	1300	86 J
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	ND	1100 J	ND	8100	480
86-73-7	Fluorene	ND	14994 (C)	ug/kg	ND	ND	ND	230 J	ND
91-20-3	Naphthalene	ND-210	441 (C)	ug/kg	ND	ND	ND	ND	53 J
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	ND	500 J	ND	5500	240 J
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	ND	800 J	ND	5500	230 J
	Total NPAHs				**ND**	**2820**	**ND**	**21460**	**1143**
	Total PAHs		**35000 (LM)**		**ND**	**5616**	**ND**	**36030**	**1919**
	Total SVOCs				**ND**	**5616**	**ND**	**37030**	**2021**

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
U = Analyte not detected; the number is the analytical reporting limit.
J = Estimated Value
ND = Not Detected
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999)
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
NS = No Standard
N = Presumptive Evidence
- concentration above NYSDEC Sediment criteria and upstream range.

TABLE 3.36b
SADVA AOC 8 SEDIMENT RESULTS (2004)

					BLACK CREEK DAM	BLACK CREEK - NEAR ENTRANCE TO INDUSTRIAL PARK			
USACE-Schenectady Depot				Sample ID:	SD30-1-1.5	SD31-0-0.5	SD31-1-1.5	SD32-0-0.5	SD32-1-1.5
Validated Sediment Analytical Data				Lab Sample ID	C4G150227001	C4G150227002	C4G150227003	C4G150227004	C4G150227005
AOC 8				Depth:	1-1.5'	0-0.5'	1-1.5'	0-0.5'	1-1.5'
Detected Compound Summary				Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	C4G150227	C4G150227	C4G150227	C4G150227	C4G150227
				Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
		Black Creek	NYSDEC	Sampled:	7/14/2004	7/14/2004	7/14/2004	7/14/2004	7/14/2004
		Upstream	Sediment	Validated:	9/17/2004	9/17/2004	9/17/2004	9/17/2004	9/17/2004
CAS NO.	COMPOUND	Ranges	Criteria	UNITS:					
	PESTICIDES								
319-85-7	beta-BHC	ND	NS	ug/kg	ND	ND	ND	ND	ND
5103-71-9	alpha-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	0.57 JN
5103-74-2	gamma-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	0.28 JN
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	2.4	9.5	0.6 J	6.5 JN	9.8
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	0.51 JN	12 J	0.33 J	ND	5.7 J
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	ND	8.3 J	ND	ND	ND
60-57-1	Dieldrin	ND	1.47 (C)	ug/kg	ND	ND	ND	ND	0.35 JN
33213-65-9	Endosulfan II	ND	NS	ug/kg	ND	ND	ND	1.1 JN	ND
1031-07-8	Endosulfan sulfate	ND	NS	ug/kg	ND	ND	ND	2.4 JN	ND
72-20-8	Endrin	ND	59 (C)	ug/kg	ND	0.59 J	ND	ND	0.21 JN
7421-93-4	Endrin aldehyde	ND	NS	ug/kg	ND	ND	ND	ND	1.4 J
1024-57-3	Heptachlor epoxide	ND	1.47 (C)	ug/kg	ND	ND	ND	0.5 J	ND
	Total Pesticides				**2.91**	**30.39**	**0.93**	**10.5**	**18.31**
	PCBS								
	None Detected				NA	NA	NA	NA	NA
	METALS								
7429-90-5	Aluminum	8040-17900	NS	mg/kg	14900	12000	13600	8650	10300
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	ND	0.66 J	ND	ND	ND
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	6.4	5.2	8.1	6.6	6.5
7440-39-3	Barium	53.9-141	NS	mg/kg	65.8	63.5	131	37.2	69.5
7440-41-7	Beryllium	0.62-0.92	NS	mg/kg	0.99	0.89	1	0.65	0.88
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	0.19 J	0.51 J	0.09 J	0.18 J	0.34 J
7440-70-2	Calcium	2660-6700	NS	mg/kg	11400	20000	2410	22200	6560
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	22	25.1	21.7	17.2	19
7440-48-4	Cobalt	7.1-14	NS	mg/kg	13.2	11	13.5	9.5	11.1
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	35.6	39.5	36.5	24	24.9
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	30600	26800	34500	24200	27500
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	20.8	90.8	18.4	32.9	21.7
7439-95-4	Magnesium	3190-5190	NS	mg/kg	7560	10600	6040	12400	6260
7439-96-5	Manganese	328-647	460 (L)	mg/kg	383	421	327	415	489
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	0.059	0.024 J	0.016 J	0.047	0.044
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	28.4	26.3	31.6	21.7	28.4
7440-09-7	Potassium	734-1530	NS	mg/kg	1280	1370	1650	957	1140
7782-49-2	Selenium	ND-0.81	NS	mg/kg	ND	0.56 J	ND	ND	ND
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	0.087 J	0.13 J	0.1 J	0.2 J	0.077 J
7440-23-5	Sodium	71.6-790	NS	mg/kg	223 J	191 J	99.6 J	111 J	93.4 J
7440-28-0	Thallium	ND-1.5	NS	mg/kg	0.58 J	ND	ND	ND	ND
7440-62-2	Vanadium	14.6-28.4	NS	mg/kg	24.7	25.1	25.6	18.8	24.4
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	86.6	165	80.1	163	86.2

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
J = Estimated Value
ND = Not Detected
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999)
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
NS = No Standard
N = Presumptive Evidence
- concentration above NYSDEC Sediment criteria and background.

APPENDIX B
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)
AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary							Ditch Leading From AOC 5				Southern Ditch Near AOC 5	
		NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	PSED001 C5J200220001 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	PSED002 C5J200220002 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	PSED003 C5J200220003 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	PSED004 C5J200220004 0-6" STL Pittsburgh C5J200220 SOIL 10/19/2005 12/19/2005	SD12 COH180273-004 0-0.2 STL Pittsburgh SADVA12 Soil 8/17/2000 9/28/2000	SD26 COG200286-001 0-0.2 STL Pittsburgh SADVA4 Soil 7/19/2000 9/27/2000
CAS NO.	COMPOUND					UNITS:						
	VOLATILES											
67-64-1	Acetone	50	100,000	1,000,000	ND-14	ug/kg	NA	NA	NA	NA	NA	NA
74-83-9	Bromomethane	NC	NC	NC	ND	ug/kg	NA	NA	NA	NA	NA	NA
75-00-3	Chloroethane	NC	NC	NC	ND	ug/kg	NA	NA	NA	NA	NA	NA
108-88-3	Toluene	700	100,000	1,000,000	ND-2.4	ug/kg	NA	NA	NA	NA	NA	NA
	Total VOCs					**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	SEMIVOLATILES											
106-44-5	4-Methylphenol	NC	NC	NC	ND	ug/kg	NA	NA	NA	NA	NA	NA
117-81-7	bis(2-Ethylhexyl) phthalate	NC	NC	NC	ND	ug/kg	NA	NA	NA	NA	NA	NA
132-64-9	Dibenzofuran	NC	NC	NC	ND-50	ug/kg	NA	NA	NA	NA	NA	NA
	CPAHs						NA	NA	NA	NA	NA	NA
56-55-3	Benzo(a)anthracene	1,000	1,000	11,000	ND-310	ug/kg	NA	NA	NA	NA	NA	NA
50-32-8	Benzo(a)pyrene	1,000	1,000	1,100	ND-330	ug/kg	NA	NA	NA	NA	NA	NA
205-99-2	Benzo(b)fluoranthene	1,000	1,000	11,000	ND-440	ug/kg	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	800	1,000	110,000	ND-360	ug/kg	NA	NA	NA	NA	NA	NA
218-01-9	Chrysene	1,000	1,000	110,000	ND-730	ug/kg	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz(a,h)anthracene	330	330	1,100	ND	ug/kg	NA	NA	NA	NA	NA	NA
193-39-5	Indeno(1,2,3-cd)pyrene	500	500	11,000	ND-78	ug/kg	NA	NA	NA	NA	NA	NA
	Total CPAHs					**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	NPAHs											
83-32-9	Acenaphthene	20,000	100,000	1,000,000	ND-92	ug/kg	NA	NA	NA	NA	NA	NA
120-12-7	Anthracene	100,000	100,000	1,000,000	ND-170	ug/kg	NA	NA	NA	NA	NA	NA
191-24-2	Benzo(ghi)perylene	100,000	100,000	1,000,000	ND-66	ug/kg	NA	NA	NA	NA	NA	NA
206-44-0	Fluoranthene	100,000	100,000	1,000,000	ND-1200	ug/kg	NA	NA	NA	NA	NA	NA
91-20-3	Naphthalene	12,000	100,000	1,000,000	ND-210	ug/kg	NA	NA	NA	NA	NA	NA
85-01-8	Phenanthrene	100,000	100,000	1,000,000	ND-400	ug/kg	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	100,000	100,000	1,000,000	ND-920	ug/kg	NA	NA	NA	NA	NA	NA
	Total NPAHs					**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	Total PAHs					**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	Total SVOCs					**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	PESTICIDES											
319-84-6	alpha-BHC	20	97	6800	ND	ug/kg	NA	NA	NA	NA	NA	NA
60-57-1	Dieldrin	5	39	2800	ND	ug/kg	NA	NA	NA	NA	NA	NA
72-55-9	4,4'-DDE	3.3	1,800	120000	ND-0.23	ug/kg	NA	NA	NA	NA	NA	NA
72-20-8	Endrin	14	2,200	410000	ND	ug/kg	NA	NA	NA	NA	NA	NA
72-54-8	4,4'-DDD	3.3	2,600	180000	ND	ug/kg	NA	NA	NA	NA	NA	NA
50-29-3	4,4'-DDT	3.3	1,700	94000	ND	ug/kg	NA	NA	NA	NA	NA	NA
5103-71-9	alpha-Chlordane	94	910	47000	ND	ug/kg	NA	NA	NA	NA	NA	NA
5103-74-2	gamma-Chlordane	NC	NC	NC	ND	ug/kg	NA	NA	NA	NA	NA	NA
	Total Pesticides					**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	PCBs											
11097-69-1	Aroclor 1254	100	1000	25000	ND	ug/kg	NA	NA	NA	NA	NA	NA
	Total PCBs	**100**	**1000**	**25000**		**ug/kg**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

FOOTNOTES: See Next Page

APPENDIX B
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)
AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	Ditch Leading From AOC 5				Southern Ditch Near AOC 5	
							PSED001	PSED002	PSED003	PSED004	SD12	SD26
							C5J200220001	C5J200220002	C5J200220003	C5J200220004	COH180273-004	COG200286-001
							0-6"	0-6"	0-6"	0-6"	0-0.2	0-0.2
							STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
							C5J200220	C5J200220	C5J200220	C5J200220	SADVA12	SADVA4
							SOIL	SOIL	SOIL	SOIL	Soil	Soil
							10/19/2005	10/19/2005	10/19/2005	10/19/2005	8/17/2000	7/19/2000
							12/19/2005	12/19/2005	12/19/2005	12/19/2005	9/28/2000	9/27/2000
CAS NO.	COMPOUND					UNITS:						
	METALS											
7429-90-5	Aluminum	NC	NC	NC	8040-17900	mg/kg	11200	12700	15000	13700	10000	14800
7440-36-0	Antimony	NC	NC	NC	ND-0.44	mg/kg	ND	ND	ND	ND	ND	ND
7440-38-2	Arsenic	13	16	16	3.1-5.1	mg/kg	10.6	10.3	8.6	13	7.3	6.2
7440-39-3	Barium	350	350	10,000	53.9-141	mg/kg	65.5	55.3	57.5	72.9	47.4 J	84
7440-41-7	Beryllium	7.2	14	2,700	0.62-0.92	mg/kg	0.81	1	1.1	1	0.55 J	0.9 J
7440-43-9	Cadmium	2.5	2.5	60	ND-0.75	mg/kg	0.37 J	0.15 J	0.39 J	0.18 J	0.47 J	0.34 J
7440-70-2	Calcium	NC	NC	NC	2660-6700	mg/kg	31800	2860	4840	3260	52200	4760
7440-47-3	Chromium	30 (TRIVALENT)	36	6,800	11.2-22	mg/kg	44.2	26.7	28.4	26.8	18.9 J	22.3
7440-48-4	Cobalt	NC	NC	NC	7.1-14	mg/kg	12.7	13	14	15.7	12.1	15.8
7440-50-8	Copper	50	270	10,000	13-27.7	mg/kg	66.9 J	54.6 J	118 J	50.9 J	35	43.4
7439-89-6	Iron	NC	NC	NC	18300-25400	mg/kg	28200	34100	32100	36800	25700	31800
7439-92-1	Lead	63	400	3,900	7.8-20.9	mg/kg	62.6 J	35.1 J	58.9 J	20.7 J	34.8 J	34.4
7439-95-4	Magnesium	NC	NC	NC	3190-5190	mg/kg	20800 J	6090 J	9520 J	8350 J	7300 J	5570
7439-96-5	Manganese	1,600	2,000	10,000	328-647	mg/kg	494	379	253	378	586 J	538
7439-97-6	Mercury	0.18	0.81	6	0.027-0.091	mg/kg	0.049	0.053	0.08	0.073	0.04 J	0.061
7440-02-0	Nickel	30	140	10,000	15.6-24.5	mg/kg	25.6	30	39.1	36.2	26.2	32.5
7440-09-7	Potassium	NC	NC	NC	734-1530	mg/kg	1730 J	1260 J	2390 J	1850 J	1100	1430
7782-49-2	Selenium	3.9	36	6,800	ND-0.81	mg/kg	0.37 U	0.35 U	0.48 J	0.42 U	0.41 J	ND
7440-22-4	Silver	2	36	6,800	ND-0.5	mg/kg	0.17 J	0.14 J	0.25 J	0.17 J	ND	ND
7440-23-5	Sodium	NC	NC	NC	71.6-790	mg/kg	119 J	101 J	147 J	150 J	116 J	135 J
7440-28-0	Thallium	NC	NC	NC	ND-1.5	mg/kg	0.64 U	0.6 U	0.71 U	0.73 U	ND	ND
7440-62-2	Vanadium	NC	NC	NC	14.6-28.4	mg/kg	24.3	25	29.5	24.4	18.2	25.3
7440-66-6	Zinc	109	2,200	10,000	47.7-118	mg/kg	176 J	131 J	176 J	99.7 J	108 J	139

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon
NC = No soil criteria.
NA / ND = Not analyzed or detected (USACE report does not report these metals).
J = Estimated Concentration
R = Rejected during data validation
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

APPENDIX B
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)
AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	Western Ditch		Black Creek - Southern SADVA		
							SD15	SD29	SD16	SD17	SD18
							C0G190235009	C0J060292005	C0G190235008	C0G140158006	C0G200278002
							0.2'	0.2'	0.2'	0.2'	0.2'
							STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
							SADVA1	SADVA19	SADVA1	SADVA1	SADVA1
							SOIL	SOIL	SOIL	SOIL	SOIL
							7/18/2000	10/5/2000	7/18/2000	7/13/2000	7/19/2000
							10/4/2000	12/3/2000	10/4/2000	10/4/2000	10/4/2000
CAS NO.	COMPOUND					UNITS:					
	VOLATILES										
67-64-1	Acetone	50	100,000	1,000,000	ND-14	ug/kg	ND	ND	ND	ND	ND
74-83-9	Bromomethane	NC	NC	NC	ND	ug/kg	R	ND	R	R	R
75-00-3	Chloroethane	NC	NC	NC	ND	ug/kg	R	ND	R	ND	R
108-88-3	Toluene	700	100,000	1,000,000	ND-2.4	ug/kg	ND	ND	ND	ND	ND
	Total VOCs					**ug/kg**	**ND**	**ND**	**ND**	**ND**	**ND**
	SEMIVOLATILES										
106-44-5	4-Methylphenol	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
117-81-7	bis(2-Ethylhexyl) phthalate	NC	NC	NC	ND	ug/kg	140 J	ND	ND	21 J	44 J
132-64-9	Dibenzofuran	NC	NC	NC	ND-50	ug/kg	ND	ND	ND	ND	ND
	CPAHs										
56-55-3	Benzo(a)anthracene	1,000	1,000	11,000	ND-310	ug/kg	27 J	26 J	ND	20 J	41 J
50-32-8	Benzo(a)pyrene	1,000	1,000	1,100	ND-330	ug/kg	33 J	29 J	ND	21 J	ND
205-99-2	Benzo(b)fluoranthene	1,000	1,000	11,000	ND-440	ug/kg	36 J	35 J	ND	27 J	52 J
207-08-9	Benzo(k)fluoranthene	800	1,000	110,000	ND-360	ug/kg	40 J	31 J	ND	13 J	ND
218-01-9	Chrysene	1,000	1,000	110,000	ND-730	ug/kg	50 J	43 J	ND	25 J	53 J
53-70-3	Dibenz(a,h)anthracene	330	330	1,100	ND	ug/kg	ND	ND	ND	ND	ND
193-39-5	Indeno(1,2,3-cd)pyrene	500	500	11,000	ND-78	ug/kg	25 J	ND	ND	ND	ND
	Total CPAHs					**ug/kg**	**211**	**164**	**ND**	**106**	**146**
	NPAHs										
83-32-9	Acenaphthene	20,000	100,000	1,000,000	ND-92	ug/kg	ND	ND	ND	ND	ND
120-12-7	Anthracene	100,000	100,000	1,000,000	ND-170	ug/kg	ND	ND	ND	ND	ND
191-24-2	Benzo(ghi)perylene	100,000	100,000	1,000,000	ND-66	ug/kg	24 J	ND	ND	ND	ND
206-44-0	Fluoranthene	100,000	100,000	1,000,000	ND-1200	ug/kg	79 J	57 J	ND	ND	100 J
91-20-3	Naphthalene	12,000	100,000	1,000,000	ND-210	ug/kg	ND	ND	ND	ND	ND
85-01-8	Phenanthrene	100,000	100,000	1,000,000	ND-400	ug/kg	42 J	34 J	ND	ND	ND
129-00-0	Pyrene	100,000	100,000	1,000,000	ND-920	ug/kg	56 J	52 J	ND	27 J	56 J
	Total NPAHs					**ug/kg**	**201**	**143**	**ND**	**27**	**156**
	Total PAHs					**ug/kg**	**412**	**307**	**ND**	**133**	**302**
	Total SVOCs					**ug/kg**	**552**	**307**	**ND**	**154**	**346**
	PESTICIDES										
319-84-6	alpha-BHC	20	97	6800	ND	ug/kg	ND	ND	ND	ND	ND
60-57-1	Dieldrin	5	39	2800	ND	ug/kg	ND	0.48 JN	ND	ND	ND
72-55-9	4,4'-DDE	3.3	1,800	120000	ND-0.23	ug/kg	43 J	12 J	0.22 JN	1.5 J	1.2 JN
72-20-8	Endrin	14	2,200	410000	ND	ug/kg	ND	3.4 J	ND	ND	ND
72-54-8	4,4'-DDD	3.3	2,600	180000	ND	ug/kg	10 J	ND	ND	4.8	ND
50-29-3	4,4'-DDT	3.3	1,700	94000	ND	ug/kg	11 J	4.1 JN	ND	ND	ND
5103-71-9	alpha-Chlordane	94	910	47000	ND	ug/kg	ND	1.5 J	ND	ND	1.1 JN
5103-74-2	gamma-Chlordane	NC	NC	NC	ND	ug/kg	0.84 JN	ND	ND	ND	ND
	Total Pesticides					**ug/kg**	**64.84**	**21.48**	**0.22**	**6.3**	**2.3**
	PCBs										
11097-69-1	Aroclor 1254	100	1000	25000	ND	ug/kg	ND	110 J	ND	ND	ND
	Total PCBs	**100**	**1000**	**25000**		**ug/kg**	**ND**	**110**	**ND**	**ND**	**ND**

FOOTNOTES: See Next Page

APPENDIX B
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)
AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	Western Ditch		Black Creek - Southern SADVA		
							SD15	SD29	SD16	SD17	SD18
							C0G190235009	C0J060292005	C0G190235008	C0G140158006	C0G200278002
							0.2'	0.2'	0.2'	0.2'	0.2'
							STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
							SADVA1	SADVA19	SADVA1	SADVA1	SADVA1
							SOIL	SOIL	SOIL	SOIL	SOIL
							7/18/2000	10/5/2000	7/18/2000	7/13/2000	7/19/2000
							10/4/2000	12/3/2000	10/4/2000	10/4/2000	10/4/2000
CAS NO.	COMPOUND					UNITS:					
	METALS										
7429-90-5	Aluminum	NC	NC	NC	8040-17900	mg/kg	12100 J	10700 J	10600	12100	8540 J
7440-36-0	Antimony	NC	NC	NC	ND-0.44	mg/kg	0.84 J	1.1 J	ND	0.33 J	0.72 J
7440-38-2	Arsenic	13	16	16	3.1-5.1	mg/kg	9.3 J	9.1 J	8.5	5.8	17.3 J
7440-39-3	Barium	350	350	10,000	53.9-141	mg/kg	66.7 J	55.7 J	55	63.2	99.1 J
7440-41-7	Beryllium	7.2	14	2,700	0.62-0.92	mg/kg	0.77 J	0.69 J	0.66 J	0.72	0.62 J
7440-43-9	Cadmium	2.5	2.5	60	ND-0.75	mg/kg	0.87 J	0.69 J	0.29 J	0.42 J	0.97 J
7440-70-2	Calcium	NC	NC	NC	2660-6700	mg/kg	8020 J	12200 J	29100	8760	4560 J
7440-47-3	Chromium	30 (TRIVALENT)	36	6,800	11.2-22	mg/kg	28.3 J	21.2 J	12.9	14.5	149 J
7440-48-4	Cobalt	NC	NC	NC	7.1-14	mg/kg	15.8 J	17.9 J	13.1	13.6	34.8 J
7440-50-8	Copper	50	270	10,000	13-27.7	mg/kg	205 J	142 J	23.7	23.8	116 J
7439-89-6	Iron	NC	NC	NC	18300-25400	mg/kg	32800 J	32300 J	26600	28900	32400 J
7439-92-1	Lead	63	400	3,900	7.8-20.9	mg/kg	182 J	180 J	8.9 J	11.5 J	44.4 J
7439-95-4	Magnesium	NC	NC	NC	3190-5190	mg/kg	8310 J	8010 J	7020	4930	4800 J
7439-96-5	Manganese	1,600	2,000	10,000	328-647	mg/kg	324 J	681 J	516	503	762 J
7439-97-6	Mercury	0.18	0.81	6	0.027-0.091	mg/kg	0.092 J	0.056 J	0.036 J	0.036 J	0.089 J
7440-02-0	Nickel	30	140	10,000	15.6-24.5	mg/kg	35.5 J	34.6 J	21.8	22.6	33.2 J
7440-09-7	Potassium	NC	NC	NC	734-1530	mg/kg	1720 J	1190 J	1140	1000	1440 J
7782-49-2	Selenium	3.9	36	6,800	ND-0.81	mg/kg	0.65 J	1.5 J	ND	ND	0.83 J
7440-22-4	Silver	2	36	6,800	ND-0.5	mg/kg	ND	ND	ND	ND	0.32 J
7440-23-5	Sodium	NC	NC	NC	71.6-790	mg/kg	146 J	72.3 J	163 J	130 J	193 J
7440-28-0	Thallium	NC	NC	NC	ND-1.5	mg/kg	ND	ND	0.96 J	ND	ND
7440-62-2	Vanadium	NC	NC	NC	14.6-28.4	mg/kg	26.8 J	26.3 J	26	24.4	21.5 J
7440-66-6	Zinc	109	2,200	10,000	47.7-118	mg/kg	556 J	563 J	67.6	184	668 J

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon
NC = No soil criteria.
NA / ND = Not analyzed or detected (USACE report does not report these metals).
J = Estimated Concentration
R = Rejected during data validation
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

APPENDIX B
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)
AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary							Black Creek - Southern SADVA		West Ditch - Northern SADVA		Black Creek Downstream
						SAMPLE ID:	SD19	SD20	SD14	SD24	SD25
						LAB ID:	C0G200278003	C0G200278004	C0G200278001	C0G200278005	C0G200280001
						DEPTH:	0.2'	0.2'	0.2'	0.2'	0.2'
						SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
						SDG:	SADVA1	SADVA1	SADVA1	SADVA1	SADVA5
		NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
						SAMPLED:	7/19/2000	7/19/2000	7/19/2000	7/19/2000	7/19/2000
						VALIDATED:	10/4/2000	10/4/2000	10/4/2000	10/4/2000	10/12/2000
CAS NO.	COMPOUND					UNITS:					
	VOLATILES										
67-64-1	Acetone	50	100,000	1,000,000	ND-14	ug/kg	ND	ND	ND	ND	3.4 J
74-83-9	Bromomethane	NC	NC	NC	ND	ug/kg	R	R	R	R	R
75-00-3	Chloroethane	NC	NC	NC	ND	ug/kg	R	R	R	R	ND
108-88-3	Toluene	700	100,000	1,000,000	ND-2.4	ug/kg	ND	ND	ND	ND	ND
	Total VOCs					**ug/kg**	**ND**	**ND**	**ND**	**ND**	**3.4**
	SEMIVOLATILES										
106-44-5	4-Methylphenol	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
117-81-7	bis(2-Ethylhexyl) phthalate	NC	NC	NC	ND	ug/kg	74 J	55 J	ND	99 J	74 J
132-64-9	Dibenzofuran	NC	NC	NC	ND-50	ug/kg	35 J	ND	ND	ND	ND
	CPAHs										
56-55-3	Benzo(a)anthracene	1,000	1,000	11,000	ND-310	ug/kg	440 J	ND	26 J	110 J	140 J
50-32-8	Benzo(a)pyrene	1,000	1,000	1,100	ND-330	ug/kg	380 J	ND	26 J	ND	160 J
205-99-2	Benzo(b)fluoranthene	1,000	1,000	11,000	ND-440	ug/kg	410 J	44 J	32 J	160 J	170 J
207-08-9	Benzo(k)fluoranthene	800	1,000	110,000	ND-360	ug/kg	350 J	ND	24 J	140 J	170 J
218-01-9	Chrysene	1,000	1,000	110,000	ND-730	ug/kg	470 J	46 J	35 J	150 J	180 J
53-70-3	Dibenz(a,h)anthracene	330	330	1,100	ND	ug/kg	ND	ND	ND	ND	26 J
193-39-5	Indeno(1,2,3-cd)pyrene	500	500	11,000	ND-78	ug/kg	92 J	ND	ND	40 J	98 J
	Total CPAHs					**ug/kg**	**2142**	**90**	**143**	**600**	**944**
	NPAHs										
83-32-9	Acenaphthene	20,000	100,000	1,000,000	ND-92	ug/kg	98 J	ND	ND	ND	ND
120-12-7	Anthracene	100,000	100,000	1,000,000	ND-170	ug/kg	170 J	ND	ND	ND	24 J
191-24-2	Benzo(ghi)perylene	100,000	100,000	1,000,000	ND-66	ug/kg	88 J	ND	ND	38 J	100 J
206-44-0	Fluoranthene	100,000	100,000	1,000,000	ND-1200	ug/kg	1100	75 J	63 J	330 J	260 J
91-20-3	Naphthalene	12,000	100,000	1,000,000	ND-210	ug/kg	ND	ND	ND	ND	ND
85-01-8	Phenanthrene	100,000	100,000	1,000,000	ND-400	ug/kg	680	ND	28 J	120 J	120 J
129-00-0	Pyrene	100,000	100,000	1,000,000	ND-920	ug/kg	560 J	ND	32 J	170 J	260 J
	Total NPAHs					**ug/kg**	**2696**	**75**	**123**	**658**	**764**
	Total PAHs					**ug/kg**	**4838**	**165**	**266**	**1258**	**1708**
	Total SVOCs					**ug/kg**	**4947**	**220**	**266**	**1357**	**1782**
	PESTICIDES										
319-84-6	alpha-BHC	20	97	6800	ND	ug/kg	0.17 J	ND	ND	ND	ND
60-57-1	Dieldrin	5	39	2800	ND	ug/kg	ND	ND	ND	ND	ND
72-55-9	4,4'-DDE	3.3	1,800	120000	ND-0.23	ug/kg	0.93 J	28 J	190	72	2.5
72-20-8	Endrin	14	2,200	410000	ND	ug/kg	ND	ND	ND	ND	ND
72-54-8	4,4'-DDD	3.3	2,600	180000	ND	ug/kg	ND	4.3 JN	5.7 JN	22	2.8
50-29-3	4,4'-DDT	3.3	1,700	94000	ND	ug/kg	ND	9.9 J	93	21	3.6
5103-71-9	alpha-Chlordane	94	910	47000	ND	ug/kg	ND	2 J	ND	ND	1.1 J
5103-74-2	gamma-Chlordane	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	0.34 JN
	Total Pesticides					**ug/kg**	**1.1**	**44.2**	**288.7**	**115**	**10.34**
	PCBs										
11097-69-1	Aroclor 1254	100	1000	25000	ND	ug/kg	ND	ND	ND	ND	ND
	Total PCBs	**100**	**1000**	**25000**		**ug/kg**	**ND**	**ND**	**ND**	**ND**	**ND**

FOOTNOTES: See Next Page

APPENDIX B
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)
AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary							Black Creek - Southern SADVA		West Ditch - Northern SADVA		Black Creek Downstream
						SAMPLE ID:	SD19	SD20	SD14	SD24	SD25
						LAB ID:	C0G200278003	C0G200278004	C0G200278001	C0G200278005	C0G200280001
						DEPTH:	0.2'	0.2'	0.2'	0.2'	0.2'
						SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
						SDG:	SADVA1	SADVA1	SADVA1	SADVA1	SADVA5
		NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
						SAMPLED:	7/19/2000	7/19/2000	7/19/2000	7/19/2000	7/19/2000
						VALIDATED:	10/4/2000	10/4/2000	10/4/2000	10/4/2000	10/12/2000
CAS NO.	COMPOUND					UNITS:					
	METALS										
7429-90-5	Aluminum	NC	NC	NC	8040-17900	mg/kg	5520	8190 J	14200	11200	8700
7440-36-0	Antimony	NC	NC	NC	ND-0.44	mg/kg	ND	ND	0.22 J	0.54 J	0.26 J
7440-38-2	Arsenic	13	16	16	3.1-5.1	mg/kg	3.3	4 J	7.7	6.2	4.1
7440-39-3	Barium	350	350	10,000	53.9-141	mg/kg	54.7	137 J	63.6	74.8	41.6
7440-41-7	Beryllium	7.2	14	2,700	0.62-0.92	mg/kg	0.36 J	0.64 J	0.83	0.81 J	0.47 J
7440-43-9	Cadmium	2.5	2.5	60	ND-0.75	mg/kg	0.35 J	0.57 J	0.39 J	0.43 J	0.63 J
7440-70-2	Calcium	NC	NC	NC	2660-6700	mg/kg	23000	118000 J	3290	3350	17900
7440-47-3	Chromium	30 (TRIVALENT)	36	6,800	11.2-22	mg/kg	11.1	14.4 J	18	13.8	19.3
7440-48-4	Cobalt	NC	NC	NC	7.1-14	mg/kg	6.4 J	7.1 J	17	13.4	9.8
7440-50-8	Copper	50	270	10,000	13-27.7	mg/kg	17.1	24.6 J	28.3	25	25.3
7439-89-6	Iron	NC	NC	NC	18300-25400	mg/kg	17800	18200 J	34200	27600	21700
7439-92-1	Lead	63	400	3,900	7.8-20.9	mg/kg	22.6 J	32.5 J	20.1 J	25.3 J	95.5
7439-95-4	Magnesium	NC	NC	NC	3190-5190	mg/kg	4570	48500 J	5810	3470	7490
7439-96-5	Manganese	1,600	2,000	10,000	328-647	mg/kg	597	256 J	810	528	293
7439-97-6	Mercury	0.18	0.81	6	0.027-0.091	mg/kg	0.04 J	0.12 J	0.044	0.049 J	0.098
7440-02-0	Nickel	30	140	10,000	15.6-24.5	mg/kg	13.2	17.2 J	32.4	22.9	19.4
7440-09-7	Potassium	NC	NC	NC	734-1530	mg/kg	548 J	960 J	1340	1040	709 J
7782-49-2	Selenium	3.9	36	6,800	ND-0.81	mg/kg	ND	1.1 J	ND	0.41 J	0.33 J
7440-22-4	Silver	2	36	6,800	ND-0.5	mg/kg	ND	ND	ND	ND	ND
7440-23-5	Sodium	NC	NC	NC	71.6-790	mg/kg	158 J	674 J	109 J	134 J	335 J
7440-28-0	Thallium	NC	NC	NC	ND-1.5	mg/kg	ND	ND	0.59 J	ND	ND
7440-62-2	Vanadium	NC	NC	NC	14.6-28.4	mg/kg	10.5	22.6 J	27.2	27.8	19.1
7440-66-6	Zinc	109	2,200	10,000	47.7-118	mg/kg	72.3	193 J	116	96.3	113

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon
NC = No soil criteria.
NA / ND = Not analyzed or detected (USACE report does not report these metals).
J = Estimated Concentration
R = Rejected during data validation
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

APPENDIX B
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)
AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	Upstream Samples SD21 C0H080195001 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD22 C0H080195004 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD23 C0H080195002 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	Dup of SD23 SD27 C0H080195003 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD28 (2000) C0J050202003 0.2' STL Pittsburgh SADVA19 SOIL 10/4/2000 12/3/2000
CAS NO.	COMPOUND					UNITS:					
	VOLATILES										
67-64-1	Acetone	50	100,000	1,000,000	ND-14	ug/kg	ND	ND	ND	ND	ND
74-83-9	Bromomethane	NC	NC	NC	ND	ug/kg	R	R	R	R	ND
75-00-3	Chloroethane	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
108-88-3	Toluene	700	100,000	1,000,000	ND-2.4	ug/kg	2.4 J	ND	ND	ND	ND
	Total VOCs					**ug/kg**	**2.4**	**ND**	**ND**	**ND**	**ND**
	SEMIVOLATILES										
106-44-5	4-Methylphenol	NC	NC	NC	ND	ug/kg	ND	150 J	210 J	ND	190 J
117-81-7	bis(2-Ethylhexyl) phthalate	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
132-64-9	Dibenzofuran	NC	NC	NC	ND-50	ug/kg	ND	ND	ND	ND	50 J
	CPAHs										
56-55-3	Benzo(a)anthracene	1,000	1,000	11,000	ND-310	ug/kg	ND	ND	ND	ND	310 J
50-32-8	Benzo(a)pyrene	1,000	1,000	1,100	ND-330	ug/kg	ND	ND	ND	ND	330 J
205-99-2	Benzo(b)fluoranthene	1,000	1,000	11,000	ND-440	ug/kg	ND	ND	ND	ND	440 J
207-08-9	Benzo(k)fluoranthene	800	1,000	110,000	ND-360	ug/kg	ND	ND	ND	ND	360 J
218-01-9	Chrysene	1,000	1,000	110,000	ND-730	ug/kg	ND	ND	ND	ND	730 J
53-70-3	Dibenz(a,h)anthracene	330	330	1,100	ND	ug/kg	ND	ND	ND	ND	ND
193-39-5	Indeno(1,2,3-cd)pyrene	500	500	11,000	ND-78	ug/kg	ND	ND	ND	ND	78 J
	Total CPAHs					**ug/kg**	**ND**	**ND**	**ND**	**ND**	**2248**
	NPAHs										
83-32-9	Acenaphthene	20,000	100,000	1,000,000	ND-92	ug/kg	ND	ND	ND	ND	92 J
120-12-7	Anthracene	100,000	100,000	1,000,000	ND-170	ug/kg	ND	ND	ND	ND	170 J
191-24-2	Benzo(ghi)perylene	100,000	100,000	1,000,000	ND-66	ug/kg	ND	ND	ND	ND	66 J
206-44-0	Fluoranthene	100,000	100,000	1,000,000	ND-1200	ug/kg	ND	ND	ND	ND	1200 J
91-20-3	Naphthalene	12,000	100,000	1,000,000	ND-210	ug/kg	ND	ND	ND	ND	210 J
85-01-8	Phenanthrene	100,000	100,000	1,000,000	ND-400	ug/kg	ND	ND	ND	ND	400 J
129-00-0	Pyrene	100,000	100,000	1,000,000	ND-920	ug/kg	ND	ND	ND	ND	920 J
	Total NPAHs					**ug/kg**	**ND**	**ND**	**ND**	**ND**	**3058**
	Total PAHs					**ug/kg**	**ND**	**ND**	**ND**	**ND**	**5306**
	Total SVOCs					**ug/kg**	**ND**	**150**	**210**	**ND**	**5546**
	PESTICIDES										
319-84-6	alpha-BHC	20	97	6800	ND	ug/kg	ND	ND	ND	ND	ND
60-57-1	Dieldrin	5	39	2800	ND	ug/kg	ND	ND	ND	ND	ND
72-55-9	4,4'-DDE	3.3	1,800	120000	ND-0.23	ug/kg	0.13 JN	0.23 JN	0.15 JN	0.18 JN	ND
72-20-8	Endrin	14	2,200	410000	ND	ug/kg	ND	ND	ND	ND	ND
72-54-8	4,4'-DDD	3.3	2,600	180000	ND	ug/kg	ND	ND	ND	ND	ND
50-29-3	4,4'-DDT	3.3	1,700	94000	ND	ug/kg	ND	ND	ND	ND	ND
5103-71-9	alpha-Chlordane	94	910	47000	ND	ug/kg	ND	ND	ND	ND	ND
5103-74-2	gamma-Chlordane	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
	Total Pesticides					**ug/kg**	**0.13**	**0.23**	**0.15**	**0.18**	**ND**
	PCBs										
11097-69-1	Aroclor 1254	100	1000	25000	ND	ug/kg	ND	ND	ND	ND	ND
	Total PCBs	**100**	**1000**	**25000**		**ug/kg**	**ND**	**ND**	**ND**	**ND**	**ND**

FOOTNOTES: See Next Page

APPENDIX B
SADVA AOC 8 SHALLOW SEDIMENT RESULTS (2000/2005)
AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

Former Schenectady Army Depot Remedial Investigation AOC 8 Black Creek Area Detected Compound Summary		NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	Upstream Samples SD21 C0H080195001 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD22 C0H080195004 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD23 C0H080195002 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	Dup of SD23 SD27 C0H080195003 0.2' STL Pittsburgh SADVA10 SOIL 8/7/2000 10/25/2000	SD28 (2000) C0J050202003 0.2' STL Pittsburgh SADVA19 SOIL 10/4/2000 12/3/2000
CAS NO.	COMPOUND					UNITS:					
	METALS										
7429-90-5	Aluminum	NC	NC	NC	8040-17900	mg/kg	12000	17900	14000	16600	9830 J
7440-36-0	Antimony	NC	NC	NC	ND-0.44	mg/kg	0.24 J	0.41 J	0.44 J	0.31 J	0.42 J
7440-38-2	Arsenic	13	16	16	3.1-5.1	mg/kg	3.6	3.6	3.1	2.7	4.5
7440-39-3	Barium	350	350	10,000	53.9-141	mg/kg	101	141	119	130	71.9
7440-41-7	Beryllium	7.2	14	2,700	0.62-0.92	mg/kg	0.67	0.92	0.79 J	0.89 J	0.62 J
7440-43-9	Cadmium	2.5	2.5	60	ND-0.75	mg/kg	0.39 J	0.75 J	0.48 J	0.52 J	0.4 J
7440-70-2	Calcium	NC	NC	NC	2660-6700	mg/kg	4370	5630	4810	4850	6700 J
7440-47-3	Chromium	30 (TRIVALENT)	36	6,800	11.2-22	mg/kg	15.4 J	22 J	15.3 J	17.2 J	16.4 J
7440-48-4	Cobalt	NC	NC	NC	7.1-14	mg/kg	10	14	7.4 J	8.5 J	11 J
7440-50-8	Copper	50	270	10,000	13-27.7	mg/kg	22.2	27.7	17.2	19.6	20.6 J
7439-89-6	Iron	NC	NC	NC	18300-25400	mg/kg	20200	25400	18300	18800	24900 J
7439-92-1	Lead	63	400	3,900	7.8-20.9	mg/kg	15.8 J	18.7 J	20.9 J	24.4 J	20 J
7439-95-4	Magnesium	NC	NC	NC	3190-5190	mg/kg	3930	5190	3240	3630	4150 J
7439-96-5	Manganese	1,600	2,000	10,000	328-647	mg/kg	328	647	386	314	624 J
7439-97-6	Mercury	0.18	0.81	6	0.027-0.091	mg/kg	0.067	0.091	0.079	0.083	0.06 J
7440-02-0	Nickel	30	140	10,000	15.6-24.5	mg/kg	21 J	24.5 J	17.2 J	18 J	20.5 J
7440-09-7	Potassium	NC	NC	NC	734-1530	mg/kg	900 J	1530 J	891 J	927 J	734 J
7782-49-2	Selenium	3.9	36	6,800	ND-0.81	mg/kg	0.53 J	0.72 J	0.81 J	0.71 J	0.67 J
7440-22-4	Silver	2	36	6,800	ND-0.5	mg/kg	0.16 J	0.5 J	ND	ND	ND
7440-23-5	Sodium	NC	NC	NC	71.6-790	mg/kg	268 J	186 J	255 J	154 J	790 J
7440-28-0	Thallium	NC	NC	NC	ND-1.5	mg/kg	ND	1.5 J	1.3 J	1.3 J	ND
7440-62-2	Vanadium	NC	NC	NC	14.6-28.4	mg/kg	19.2 J	28.4 J	24.4 J	27 J	18.2 J
7440-66-6	Zinc	109	2,200	10,000	47.7-118	mg/kg	77.3	118	72.3	80	98.7 J

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon
NC = No soil criteria.
NA / ND = Not analyzed or detected (USACE report does not report these metals).
J = Estimated Concentration
R = Rejected during data validation
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

APPENDIX B
SADVA AOC 8 SEDIMENT RESULTS (2004) AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

USACE-Schenectady Depot Validated Sediment Analytical Data AOC 8 Detected Compound Summary							BLACK CREEK - EAST SIDE		WESTERN DITCH		
						Sample ID:	SD07-1-1.5	SD09-1-1.5	SD12-1-1.5	SD14-0.5-1	SD15-1-1.5
						Lab Sample ID	C4G150227009	C4G150227008	C4G210269012	C4G220161002	C4G220161001
						Depth:	1-1.5'	1-1.5'	1-1.5	0.5-1'	1-1.5'
						Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
						SDG:	C4G150227	C4G150227	C4G210269	C4G220161	C4G220161
						Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
		NYSDEC Part 375 Unrestricted Soil	NYSDEC Part 375 Residential Soil	NYSDEC Part 375 Industrial Soil Cleanup	Black Creek Upstream	Sampled:	7/14/2004	7/14/2004	7/20/2004	7/20/2004	7/20/2004
						Validated:	9/17/2004	9/17/2004	9/19/2004	9/19/2004	9/19/2004
CAS NO.	COMPOUND	Cleanup Objectives	Cleanup Objectives	Objectives	Ranges	UNITS:					
	SEMIVOLATILES										
117-81-7	bis(2-Ethylhexyl) phthalate	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
86-74-8	Carbazole	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
84-74-2	Di-n-butyl phthalate	NC	NC	NC	ND	ug/kg	ND	ND	41 J	ND	ND
132-64-9	Dibenzofuran	NC	NC	NC	ND-50	ug/kg	ND	ND	ND	ND	ND
108-95-2	Phenol	330	100,000	1,000,000		ug/kg	ND	ND	ND	ND	ND
	CPAHs										
56-55-3	Benzo(a)anthracene	1,000	1,000	11,000	ND-310	ug/kg	ND	ND	ND	ND	ND
50-32-8	Benzo(a)pyrene	1,000	1,000	1,100	ND-330	ug/kg	ND	ND	ND	ND	ND
205-99-2	Benzo(b)fluoranthene	1,000	1,000	11,000	ND-440	ug/kg	ND	ND	ND	ND	ND
207-08-9	Benzo(k)fluoranthene	800	1,000	110,000	ND-360	ug/kg	ND	ND	ND	ND	ND
218-01-9	Chrysene	1,000	1,000	110,000	ND-730	ug/kg	ND	ND	ND	ND	ND
53-70-3	Dibenz(a,h)anthracene	330	330	1,100	ND	ug/kg	ND	ND	ND	ND	ND
193-39-5	Indeno(1,2,3-cd)pyrene	500	500	11,000	ND-78	ug/kg	ND	ND	ND	ND	ND
	Total CPAHs						**ND**	**ND**	**ND**	**ND**	**ND**
	NPAHs										
83-32-9	Acenaphthene	20,000	100,000	1,000,000	ND-92	ug/kg	ND	ND	ND	ND	ND
120-12-7	Anthracene	100,000	100,000	1,000,000	ND-170	ug/kg	ND	ND	ND	ND	ND
191-24-2	Benzo(ghi)perylene	100,000	100,000	1,000,000	ND-66	ug/kg	ND	ND	ND	ND	ND
206-44-0	Fluoranthene	100,000	100,000	1,000,000	ND-1200	ug/kg	ND	42 J	ND	ND	ND
86-73-7	Fluorene	30,000	100,000	1,000,000	ND	ug/kg	ND	ND	ND	ND	ND
91-20-3	Naphthalene	12,000	100,000	1,000,000	ND-210	ug/kg	ND	ND	ND	ND	ND
85-01-8	Phenanthrene	100,000	100,000	1,000,000	ND-400	ug/kg	ND	ND	ND	ND	ND
129-00-0	Pyrene	100,000	100,000	1,000,000	ND-920	ug/kg	ND	ND	ND	ND	ND
	Total NPAHs						**ND**	**42**	**ND**	**ND**	**ND**
	Total PAHs						**ND**	**42**	**ND**	**ND**	**ND**
	Total SVOCs						**ND**	**42**	**41**	**ND**	**ND**

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
U = Analyte not detected; the number is the analytical reporting limit.
J = Estimated Value
ND = Not Detected
NC = No Criteria
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

APPENDIX B
SADVA AOC 8 SEDIMENT RESULTS (2004) AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

USACE-Schenectady Depot Validated Sediment Analytical Data AOC 8 Detected Compound Summary							BLACK CREEK - EAST SIDE		WESTERN DITCH		
		NYSDEC Part 375 Unrestricted Soil	NYSDEC Part 375 Residential Soil	NYSDEC Part 375 Industrial Soil Cleanup	Black Creek Upstream	Sample ID:	SD07-1-1.5	SD09-1-1.5	SD12-1-1.5	SD14-0.5-1	SD15-1-1.5
						Lab Sample ID	C4G150227009	C4G150227008	C4G210269012	C4G220161002	C4G220161001
						Depth:	1-1.5'	1-1.5'	1-1.5	0.5-1'	1-1.5'
						Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
						SDG:	C4G150227	C4G150227	C4G210269	C4G220161	C4G220161
						Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
						Sampled:	7/14/2004	7/14/2004	7/20/2004	7/20/2004	7/20/2004
						Validated:	9/17/2004	9/17/2004	9/19/2004	9/19/2004	9/19/2004
CAS NO.	COMPOUND	Cleanup Objectives	Cleanup Objectives	Objectives	Ranges	UNITS:					
	PESTICIDES										
319-85-7	beta-BHC	36	72	14,000	ND	ug/kg	ND	ND	ND	ND	0.36 JN
5103-71-9	alpha-Chlordane	94	910	47,000	ND	ug/kg	ND	ND	ND	ND	ND
5103-74-2	gamma-Chlordane	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
72-54-8	4,4'-DDD	3.3	2,600	180,000	ND	ug/kg	0.66 J	1.7 JN	1.2 J	11 J	14
72-55-9	4,4'-DDE	3.3	1,800	120,000	ND-0.23	ug/kg	ND	0.9 JN	1.5 J	79	26
50-29-3	4,4'-DDT	3.3	1,700	94,000	ND	ug/kg	0.24 J	1.3 J	0.76 JN	44	8.4
60-57-1	Dieldrin	5	39	2,800	ND	ug/kg	ND	ND	ND	ND	0.26 J
33213-65-9	Endosulfan II	2,400	4,800	920,000	ND	ug/kg	ND	ND	ND	ND	1.1 J
1031-07-8	Endosulfan sulfate	2,400	4,800	920,000	ND	ug/kg	ND	ND	ND	ND	ND
72-20-8	Endrin	14	2,200	410,000	ND	ug/kg	ND	ND	ND	ND	ND
7421-93-4	Endrin aldehyde	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
1024-57-3	Heptachlor epoxide	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
	Total Pesticides						**0.9**	**3.9**	**3.46**	**134**	**49.76**
	PCBS										
	None Detected						NA	NA	NA	NA	NA
	METALS										
7429-90-5	Aluminum	NC	NC	NC	8040-17900	mg/kg	7720	12600	8080	12000	11700
7440-36-0	Antimony	NC	NC	NC	ND-0.44	mg/kg	ND	0.44 J	ND	ND	ND
7440-38-2	Arsenic	13	16	16	3.1-5.1	mg/kg	4.6	22.5	4.4	6.3	6.5
7440-39-3	Barium	350	350	10,000	53.9-141	mg/kg	28.6	1030	59.5	61.2	60
7440-41-7	Beryllium	7.2	14	2,700	0.62-0.92	mg/kg	0.75	1	0.83	0.97	0.9
7440-43-9	Cadmium	2.5	2.5	60	ND-0.75	mg/kg	ND	0.24 J	0.23 J	0.27 J	0.33 J
7440-70-2	Calcium	NC	NC	NC	2660-6700	mg/kg	2290	4740	35300	2430	8400
7440-47-3	Chromium	30 (TRIVALENT)	36	6,800	11.2-22	mg/kg	11.9	21.8	12.7	16.5	19.8
7440-48-4	Cobalt	NC	NC	NC	7.1-14	mg/kg	8.5	14.1	7	13.2	11.5
7440-50-8	Copper	50	270	10,000	13-27.7	mg/kg	24.1	22.6	20.7	28	55.7
7439-89-6	Iron	NC	NC	NC	18300-25400	mg/kg	19600	61100	18200	26600	27500
7439-92-1	Lead	63	400	3,900	7.8-20.9	mg/kg	7.3	17	11.2	16.6	30.3
7439-95-4	Magnesium	NC	NC	NC	3190-5190	mg/kg	2960	5210	6580	4330	6570
7439-96-5	Manganese	1600	2,000	10,000	328-647	mg/kg	134	10100	329	739	357
7439-97-6	Mercury	0.18	0.81	6	0.027-0.091	mg/kg	0.022 J	ND	0.035 J	0.03 J	0.031 J
7440-02-0	Nickel	30	140	10,000	15.6-24.5	mg/kg	18	31.4	15.7	26.7	28.5
7440-09-7	Potassium	NC	NC	NC	734-1530	mg/kg	865	1270	759	1110	1400
7782-49-2	Selenium	3.9	36	6,800	ND-0.81	mg/kg	0.34 J	ND	ND	ND	ND
7440-22-4	Silver	2	36	6,800	ND-0.5	mg/kg	ND	0.58 J	0.055 J	0.13 J	0.12 J
7440-23-5	Sodium	NC	NC	NC	71.6-790	mg/kg	166 J	95.1 J	166 J	125 J	102 J
7440-28-0	Thallium	NC	NC	NC	ND-1.5	mg/kg	ND	ND	ND	ND	ND
7440-62-2	Vanadium	NC	NC	NC	14.6-28.4	mg/kg	21.5	25.2	20.7	24.6	22.5
7440-66-6	Zinc	109	2,200	10,000	47.7-118	mg/kg	45.5	87	42.1	102	150

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
J = Estimated Value
ND = Not Detected
NC = No criteria
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

APPENDIX B
SADVA AOC 8 SEDIMENT RESULTS (2004) AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

							BLACK CREEK - EAST SIDE OF SADVA		UPSTREAM - BLACK CREEK		WESTERN DITCH
USACE-Schenectady Depot Validated Sediment Analytical Data AOC 8 Detected Compound Summary		NYSDEC Part 375 Unrestricted Soil	NYSDEC Part 375 Residential Soil	NYSDEC Part 375 Industrial Soil Cleanup	Black Creek Upstream	Sample ID: Lab Sample ID Depth: Source: SDG: Matrix: Sampled: Validated:	SD17-1-1.5 C4G210269013 1-1.5 STL Pittsburgh C4G210269 SOIL 7/20/2004 9/19/2004	SD18-1-1.5 C4G170276005 1-1.5' STL Pittsburgh C4G170276 SOIL 7/16/2004 9/18/2004	SD28-0-0.5 (2004) C4G150227006 0-0.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD28-1-1.5 (2004) C4G150227007 1-1.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD29-1-1.5 C4G170276006 1-1.5' STL Pittsburgh C4G170276 SOIL 7/16/2004 9/18/2004
CAS NO.	COMPOUND	Cleanup Objectives	Cleanup Objectives	Objectives	Ranges	UNITS:					
	SEMIVOLATILES										
117-81-7	bis(2-Ethylhexyl) phthalate	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
86-74-8	Carbazole	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
84-74-2	Di-n-butyl phthalate	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
132-64-9	Dibenzofuran	NC	NC	NC	ND-50	ug/kg	ND	ND	ND	ND	ND
108-95-2	Phenol	330	100,000	1,000,000		ug/kg	ND	ND	ND	ND	ND
	CPAHs										
56-55-3	Benzo(a)anthracene	1,000	1,000	11,000	ND-310	ug/kg	ND	ND	ND	ND	ND
50-32-8	Benzo(a)pyrene	1,000	1,000	1,100	ND-330	ug/kg	ND	ND	ND	ND	ND
205-99-2	Benzo(b)fluoranthene	1,000	1,000	11,000	ND-440	ug/kg	ND	ND	ND	ND	ND
207-08-9	Benzo(k)fluoranthene	800	1,000	110,000	ND-360	ug/kg	ND	ND	ND	ND	ND
218-01-9	Chrysene	1,000	1,000	110,000	ND-730	ug/kg	ND	ND	44 J	ND	ND
53-70-3	Dibenz(a,h)anthracene	330	330	1,100	ND	ug/kg	ND	ND	ND	ND	ND
193-39-5	Indeno(1,2,3-cd)pyrene	500	500	11,000	ND-78	ug/kg	ND	ND	ND	ND	ND
	Total CPAHs						**ND**	**ND**	**44**	**ND**	**ND**
	NPAHs										
83-32-9	Acenaphthene	20,000	100,000	1,000,000	ND-92	ug/kg	ND	ND	ND	ND	ND
120-12-7	Anthracene	100,000	100,000	1,000,000	ND-170	ug/kg	ND	ND	ND	ND	ND
191-24-2	Benzo(ghi)perylene	100,000	100,000	1,000,000	ND-66	ug/kg	ND	ND	ND	ND	ND
206-44-0	Fluoranthene	100,000	100,000	1,000,000	ND-1200	ug/kg	ND	ND	ND	ND	ND
86-73-7	Fluorene	30,000	100,000	1,000,000	ND	ug/kg	ND	ND	ND	ND	ND
91-20-3	Naphthalene	12,000	100,000	1,000,000	ND-210	ug/kg	ND	ND	ND	ND	ND
85-01-8	Phenanthrene	100,000	100,000	1,000,000	ND-400	ug/kg	ND	ND	ND	ND	ND
129-00-0	Pyrene	100,000	100,000	1,000,000	ND-920	ug/kg	ND	ND	ND	ND	ND
	Total NPAHs						**ND**	**ND**	**ND**	**ND**	**ND**
	Total PAHs						**ND**	**ND**	**44**	**ND**	**ND**
	Total SVOCs						**ND**	**ND**	**44**	**ND**	**ND**

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
U = Analyte not detected; the number is the analytical reporting limit.
J = Estimated Value
ND = Not Detected
NC = No Criteria
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

APPENDIX B
SADVA AOC 8 SEDIMENT RESULTS (2004) AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

USACE-Schenectady Depot Validated Sediment Analytical Data AOC 8 Detected Compound Summary							BLACK CREEK - EAST SIDE OF SADVA		UPSTREAM - BLACK CREEK		WESTERN DITCH
						Sample ID:	SD17-1-1.5	SD18-1-1.5	SD28-0-0.5 (2004)	SD28-1-1.5 (2004)	SD29-1-1.5
						Lab Sample ID	C4G210269013	C4G170276005	C4G150227006	C4G150227007	C4G170276006
						Depth:	1-1.5	1-1.5'	0-0.5'	1-1.5'	1-1.5'
						Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
						SDG:	C4G210269	C4G170276	C4G150227	C4G150227	C4G170276
						Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
		NYSDEC Part 375	NYSDEC Part 375	NYSDEC Part 375	Black Creek	Sampled:	7/20/2004	7/16/2004	7/14/2004	7/14/2004	7/16/2004
		Unrestricted Soil	Residential Soil	Industrial Soil Cleanup	Upstream	Validated:	9/19/2004	9/18/2004	9/17/2004	9/17/2004	9/18/2004
CAS NO.	COMPOUND	Cleanup Objectives	Cleanup Objectives	Objectives	Ranges	UNITS:					
	PESTICIDES										
319-85-7	beta-BHC	36	72	14,000	ND	ug/kg	ND	ND	ND	ND	ND
5103-71-9	alpha-Chlordane	94	910	47,000	ND	ug/kg	ND	ND	ND	ND	ND
5103-74-2	gamma-Chlordane	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
72-54-8	4,4'-DDD	3.3	2,600	180,000	ND	ug/kg	0.29 J	ND	ND	0.21 JN	ND
72-55-9	4,4'-DDE	3.3	1,800	120,000	ND-0.23	ug/kg	ND	ND	ND	ND	ND
50-29-3	4,4'-DDT	3.3	1,700	94,000	ND	ug/kg	ND	ND	0.35 J	0.62 J	ND
60-57-1	Dieldrin	5	39	2,800	ND	ug/kg	ND	ND	ND	ND	ND
33213-65-9	Endosulfan II	2,400	4,800	920,000	ND	ug/kg	ND	ND	ND	ND	ND
1031-07-8	Endosulfan sulfate	2,400	4,800	920,000	ND	ug/kg	ND	ND	ND	ND	ND
72-20-8	Endrin	14	2,200	410,000	ND	ug/kg	ND	ND	ND	ND	ND
7421-93-4	Endrin aldehyde	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
1024-57-3	Heptachlor epoxide	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
	Total Pesticides						**0.29**	**ND**	**0.35**	**0.62**	**ND**
	PCBS										
	None Detected						NA	NA	NA	NA	ND
	METALS										
7429-90-5	Aluminum	NC	NC	NC	8040-17900	mg/kg	9690	13300	8040	9660	12600
7440-36-0	Antimony	NC	NC	NC	ND-0.44	mg/kg	ND	ND	ND	ND	ND
7440-38-2	Arsenic	13	16	16	3.1-5.1	mg/kg	5.3	3.2	5.1	4.2	7.6
7440-39-3	Barium	350	350	10,000	53.9-141	mg/kg	47.1	79.7	53.9	48.2	68.5
7440-41-7	Beryllium	7.2	14	2,700	0.62-0.92	mg/kg	0.86	1.3	0.7	0.69	0.87
7440-43-9	Cadmium	2.5	2.5	60	ND-0.75	mg/kg	0.23 J	ND	ND	0.19 J	0.23 J
7440-70-2	Calcium	NC	NC	NC	2660-6700	mg/kg	14000	3510	2660	35200	24300
7440-47-3	Chromium	30 (TRIVALENT)	36	6,800	11.2-22	mg/kg	13.4	18.9	11.2	16.1	21
7440-48-4	Cobalt	NC	NC	NC	7.1-14	mg/kg	9.1	13.6	7.1	8.7	11.8
7440-50-8	Copper	50	270	10,000	13-27.7	mg/kg	24.1	31.4 J	13	25	39.2 J
7439-89-6	Iron	NC	NC	NC	18300-25400	mg/kg	23400	29200	20800	21500	31000
7439-92-1	Lead	63	400	3,900	7.8-20.9	mg/kg	9.3	10.5	7.8	9.1	13.1
7439-95-4	Magnesium	NC	NC	NC	3190-5190	mg/kg	5590	4620	3190	17100	9570
7439-96-5	Manganese	1600	2,000	10,000	328-647	mg/kg	310	207	363	528	518
7439-97-6	Mercury	0.18	0.81	6	0.027-0.091	mg/kg	0.019 J	0.024 J	0.027 J	0.032 J	ND
7440-02-0	Nickel	30	140	10,000	15.6-24.5	mg/kg	20.5	29	15.6	21.8	31.2
7440-09-7	Potassium	NC	NC	NC	734-1530	mg/kg	817	1270	901	1150	1740
7782-49-2	Selenium	3.9	36	6,800	ND-0.81	mg/kg	ND	ND	ND	ND	ND
7440-22-4	Silver	2	36	6,800	ND-0.5	mg/kg	0.094 J	0.046 J	0.075 J	0.079 J	0.17 J
7440-23-5	Sodium	NC	NC	NC	71.6-790	mg/kg	111 J	148 J	71.6 J	89.1 J	138 J
7440-28-0	Thallium	NC	NC	NC	ND-1.5	mg/kg	ND	ND	ND	ND	ND
7440-62-2	Vanadium	NC	NC	NC	14.6-28.4	mg/kg	20.8	34.6	14.6	18.5	24.8
7440-66-6	Zinc	109	2,200	10,000	47.7-118	mg/kg	59.6	70.2	47.7	73.5	85.9

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
J = Estimated Value
ND = Not Detected
NC = No criteria
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

APPENDIX B
SADVA AOC 8 SEDIMENT RESULTS (2004) AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

							BLACK CREEK DAM	BLACK CREEK - NEAR ENTRANCE TO INDUSTRIAL PARK			
USACE-Schenectady Depot Validated Sediment Analytical Data AOC 8 Detected Compound Summary						Sample ID: Lab Sample ID Depth: Source: SDG: Matrix: Sampled: Validated:	SD30-1-1.5 C4G150227001 1-1.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD31-0-0.5 C4G150227002 0-0.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD31-1-1.5 C4G150227003 1-1.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD32-0-0.5 C4G150227004 0-0.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD32-1-1.5 C4G150227005 1-1.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004
CAS NO.	COMPOUND	NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	UNITS:					
	SEMIVOLATILES										
117-81-7	bis(2-Ethylhexyl) phthalate	NC	NC	NC	ND	ug/kg	ND	ND	ND	240 J	58 J
86-74-8	Carbazole	NC	NC	NC	ND	ug/kg	ND	ND	ND	650 J	44 J
84-74-2	Di-n-butyl phthalate	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	ND
132-64-9	Dibenzofuran	NC	NC	NC	ND-50	ug/kg	ND	ND	ND	110 J	ND
108-95-2	Phenol	330	100,000	1,000,000		ug/kg	ND	ND	ND	ND	ND
	CPAHs										
56-55-3	Benzo(a)anthracene	1,000	1,000	11,000	ND-310	ug/kg	ND	490 J	ND	2200	150 J
50-32-8	Benzo(a)pyrene	1,000	1,000	1,100	ND-330	ug/kg	ND	480 J	ND	2900	140 J
205-99-2	Benzo(b)fluoranthene	1,000	1,000	11,000	ND-440	ug/kg	ND	520 J	ND	3700	170 J
207-08-9	Benzo(k)fluoranthene	800	1,000	110,000	ND-360	ug/kg	ND	220 J	ND	1300	64 J
218-01-9	Chrysene	1,000	1,000	110,000	ND-730	ug/kg	ND	660 J	ND	3000	190 J
53-70-3	Dibenz(a,h)anthracene	330	330	1,100	ND	ug/kg	ND	96 J	ND	270 J	ND
193-39-5	Indeno(1,2,3-cd)pyrene	500	500	11,000	ND-78	ug/kg	ND	330 J	ND	1200	62 J
	Total CPAHs						**ND**	**2796**	**ND**	**14570**	**776**
	NPAHs										
83-32-9	Acenaphthene	20,000	100,000	1,000,000	ND-92	ug/kg	ND	ND	ND	160 J	ND
120-12-7	Anthracene	100,000	100,000	1,000,000	ND-170	ug/kg	ND	ND	ND	670 J	54 J
191-24-2	Benzo(ghi)perylene	100,000	100,000	1,000,000	ND-66	ug/kg	ND	420 J	ND	1300	86 J
206-44-0	Fluoranthene	100,000	100,000	1,000,000	ND-1200	ug/kg	ND	1100 J	ND	8100	480
86-73-7	Fluorene	30,000	100,000	1,000,000	ND	ug/kg	ND	ND	ND	230 J	ND
91-20-3	Naphthalene	12,000	100,000	1,000,000	ND-210	ug/kg	ND	ND	ND	ND	53 J
85-01-8	Phenanthrene	100,000	100,000	1,000,000	ND-400	ug/kg	ND	500 J	ND	5500	240 J
129-00-0	Pyrene	100,000	100,000	1,000,000	ND-920	ug/kg	ND	800 J	ND	5500	230 J
	Total NPAHs						**ND**	**2820**	**ND**	**21460**	**1143**
	Total PAHs						**ND**	**5616**	**ND**	**36030**	**1919**
	Total SVOCs						**ND**	**5616**	**ND**	**37030**	**2021**

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
U = Analyte not detected; the number is the analytical reporting limit.
J = Estimated Value
ND = Not Detected
NC = No Criteria
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

APPENDIX B
SADVA AOC 8 SEDIMENT RESULTS (2004) AS COMPARED TO PART 375 SOIL CLEANUP OBJECTIVES

							BLACK CREEK DAM	BLACK CREEK - NEAR ENTRANCE TO INDUSTRIAL PARK			
USACE-Schenectady Depot Validated Sediment Analytical Data AOC 8 Detected Compound Summary						Sample ID: Lab Sample ID Depth: Source: SDG: Matrix: Sampled: Validated:	SD30-1-1.5 C4G150227001 1-1.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD31-0-0.5 C4G150227002 0-0.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD31-1-1.5 C4G150227003 1-1.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD32-0-0.5 C4G150227004 0-0.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004	SD32-1-1.5 C4G150227005 1-1.5' STL Pittsburgh C4G150227 SOIL 7/14/2004 9/17/2004
CAS NO.	COMPOUND	NYSDEC Part 375 Unrestricted Soil Cleanup Objectives	NYSDEC Part 375 Residential Soil Cleanup Objectives	NYSDEC Part 375 Industrial Soil Cleanup Objectives	Black Creek Upstream Ranges	UNITS:					
	PESTICIDES										
319-85-7	beta-BHC	36	72	14,000	ND	ug/kg	ND	ND	ND	ND	ND
5103-71-9	alpha-Chlordane	94	910	47,000	ND	ug/kg	ND	ND	ND	ND	0.57 JN
5103-74-2	gamma-Chlordane	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	0.28 JN
72-54-8	4,4'-DDD	3.3	2,600	180,000	ND	ug/kg	2.4	9.5	0.6 J	6.5 JN	9.8
72-55-9	4,4'-DDE	3.3	1,800	120,000	ND-0.23	ug/kg	0.51 JN	12 J	0.33 J	ND	5.7 J
50-29-3	4,4'-DDT	3.3	1,700	94,000	ND	ug/kg	ND	8.3 J	ND	ND	ND
60-57-1	Dieldrin	5	39	2,800	ND	ug/kg	ND	ND	ND	ND	0.35 JN
33213-65-9	Endosulfan II	2,400	4,800	920,000	ND	ug/kg	ND	ND	ND	1.1 JN	ND
1031-07-8	Endosulfan sulfate	2,400	4,800	920,000	ND	ug/kg	ND	ND	ND	2.4 JN	ND
72-20-8	Endrin	14	2,200	410,000	ND	ug/kg	ND	0.59 J	ND	ND	0.21 JN
7421-93-4	Endrin aldehyde	NC	NC	NC	ND	ug/kg	ND	ND	ND	ND	1.4 J
1024-57-3	Heptachlor epoxide	NC	NC	NC	ND	ug/kg	ND	ND	ND	0.5 J	ND
	Total Pesticides						**2.91**	**30.39**	**0.93**	**10.5**	**18.31**
	PCBS										
	None Detected						NA	NA	NA	NA	NA
	METALS										
7429-90-5	Aluminum	NC	NC	NC	8040-17900	mg/kg	14900	12000	13600	8650	10300
7440-36-0	Antimony	NC	NC	NC	ND-0.44	mg/kg	ND	0.66 J	ND	ND	ND
7440-38-2	Arsenic	13	16	16	3.1-5.1	mg/kg	6.4	5.2	8.1	6.6	6.5
7440-39-3	Barium	350	350	10,000	53.9-141	mg/kg	65.8	63.5	131	37.2	69.5
7440-41-7	Beryllium	7.2	14	2,700	0.62-0.92	mg/kg	0.99	0.89	1	0.65	0.88
7440-43-9	Cadmium	2.5	2.5	60	ND-0.75	mg/kg	0.19 J	0.51 J	0.09 J	0.18 J	0.34 J
7440-70-2	Calcium	NC	NC	NC	2660-6700	mg/kg	11400	20000	2410	22200	6560
7440-47-3	Chromium	30 (TRIVALENT)	36	6,800	11.2-22	mg/kg	22	25.1	21.7	17.2	19
7440-48-4	Cobalt	NC	NC	NC	7.1-14	mg/kg	13.2	11	13.5	9.5	11.1
7440-50-8	Copper	50	270	10,000	13-27.7	mg/kg	35.6	39.5	36.5	24	24.9
7439-89-6	Iron	NC	NC	NC	18300-25400	mg/kg	30600	26800	34500	24200	27500
7439-92-1	Lead	63	400	3,900	7.8-20.9	mg/kg	20.8	90.8	18.4	32.9	21.7
7439-95-4	Magnesium	NC	NC	NC	3190-5190	mg/kg	7560	10600	6040	12400	6260
7439-96-5	Manganese	1600	2,000	10,000	328-647	mg/kg	383	421	327	415	489
7439-97-6	Mercury	0.18	0.81	6	0.027-0.091	mg/kg	0.059	0.024 J	0.016 J	0.047	0.044
7440-02-0	Nickel	30	140	10,000	15.6-24.5	mg/kg	28.4	26.3	31.6	21.7	28.4
7440-09-7	Potassium	NC	NC	NC	734-1530	mg/kg	1280	1370	1650	957	1140
7782-49-2	Selenium	3.9	36	6,800	ND-0.81	mg/kg	ND	0.56 J	ND	ND	ND
7440-22-4	Silver	2	36	6,800	ND-0.5	mg/kg	0.087 J	0.13 J	0.1 J	0.2 J	0.077 J
7440-23-5	Sodium	NC	NC	NC	71.6-790	mg/kg	223 J	191 J	99.6 J	111 J	93.4 J
7440-28-0	Thallium	NC	NC	NC	ND-1.5	mg/kg	0.58 J	ND	ND	ND	ND
7440-62-2	Vanadium	NC	NC	NC	14.6-28.4	mg/kg	24.7	25.1	25.6	18.8	24.4
7440-66-6	Zinc	109	2,200	10,000	47.7-118	mg/kg	86.6	165	80.1	163	86.2

CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
J = Estimated Value
ND = Not Detected
NC = No criteria
N = Presumptive Evidence
Highlighted concentrations are above NYSDEC Part 375 Soil Cleanup Objectives and Upstream Ranges

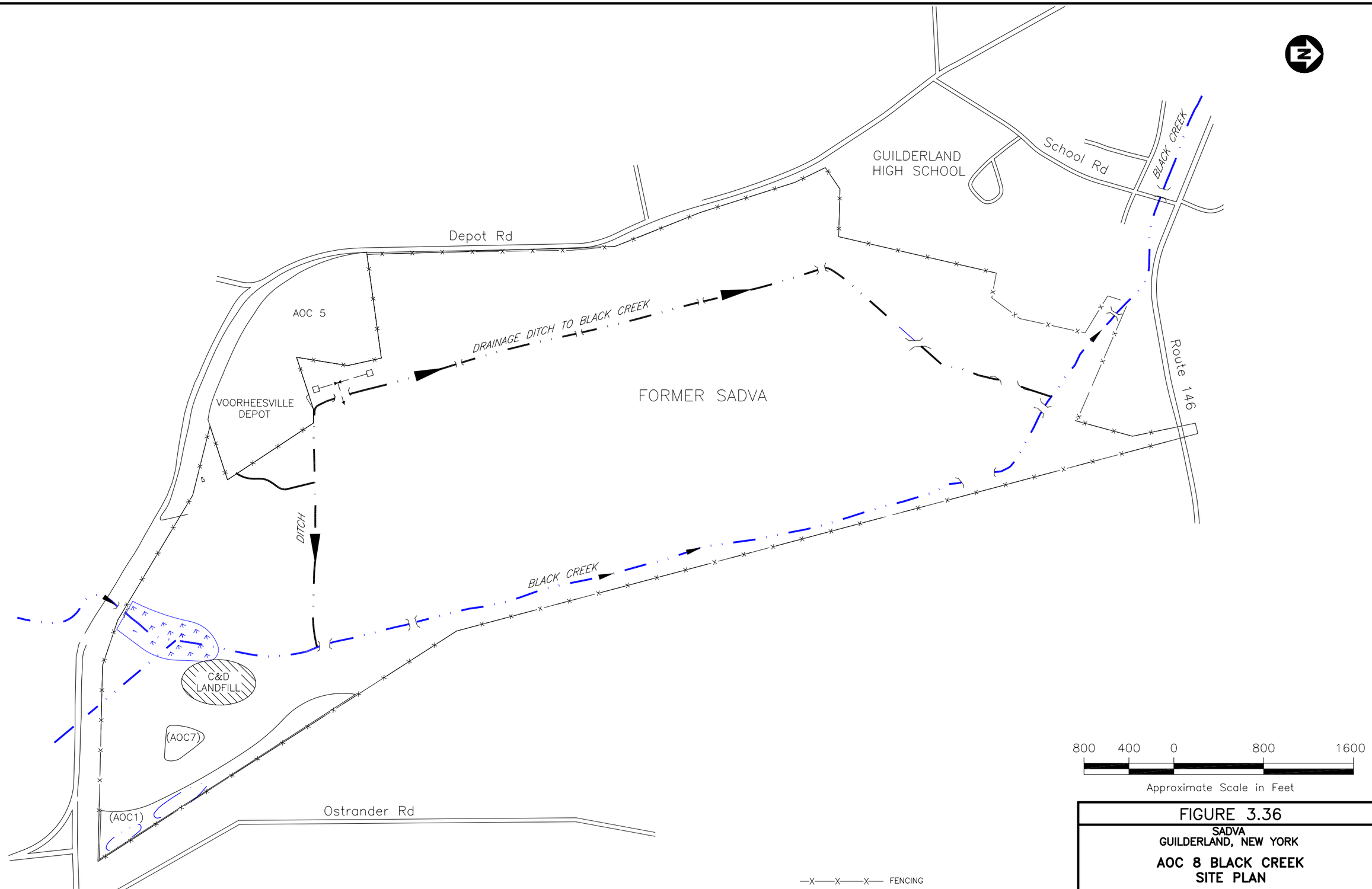


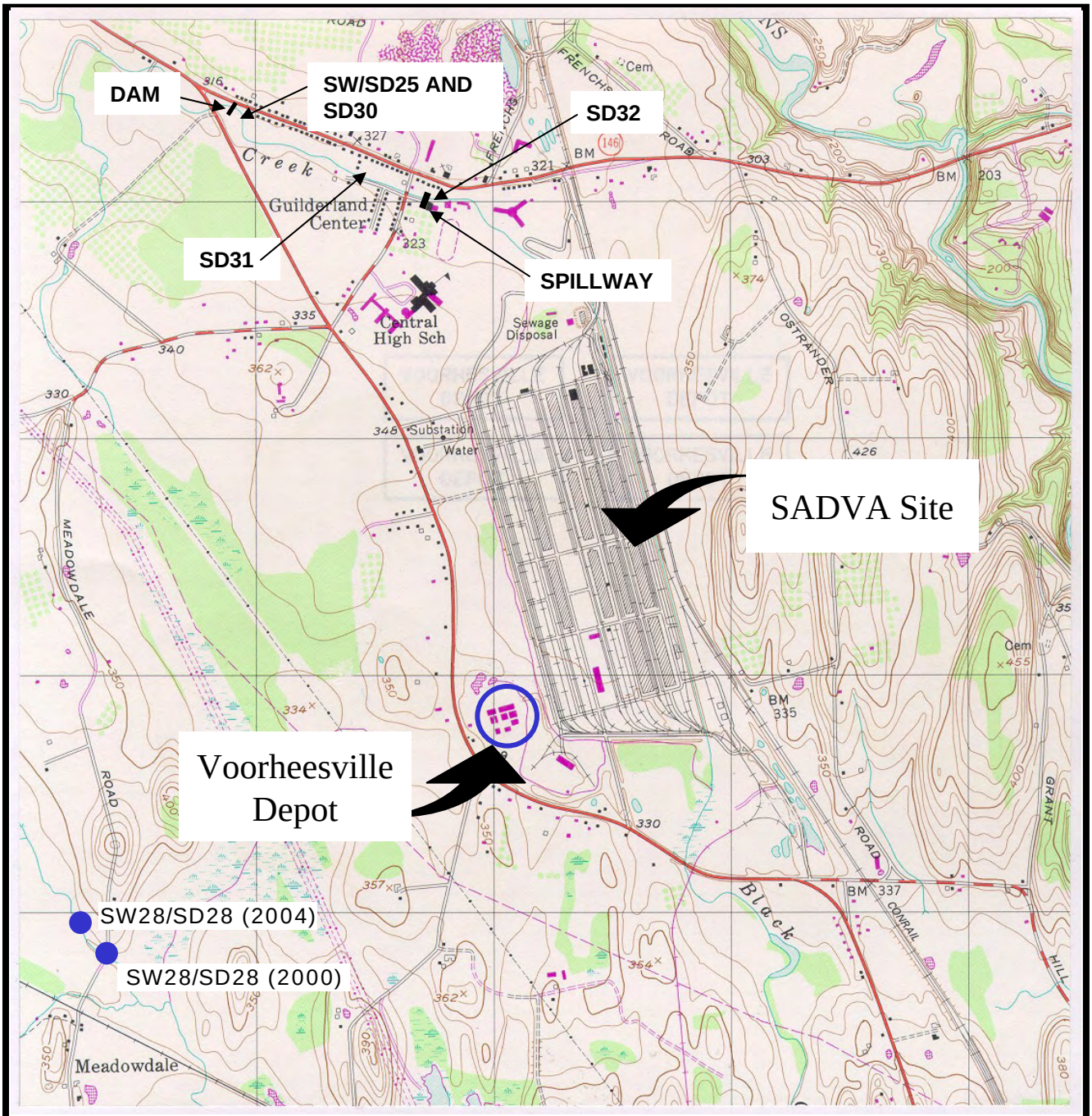
FIGURE 3.36

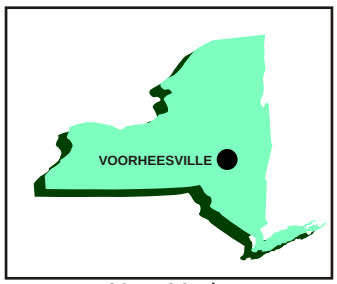
SADVA
GUILDERLAND, NEW YORK

AOC 8 BLACK CREEK
SITE PLAN

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

P:\743440\cad\CE\RI-FS\AOC8-C001.DWG 2/21/07
No XREFs





New York Quadrangle

N

LATITUDE: N42° 15' 20"
LONGITUDE: W75° 14' 38"

2000 1000 0

Approximate Scale in Feet

FIGURE 3.37

SADVA
GUILDERLAND, NEW YORK

AOC 8 BLACK CREEK OFFSITE SURFACE WATER/SEDIMENT SAMPLE LOCATIONS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088 PHONE: (315) 451-9560

Surface Water SW-10 Unfiltered 20 AUG 98

Analyte	Concentration			Standard / Guidance	
Lead, Total	54		ug/L	25	ug/L (S)
4,4'DDE	0.038		ug/L	0.2	ug/L (S)
Acetone	10	J	ug/L	50	ug/L (G)
Carbon Disulfide	0.26	J	ug/L	–	ug/L (S)
Toluene	0.52	J	ug/L	5	ug/L (S)

Sediment SD-10 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.03	ppm	0.15 / 1.3	ppm
Aluminum, Total	15500	ppm	–	ppm
Antimony, Total	ND	ppm	–	ppm
Arsenic, Total	5.71	ppm	6.0 / 33.0	ppm
Barium, Total	78	ppm	–	ppm
Beryllium, Total	0.469	ppm	–	ppm
Cadmium, Total	1.21	ppm	0.6 / 9.0	ppm
Calcium, Total	30900	ppm	–	ppm
Chromium, Total	13.6	ppm	26.0 / 110.0	ppm
Cobalt, Total	8.27	ppm	–	ppm
Copper, Total	20	ppm	16.0 / 110.0	ppm
Iron, Total**	22600 (2.3%)	ppm	2.0% / 4.0%	ppm
Lead, Total	13.2	ppm	31.0 / 110.0	ppm
Magnesium, Total	4320	ppm	–	ppm
Manganese, Total	694	ppm	460.0 / 1100.0	ppm
Nickel, Total	12.8	ppm	16.0 / 50.0	ppm
Potassium, Total	2960	ppm	–	ppm
Sodium, Total	408	ppm	–	ppm
Thallium, Total	3.7	ppm	–	ppm
Vanadium, Total	24.6	ppm	–	ppm
Zinc, Total	144	ppm	120.0 / 270.0	ppm

Surface Water SW-09 Unfiltered 20 AUG 98

Analyte	Concentration			Standard / Guidance	
Lead, Total	11		ug/L	25	ug/L (S)
Chloroform	1		ug/L	7	ug/L (S)
Ethylbenzene	0.083	J	ug/L	5 / 17	ug/L (S/G)
Methylene Chloride	0.73	J	ug/L	5	ug/L (S)

Sediment SD-09 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.027	ppm	0.15 / 1.3	ppm
Aluminum, Total	25500	ppm	–	ppm
Arsenic, Total	5.61	ppm	6.0 / 33.0	ppm
Barium, Total	119	ppm	–	ppm
Beryllium, Total	0.9	ppm	–	ppm
Cadmium, Total	2.12	ppm	0.6 / 9.0	ppm
Calcium, Total	4110	ppm	–	ppm
Chromium, Total	32.3	ppm	26.0 / 110.0	ppm
Cobalt, Total	14.7	ppm	–	ppm
Copper, Total	42	ppm	16.0 / 110.0	ppm
Iron, Total**	37200 (3.7%)	ppm	2.0% / 4.0%	ppm
Lead, Total	65.1	ppm	31.0 / 110.0	ppm
Magnesium, Total	6360	ppm	–	ppm
Manganese, Total	338	ppm	460.0 / 1100.0	ppm
Nickel, Total	28.1	ppm	16.0 / 50.0	ppm
Potassium, Total	5150	ppm	–	ppm
Selenium, Total	1.06	ppm	–	ppm
Sodium, Total	146	ppm	–	ppm
Thallium, Total	3.7	ppm	–	ppm
Vanadium, Total	45.6	ppm	–	ppm
Zinc, Total	190	ppm	120.0 / 270.0	ppm

Surface Water SW-11 Unfiltered 20 AUG 98

Analyte	Concentration			Standard / Guidance	
Lead, Total	33		ug/L	25	ug/L (S)
Acetone	8.8	J	ug/L	50	ug/L (G)

Sediment SD-11 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0278	ppm	0.15 / 1.3	ppm
Aluminum, Total	13800	ppm	–	ppm
Antimony, Total	0.69	ppm	–	ppm
Arsenic, Total	5.67	ppm	6.0 / 33.0	ppm
Barium, Total	81.5	ppm	–	ppm
Beryllium, Total	0.378	ppm	–	ppm
Cadmium, Total	1.58	ppm	0.6 / 9.0	ppm
Calcium, Total	61500	ppm	–	ppm
Chromium, Total	14.2	ppm	26.0 /110.0	ppm
Cobalt, Total	6.33	ppm	–	ppm
Copper, Total	22	ppm	16.0 / 110.0	ppm
Iron, Total**	20200 (2.0%)	ppm	2.0% / 4.0%	ppm
Lead, Total	94.5	ppm	31.0 / 110.0	ppm
Magnesium, Total	19900	ppm	–	ppm
Manganese, Total	182	ppm	460.0 / 1100.0	ppm
Nickel, Total	13.8	ppm	16.0 / 50.0	ppm
Potassium, Total	1960	ppm	–	ppm
Sodium, Total	192	ppm	–	ppm
Thallium, Total	3.09	ppm	–	ppm
Vanadium, Total	30.4	ppm	–	ppm
Zinc, Total	112	ppm	120.0 / 270.0	ppm

Surface Water SW-12 Unfiltered 20 AUG 98

Analyte	Concentration			Standard / Guidance	
Lead, Total	126		ug/L	25	ug/L (S)
Methylene Chloride	1.3	J	ug/L	5	ug/L (S)

Sediment SD-12 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.034	ppm	0.15 / 1.3	ppm
Aluminum, Total	24300	ppm	–	ppm
Arsenic, Total	5.55	ppm	6.0 / 33.0	ppm
Barium, Total	114	ppm	–	ppm
Beryllium, Total	0.73	ppm	–	ppm
Cadmium, Total	1.23	ppm	0.6 / 9.0	ppm
Calcium, Total	3330	ppm	–	ppm
Chromium, Total	27	ppm	26.0 / 110.0	ppm
Cobalt, Total	9.27	ppm	–	ppm
Copper, Total	59.1	ppm	16.0 / 110.0	ppm
Iron, Total**	29300 (2.9%)	ppm	2.0% / 4.0%	ppm
Lead, Total	37.7	ppm	31.0 / 110.0	ppm
Magnesium, Total	5000	ppm	–	ppm
Manganese, Total	212	ppm	460.0 / 1100.0	ppm
Nickel, Total	20.9	ppm	16.0 / 50.0	ppm
Potassium, Total	4910	ppm	–	ppm
Selenium, Total	0.91	ppm	–	ppm
Sodium, Total	108	ppm	–	ppm
Thallium, Total	2.27	ppm	–	ppm
Vanadium, Total	36.8	ppm	–	ppm
Zinc, Total	175	ppm	120.0 / 270.0	ppm

Surface Water SW-07 Unfiltered 20 AUG 98

Analyte	Concentration			Standard / Guidance	
Lead, Total	16		ug/L	25	ug/L (S)
Chloroform	0.53	J	ug/L	7	ug/L (S)

Surface Water SW-07-2 Unfiltered 20 AUG 98

Analyte	Concentration		Standard / Guidance	
Lead, Total	4	ug/L	25	ug/L (S)
Chloroform	1.4	ug/L	7	ug/L (S)

Sediment SD-07 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0362	ppm	0.15 / 1.3	ppm
Aluminum, Total	14000	ppm	–	ppm
Arsenic, Total	3.3	ppm	6.0 / 33.0	ppm
Barium, Total	59.3	ppm	–	ppm
Beryllium, Total	0.75	ppm	–	ppm
Cadmium, Total	1.46	ppm	0.6 / 9.0	ppm
Calcium, Total	3800	ppm	–	ppm
Chromium, Total	38.4	ppm	26.0 / 110.0	ppm
Cobalt, Total	6.29	ppm	–	ppm
Copper, Total	61.8	ppm	16.0 / 110.0	ppm
Iron, Total**	13800 (1.4%)	ppm	2.0% / 4.0%	ppm
Lead, Total	182	ppm	31.0 / 110.0	ppm
Magnesium, Total	3480	ppm	–	ppm
Manganese, Total	105	ppm	460.0 / 1100.0	ppm
Nickel, Total	17.4	ppm	16.0 / 50.0	ppm
Potassium, Total	2510	ppm	–	ppm
Selenium, Total	1.07	ppm	–	ppm
Sodium, Total	128	ppm	–	ppm
Thallium, Total	1.42	ppm	–	ppm
Vanadium, Total	29.6	ppm	–	ppm
Zinc, Total	198	ppm	120.0 / 270.0	ppm

Surface Water SW-05 Unfiltered 20 AUG 98

Analyte	Concentration			Standard / Guidance	
Lead, Total	6		ug/L	25	ug/L (S)
Acetone	5.5	J	ug/L	50	ug/L (G)
Ethylbenzene	0.14	J	ug/L	5 / 17	ug/L (S/G)
Methylene Chloride	2.2		ug/L	5	ug/L (S)
Tetrachloroethene	0.35	J	ug/L	5	ug/L (S)
Toluene	0.56	J	ug/L	5	ug/L (S)
Trichloroethene	0.31	J	ug/L	5	ug/L (S)
Xylenes, Total	1.1	J	ug/L	5	ug/L (S)

Sediment SD-05 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.026	ppm	0.15 / 1.3	ppm
Aluminum, Total	19300	ppm	–	ppm
Arsenic, Total	5.63	ppm	6.0 / 33.0	ppm
Barium, Total	92.7	ppm	–	ppm
Beryllium, Total	0.595	ppm	–	ppm
Cadmium, Total	1.36	ppm	0.6 / 9.0	ppm
Calcium, Total	31200	ppm	–	ppm
Chromium, Total	16.8	ppm	26.0 /. 110.0	ppm
Cobalt, Total	8.98	ppm	–	ppm
Copper, Total	23.8	ppm	16.0 / 110.0	ppm
Iron, Total**	27500 (2.8%)	ppm	2.0% / 4.0%	ppm
Lead, Total	12.6	ppm	31.0 / 110.0	ppm
Magnesium, Total	9050	ppm	–	ppm
Manganese, Total	404	ppm	460.0 / 1100.0	ppm
Nickel, Total	15.4	ppm	16.0 / 50.0	ppm
Potassium, Total	4360	ppm	–	ppm
Sodium, Total	293	ppm	–	ppm
Thallium, Total	3.47	ppm	–	ppm
Vanadium, Total	30.2	ppm	–	ppm
Zinc, Total	61.2	ppm	120.0 / 270.0	ppm

Surface Water SW-04 Unfiltered 20 AUG 98

Analyte	Concentration			Standard / Guidance	
Barium, Total	30		ug/L	1000	ug/L (S)
Calcium, Total	57,200		ug/L	–	ug/L
Iron, Total	420		ug/L	300	ug/L (S)
Lead, Total	21		ug/L	25	ug/L (S)
Magnesium, Total	8,500		ug/L	35,000	ug/L (S/G)
Manganese, Total	71		ug/L	300	ug/L (S)
Potassium, Total	722		ug/L	–	ug/L
Sodium, Total	15,600		ug/L	20,000	ug/L (S)
Zinc, Total	10		ug/L	2,000	ug/L (G)
1,4-Dichlorobenzene	0.14	J	ug/L	3	ug/L (S)
Acetone	7.7	J	ug/L	50	ug/L (G)
Methylene Chloride	0.44	J	ug/L	5	ug/L (S)

Sediment SD-04 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.017	ppm	0.15 / 1.3	ppm
Aluminum, Total	9680	ppm	–	ppm
Arsenic, Total	6.17	ppm	6.0 / 33.0	ppm
Barium, Total	42.5	ppm	–	ppm
Beryllium, Total	0.352	ppm	–	ppm
Cadmium, Total	1.30	ppm	0.6 / 9.0	ppm
Calcium, Total	4410	ppm	–	ppm
Chromium, Total	11.4	ppm	26.0 / 110.0	ppm
Cobalt, Total	6.98	ppm	–	ppm
Copper, Total	42.5	ppm	16.0 / 110.0	ppm
Iron, Total**	33800 (3.4%)	ppm	2.0% / 4.0%	ppm
Lead, Total	11.9	ppm	31.0 / 110.0	ppm
Magnesium, Total	4030	ppm	–	ppm
Manganese, Total	295	ppm	460.0 / 1100.0	ppm
Nickel, Total	18.1	ppm	16.0 / 50.0	ppm
Potassium, Total	1550	ppm	–	ppm
Sodium, Total	55.7	ppm	–	ppm
Thallium, Total	4.06	ppm	–	ppm
Vanadium, Total	15.9	ppm	–	ppm
Zinc, Total	175	ppm	120.0 / 270.0	ppm

Surface Water SW-03 Unfiltered 20 AUG 98

Analyte	Concentration			Standard / Guidance	
Barium, Total	20		ug/L	1000	ug/L (S)
Calcium, Total	56,700		ug/L	–	ug/L
Iron, Total	370		ug/L	300	ug/L (S)
Lead, Total	8		ug/L	25	ug/L (S)
Magnesium, Total	8,390		ug/L	35,000	ug/L (S/G)
Manganese, Total	72		ug/L	300	ug/L (S)
Potassium, Total	711		ug/L	–	ug/L
Sodium, Total	15,400		ug/L	20,000	ug/L (S)
Zinc, Total	10		ug/L	2,000	ug/L (G)
1,1,2,2-Tetrachloroethane	1.4		ug/L	0.2	ug/L (G)
1,2-Dichlorobenzene	0.31	J	ug/L	3	ug/L (S)
1,2-Dichloroethane	0.53	J	ug/L	0.6	ug/L (S)
1,3-Dichloropropane	0.70	J	ug/L	5	ug/L (S)
1,4-Dichlorobenzene	0.23	J	ug/L	3	ug/L (S)
4-Methyl-2-Pentanone	1.6	J	ug/L	–	ug/L
Acetone	5.5	J	ug/L	50	ug/L (G)
Chlorodibromomethane	0.42	J	ug/L	–	ug/L

Sediment SD-03 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0137	ppm	0.15 / 1.3	ppm
Aluminum, Total	12700	ppm	–	ppm
Arsenic, Total	2.95	ppm	6.0 / 33.0	ppm
Barium, Total	52.4	ppm	–	ppm
Beryllium, Total	0.514	ppm	–	ppm
Cadmium, Total	0.719	ppm	0.6 / 9.0	ppm
Calcium, Total	2920	ppm	–	ppm
Chromium, Total	14.1	ppm	26.0 / 110.0	ppm
Cobalt, Total	7.33	ppm	–	ppm
Copper, Total	22.3	ppm	16.0 / 110.0	ppm
Iron, Total**	19600 (2.0%)	ppm	2.0% / 4.0%	ppm
Lead, Total	8.15	ppm	31.0 / 110.0	ppm
Magnesium, Total	2750	ppm	–	ppm
Manganese, Total	287	ppm	460.0 / 1100.0	ppm
Nickel, Total	16.1	ppm	16.0 / 50.0	ppm
Potassium, Total	1700	ppm	–	ppm
Sodium, Total	157	ppm	–	ppm
Thallium, Total	2.4	ppm	–	ppm
Vanadium, Total	25.4	ppm	–	ppm
Zinc, Total	51.7	ppm	120.0 / 270.0	ppm

Surface Water SW-02 Unfiltered 20 AUG 98

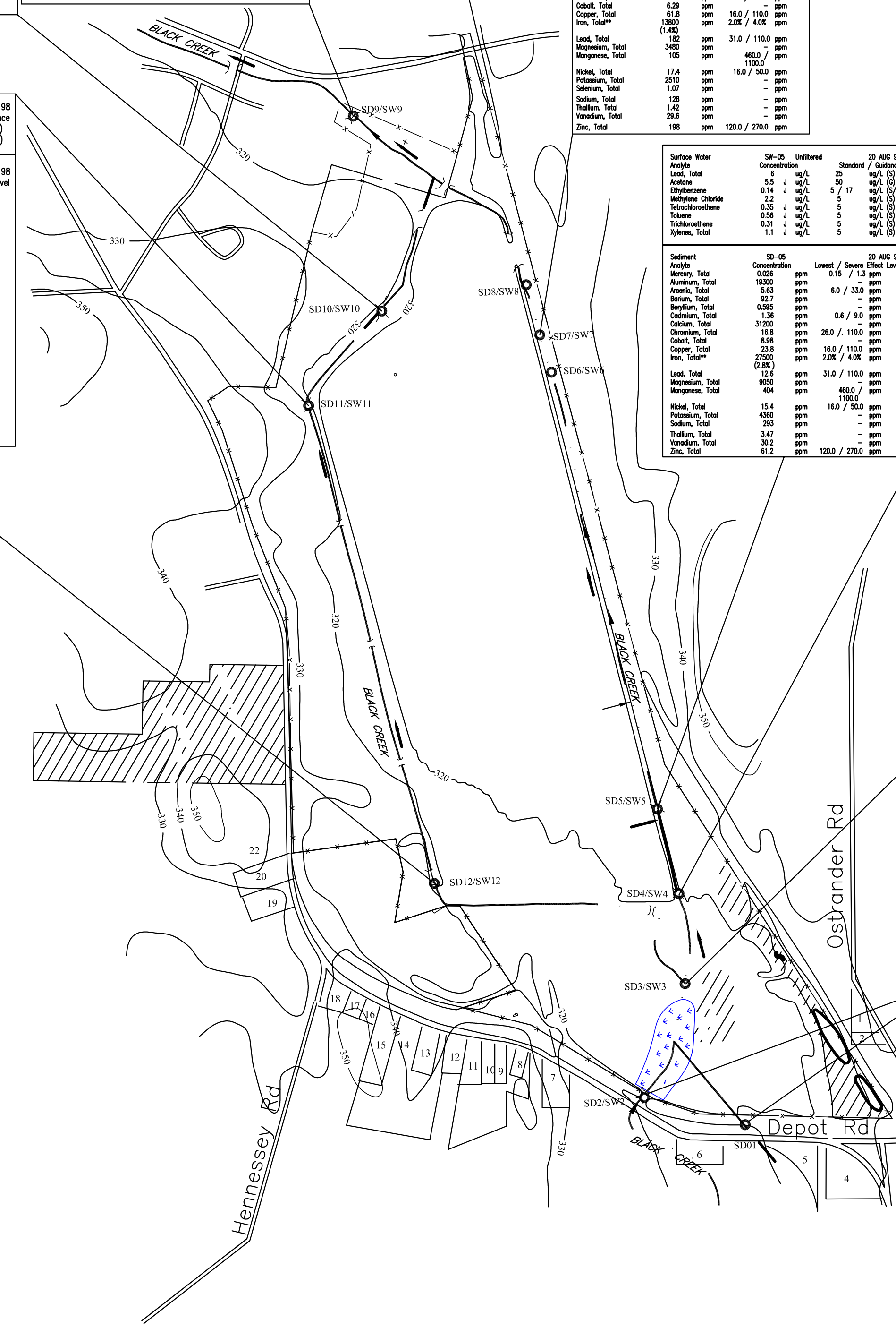
Analyte	Concentration			Standard / Guidance	
Aluminum, Total	440		ug/L	100	ug/L (S)
Barium, Total	30		ug/L	1000	ug/L (S)
Calcium, Total	58,900		ug/L	–	ug/L
Iron, Total	1,670		ug/L	300	ug/L (S)
Lead, Total	4		ug/L	25	ug/L (S)
Magnesium, Total	8,780		ug/L	35,000	ug/L (S/G)
Manganese, Total	136		ug/L	300	ug/L (S)
Potassium, Total	656		ug/L	–	ug/L
Sodium, Total	15,800		ug/L	20,000	ug/L (S)
Zinc, Total	20		ug/L	2,000	ug/L (G)
1,1,2,2-Tetrachloroethane	0.60	J	ug/L	0.2	ug/L (G)
1,2-Dichlorobenzene	0.23	J	ug/L	3	ug/L (S)
1,4-Dichlorobenzene	0.24	J	ug/L	3	ug/L (S)
4-Methyl-2-Pentanone	2.9	J	ug/L	–	ug/L
Acetone	9.2	J	ug/L	50	ug/L (G)
Chlorodibromomethane	0.27	J	ug/L	–	ug/L
Methylene Chloride	0.24	J	ug/L	5	ug/L (S)

Sediment SD-02 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0162	ppm	0.15 / 1.3	ppm
Aluminum, Total	13500	ppm	–	ppm
Arsenic, Total	3.57	ppm	6.0 / 33.0	ppm
Barium, Total	71.1	ppm	–	ppm
Beryllium, Total	0.39	ppm	–	ppm
Cadmium, Total	0.909	ppm	0.6 / 9.0	ppm
Calcium, Total	17700	ppm	–	ppm
Chromium, Total	14.7	ppm	26.0 / 110.0	ppm
Cobalt, Total	6.53	ppm	–	ppm
Copper, Total	16.9	ppm	16.0 / 110.0	ppm
Iron, Total**	19500 (2.0%)	ppm	2.0% / 4.0%	ppm
Lead, Total	14.3	ppm	31.0 / 110.0	ppm
Magnesium, Total	5160	ppm	–	ppm
Manganese, Total	291	ppm	460.0 / 1100.0	ppm
Nickel, Total	13.3	ppm	16.0 / 50.0	ppm
Potassium, Total	2000	ppm	–	ppm
Sodium, Total	105	ppm	–	ppm
Thallium, Total	3.25	ppm	–	ppm
Vanadium, Total	23.3	ppm	–	ppm
Zinc, Total	67.5	ppm	120.0 / 270.0	ppm

Sediment SD-01 20 AUG 98

Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0625	ppm	0.15 / 1.3	ppm
Aluminum, Total	16400	ppm	–	ppm
Arsenic, Total	6.72	ppm	6.0 / 33.0	ppm
Barium, Total	71.9	ppm	–	ppm
Beryllium, Total	0.594	ppm	–	ppm
Cadmium, Total	1.69	ppm	0.6 / 9.0	ppm
Calcium, Total	2830	ppm	–	ppm
Chromium, Total	18	ppm	26.0 / 110.0	ppm
Cobalt, Total	9.25	ppm	–	ppm
Copper, Total	29.7	ppm	16.0 / 110.0	ppm
Iron, Total**	33100 (3.3%)	ppm	2.0% / 4.0%	ppm
Lead, Total	24	ppm	31.0 / 110.0	ppm
Magnesium, Total	5250	ppm	–	ppm
Manganese, Total	177	ppm	460.0 / 1100.0	ppm
Nickel, Total	19.4	ppm	16.0 / 50.0	ppm
Potassium, Total	2240	ppm	–	ppm
Sodium, Total	438	ppm	–	ppm
Thallium, Total	3.44	ppm	–	ppm
Vanadium, Total	25	ppm	–	ppm
Zinc, Total	135	ppm	120.0 / 270.0	ppm



NORTHEASTERN INDUSTRIAL PARK BOUNDARY

BLACK CREEK APPROXIMATE

APPROXIMATE BOUNDARIES OF AOCS

SOURCES:
USGS 7.5 MINUTE QUADRANGLE
VOOHEESVILLE, N.Y. 1980 AND
SITE PLAN PREPARED BY
H & A OF N.Y. GEOTECHNICAL ENGINEERS
& ENVIRONMENTAL CONSULTANTS
COUNTY OF ALBANY, REAL PROPERTY
TAX SERVICE, 1997

800 400 0 800 1600
Approximate Scale in Feet

Rev	Date	Description	By

Issue Certification: NOT FOR BIDDING OR CONSTRUCTION

Job No. 736741
Designed
Drawn JAR
Checked
Reviewed
Approved
Reg. No. XXXX
Date

PARSONS ENGINEERING SCIENCE, INC.
LIVERPOOL, N.Y.
(315) 451-9560

SADVA

SADVA
GUILDERLAND, NEW YORK

AOC 8 BLACK CREEK
PREVIOUS SAMPLING RESULTS
(PRIOR TO REMEDIAL INVESTIGATION)

FIGURE 3.38

REV. –

P:\746741\cad\46741G22.dwg, 07/7/03 at 12:45, SEH, 1=1
No XREFs

Surface Water	SW-10	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Lead, Total	54	ug/L		25 ug/L (S)
4,4'DDE	0.038	ug/L		0.2 ug/L (S)
Acetone	10 J	ug/L		50 ug/L (G)
Carbon Disulfide	0.26 J	ug/L		– ug/L (S)
Toluene	0.52 J	ug/L		5 ug/L (S)

Sediment	SD-10			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.03	ppm	0.15 / 1.3	ppm
Aluminum, Total	15500	ppm	–	ppm
Antimony, Total	ND	ppm	–	ppm
Arsenic, Total	5.71	ppm	6.0 / 33.0	ppm
Barium, Total	78	ppm	–	ppm
Beryllium, Total	0.469	ppm	–	ppm
Cadmium, Total	1.21	ppm	0.6 / 9.0	ppm
Calcium, Total	30900	ppm	–	ppm
Chromium, Total	13.6	ppm	26.0 / 110.0	ppm
Cobalt, Total	8.27	ppm	–	ppm
Copper, Total	20	ppm	16.0 / 110.0	ppm
Iron, Total**	22800 (2.3%)	ppm	2.0% / 4.0%	ppm
Lead, Total	13.2	ppm	31.0 / 110.0	ppm
Magnesium, Total	4320	ppm	–	ppm
Manganese, Total	694	ppm	460.0 / 1100.0	ppm
Nickel, Total	12.8	ppm	16.0 / 50.0	ppm
Potassium, Total	2960	ppm	–	ppm
Sodium, Total	408	ppm	–	ppm
Thallium, Total	3.7	ppm	–	ppm
Vanadium, Total	24.6	ppm	–	ppm
Zinc, Total	144	ppm	120.0 / 270.0	ppm

Surface Water	SW-09	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Lead, Total	11	ug/L		25 ug/L (S)
Chloroform	1	ug/L		7 ug/L (G)
Ethylbenzene	0.083 J	ug/L	5 / 17	ug/L (S/G)
Methylene Chloride	0.73 J	ug/L	5	ug/L (S)

Sediment	SD-09			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.027	ppm	0.15 / 1.3	ppm
Aluminum, Total	25500	ppm	–	ppm
Arsenic, Total	5.81	ppm	6.0 / 33.0	ppm
Barium, Total	119	ppm	–	ppm
Beryllium, Total	0.9	ppm	–	ppm
Cadmium, Total	2.12	ppm	0.6 / 9.0	ppm
Calcium, Total	4110	ppm	–	ppm
Chromium, Total	32.3	ppm	26.0 / 110.0	ppm
Cobalt, Total	14.7	ppm	–	ppm
Copper, Total	42	ppm	16.0 / 110.0	ppm
Iron, Total**	37500 (3.7%)	ppm	2.0% / 4.0%	ppm
Lead, Total	65.1	ppm	31.0 / 110.0	ppm
Magnesium, Total	6360	ppm	–	ppm
Manganese, Total	338	ppm	460.0 / 1100.0	ppm
Nickel, Total	28.1	ppm	16.0 / 50.0	ppm
Potassium, Total	5150	ppm	–	ppm
Selenium, Total	1.06	ppm	–	ppm
Sodium, Total	146	ppm	–	ppm
Thallium, Total	3.7	ppm	–	ppm
Vanadium, Total	45.6	ppm	–	ppm
Zinc, Total	190	ppm	120.0 / 270.0	ppm

Surface Water	SW-11	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Lead, Total	33	ug/L		25 ug/L (S)
Acetone	8.8 J	ug/L		50 ug/L (G)

Sediment	SD-11			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0278	ppm	0.15 / 1.3	ppm
Aluminum, Total	13800	ppm	–	ppm
Antimony, Total	0.69	ppm	–	ppm
Arsenic, Total	5.67	ppm	6.0 / 33.0	ppm
Barium, Total	81.5	ppm	–	ppm
Beryllium, Total	0.378	ppm	–	ppm
Cadmium, Total	1.58	ppm	0.6 / 9.0	ppm
Calcium, Total	61500	ppm	–	ppm
Chromium, Total	14.2	ppm	26.0 /110.0	ppm
Cobalt, Total	6.33	ppm	–	ppm
Copper, Total	22	ppm	16.0 / 110.0	ppm
Iron, Total**	20220 (2.0%)	ppm	2.0% / 4.0%	ppm
Lead, Total	94.5	ppm	31.0 / 110.0	ppm
Magnesium, Total	19900	ppm	–	ppm
Manganese, Total	182	ppm	460.0 / 1100.0	ppm
Nickel, Total	13.8	ppm	16.0 / 50.0	ppm
Potassium, Total	1960	ppm	–	ppm
Sodium, Total	192	ppm	–	ppm
Thallium, Total	3.09	ppm	–	ppm
Vanadium, Total	30.4	ppm	–	ppm
Zinc, Total	112	ppm	120.0 / 270.0	ppm

Surface Water	SW-12	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Lead, Total	126	ug/L		25 ug/L (S)
Methylene Chloride	1.3 J	ug/L		5 ug/L (S)

Sediment	SD-12			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.034	ppm	0.15 / 1.3	ppm
Aluminum, Total	24300	ppm	–	ppm
Arsenic, Total	5.55	ppm	6.0 / 33.0	ppm
Barium, Total	114	ppm	–	ppm
Beryllium, Total	0.73	ppm	–	ppm
Cadmium, Total	1.23	ppm	0.6 / 9.0	ppm
Calcium, Total	3330	ppm	–	ppm
Chromium, Total	27	ppm	26.0 / 110.0	ppm
Cobalt, Total	9.27	ppm	–	ppm
Copper, Total	59.1	ppm	16.0 / 110.0	ppm
Iron, Total**	29300 (2.9%)	ppm	2.0% / 4.0%	ppm
Lead, Total	37.7	ppm	31.0 / 110.0	ppm
Magnesium, Total	5000	ppm	–	ppm
Manganese, Total	212	ppm	460.0 / 1100.0	ppm
Nickel, Total	20.9	ppm	16.0 / 50.0	ppm
Potassium, Total	4910	ppm	–	ppm
Selenium, Total	0.91	ppm	–	ppm
Sodium, Total	108	ppm	–	ppm
Thallium, Total	2.27	ppm	–	ppm
Vanadium, Total	36.8	ppm	–	ppm
Zinc, Total	175	ppm	120.0 / 270.0	ppm

Surface Water	SW-07	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Lead, Total	18	ug/L		25 ug/L (S)
Chloroform	0.53 J	ug/L		7 ug/L (G)

Surface Water	SW-07-2	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Lead, Total	4	ug/L		25 ug/L (S)
Chloroform	1.4	ug/L		7 ug/L (G)

Sediment	SD-07			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0282	ppm	0.15 / 1.3	ppm
Aluminum, Total	14000	ppm	–	ppm
Arsenic, Total	3.3	ppm	6.0 / 33.0	ppm
Barium, Total	89.3	ppm	–	ppm
Beryllium, Total	0.79	ppm	–	ppm
Cadmium, Total	1.46	ppm	0.6 / 9.0	ppm
Calcium, Total	3660	ppm	–	ppm
Chromium, Total	26.4	ppm	26.0 / 110.0	ppm
Cobalt, Total	7.9	ppm	–	ppm
Copper, Total	61.8	ppm	16.0 / 110.0	ppm
Iron, Total**	19000 (1.9%)	ppm	2.0% / 4.0%	ppm
Lead, Total	182	ppm	31.0 / 110.0	ppm
Magnesium, Total	3480	ppm	–	ppm
Manganese, Total	165	ppm	460.0 / 1100.0	ppm
Nickel, Total	17.4	ppm	16.0 / 50.0	ppm
Potassium, Total	2010	ppm	–	ppm
Selenium, Total	1.07	ppm	–	ppm
Sodium, Total	138	ppm	–	ppm
Thallium, Total	1.42	ppm	–	ppm
Vanadium, Total	29.6	ppm	–	ppm
Zinc, Total	198	ppm	120.0 / 270.0	ppm

Surface Water	SW-05	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Lead, Total	6	ug/L	25	ug/L (S)
Acetone	5.5 J	ug/L	50	ug/L (G)
Ethylbenzene	0.14 J	ug/L	5 / 17	ug/L (S/G)
Methylene Chloride	2.2	ug/L	5	ug/L (S)
Tetrachloroethene	0.35 J	ug/L	5	ug/L (S)
Toluene	0.09 J	ug/L	5	ug/L (S)
Trichloroethene	0.31 J	ug/L	5	ug/L (S)
Xylenes, Total	1.1 J	ug/L	5	ug/L (S)

Sediment	SD-05			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.028	ppm	0.15 / 1.3	ppm
Aluminum, Total	19300	ppm	–	ppm
Arsenic, Total	5.63	ppm	6.0 / 33.0	ppm
Barium, Total	92.7	ppm	–	ppm
Beryllium, Total	0.595	ppm	–	ppm
Cadmium, Total	1.76	ppm	0.6 / 9.0	ppm
Calcium, Total	31300	ppm	–	ppm
Chromium, Total	18.6	ppm	26.0 / 110.0	ppm
Cobalt, Total	8.58	ppm	–	ppm
Copper, Total	23.6	ppm	16.0 / 110.0	ppm
Iron, Total**	27300 (2.7%)	ppm	2.0% / 4.0%	ppm
Lead, Total	12.6	ppm	31.0 / 110.0	ppm
Magnesium, Total	9020	ppm	–	ppm
Manganese, Total	494	ppm	460.0 / 1100.0	ppm
Nickel, Total	15.4	ppm	16.0 / 50.0	ppm
Potassium, Total	4360	ppm	–	ppm
Sodium, Total	260	ppm	–	ppm
Thallium, Total	3.47	ppm	–	ppm
Vanadium, Total	35.2	ppm	–	ppm
Zinc, Total	61.2	ppm	120.0 / 270.0	ppm

Surface Water	SW-04	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Barium, Total	30	ug/L		1000 ug/L (G)
Calcium, Total	57,200	ug/L		– ug/L (S)
Iron, Total	439	ug/L		300 ug/L (S)
Lead, Total	21	ug/L		25 ug/L (S)
Magnesium, Total	8,520	ug/L		35,000 ug/L (S/G)
Manganese, Total	71	ug/L		300 ug/L (S)
Potassium, Total	722	ug/L		– ug/L (S)
Sodium, Total	15,600	ug/L		20,000 ug/L (S)
Zinc, Total	18	ug/L		2,000 ug/L (S)
1,4-Dichlorobenzene	0.11 J	ug/L		3 ug/L (S)
Acetone	7.7 J	ug/L		50 ug/L (G)
Methylene Chloride	0.44 J	ug/L		5 ug/L (S)

Sediment	SD-04			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.017	ppm	0.15 / 1.3	ppm
Aluminum, Total	9680	ppm	–	ppm
Arsenic, Total	6.17	ppm	6.0 / 33.0	ppm
Barium, Total	62.5	ppm	–	ppm
Beryllium, Total	0.322	ppm	–	ppm
Cadmium, Total	1.39	ppm	0.6 / 9.0	ppm
Calcium, Total	4410	ppm	–	ppm
Chromium, Total	11.4	ppm	26.0 / 110.0	ppm
Cobalt, Total	4.66	ppm	–	ppm
Copper, Total	42.3	ppm	16.0 / 110.0	ppm
Iron, Total**	20800 (2.1%)	ppm	2.0% / 4.0%	ppm
Lead, Total	11.6	ppm	31.0 / 110.0	ppm
Magnesium, Total	4330	ppm	–	ppm
Manganese, Total	295	ppm	460.0 / 1100.0	ppm
Nickel, Total	18.1	ppm	16.0 / 50.0	ppm
Potassium, Total	1530	ppm	–	ppm
Sodium, Total	95.7	ppm	–	ppm
Thallium, Total	4.08	ppm	–	ppm
Vanadium, Total	19.8	ppm	–	ppm
Zinc, Total	175	ppm	120.0 / 270.0	ppm

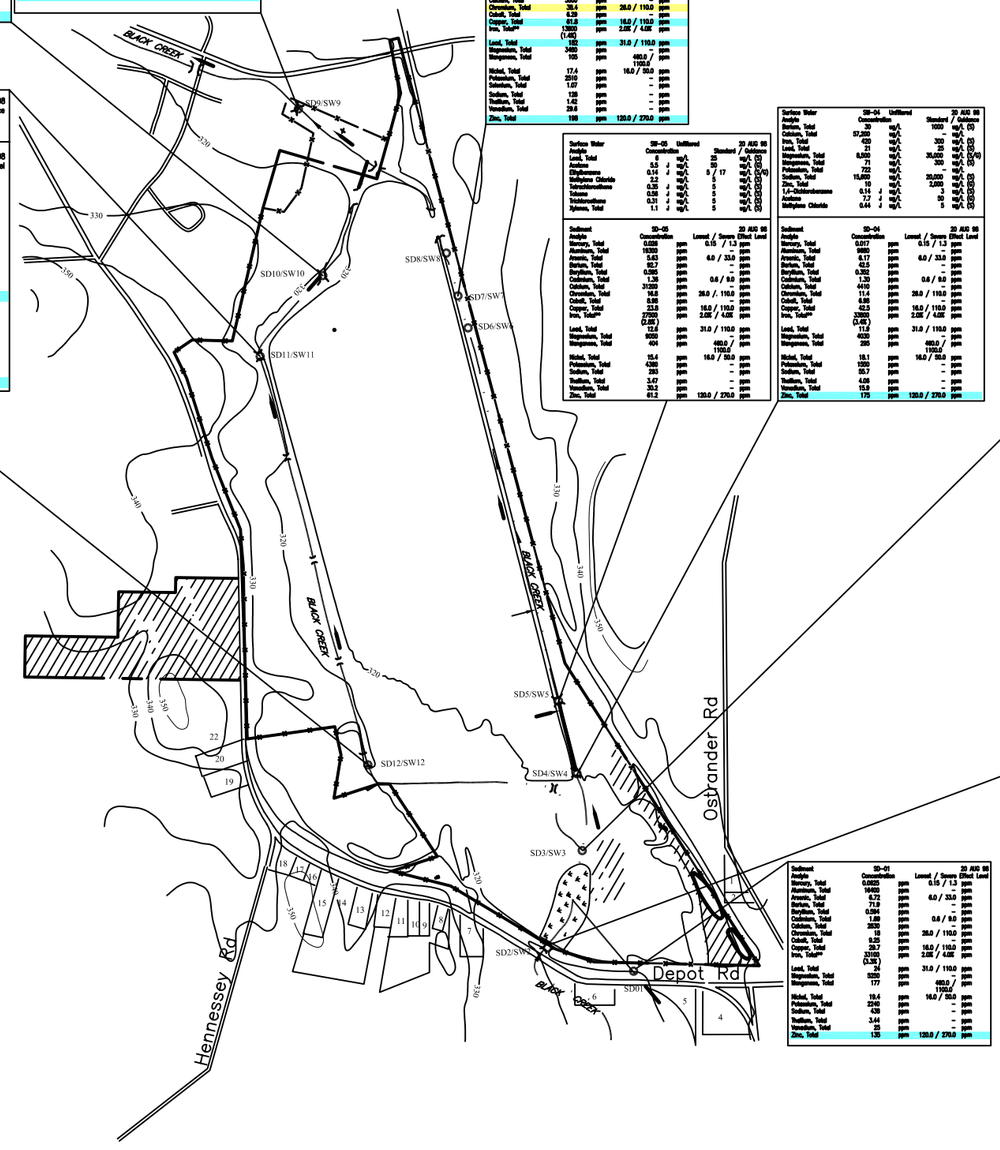
Surface Water	SW-03	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Barium, Total	28	ug/L		1000 ug/L (G)
Calcium, Total	56,200	ug/L		– ug/L (S)
Iron, Total	370	ug/L		300 ug/L (S)
Lead, Total	6	ug/L		25 ug/L (S)
Magnesium, Total	8,360	ug/L		35,000 ug/L (S/G)
Manganese, Total	72	ug/L		300 ug/L (S)
Potassium, Total	711	ug/L		– ug/L (S)
Sodium, Total	15,400	ug/L		20,000 ug/L (S)
Zinc, Total	19	ug/L		2,000 ug/L (S)
1,1,2,2-Tetrachloroethane	1.4	ug/L		0.2 ug/L (G)
1,2-Dichlorobenzene	0.31 J	ug/L		3 ug/L (S)
1,3-Dichlorobenzene	0.53 J	ug/L		3 ug/L (S)
1,4-Dichlorobenzene	0.79 J	ug/L		3 ug/L (S)
4-Methyl-2-Pentanone	0.53 J	ug/L		– ug/L (S)
Acetone	5.5 J	ug/L		50 ug/L (G)
Chlorodibromomethane	0.42 J	ug/L		– ug/L (S)

Sediment	SD-03			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0137	ppm	0.15 / 1.3	ppm
Aluminum, Total	12700	ppm	–	ppm
Arsenic, Total	2.85	ppm	6.0 / 33.0	ppm
Barium, Total	60.4	ppm	–	ppm
Beryllium, Total	0.514	ppm	–	ppm
Cadmium, Total	0.719	ppm	0.6 / 9.0	ppm
Calcium, Total	2630	ppm	–	ppm
Chromium, Total	14.1	ppm	26.0 / 110.0	ppm
Cobalt, Total	7.33	ppm	–	ppm
Copper, Total	22.3	ppm	16.0 / 110.0	ppm
Iron, Total**	19800 (2.0%)	ppm	2.0% / 4.0%	ppm
Lead, Total	8.15	ppm	31.0 / 110.0	ppm
Magnesium, Total	2750	ppm	–	ppm
Manganese, Total	287	ppm	460.0 / 1100.0	ppm
Nickel, Total	18.1	ppm	16.0 / 50.0	ppm
Potassium, Total	1700	ppm	–	ppm
Sodium, Total	107	ppm	–	ppm
Thallium, Total	2.4	ppm	–	ppm
Vanadium, Total	25.6	ppm	–	ppm
Zinc, Total	91.7	ppm	120.0 / 270.0	ppm

Surface Water	SW-02	Unfiltered		20 AUG 98
Analyte	Concentration			Standard / Guidance
Aluminum, Total	440	ug/L		100 ug/L (G)
Barium, Total	30	ug/L		1000 ug/L (G)
Calcium, Total	59,800	ug/L		– ug/L (S)
Iron, Total	1,670	ug/L		300 ug/L (S)
Lead, Total	4	ug/L		25 ug/L (S)
Magnesium, Total	8,740	ug/L		35,000 ug/L (S/G)
Manganese, Total	138	ug/L		300 ug/L (S)
Potassium, Total	656	ug/L		– ug/L (S)
Sodium, Total	16,800	ug/L		20,000 ug/L (S)
Zinc, Total	30	ug/L		2,000 ug/L (S)
1,1,2,2-Tetrachloroethane	0.65 J	ug/L		0.2 ug/L (G)
1,2-Dichlorobenzene	0.23 J	ug/L		3 ug/L (S)
1,3-Dichlorobenzene	0.24 J	ug/L		3 ug/L (S)
4-Methyl-2-Pentanone	2.8 J	ug/L		– ug/L (S)
Acetone	2.8 J	ug/L		50 ug/L (G)
Chlorodibromomethane	0.57 J	ug/L		– ug/L (S)
Methylene Chloride	0.24 J	ug/L		5 ug/L (S)

Sediment	SD-02			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0162	ppm	0.15 / 1.3	ppm
Aluminum, Total	13500	ppm	–	ppm
Arsenic, Total	3.57	ppm	6.0 / 33.0	ppm
Barium, Total	71.1	ppm	–	ppm
Beryllium, Total	0.38	ppm	–	ppm
Cadmium, Total	0.809	ppm	0.6 / 9.0	ppm
Calcium, Total	17700	ppm	–	ppm
Chromium, Total	14.7	ppm	26.0 / 110.0	ppm
Cobalt, Total	6.53	ppm	–	ppm
Copper, Total	16.8	ppm	16.0 / 110.0	ppm
Iron, Total**	18500 (1.9%)	ppm	2.0% / 4.0%	ppm
Lead, Total	14.3	ppm	31.0 / 110.0	ppm
Magnesium, Total	5180	ppm	–	ppm
Manganese, Total	391	ppm	460.0 / 1100.0	ppm
Nickel, Total	13.3	ppm	16.0 / 50.0	ppm
Potassium, Total	2000	ppm	–	ppm
Sodium, Total	100	ppm	–	ppm
Thallium, Total	3.55	ppm	–	ppm
Vanadium, Total	23.3	ppm	–	ppm
Zinc, Total	67.5	ppm	120.0 / 270.0	ppm

Sediment	SD-01			20 AUG 98
Analyte	Concentration		Lowest / Severe Effect Level	
Mercury, Total	0.0025	ppm	0.15 / 1.3	ppm
Aluminum, Total	19400	ppm	–	ppm
Arsenic, Total	6.72	ppm	6.0 / 33.0	ppm
Barium, Total	71.9	ppm	–	ppm
Beryllium, Total	0.584	ppm	–	ppm
Cadmium, Total	1.69	ppm	0.6 / 9.0	ppm
Calcium, Total	3630	ppm	–	ppm
Chromium, Total	18	ppm	26.0 / 110.0	ppm
Cobalt, Total	9.25	ppm	–	ppm
Copper, Total	29.7	ppm	16.0 / 110.0	ppm
Iron, Total**	33100 (3.3%)	ppm	2.0% / 4.0%	ppm
Lead, Total	24	ppm	31.0 / 110.0	ppm
Magnesium, Total	5230	ppm	–	ppm
Manganese, Total	177	ppm	460.0 / 1100.0	ppm
Nickel, Total	19.4	ppm	16.0 / 50.0	ppm
Potassium, Total	2240	ppm	–	ppm
Sodium, Total	438	ppm	–	ppm
Thallium, Total	3.46	ppm	–	ppm
Vanadium, Total	33	ppm	–	ppm
Zinc, Total	135	ppm	120.0 / 270.0	ppm



LEGEND:

- NORTHEASTERN INDUSTRIAL PARK BOUNDARY
- BLACK CREEK APPROXIMATE
- APPROXIMATE BOUNDARIES OF AOCS
- 340 — LINE OF EQUAL GROUND SURFACE ELEVATION

SOURCES:
USGS 7.5 MINUTE QUADRANGLE
VOORHEESVILLE, N.Y. 1980 AND
SITE PLAN PREPARED BY
H & A OF N.Y. GEOTECHNICAL ENGINEERS
& ENVIRONMENTAL CONSULTANTS
COUNTY OF ALBANY, REAL PROPERTY
TAX SERVICE, 1997

ALL SAMPLE CONCENTRATIONS ARE BELOW PART 375 INDUSTRIAL LAND USE CRITERIA

EXCEEDS PART 375 RESIDENTIAL LAND USE CRITERIA

EXCEEDS PART 375 UNRESTRICTED LAND USE CRITERIA

800 400 0 800 1600

Approximate Scale in Feet

FILE NAME: P:\743440 (SADVA)\WP\FSS\AOC 8\FIGURES\467411022.DWG
PLOT DATE: 7/8/2009 9:03 AM PLOTTED BY: WINTERS, CHRIS

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D

DRAWN BY: CLW	DATE: 7/7/09
CHECKED BY	DATE
APPROVED BY	DATE
PROJECT MGR.	DATE

SEAL

PARSONS
COMMERCIAL TECHNOLOGY GROUP

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
315-451-9560

JOB 743440

WBS 10000

PROJECT TITLE
SADVA
GUILDERLAND, NEW YORK

DRAWING TITLE
AOC 8 BLACK CREEK
PREVIOUS SAMPLING RESULTS
(PRIOR TO REMEDIAL INVESTIGATION)

SCALE: AS NOTED

DRAWING NO.: FIGURE 3.38

REV.: –

DEPTH	SW28 2000	SW28 2004
VOCs	2.3	NA
SVOCs	ND	6.84
PESTICIDES	ND	NA
PCBs	ND	NA
METALS	3	2

DEPTH	SW07 2004
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	0

DEPTH	SW15 2000
VOCs	ND
SVOCs	7.4
PESTICIDES	ND
PCBs	ND
METALS	5

DEPTH	SW29 2000	SW29 2004
VOCs	ND	NA
SVOCs	ND	7.58
PESTICIDES	ND	NA
PCBs	ND	NA
METALS	5	5

DEPTH	SW11 1998
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	1

DEPTH	SW24 2000
VOCs	2.2
SVOCs	5.5
PESTICIDES	ND
PCBs	ND
METALS	1

DEPTH	SW25 2000
VOCs	ND
SVOCs	11
PESTICIDES	ND
PCBs	ND
METALS	0

SW25 APPROXIMATELY 1/2 MILE FURTHER DOWNSTREAM (SEE FIGURE 3.37)

DEPTH	SW21 2000
VOCs	ND
SVOCs	14
PESTICIDES	ND
PCBs	ND
METALS	2

DEPTH	SW23 2000
VOCs	ND
SVOCs	7.5
PESTICIDES	ND
PCBs	ND
METALS	2

DEPTH	SW22 2000
VOCs	ND
SVOCs	26
PESTICIDES	ND
PCBs	ND
METALS	2

DEPTH	SW26 2000
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	0

DEPTH	SW12 1998
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	1

DEPTH	SW12 2000
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	0

DEPTH	SW10 1998
VOCs	NA
SVOCs	NA
PESTICIDES	NA
PCBs	NA
METALS	1

DEPTH	SW09 1998	SW09 2004
VOCs	NA	NA
SVOCs	NA	3.1
PESTICIDES	NA	NA
PCBs	NA	NA
METALS	0	0

DEPTH	SW07 1998	SW07 2004
VOCs	NA	NA
SVOCs	NA	3.1
PESTICIDES	NA	NA
PCBs	NA	NA
METALS	0	2

DEPTH	SW05 1998	SW16 2000
VOCs	NA	ND
SVOCs	NA	ND
PESTICIDES	NA	ND
PCBs	NA	ND
METALS	0	1

DEPTH	SW04 1998	SW17 2000	SW17 2004
VOCs	NA	ND	NA
SVOCs	NA	4.2	4
PESTICIDES	NA	ND	NA
PCBs	NA	ND	NA
METALS	0	0	1

DEPTH	SW03 1998	SW18 2000	SW18 2004
VOCs	NA	ND	NA
SVOCs	NA	4.8	7.71
PESTICIDES	NA	ND	NA
PCBs	NA	ND	NA
METALS	0	4	2

DEPTH	SW02 1998	SW19 2000
VOCs	NA	ND
SVOCs	NA	ND
PESTICIDES	NA	ND
PCBs	NA	ND
METALS	2	1

DEPTH	SW20 2000
VOCs	ND
SVOCs	ND
PESTICIDES	ND
PCBs	ND
METALS	0

SW28(2000) AND SW28(2004) ARE SEVERAL MILES UPSTREAM (SEE FIGURE 3.37)

Depot Rd

VOOHEESVILLE DEPOT (AOC 5)

DRAINAGE DITCH TO BLACK CREEK

FORMER SADVA

GUILDERLAND HIGH SCHOOL

School Rd

BLACK CREEK

Route 146

(AOC 8)

BLACK CREEK

C&D LANDFILL

(AOC7)

(AOC1)

Ostrander Rd

SW-07 SW-09 SW-10 SW-11 SW-12 SW-15 SW-16 SW-17 SW-18 SW-19 SW-20 SW-21 SW-22 SW-23 SW-24 SW-26 SW-29

LEGEND

DATE	SW15 2000
VOCs	ND
SVOCs	7.4
PESTICIDES	ND
PCBs	ND
METALS	5

SAMPLE ID
DATE
TOTAL VOCs (ug/L)
TOTAL SVOCs (ug/L)
TOTAL PESTICIDES (ug/L)
TOTAL PCBs (ug/L)
NUMBER OF METALS WHOSE CONCENTRAITONS EXCEED UPSTREAM AND CLASS "C" SURFACE WATER QUALITY CRITERIA

NA NOT ANALYZED
ND NOT DETECTED
* DUPLICATE SAMPLE ANALYZED, HIGHEST CONCENTRATION SHOWN

SAMPLE CONCENTRATIONS EXCEED CLASS "C" CONCENTRATION AND UPSTREAM CONCENTRATION

SURFACE WATER SAMPLE LOCATION

FENCING

CATCH BASINS AND FLOW DIRECTIONS

800 400 0 800 1600

Approximate Scale in Feet

FIGURE 3.39

SADVA
GUILDERLAND, NEW YORK

AOC 8 BLACK CREEK SURFACE WATER SAMPLE RESULTS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

P:\743440\cad\CE\RI-FS\AOC8-C003.DWG 2/21/07
No XREFs

DEPTH	SD28 (2000) 0–0.2'	SD28 (2004) 0–0.5'	SD28 (2004) 1–1.5'
VOCs	ND	NA	NA
SVOCs	5546	44	ND
CPAHs	2248	44	ND
NPAHs	3058	ND	ND
PAHs	5306	44	ND
PESTICIDES	ND	0.35	0.62
PCBs	ND	NA	NA
METALS	3	1	0

DEPTH	SD12 (1998) –	SD15 (2000) 0–0.2'	SD15 (2004) 1–1.5'
VOCs	NA	ND	NA
SVOCs	NA	552	ND
CPAHs	NA	211	ND
NPAHs	NA	201	ND
PAHs	NA	412	ND
PESTICIDES	NA	64.84	49.76
PCBs	NA	ND	NA
METALS	5	8	5

DEPTH	SD29 (2000) 0–0.2'	SD29 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	307	ND
CPAHs	164	ND
NPAHs	143	ND
PAHs	307	ND
PESTICIDES	21.48	ND
PCBs	110	ND
METALS	7	4

DEPTH	SD11 (1998) –
VOCs	NA
SVOCs	NA
CPAHs	NA
NPAHs	NA
PAHs	NA
PESTICIDES	NA
PCBs	NA
METALS	2

DEPTH	SD24 (2000) 0–0.2'
VOCs	ND
SVOCs	1357
CPAHs	600
NPAHs	658
PAHs	1258
PESTICIDES	115
PCBs	ND
METALS	2

DEPTH	SD25 (2000) 0–0.2'	SD30 (2004) 1–1.5'
VOCs	3.4	NA
SVOCs	1782	ND
CPAHs	944	ND
NPAHs	764	ND
PAHs	1708	ND
PESTICIDES	10.34	2.91
PCBs	ND	NA
METALS	1	4

SD25 & SD30–1–1.5 ARE CO–LOCATED AT THE SPILLWAY/DAM APPROXIMATELY 1/2 MILE FURTHER DOWNSTREAM

DEPTH	SD19 (2000) 0–0.2'
VOCs	ND
SVOCs	4947
CPAHs	2142
NPAHs	2696
PAHs	4838
PESTICIDES	1.1
PCBs	ND
METALS	0

DEPTH	SD26 (2000) 0–0.2'
VOCs	NA
SVOCs	NA
CPAHs	NA
NPAHs	NA
PAHs	NA
PESTICIDES	NA
PCBs	NA
METALS	6

DEPTH	SD21 (2000) 0–0.2'
VOCs	2.4
SVOCs	ND
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.13
PCBs	ND
METALS	2

DEPTH	SD22 (2000) 0–0.2'
VOCs	ND
SVOCs	150
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.23
PCBs	ND
METALS	4

DEPTH	SD12 (2000) 0–0.2'	SD12 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	NA	41
CPAHs	NA	ND
NPAHs	NA	ND
PAHs	NA	ND
PESTICIDES	NA	3.46
PCBs	NA	NA
METALS	5	0

DEPTH	SD10 (1998) –
VOCs	NA
SVOCs	NA
CPAHs	NA
NPAHs	NA
PAHs	NA
PESTICIDES	NA
PCBs	NA
METALS	3

DEPTH	SD16 (2000) 0–0.2'
VOCs	ND
SVOCs	ND
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.22
PCBs	ND
METALS	2

DEPTH	SD17 (2000) 0–0.2'	SD17 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	154	48
CPAHs	106	ND
NPAHs	27	ND
PAHs	133	ND
PESTICIDES	6.3	0.29
PCBs	ND	NA
METALS	2	0

DEPTH	SD23 (2000) 0–0.2'
VOCs	ND
SVOCs	210
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.15
PCBs	ND
METALS	2

DEPTH	SD20 (2000) 0–0.2'
VOCs	ND
SVOCs	220
CPAHs	90
NPAHs	75
PAHs	165
PESTICIDES	44.2
PCBs	ND
METALS	2

DEPTH	SD18 (2000) 0–0.2'	SD18 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	346	ND
CPAHs	146	ND
NPAHs	156	ND
PAHs	302	ND
PESTICIDES	2.3	ND
PCBs	ND	NA
METALS	9	3

DEPTH	SD31 (2004) 0–0.5'	SD31 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	5616	ND
CPAHs	2796	ND
NPAHs	2820	ND
PAHs	5616	ND
PESTICIDES	30.39	0.93
PCBs	NA	NA
METALS	5	4

DEPTH	SD32 (2004) 0–0.5'	SD32 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	37030	2021
CPAHs	14570	776
NPAHs	21460	1143
PAHs	36030	1919
PESTICIDES	10.5	18.31
PCBs	NA	NA
METALS	3	3

DEPTH	SD14 (2000) 0–0.2'	SD14 (2004) 0.5–1'
VOCs	ND	NA
SVOCs	266	ND
CPAHs	143	ND
NPAHs	123	ND
PAHs	266	ND
PESTICIDES	288.7	134
PCBs	ND	NA
METALS	5	5

DEPTH	SD09 (1998) –	SD09 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	NA	42
CPAHs	NA	ND
NPAHs	NA	42
PAHs	NA	42
PESTICIDES	NA	3.9
PCBs	NA	NA
METALS	7	4

DEPTH	SD07 (1998) –	SD07 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	3701	ND
CPAHs	NA	ND
NPAHs	NA	ND
PAHs	NA	ND
PESTICIDES	299.6	0.9
PCBs	ND	NA
METALS	5	0

LEGEND

SAMPLE ID (DATE)
DEPTH IN FEET
TOTAL VOCs (ug/kg)
TOTAL SVOCs (ug/kg)
TOTAL CPAHs (ug/kg)
TOTAL NPAHs (ug/kg)
TOTAL PAHs (ug/kg)
TOTAL PESTICIDES (ug/kg)
TOTAL PCBs (ug/kg)
NUMBER OF METALS WITH CONCENTRATIONS ABOVE NYSDEC SEDIMENT CRITERIA, UPSTREAM RANGES, OR SIDE RANGES.

– UNKNOWN
NA NOT ANALYZED
ND NOT DETECTED
* DUPLICATE SAMPLE ANALYZED, HIGHEST CONCENTRATION SHOWN

115 ONE OR MORE COMPOUNDS ABOVE NYSDEC SEDIMENT CRITERIA AND UPSTREAM RANGE

SURFACE WATER/SEDMENT SAMPLE LOCATION

SEDMENT SAMPLE LOCATION

SHALLOW SEDIMENT SAMPLE COLLECTED AFTER DITCH WAS OVER–EXCAVATED

—X—X—X— FENCING

CATCH BASINS AND FLOW DIRECTIONS

800 400 0 800 1600

Approximate Scale in Feet

FIGURE 3.40

SADVA
GUILDERLAND, NEW YORK

AOC 8 BLACK CREEK SEDIMENT ANALYTICAL DATA MAP

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315–451–9560

P:\743440\cad\CE\RI–FS\AOC8–C002.DWG 2/21/07
No XREFs

DEPTH	SD28 (2000) 0–0.2'	SD28 (2004) 0–0.5'	SD28 (2004) 1–1.5'
VOCs	ND	NA	NA
SVOCs	5546	44	ND
CPAHs	2248	44	ND
NPAHs	3058	ND	ND
PAHs	5306	44	ND
PESTICIDES	ND	0.35	0.62
PCBs	ND	NA	NA
METALS	3	1	0

DEPTH	SD12 (1998) –	SD15 (2000) 0–0.2'	SD15 (2004) 1–1.5'
VOCs	NA	ND	NA
SVOCs	NA	552	ND
CPAHs	NA	211	ND
NPAHs	NA	201	ND
PAHs	NA	412	ND
PESTICIDES	NA	64.84	49.76
PCBs	NA	ND	NA
METALS	5	8	5

DEPTH	SD29 (2000) 0–0.2'	SD29 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	307	ND
CPAHs	164	ND
NPAHs	143	ND
PAHs	307	ND
PESTICIDES	21.48	ND
PCBs	110	ND
METALS	7	4

DEPTH	SD11 (1998) –
VOCs	NA
SVOCs	NA
CPAHs	NA
NPAHs	NA
PAHs	NA
PESTICIDES	NA
PCBs	NA
METALS	2

DEPTH	SD24 (2000) 0–0.2'
VOCs	ND
SVOCs	1357
CPAHs	600
NPAHs	658
PAHs	1258
PESTICIDES	115
PCBs	ND
METALS	2

DEPTH	SD25 (2000) 0–0.2'	SD30 (2004) 1–1.5'
VOCs	3.4	NA
SVOCs	1782	ND
CPAHs	944	ND
NPAHs	764	ND
PAHs	1708	ND
PESTICIDES	10.34	2.91
PCBs	ND	NA
METALS	1	4

SD25 & SD30–1–1.5 ARE CO–LOCATED AT THE SPILLWAY/DAM APPROXIMATELY 1/2 MILE FURTHER DOWNSTREAM

DEPTH	SD19 (2000) 0–0.2'
VOCs	ND
SVOCs	4947
CPAHs	2142
NPAHs	2696
PAHs	4838
PESTICIDES	1.1
PCBs	ND
METALS	0

DEPTH	SD26 (2000) 0–0.2'
VOCs	NA
SVOCs	NA
CPAHs	NA
NPAHs	NA
PAHs	NA
PESTICIDES	NA
PCBs	NA
METALS	6

DEPTH	SD21 (2000) 0–0.2'
VOCs	2.4
SVOCs	ND
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.13
PCBs	ND
METALS	2

DEPTH	SD22 (2000) 0–0.2'
VOCs	ND
SVOCs	150
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.23
PCBs	ND
METALS	4

DEPTH	SD12 (2000) 0–0.2'	SD12 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	NA	41
CPAHs	NA	ND
NPAHs	NA	ND
PAHs	NA	ND
PESTICIDES	NA	3.46
PCBs	NA	NA
METALS	5	0

DEPTH	SD10 (1998) –
VOCs	NA
SVOCs	NA
CPAHs	NA
NPAHs	NA
PAHs	NA
PESTICIDES	NA
PCBs	NA
METALS	3

DEPTH	SD16 (2000) 0–0.2'
VOCs	ND
SVOCs	ND
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.22
PCBs	ND
METALS	2

DEPTH	SD17 (2000) 0–0.2'	SD17 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	154	48
CPAHs	106	ND
NPAHs	27	ND
PAHs	133	ND
PESTICIDES	6.3	0.29
PCBs	ND	NA
METALS	2	0

DEPTH	SD23 (2000) 0–0.2'
VOCs	ND
SVOCs	210
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	0.15
PCBs	ND
METALS	2

DEPTH	SD20 (2000) 0–0.2'
VOCs	ND
SVOCs	220
CPAHs	90
NPAHs	75
PAHs	165
PESTICIDES	44.2
PCBs	ND
METALS	2

DEPTH	SD18 (2000) 0–0.2'	SD18 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	346	ND
CPAHs	146	ND
NPAHs	156	ND
PAHs	302	ND
PESTICIDES	2.3	ND
PCBs	ND	NA
METALS	9	3

DEPTH	SD31 (2004) 0–0.5'	SD31 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	5616	ND
CPAHs	2796	ND
NPAHs	2820	ND
PAHs	5616	ND
PESTICIDES	30.39	0.93
PCBs	NA	NA
METALS	5	4

DEPTH	SD32 (2004) 0–0.5'	SD32 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	37030	2021
CPAHs	14570	776
NPAHs	21460	1143
PAHs	36030	1919
PESTICIDES	10.5	18.31
PCBs	NA	NA
METALS	3	3

DEPTH	SD14 (2000) 0–0.2'	SD14 (2004) 0.5–1'
VOCs	ND	NA
SVOCs	266	ND
CPAHs	143	ND
NPAHs	123	ND
PAHs	266	ND
PESTICIDES	288.7	134
PCBs	ND	NA
METALS	5	5

DEPTH	SD09 (1998) –	SD09 (2004) 1–1.5'
VOCs	NA	NA
SVOCs	NA	42
CPAHs	NA	ND
NPAHs	NA	42
PAHs	NA	42
PESTICIDES	NA	3.9
PCBs	NA	NA
METALS	7	4

DEPTH	SD07 (1998) –	SD07 (2004) 1–1.5'
VOCs	ND	NA
SVOCs	3701	ND
CPAHs	NA	ND
NPAHs	NA	ND
PAHs	NA	ND
PESTICIDES	299.6	0.9
PCBs	ND	NA
METALS	5	0

LEGEND

SAMPLE ID (DATE)
DEPTH IN FEET
TOTAL VOCs (ug/kg)
TOTAL SVOCs (ug/kg)
TOTAL CPAHs (ug/kg)
TOTAL NPAHs (ug/kg)
TOTAL PAHs (ug/kg)
TOTAL PESTICIDES (ug/kg)
TOTAL PCBs (ug/kg)
NUMBER OF METALS WITH CONCENTRATIONS ABOVE NYSDEC SEDIMENT CRITERIA, UPSTREAM RANGES, OR SIDE RANGES.

– UNKNOWN
NA NOT ANALYZED
ND NOT DETECTED
* DUPLICATE SAMPLE ANALYZED, HIGHEST CONCENTRATION SHOWN

115 ONE OR MORE COMPOUNDS ABOVE NYSDEC SEDIMENT CRITERIA AND UPSTREAM RANGE

SURFACE WATER/SEDMENT SAMPLE LOCATION

SEDMENT SAMPLE LOCATION

SHALLOW SEDIMENT SAMPLE COLLECTED AFTER DITCH WAS OVER–EXCAVATED

LOCATION AND CATEGORY OF ANALYTE THAT EXCEED PART 375 SOIL CLEANUP OBJECTIVES FOR INDUSTRIAL LAND USE

—X—X—X— FENCING

CATCH BASINS AND FLOW DIRECTIONS

800 400 0 800 1600

Approximate Scale in Feet

FIGURE 3.40

SADVA
GUILDERLAND, NEW YORK

AOC 8 BLACK CREEK
SEDIMENT ANALYTICAL DATA MAP

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315–451–9560

FILE NAME: P:\743440 (SADVA)\CAD\CE\RI–FS\AOC8–C010.DWG
PLOT DATE: 8/25/2009 1:18 PM PLOTTED BY: RUSSO, JILL

LEGEND

9.3 SHALLOW SAMPLE CONCENTRATION (IN MG/KG)

6.5 DEEP SAMPLE CONCENTRATION (IN MG/KG)

CRITERION (6 MG/KG)

500 0 500 1,000 1,500

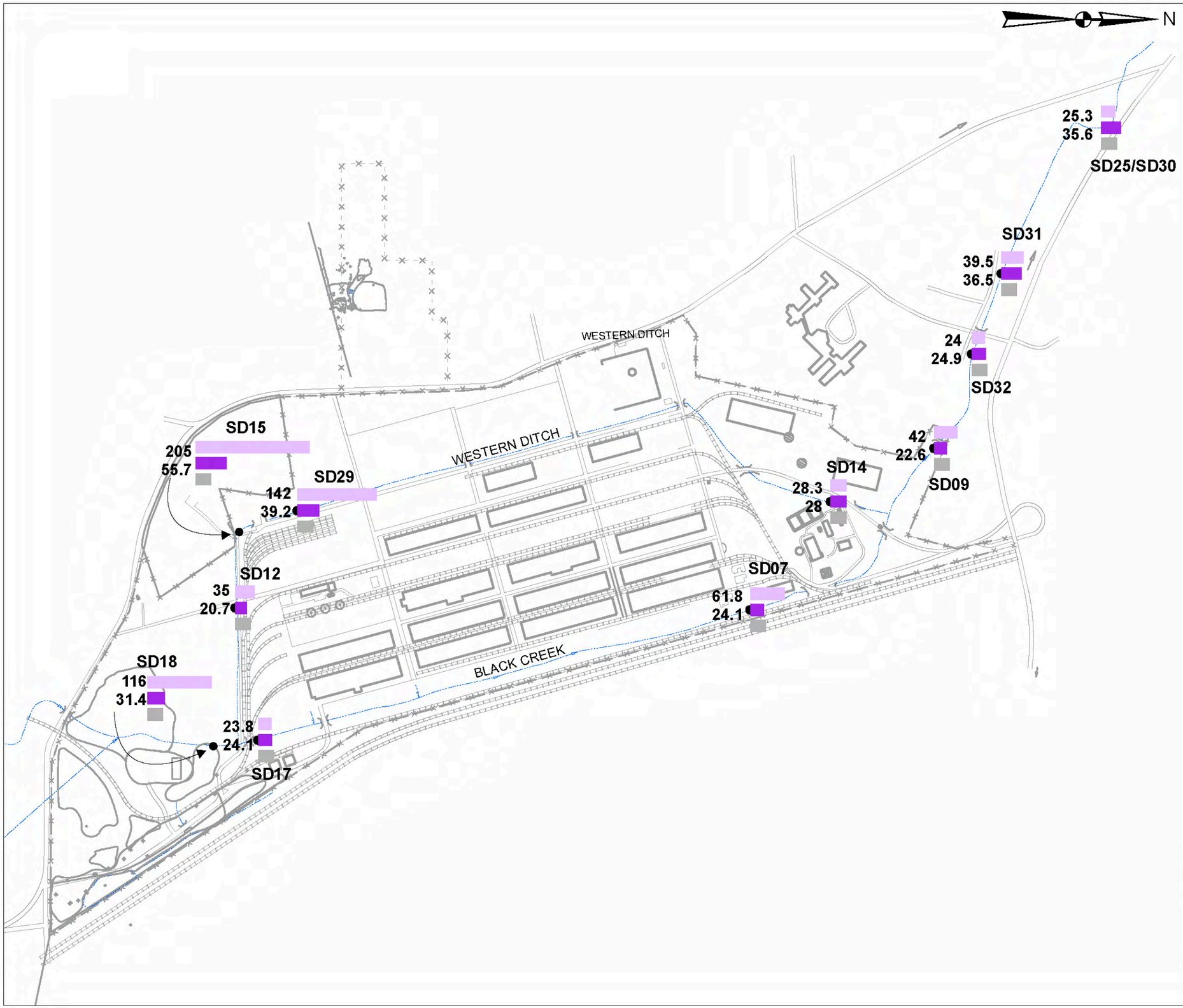
SCALE IN FEET

FIGURE – 3.41a

SADVA
GUILDERLAND, NEW YORK
AOC 8 SEDIMENT
SAMPLE RESULTS – ARSENIC

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\GIS\arsenicRev1.mxd



LEGEND

205 SHALLOW SAMPLE CONCENTRATION (IN MG/KG)

55.7 DEEP SAMPLE CONCENTRATION (IN MG/KG)

CRITERION (27.7 MG/KG)

500 0 500 1,000 1,500

SCALE IN FEET

FIGURE – 3.41b

SADVA
GUILDERLAND, NEW YORK
AOC 8 SEDIMENT
SAMPLE RESULTS – COPPER

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\GIS\COPPERRev1.mxd

N

21700
30600
SD25/SD30

SD31
26800
34500

24200
27500
SD32

37200
61100
SD09

34200
26600
SD14

SD07
13800
19600

SD15
32800
27500

SD29
32300
31000

25700
18200
SD12

SD18
32400
29200

SD17
28900
23400

WESTERN DITCH

BLACK CREEK

P:\743440 (SADVA)\GIS\IRONRev1.mxd

LEGEND

205 SHALLOW SAMPLE CONCENTRATION (IN MG/KG)

55.7 DEEP SAMPLE CONCENTRATION (IN MG/KG)

CRITERION (2000 MG/KG)

500 0 500 1,000 1,500

SCALE IN FEET

FIGURE – 3.41c

SADVA
GUILDERLAND, NEW YORK
AOC 8 SEDIMENT
SAMPLE RESULTS – IRON

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088, PHONE: 315-451-9560

N

95.5
20.8
SD25/SD30

90.8
18.4
SD31

32.9
21.7
SD32

65.1
17
SD09

20.1
16.6
SD14

182
7.3
SD07

SD15
182
30.3

SD29
180
13.1

34.6
11.2
SD12

SD18
44.4
10.5

11.5
9.3
SD17

WESTERN DITCH

BLACK CREEK

LEGEND

205 SHALLOW SAMPLE CONCENTRATION (IN MG/KG)

55.7 DEEP SAMPLE CONCENTRATION (IN MG/KG)

CRITERION (31 MG/KG)

500 0 500 1,000 1,500

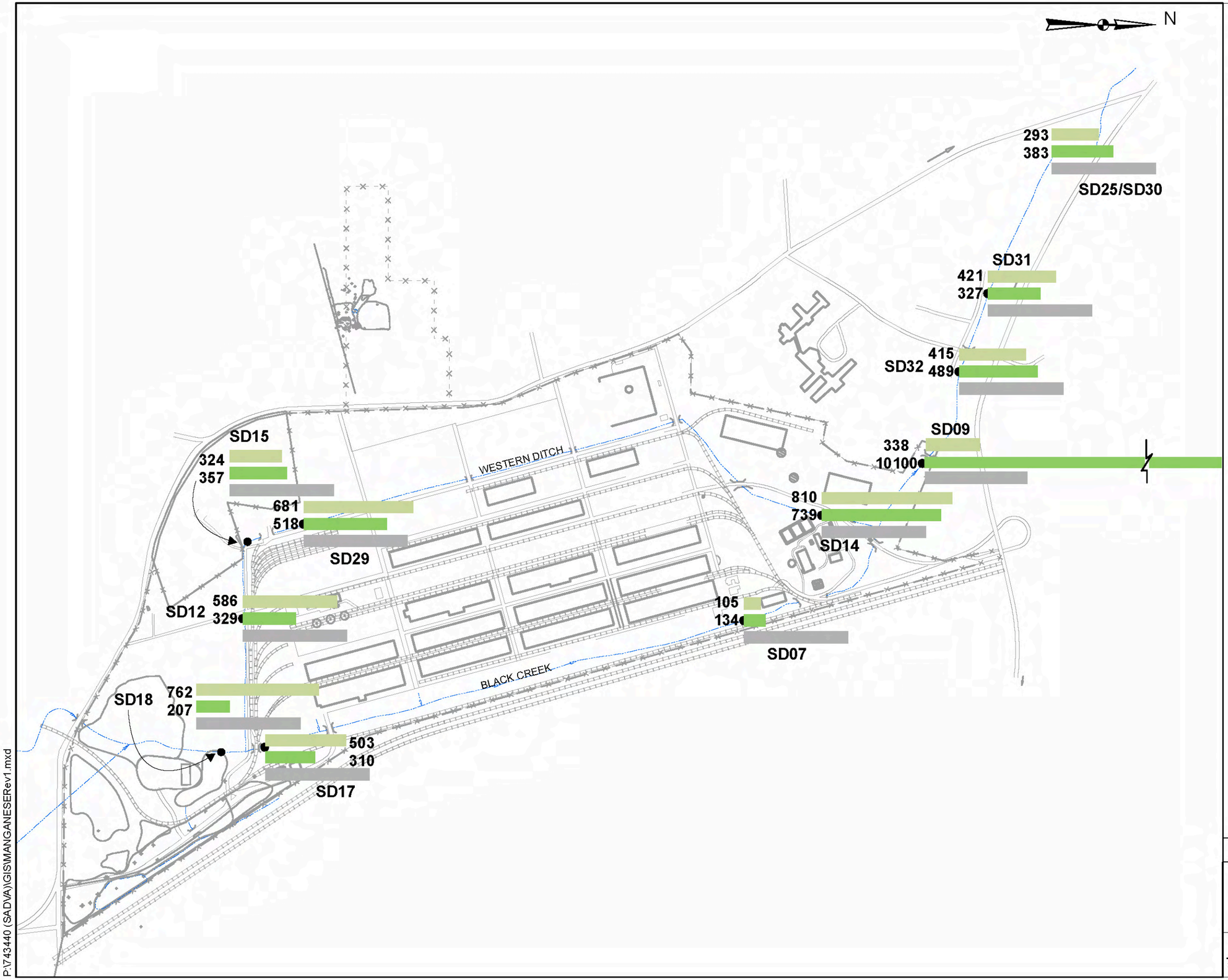
SCALE IN FEET

FIGURE – 3.41d

SADVA
GUILDERLAND, NEW YORK
AOC 8 SEDIMENT
SAMPLE RESULTS – LEAD

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\GIS\LEADRev1.mxd



LEGEND

205 SHALLOW SAMPLE CONCENTRATION (IN MG/KG)

55.7 DEEP SAMPLE CONCENTRATION (IN MG/KG)

CRITERION (647 MG/KG)

500 0 500 1,000 1,500

SCALE IN FEET

FIGURE – 3.41e

SADVA
GUILDERLAND, NEW YORK
AOC 8 SEDIMENT
SAMPLE RESULTS – MANGANESE

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\GIS\MANGANESERev1.mxd

N

LEGEND

205 SHALLOW SAMPLE CONCENTRATION (IN MG/KG)

55.7 DEEP SAMPLE CONCENTRATION (IN MG/KG)

CRITERION (24.5 PPM)

19.4
28.4
SD25/SD30

SD31
26.3
31.6

21.7
28.4
SD32

28.1
31.4
SD09

32.4
26.7
SD14

17.4
18
SD07

SD15
35.5
28.5

SD29
34.6
31.2

SD12
26.2
15.7

SD18
33.2
29
SD17

22.6
20.5

WESTERN DITCH

BLACK CREEK

500 0 500 1,000 1,500

SCALE IN FEET

FIGURE – 3.41f

SADVA
GUILDERLAND, NEW YORK
AOC 8 SEDIMENT
SAMPLE RESULTS – NICKEL

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\GIS\NICKELRev1.mxd

N

113
86.6
SD25/SD30

165
80.1
SD31

163
86.2
SD32

190
87
SD09

SD14
116
102

198
45.5
SD07

SD15
556
150

SD29
563
85.9

108
42.1
SD12

SD18
668
70.2

184
59.6
SD17

LEGEND

205 SHALLOW SAMPLE CONCENTRATION (IN MG/KG)

55.7 DEEP SAMPLE CONCENTRATION (IN MG/KG)

CRITERION (120 PPM)

500 0 500 1,000 1,500

SCALE IN FEET

FIGURE – 3.41g

SADVA
GUILDERLAND, NEW YORK
AOC 8 SEDIMENT
SAMPLE RESULTS – ZINC

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\GIS\ZINCRev1.mxd