Remedial Investigation Report
for the
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York

Site Number 558018

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Prepared by:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 Broadway
Albany, New York 12233

and

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
368 Pleasant View Drive
Lancaster, New York 14086

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List of Abbreviations and Acronyms

ADR	Automatic Data Review
AMSL	Above mean sea level
ASP	Analytical Services Protocol
ATSDR	Agency for Toxic Substances and Disease Registry
BW	body weight
COPC	chemicals of potential concern
CY	cubic yard
DER	NYSDEC Division of Environmental Remediation
DHHS	Department of Health and Human Services
DUSR	Data Usability Summary Report
ED	exposure duration
EDD	Electronic Data Deliverable
EEEPC	Ecology and Environment Engineering, P.C.
EPA	United States Environmental Protection Agency
ERA	ecological risk assessment
FS	Feasibility Study
ft/ft	feet per foot
GIS	Geographic Information System
GPS	Global positioning system
HASP	Site-specific Health and Safety Plan
HQ	hazard quotient
IARC	International Agency for Research on Cancer

List of Abbreviations and Acronyms (cont.)

ID	inner diameter
IDL	instrument detection limit
IDW	investigation-derived waste
IR	ingestion rate
IRIS	International Risk Information System
IRM	interim remedial measure
LCS	laboratory control sample
LOAEL	lowest-observed-adverse effect level
MDL	method detection limit
µg/L	micrograms per liter - a mass concentration of parts per billion (ppb)
$\mu g/m^3$	micrograms per cubic meter
mg/kg	milligrams per kilogram - a mass concentration of parts per million (ppm)
MRL	minimal risk level
MS	matrix spike
MSD	matrix spike duplicate
NAD	North American Datum
NAVD 88	North American Vertical Datum of 1988
NHP	(New York State) Natural Heritage Program
NOAA	National Oceanic and Atmospheric Administration
NOAEL	no observed adverse effect level
NPL	National Priority List
NTU	nephelometric turbidity units
NWI	National Wetland Inventory
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health

NYSDOT	New York State Department of Transportation
ORNL	Oak Ridge National Laboratory
PCB	polychlorinated biphenyl
PID	photoionization detector
PM_{10}	particulate matter of 10 microns or less
PPE	personal protective equipment
ppb	parts per billion - a concentration equivalent to 1/1,000,000,000 of the whole
ppm	parts per million - a concentration equivalent to 1/1,000,000 of the whole
PPRTV	Provisional Peer Reviewed Toxicity Values
PQL	practical quantitation limit
PVC	polyvinyl chloride
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RI	Remedial Investigation
RPD	relative percent difference
SADA	Spatial Analysis and Decision Assistance
SCO	soil cleanup objective
SDG	sample delivery group
SNH	successional northern hardwood
STL	Severn Trent Laboratories
SUF	site use factor
TAL	Target Analyte List
TOGS	Technical and Operational Guidance Series
TRV	toxicity reference value
TSCA	Toxic Substances Control Act
USFWS	United States Fish and Wildlife Service

List of Abbreviations and Acronyms (cont.)

VOC	volatile organic compound

Executive Summary

Ecology and Environment Engineering, P.C. (EEEPC) completed a Remedial Investigation (RI) at the Buoy 212 Dredge Spoil Disposal Area (Buoy 212) for the Division of Environmental Remediation (DER) in the Department of Environmental Conservation (NYSDEC) under State Superfund Contract Work Assignment D004435-07. The Buoy 212 project site (NYSDEC Site 558018) is located along the eastern shore of the Hudson River in the town of Fort Edward, New York in Washington County. It is about 1.3 miles down-river (south) of Champlain Canal Lock 7 and near the floating red nun Buoy 212 that marks the eastern margin of the navigation channel of the Champlain Canal within the Hudson River (see Figure 1-1 and 1-2). A large earthen basin or disposal cell at this site received dredge spoil materials removed from the Champlain Canal/Hudson River navigation channel south of Canal Lock 7 - with emphasis on the navigation channel in the Hudson River between the Buoy 212 and Buoy 216 channel markers - in conjunction with routine and emergency maintenance dredging operations of the Canal System between 1970 and 1979. Some of these dredge spoil materials have been found to contain variable concentrations of polychlorinated biphenyls (PCBs). The primary purpose of this investigation was to evaluate surface soils, subsurface soils, surface drainage networks, and the local groundwater setting for contamination attributable to dredge spoils placed at the Buoy 212 site and to define the nature and extent of any identified contamination. The results of the investigation have been used to assess the potential threats posed by site contaminants relative to human health or the environment.

RI Field Activities

The tasks associated with the Buoy 212 RI activities included site reconnaissance and a records search; a surface soil sampling program; a subsurface soil sampling program; exploration borehole and well drilling programs with concurrent subsurface soil sampling elements; groundwater monitoring well installation and groundwater sampling programs; a drainage network soil and water sampling program; surveying and mapping programs; completion of a human health risk evaluation and a screening-level ecological risk assessment; and report preparation. The investigation began in April 2005 with a site reconnaissance. The final work plan was submitted in February 2006. Field work programs were conducted in late November 2005 and in late February/early March 2006, with some supplemental investigation work completed in May through July 2008.

Quarterly groundwater sampling was performed in March, June, October, and December 2006.

Nature and Extent of Contamination

The following is a summary of the investigations conducted and the contaminants of concern detected at the site:

Drainage network Soils. Drainage network soil samples were collected from eight locations. Two of the eight drainage network samples contained PCBs at concentrations of 2.9 parts per million (ppm) and 8.3 ppm. These results are at concentrations greater than the NYSDEC Part 375-6.8 soil cleanup objective (SCO) established for the unrestricted use of the site (0.1 ppm) and for the SCO applicable to the restricted - commercial use of the site (1.0 ppm). The sample with the higher PCB result was located in the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. The other result was located along the margin of the cover on the eastern side of the site in the vicinity of localized areas of disturbance (likely resulting from burrowing animals that have brought dredge spoil materials to the surface).

Seventeen metals were detected in drainage network soil samples collected from the site. Chromium, lead, mercury and zinc were present at concentrations exceeding applicable NYSDEC SCOs and aluminum, calcium, iron, magnesium, and potassium were found at concentrations exceeding alternative screening criteria (New York State background (95th percentile), Source-Distant Data Set from NYS Brownfield Cleanup Program, Technical Support Document, Appendix D, September 2006). In general, the highest concentrations of metals were found at a sample location in the Hudson River floodplain along the southwestern margin of the site. This location is also where the drainage network soil sample with the highest PCB result was collected.

Drainage Water. There are no sustained surface water bodies on this site. One area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property was identified and sampled once. Water that collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. At the time of sampling, water was flowing through the pass-through culvert and samples were collected along the water path on the west side of the disposal structure. None of the eight drainage water samples that were collected contained PCBs. A total of 10 metals were detected in the drainage water samples collected from the drainage network at the site. Of these, aluminum and iron were detected at concentrations above the NYSDEC Class D surface water standards they were compared to for assessment in nearly all of the eight samples, but the results appear to represent natural conditions of the native soil rather than contamination attributable to the disposal of dredge spoil materials at this site.

Surface Soil. Surface soil samples (covering the 0 to 2-inch soil depth interval) were collected from 65 locations at this site to assess direct human exposures. Samples from the surface at some of the exploration boreholes advanced at this site also contributed to the overall surface soil assessment. All 65 samples were analyzed for PCBs. Results confirm PCBs at 42 surface soil sampling points with 21 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 12 samples reporting concentrations above 1.0 ppm (the Restricted Use - Commercial - SCO applicable to this site). The highest PCB concentration in surface soil was 9.9 ppm in a sample collected from the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. Nearly all of the other results found above the applicable SCOs were either located along the margins of the cover over the site or on top of the cover in the vicinity of areas where burrowing animals are thought to have brought dredge spoil materials to the surface. PCBs in soil are the risk drivers for human health and for wildlife.

The results also indicate that chromium and mercury (metals that may be attributable to the contaminated dredge spoil materials at the site or, in some cases, historical and reoccurring floodplain deposition of contaminated Hudson River sediments) were found at levels exceeding their respective unrestricted and commercial use SCO values in a few samples. These metals are not significant risk drivers for either human health or for wildlife in light of their low frequency.

Subsurface Soil. One hundred and twenty-seven subsurface soil samples (deeper than the 0 to 2-inch soil depth interval) were collected from 56 locations at this site and analyzed for PCBs and metals. Results confirm PCBs in 76 subsurface soil samples with 66 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 53 samples reporting concentrations above 1.0 ppm (the Restricted Use - Commercial - SCO applicable to this site). The highest PCB concentration in the soil under the existing isolation cover was 47 ppm. The highest PCB concentration in the subsurface soil outside of the existing isolation cover and in the vicinity of the closed and covered former dredge spoil disposal area was 2.4 ppm. Nearly all of the subsurface soil results found above the applicable SCOs outside of the existing isolation cover were either located in samples collected from the Hudson River floodplain or in the vicinity of areas where burrowing animals are thought to have disturbed dredge spoil materials along the margins of the closed and covered dredge spoil disposal area. PCBs in soil are the risk drivers for human health and for wildlife.

The results also indicate that cadmium and chromium (metals that may be attributable to the contaminated dredge spoil materials at the site or, in some cases, historical and reoccurring floodplain deposition of contaminated Hudson River sediments) were found at levels exceeding their respective unrestricted use SCO values in a few subsurface soil samples analyzed for these metals. These metals are not significant risk drivers for either human health or for wildlife at the site in light of their low frequency. The same rationale can be applied to the findings for iron although iron may also be naturally occurring as well.

Groundwater. A total of 32 groundwater samples were collected from eight groundwater monitoring wells around the site in March, June, September, October, and December of 2006 to assess the overburden groundwater conditions at the site. All 32 samples were analyzed for PCBs and metals. PCBs were not detected in any of the groundwater samples and none of the primary metals of concern at this site (cadmium, chromium, lead, and mercury) were found at levels exceeding their respective SCO values for groundwater. Other metals (iron, magnesium, manganese, and sodium) were found at levels that exceeded their respective SCO values in the groundwater around the site, but these findings appear to represent natural conditions.

Fate and Transport

The placement and stockpiling of dredge spoil material associated with routine and emergency maintenance dredging operations of the New York State Champlain Canal/Hudson River navigation channel between Canal Lock 7 (Fort Edward) and the floating red nun channel marker Buoy 212 south of Lock 7, have resulted in the disposal of hazardous wastes, including PCBs and metals. These wastes, sporadically entrained within the sediment of the Hudson River and subsequently removed with some of the sediment from the Champlain Canal/Hudson River navigation channel as dredge spoil material in the past, have contaminated the soil at the Buoy 212 site. Historical and reoccurring floodplain deposition of contaminated Hudson River sediments appear to have contaminated the soil upon the narrow floodplain shelf between the Hudson River and the western margin of the closed and covered Buoy 212 dredge spoil disposal site. Even though some environmental samples collected at the site contain metals that can be attributed to site activities at concentrations above the recommended SCOs or alternative screening criteria, in general, the number of metal exceedances was less frequent than the number of PCB exceedances. Therefore, PCBs are the primary contaminants of concern at this site.

Routes of Migration. Natural and man-induced mechanisms that can result in the migration of contaminants from their source areas at this site include: overland water flow, infiltration, groundwater flow, subsurface utilities, volatilization, excavation, grading, and vehicular traffic. Based on the evaluation in Section 6, transportation of PCBs via subsurface utilities, groundwater flow, and volatilization is not expected to occur. Observations regarding the other migration routes are summarized below:

- Overland water flow at the Buoy 212 site occurs primarily during heavy precipitation events or spring snow melts as surface runoff. During heavy precipitation events, runoff is shed radially away from the higher areas of the closed and covered dredge spoil disposal area to the topographic low areas along the eastern and western margins. Along the eastern margin, runoff from Buoy 212 and nearby areas intermittently flows southward and collects in the southeastern part of the Buoy 212 property. Water that intermittently collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. When the volume of collected water is not great enough to spill through the steel culvert, the runoff either infiltrates and/or evaporates without reaching the Hudson River as direct runoff. Along the western margin, runoff accumulates in the lowest portions of the narrow floodplain shelf and either drains slowly into the Hudson River through breaks in the natural and armored bank levy or infiltrates and/or evaporates without reaching the Hudson River as direct runoff.

- Recognizing that there are some areas of soil contamination that are not covered by the relatively impermeable barrier in place over the Buoy 212 dredge spoil disposal structure, infiltration of precipitation and the subsequent flow/percolation of water through the unsaturated zone to groundwater, can cause water soluble contaminants on the surface or in the vadose zone to migrate downward to the water table. Considering that PCBs are relatively insoluble in water, they are not expected to appreciably leach into groundwater. The potential for PCB migration by water is further reduced by the presence of organic carbon in the soil between the surface and the top of the groundwater table, providing carbon sites where PCBs may bind.

- The Buoy 212 dredge spoil disposal structure is closed and covered with a relatively impermeable barrier and is fenced along its perimeter. Unauthorized access to the closed and covered disposal cell and the adjoining Hudson River floodplain area is limited. Considering the current setting of the Buoy 212 site, the migration of PCBs bound to surface soil is very limited.

Qualitative Human Health Risk Evaluation. PCBs, cadmium, chromium, lead, and, mercury have been identified as the chemicals of potential concern (COPCs) in some of environmental samples collected at this site and were evaluated along current and potential future exposure pathways to assess the potential for human exposure risks. The magnitude of exposure and likelihood of potential adverse health effects were assessed qualitatively through comparisons with appropriate risk-based concentrations that were available.

Current human users at and near the closed and covered dredge spoil disposal structure include adult New York State Department of Transportation (NYSDOT) workers involved in sample collections, site inspections, and/or site maintenance activities (like mowing and fence repair) as needed. NYSDOT workers were assumed to be exposed to soil/dredge spoil material at the surface and/or brought to the surface during earth moving activities, in all areas of the site, but primarily within the fenced area where the closed and covered dredge spoil disposal structure is situated. If the site is redeveloped in its current state, potential future site users could include site residents and temporary construction, utility, and maintenance workers. During this hypothetical redevelopment, subsurface soil/dredge spoil material could be brought to the surface as a result of grading and excavation activities associated with construction. Thus, potential future site residents and temporary construction, utility, and maintenance workers were assumed to be exposed to soils/dredge spoil materials to a depth of 10 feet.

The estimated excess cancer risks associated with exposure to the identified COPCs in soil for current site users (adult NYSDOT workers involved in sample collections, site inspections, and/or site maintenance activities as needed) are below the ranges generally considered acceptable by the United States Environmental Protection Agency (EPA) and NYSDEC/New York State Department of Health (NYSDOH), and the non-cancer hazard estimates for these receptors are below the level of potential concern - a non-cancer hazard index of 1. Therefore, no adverse health effects would be expected in these receptors as a result of exposure to COPCs at the site.

The estimated excess cancer risk calculated for potential future site users (construction workers and adult and child residents) exposed to the identified COPCs in soil are within or below the generally acceptable range. The non-cancer hazard estimates for potential future site construction workers and adult residents exposed to soil are at or below the maximum generally acceptable value of potential concern - a non-cancer hazard index of 1. The non-cancer hazard index estimate calculated for exposure to soil for the potential future child resident was 7, indicating that there may be the potential for adverse health effects due to exposure to PCB-contaminated soil/dredge spoil material. However, due to the uncertainly associated with reference doses and the conservative nature of this assessment, resident child exposure to PCB-contaminated soil/dredge spoil material is not likely to result in any adverse health effects. This potential hazard is attributable to presumed PCB exposure to soil at the surface in the Hudson River floodplain along the western margin of the Buoy 212 site outside of the perimeter fence.

Screening Level Ecological Risk Assessment

The ecological risk assessment (ERA) evaluated the existing and potential impacts from the Buoy 212 site to fish and wildlife receptors. This assessment was limited to terrestrial and aquatic habitats that are within the Buoy 212 parcel and does not include the nearby Hudson River or the Champlain Canal. The Hudson River and the portions of the Champlain Canal that are within it are being addressed by the EPA Hudson River PCBs Superfund Site remedial program. The ERA results are summarized below.

- Chemicals detected in soil did not exceed the available phytotoxicity screening benchmarks. Considering this, soils at the site do not pose a risk to terrestrial plant communities.

- The mercury screening benchmark was marginally exceeded at four sampling locations on site; however, three of the exceedances occurred in samples collected between 4 and 6 feet below the ground surface, where the potential for exposure is limited. No other chemicals exceeded the available screening benchmarks. Overall, these results suggest that risks to soil invertebrates from chemicals in soil at the site are minimal.

- Based on food-chain modeling results, total PCBs in soil are likely to pose a risk to song birds, such as the American robin, and small mammals, such as the short-tailed shrew, that feed extensively on soil invertebrates. Risks to carnivorous birds and mammals and other wildlife species with large home ranges appear to be minimal.

- Immature stages of amphibians in the area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property may be at risk from aluminum and iron based on comparison with surface water standards for these substances in the drainage water samples collected at the site.

- Benthic organisms in the intermittent drainage network along the eastern site margin and on the floodplain shelf adjacent to the Hudson River may be affected by several substances (total PCBs, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and vanadium) that were reported above established benchmarks for benthic-life protection in the drainage network soil samples collected from these areas. However, considering that only low-level effect benchmarks were exceeded in a few of the samples, the likelihood of a community-level impact is anticipated to be low.

Overall, the current environmental conditions at the site pose little or no risk to communities of terrestrial plants and soil invertebrates, but may pose a risk to some wildlife species that use the site and perhaps also to aquatic life in the intermittent drainage network on the site and on the floodplain adjacent to the Hudson River.

Conclusions and Recommendations

Conclusions.

- The placement and stockpiling of dredge spoil material associated with routine and emergency maintenance dredging operations of the New York State Champlain Canal/Hudson River navigation channel between Champlain Canal Lock 7 (Fort Edward) and the floating red nun channel marker Buoy 212 south of Lock 7, have resulted in the disposal of hazardous wastes, including PCBs and metals. These wastes, sporadically entrained within the sediment of the Hudson River and subsequently removed with some of the sediment from the Champlain Canal/Hudson River navigation channel as dredge spoil material in the past, have contaminated the soil at the Buoy 212 dredge spoil disposal site.

- Historical and reoccurring floodplain deposition of contaminated Hudson River sediments appear to have contaminated the soil upon the narrow floodplain shelf between the Hudson River and the western margin of the closed and covered Buoy 212 dredge spoil disposal site.

- PCB-contaminated soils/dredge spoil materials are found throughout the closed and covered dredge spoil disposal structure at the Buoy 212 site. These soils/dredge spoil materials are typically dark gray to black, fine to medium sands with varying amounts of silt, black shale fragments, pebble gravel, brick fragments, coal fragments, fused slag, glass shards, and wood debris. Based on observations made during borehole drilling and sampling, materials that could be characterized as dredge spoils varied in thickness from a few inches to nearly 13 feet under the cover established at the site.

- PCBs are present in surface and subsurface soil in some areas of the site at concentrations that exceed the recommended SCOs. However, considering all factors associated with assessing the potential for human exposure, the concentrations of PCBs found in the contaminated soil/dredge spoil are not likely to result in adverse health effects and represent a low risk to humans under the current and anticipated future uses for the site.

- PCBs in surface soil samples (covering the 0 to 2-inch soil depth interval) were confirmed at 42 surface soil sampling points with 21 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 12 samples reporting concentrations above 1.0 ppm (the restricted use - commercial - SCO). The highest PCB concentration in surface soil was 9.9 ppm in a sample collected from the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. Nearly all of the other results found above the applicable SCOs were either located along the margins of the cover over the site or on top of the cover in the vicinity of areas where burrowing animals have brought dredge spoil materials to the surface.

- PCBs in subsurface soil samples (deeper than the 0 to 2-inch soil depth interval) were confirmed in 76 subsurface soil samples with 66 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 53 samples reporting concentrations above 1.0 ppm (the Restricted Use - Commercial - SCO). The highest PCB concentration in the soil under the existing isolation cover was 47 ppm. The highest PCB concentration in the subsurface soil outside of the existing isolation cover and in the vicinity of the closed and covered former dredge spoil disposal area was 2.4 ppm. Nearly all of the subsurface soil results found above the applicable SCOs outside of the existing isolation cover were either located in samples collected from the Hudson River floodplain or in the vicinity of areas where burrowing animals are thought to have disturbed dredge spoil materials along the margins of the closed and covered dredge spoil disposal area.

- Although the immature stages of amphibians in the area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property may be at risk from aluminum and iron based on comparison with surface water standards for these substances, environmental contamination attributable to the dredge spoil materials at the site poses little or no risk to communities of terrestrial plants, invertebrates in soil, or carnivorous birds and mammals.

- Monitoring continues to demonstrate that groundwater is not being impacted by any contaminants attributable to the dredge spoil materials at Buoy 212.

- A single residential well near the site that draws water from the overburden aquifer has been sampled and did not show any impact attributable to the site.

Recommendations for Future Work.

- A detailed study of earthworms collected from the Buoy 212 parcel that involves chemical analysis for total PCBs should be considered to establish a site-specific measurement for the amount of PCB uptake in earthworms as prey of invertivorous wildlife and reduce uncertainty in the risk estimates for the American robin and short-tailed shrew.

- Additional ecological evaluation should be considered for the Buoy 212 site that involves the collection of drainage water and soil from the area where precipitation intermittently flows along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property for use in short-term, chronic toxicity tests to assess whether chemicals that exceed benchmarks in the water and soil from these areas result in observable toxicity.

The findings of these proposed studies/evaluations (if implemented) will be submitted under a separate cover. A companion feasibility study (FS) has been done to address the contamination identified in this RI and provides remedial alternative recommendations.

1 Introduction

1.1 Purpose of the Remedial Investigation

Ecology and Environment Engineering, P.C. (EEEPC) completed the elements of a remedial investigation (RI) at the Buoy 212 Dredge Spoil Disposal Area project site (New York State Department of Environmental Conservation [NYSDEC] Site 558018) for the Division of Environmental Remediation in the NYSDEC under State Superfund Contract Work Assignment D003493-51. Buoy 212is located on the east bank of the Hudson River in the Town of Fort Edward, New York in Washington County, New York (see Figure 1-1 and 1-2).

The purposes of this RI were to:

- Evaluate surface soils, subsurface soil, surface drainage networks, and the groundwater setting for contamination attributable to the Buoy 212 Dredge Spoil Disposal Area;
- Define the nature and extent of identified contamination at or in the vicinity of the site;
- Define and evaluate potential pathways of contaminant migration;
- Generate a human health exposure risk assessment that documents whether or not conditions at the site pose a potential human health exposure risk, and provides data useful to the evaluation of remedial activities and alternatives;
- Generate an ecological risk assessment (ERA) that documents whether or not conditions at the site pose a potential ecological risk; and
- Provide the data necessary to identify potential remedial alternatives to mitigate contamination problems that pose threats to public health or the environment.

1.2 Site Background

1.2.1 Site Description

The Buoy 212 Dredge Spoil Disposal Area site is located along the eastern shore of the Hudson River in the town of Fort Edward (Washington County), about 1.3

miles down-river (south) of Champlain Canal Lock 7 and near the floating red nun Buoy 212 that marks the eastern margin of the navigation channel of the Champlain Canal within the Hudson River (see Figures 1-1 and 1-2). The site consists of a closed and covered basin and earthen containment berm complex built by the Waterways Maintenance Division of the New York State Department of Transportation (NYSDOT) to dewater and hold sediment removed from the Champlain Canal/Hudson River navigation channel south of Canal Lock 7 - with emphasis on the navigation channel in the Hudson River between the Buoy 212 and Buoy 216 channel markers - in conjunction with routine and emergency maintenance dredging operations of the Canal System. The unlined settling basin system at this site was initially constructed by excavating the native soils on the property slightly and grading the displaced soils outward and upward to form the various containment berms. During subsequent maintenance operations, it is likely that some of the older dredge spoil materials were re-graded in order to deepen the settling basin and accommodate the disposal of additional dredge spoil materials. In its present closed and covered state, the dredge spoil disposal structure is about 200 feet wide and extends about 850 feet along the shore of the Hudson River with a foot-print covering nearly 4.1 acres on a parcel owned by New York State. The adjoining property to the north is privately owned and occupied by a single dwelling and a few outbuildings. The residence on this property is connected to a public water supply. The adjoining property to the east is occupied by a single dwelling and several outbuildings and small service structures. There is a private well on this property that draws water from the overburden aquifer. The well is approximately 300 feet away from the eastern margin of the site. The adjoining property to the south is an open field and is being used as a temporary support area and access point to the Hudson River for the Hudson River Dredging Project.

The Hudson River and the Champlain Canal adjacent to Buoy 212 are part of the United States Environmental Protection Agency's (EPA's) Hudson River PCBs Superfund Site as listed on the National Priority List (NPL) and listed in the Department's "Registry of Inactive Hazardous Waste Disposal Sites in New York State" under site number 546031 with a Class 2 designation (a site where hazardous waste disposal has been confirmed and presents a significant threat to public health and/or the environment - action is required). PCBs, from two upstream General Electric plant site sources, are the main contaminants of concern for this NPL site. These wastes, sporadically entrained within the sediment of the Hudson River and subsequently removed with some of the sediment from the Champlain Canal/Hudson River navigation channel as dredge spoil material in the past, have contaminated the soils at the Buoy 212 site.

The geologic setting for the Buoy 212 site has a varied mixture of silts, sands, gravel, and clay and that were placed over bedrock by natural processes and a varied mixture of sand, silt, shale fragments, and debris that were placed over the earlier lacustrine and alluvial deposits by unnatural processes a relatively short time ago.

The overburden materials in the natural setting are located in most areas outside of the basin and berm system at the site. The overall thickness of these native soils at Buoy 212 is not known, but earlier work by others report similar undisturbed silts, sands, gravel, and clay to a depth about 40 feet lower than the bottom of the Buoy 212 dredge spoil disposal structure (Malcolm Pirnie 1992).

The overburden materials in the unnatural setting are best described as mechanically reworked native soil mixed with dredge spoil materials in the closed and covered dredge spoil disposal structure. The dredge spoils are typically dark gray to black, fine to medium sands with varying amounts of silt, black shale fragments, pebble gravel, brick fragments, coal fragments, fused slag, glass shards, and wood debris. Based on observations made during borehole drilling and sampling, materials that could be characterized as dredge spoils varied in thickness from a few inches to nearly 13 feet.

Groundwater flow at this site typically moves away from the topographic rise on the eastern side and toward the Hudson River in a general west-southwest direction. Based on groundwater elevation measurements and other observations made during the RI, lines of equal groundwater elevation are nearly parallel with the shore of the River and groundwater appears to flow through the native overburden soils just below the dredge spoil materials placed at the site most of the year.

1.2.2 Operational/Disposal History

As described above, a single unlined settling basin and baffle system was constructed at this site by the Waterways Maintenance Division of the NYSDOT and was used to dewater and hold dredge spoil material removed from the Champlain Canal/Hudson River navigation channel south of Champlain Canal Lock 7 - with emphasis on the navigation channel in the Hudson River between the Buoy 212 and Buoy 216 channel markers - in conjunction with routine and emergency maintenance dredging operations of the Canal System. Available NYSDOT records report that the Buoy 212 dredge spoil disposal area was used between 1970 and 1979. The records covering this period report the disposal of an unspecified volume of the 283,021 cubic yards (CY) of dredge spoil material processed in 1970 for the given stretch of River and the disposal of 28,725 CY in 1976 from the navigation channel between the Buoy 212 and Buoy 216 channel markers. Records also indicate that dredge spoils were also placed at Buoy 212 in 1979, but do not provide a specific volume out of the 66,930 CY processed that year for the given stretch of river. The Buoy 212 site was last used in 1979 and covered with 12-inches of sand and seeded. As described earlier, PCB contamination at the Buoy 212 site is attributable to the presence of PCB wastes (from activities at two upstream General Electric plant site sources) in some Hudson River sediments that were removed from the Champlain Canal/Hudson River navigation channel as dredge spoil material.

1.2.3 Remedial History/Previous Investigations

During an assessment of areas with possible PCB contamination in the Upper Hudson River Valley completed by Weston Environmental for NYSDEC in 1978, it was found that the soils/dredge spoil materials at this site were contaminated with PCBs at levels up to 264 parts per million (ppm). As mentioned previously, the Buoy 212 site was last used in 1979 and covered with 12 inches of sand and seeded. Monitoring wells were also installed and a monitoring program was established. These actions were done in compliance with Toxic Substances Control Act (TSCA) requirements imposed by the EPA when they issued an approval for the temporary storage/disposal of PCB-laden material at this site in September 1979. Monitoring confirmed PCB contamination in the local groundwater and shallow soils at the site and a soil sampling program initiated in 1989 confirmed PCB contamination at the site within the limits of the closed dredge spoil disposal structure.

In May of 1989, NYSDEC listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York State. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

In 1991, a TSCA-approved clay cover was added over the existing “standard turf” cover. The new cover was constructed by the NYSDOT and the earlier monitoring wells were replaced. Subsequent monitoring demonstrated that PCB levels in the local groundwater diminished such that PCBs were no longer detected in the groundwater following the installation of the TSCA-approved cover. A follow-up assessment completed by Malcolm Pirnie in 1992 for NYSDEC confirmed the presence of PCB contamination at the Buoy 212 site at levels greater than 50 ppm, the definition of hazardous waste, in five of the 21 samples that had reportable PCB detections. PCB concentrations for all samples ranged between non-detect (less than 2 ppm) and 180 ppm. Based on the results of the Malcolm Pirnie study, it was estimated that the Buoy 212 site contained 65,500 CY of contaminated soil with a PCB concentration greater than 2 ppm. The mass of PCBs at this site was also estimated to be 7,000 pounds in the Malcolm Pirnie report.

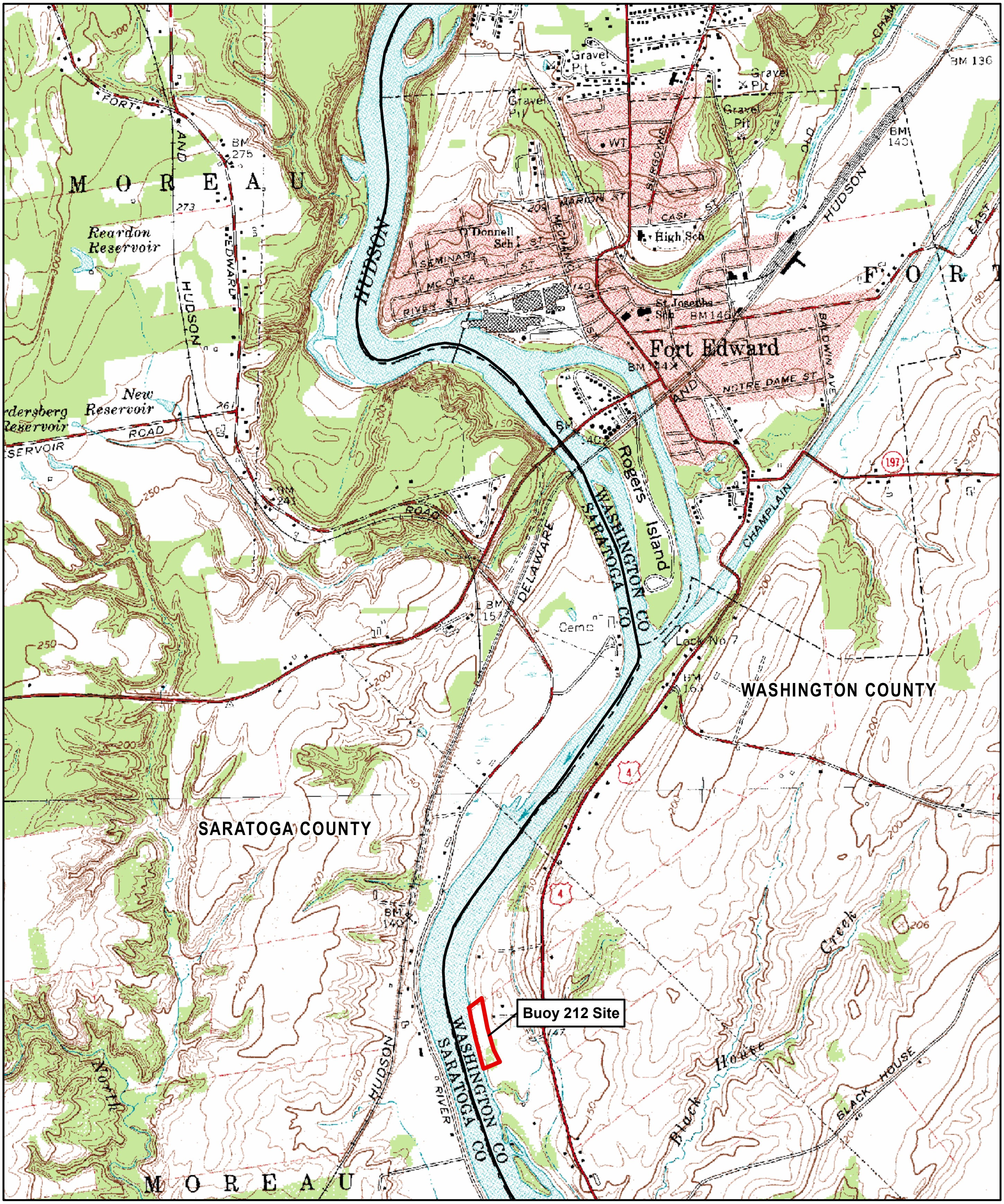
The site was removed from the New York State Registry of Inactive Hazardous Waste Disposal Sites in March 1998 because it was determined that TSCA facilities do not meet the definition of inactive sites. Personnel from NYSDOT inspect and sample the groundwater monitoring wells and maintain the site under the TSCA program. The most recent TSCA program inspection occurred on May 20, 2010.

A series of 11 surface soil samples and two nearshore floodplain/sediment samples were collected from the adjoining residential property to the north of the Buoy 212 site in August of 1998 by NYSDEC. PCBs were detected at concentrations of 10.4 ppm and 19.94 ppm in two of the 11 surface soil samples - and at concentrations of 1 ppm and 6.5 ppm in the two nearshore floodplain/

sediment samples. These findings were included in the NYSDEC's "July 2001 Dredge Spoils Investigation Report."

In 2005, NYSDEC contracted EEEPC to perform the Buoy 212 RI/Feasibility Study (FS) to characterize the nature and extent of contamination at the site and to develop remedial alternatives to address that contamination. Reports covering the details of RI/FS were finalized in February 2011. In these reports, it was estimated that the Buoy 212 site contains approximately 56,000 CY of contaminated material.

An Interim Remedial Measure (IRM) was completed in August 2010 to address an area where PCB-contaminated soils/dredge spoil materials were identified on an adjacent property at concentrations above 0.1 ppm (the unrestricted use Standards, Criteria and Guidance value). Approximately 100 CY of PCB-contaminated soils/dredge spoil materials were excavated and removed to an off-site disposal facility during the IRM Soil Removal Program. Subsequent soil sampling confirmed that the remedial measure was effective and successful. The causeway has been restored with clean materials (Precision Environmental Services 2010).



Approximate Site Boundary

County Boundary

0 0.25 0.5
Miles

Figure 1-1
Site Location and Topography
Buoy 212 Dredge Spoils Disposal Area
NYSDEC Remedial Investigation

Figure 1-2
Site Base Map
Buoy 212 Dredge Spoil
Remedial Investigation
and Feasibility Study
Fort Edward, New York

2 Remedial Investigation Activities

2.1 Site Reconnaissance and Records Search

Prior to work plan development, site reconnaissance was conducted at the Buoy 212 site on April 7, 2005 to identify potential sampling locations and to evaluate equipment access with site personnel.

NYSDEC provided EEEPC with copies of pertinent historical site investigation reports for review and incorporation into the project work plan and this RI report. In addition, various environmental geographic information system (GIS) shape files and property ownership data were obtained and used for this site investigation.

EEEPC reviewed available reports from previous site investigation activities including:

- Malcolm Pirnie, 1977, *Maintenance Dredging, Champlain Canal, Fort Edward Terminal Channel, Fort Edward, New York*;
- Malcolm Pirnie, 1979, *Removal and Disposal of PCB-Contaminated River Bed Materials*;
- Malcolm Pirnie, 1992, *Hudson River PCB Project Dredge Spoil Sites Investigation*; and
- Weston, 1978, *Migration of PCBs from Landfills and Dredge Spoil Sites in the Hudson River Valley, New York.*

Historical aerial photographs and historical topographic maps were also reviewed to assist in the understanding of the past use of this site and with the selecting of site investigation sampling locations.

2.1.1 Health and Safety Monitoring

During the field investigation, the site safety officer performed air monitoring to characterize potential airborne vapor and particulate concentrations, including volatile organic vapors and explosive gases. The air monitoring was conducted for the protection of site workers and the community and to characterize environmental samples. Action levels for each monitoring instrument were detailed in the site-specific Health and Safety Plan (HASP) (EEEPC 2005). Levels of organic vapors were measured in the workers' breathing zone, for which action levels are based. Oxygen-deficient and combustible gas monitors were positioned at a location (e.g., at the top of the boreholes) that measured worst-case concentrations and provided the earliest possible warning that a hazardous condition may form. No organic vapors, oxygen deficiencies, or combustible gas concentrations were detected during any part of the field investigation.

During drilling, air monitoring was conducted downwind for particulates and organic vapors in accordance with the Community Air Monitoring Plan (EEEPC 2005). The purpose of this program was to provide a measure of protection for the downwind community and receptors and to confirm that remedial work activities did not spread contamination away from the site through the air. Continuous organic vapor monitoring was conducted in the breathing zone of each drilling location during drilling/sampling using a photo-ionization detector (PID) (MiniRAE 2000) equipped with a 10.6 electron-volt lamp. Concentrations were monitored directly on the instrument display by the EEEPC site-safety officer and were frequently recorded in a notebook during intrusive activities. No organic vapors were detected above background levels during drilling, sampling, or other investigation activities. Particulate monitoring was conducted using MIE DataRam dust monitors equipped with omni-directional sampling ports capable of measuring particulate matter of less than 10 microns (PM_{10}). Particulate monitors were placed downwind of each drilling location (except when precipitation eliminated the need for dust monitoring or during inclement weather when rain or temperatures below 40ºF could damage the equipment). The monitors were programmed to record time-weighted averages every 15 minutes and were frequently monitored by EEEPC's site-safety officer. During the Buoy 212 investigation, particulate monitoring was only conducted on two days during the intrusive sampling activities due to weather limitations. Downwind particulate levels did not exceed the action level of 100 micrograms per cubic meter ($\mu g/m^3$) at any time. Particulate monitoring results are provided in Appendix A.

Prior to initiating intrusive subsurface activities, EEEPC coordinated with site personnel and the Underground Facilities Protection Organization to identify and locate underground utilities.

2.2 Field Activities

The tasks associated with the Buoy 212 RI included site reconnaissance and a records search (see Section 2.1); a surface soil sampling program, exploration borehole and well drilling programs with concurrent subsurface soil sampling elements; well installation and groundwater sampling programs; a drainage network soil and water sampling program; surveying and mapping programs; completion of a human health risk evaluation and a screening-level ecological risk assessment; and report preparation.

For reference, any boring advanced through the obvious cover over the closed dredge spoil disposal structure at this site was called a cover borehole and given the sample prefix CBH; any boring advanced in areas along the supposed margins of the cover area was called a margin borehole and given the sample prefix MBH; any boring installed in the area south of the closed dredge spoil disposal structure was called a southern borehole and given the prefix SBH; and any sampling point advanced using a hand auger at the site was given the prefix PBH in conjunction with this remedial investigation.

The field investigation began on November 29, 2005, when eight drainage network soil samples (SD-01 through SD-08) and eight drainage network water samples (SW-01 through SW-08) were collected from areas where precipitation intermittently drains and collects on the Buoy 212 property (see Section 2.2.1); and 24 surface soil samples (SS-01 to SS-24) were collected at the site. Between February 23, 2006 and March 1, 2006, 12 cover boreholes (CBH-01 through CBH-12) and nine margin boreholes (MBH-01 through MBH-08 and MBH-08A) were drilled and sampled. In addition, three new groundwater monitoring wells (MW-05 through MW-07) were installed to supplement the four existing groundwater monitoring wells at the site, the recovered soils were sampled, and the new wells were developed (see Figure 2-1). Quarterly groundwater sampling of the new and existing monitoring wells was conducted in March, June, October, and December 2006.

Supplemental investigation work was completed at the Buoy 212 site in May, June, and July of 2008 to further define the extent of contamination. During these efforts, nine borings (SBH-01 through SBH-09) were advanced in an area south of the dredge spoil disposal structure; four sampling points (PBH-01 through PBH-04) were advanced near the presumed perimeter of the disposal structure using a hand auger; and three surface soil samples (SS201- SS-203) were collected on May 16, 2008. Work completed between June 10, 2008, and June 12, 2008, involved the installation of 28 more hand auger sampling points (PBH-05 through PBH-28) near the presumed disposal structure's perimeter; the collection of two more surface soil samples (PBH-SS208a and PBH-SS20a) at the site; and the collection of surface and subsurface soil samples on a neighboring property where dredge spoil materials from the Buoy 212 site were used to construct a narrow causeway for access to the dredge spoil dewatering/disposal structure when it was first established in 1970 and where NYSDOT had set up a field office and break area for workers while the Buoy 212 dredge spoil dewatering/disposal structure was being used (see Appendix M). The last phase of field work was completed on July 7, 2008, and involved the installation of three additional hand auger sampling points (PBH-12, PBH-14 and PBH-16) near the presumed disposal structure's perimeter and the completion of site surveying work. The RI field activities were performed in accordance with *The Technical Work Plan for the Remedial Investigation and Feasibility Study at the Buoy 212 Dredge Spoil Disposal Area* developed by EEEPC and approved by NYSDEC in November 2005.

The methodologies and specific goals of each of these activities are described further in this section. Analytical sampling results are discussed in Sections 4 and 5. A photographic log of the field activities and sampling locations is presented in Appendix B. Appendix C provides all borehole and monitoring well descriptive logs. Refer to Appendix E for all monitoring well development logs and to Appendix G for all well purge and sampling records.

2.2.1 Drainage Network Soil and Water Sampling

There are no sustained surface water bodies on this site. One area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property was identified and sampled once. Water that collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. At the time of sampling, water was flowing through the pass-through culvert and samples were collected along the water path on the west side of the disposal structure. Soil samples were also collected along the water path at the locations where the drainage water samples were collected for analysis. The location of these sampling points is shown on Figure 2-1.

Eight drainage network soil samples (SD-01 through SD-08) and eight drainage water samples (SW-01 through SW-08) were collected on November 29, 2005. Drainage network soil and water sample sets were collected at three locations (SW/SD-03 through SW/SD-05) in the drainage network along the eastern margin, at three locations (SW/SD-06 through SW/SD-08) in the area runoff collects intermittently in the southeastern part of the Buoy 212 property, and at two locations (SW/SD-01 through SW/SD-02) along the drainage network on the west side of the disposal structure and on the floodplain shelf adjacent to the Hudson River.

The analyses selected for these samples are summarized in Tables 2-1 and 2-2.

2.2.2 Surface Soil Sampling

A total of 65 surface soil samples (covering the 0 to 2-inch soil depth interval) were collected from 65 sampling locations at this site to assess direct human exposures. Samples from the surface at some of the exploration boreholes advanced at this site also contributed to the overall surface soil assessment. Twenty-six samples were collected from locations on the closed and covered dredge spoil disposal structure at this site and 39 samples were collected from locations beyond the margins of the disposal structure, including 14 points in the Hudson River floodplain along the west side of the site (see Figure 2-1).

The analyses selected for all of these samples are summarized in Table 2-3.

Another series of 10 surface soil samples were collected at 10 locations on a neighboring property where dredge spoil materials from the Buoy 212 site were used to construct a narrow causeway for access to the dredge spoil dewatering/disposal structure when it was first established in 1970 and where NYSDOT had set up a field office and break area for workers while the Buoy 212 dredge spoil dewatering/disposal structure was being used. These samples are discussed further in Appendix M and not in the main report because the soils where PCB contamination was identified at concentrations above 0.1 ppm (the unrestricted use SCO) were removed during an IRM and are no longer part of the current site conditions that are being assessed.

2.2.3 Borehole/Well Drilling and Subsurface Soil Sampling

A total of 13 cover boreholes, nine margin boreholes, nine southern area boreholes, 32 perimeter boreholes, and three new groundwater monitoring wells were installed in and around the closed and covered dredge spoil disposal structure as part of the exploration borehole and well drilling programs at the Buoy 212 site. These programs, and their concurrent subsurface soil sampling elements, were used to evaluate the subsurface soil local groundwater conditions and chemistry at the Buoy 212 site; define the nature and three-dimensional extent of any identified contamination at or in the vicinity of the site; and define and evaluate potential pathways of contaminant migration. The information gathered during this program was also used to define the extent of cover over the closed dredge spoil disposal structure at this site. A sample collection summary, including sampling depth, soil description, and the analyses performed, is provided in Table 2-4. Drilling by machine was conducted between February and March of 2006, using a CME-45 drill rig operated by GeoLogic NY, Inc., under the supervision of an EEEPC field team. Supplemental drilling by machine was conducted in May of 2008, using a direct-push technology rig operated by Aztech Technologies, again with the supervision of an EEEPC field team. Borehole installation by hand auger and shovel was conducted between May and June of 2008 by EEEPC field teams. Borehole and monitoring well logs are provided in Appendix C.

A total of 127 subsurface soil samples were collected from the 13 cover boreholes, the nine margin boreholes, the three new monitoring well boreholes, 25 of the perimeter boreholes, and six of the southern area boreholes. The cover boreholes and the monitoring well boreholes were installed to a maximum depth of 20.2 feet below the existing ground surface and up to five subsurface soil sample intervals were collected for chemical analysis from each borehole. Samples selected for chemical analysis at each of these boreholes included at least: one sample of material that could be characterized as dredge spoil (if present and distinguishable), one sample from a soil interval above any distinguishable dredge spoil material, and one sample from a soil interval below any distinguishable dredge spoil material, as applicable. The nine margin boreholes were drilled to a maximum depth of 11 feet below the existing ground surface. The southern area boreholes were installed to depths ranging between two and eight feet using a direct-push drill rig. The perimeter boreholes were installed to a maximum depth of 2 feet using a hand auger or shovel. Up to three subsurface soil samples were collected from each of these locations. As with the cover borehole and monitoring well borehole locations, one soil sample selected for chemical analysis at each of these other boreholes included at least one sample of any material that could be characterized as dredge spoil (if present and distinguishable) and one sample from a soil interval below any distinguishable dredge spoil material, as applicable. All subsurface soil recoveries were screened with a PID for organic vapors and a description of the soil core was recorded in the logbook. All subsurface soil samples selected for chemical analysis were placed in appropriate sample containers using a dedicated stainless-steel spoon for each individual sample.

In addition, three representative samples of the primary soil types encountered at the site during borehole drilling activities (clay, sand, and soil material that could be characterized as dredge spoil), were submitted for geotechnical testing to confirm soil descriptions and provide basic particle size distribution information for use in the Feasibility Study. Test results for the “clay” sample did not match the prevailing field descriptions as 79% of the sample was classified as silt and clay that contained approximately 3.5% organic matter (see Appendix D). The results for the “sand” sample were consistent with the field descriptions as over 90% of the sample material was classified as sand with approximately 0.5% organic matter. The results for the “dredge spoil” sample were consistent with the field descriptions with 80% of the sample classified as sand, 14% as silt, and a total organic content of 7.3%.

A series of 19 subsurface soil samples were collected from 10 locations on a neighboring property where dredge spoil materials from the Buoy 212 site were used to construct a narrow causeway for access to the dredge spoil dewatering/disposal structure when it was first established in 1970. NYSDOT had set up a field office and break area for workers while the Buoy 212 dredge spoil dewatering/disposal structure was being used. These samples are discussed further in Appendix M and not in the main report because the soils where PCB contamination was identified at concentrations above 0.1 ppm (the unrestricted use SCO) were removed during an IRM and are no longer part of the current site conditions that are being assessed.

2.3 Groundwater Investigation

2.3.1 Monitoring Well Installation

Three new groundwater monitoring wells (MW-05 through MW-07) were installed to supplement the five existing groundwater monitoring wells at the site in accordance with the work plan.

Each new monitoring well was constructed using a 10-foot segment of 2-inch inner diameter (ID) polyvinyl chloride (PVC) screen with a 0.010-inch slot size, followed by a sufficient length of 2-inch ID Schedule 40 PVC riser to reach an appropriate working height above existing grade. All PVC connections were flush-threaded and a threaded PVC cap was placed on the bottom of each screen prior to installation. U.S. Silica #0 sand was used to build a sand pack around the screen that extended from below the screen to about 2-feet above the screen elevation. The sand pack was followed by a 2-foot-thick pelletized bentonite seal. After the bentonite seal was allowed to hydrate for a minimum of 30 minutes, a 5% bentonite/cement grout mixture was installed in the space above the bentonite seal to about 1 foot below the ground surface. Each well is sealed and protected at the surface by a poured concrete anti-percolation pad, a steel protective casing, and a padlock. All PVC well risers were fitted with a watertight locking J-plug cap. The three newly installed monitoring wells were all screened in a soil interval below any soil material that could be characterized as dredge spoil. Table 2-4 summarizes the borehole drilling and subsurface samples collected and Table 2-5 summarizes the monitoring well construction data. Well boring and construction logs are presented in Appendix C.

2.3.2 Monitoring Well Development

The EEEPC field team developed the newly installed monitoring wells on March 21, 2006. Well development was conducted using a decontaminated submersible pump at the maximum flow rate that would not draw the water level down to the pump. The pump was slowly moved to different depth intervals within the screened interval to draw fine particles out of the sand pack and into the well for removal without surging the well. Temperature, pH, conductivity, and turbidity measurements were recorded to monitor the progress of the development process. Development was performed in most wells until pH, specific conductance, and temperature stabilized over three consecutive readings and turbidity of the discharge was 50 nephelometric turbidity units (NTUs) or less. Appendix E contains the well development records for each well.

2.3.3 Groundwater Sampling

A total of 32 groundwater samples were collected from three new monitoring wells and the existing five monitoring wells around the site in March, June, September-October, and December of 2006 to assess the overburden groundwater conditions at the site. All 32 samples were analyzed for PCBs and metals. In addition, a single groundwater sample was collected from a residential well near the site in June of 2008. The well draws water from the overburden aquifer. The sample was analyzed for PCBs and metals.

The monitoring wells were sampled no sooner than 24 hours after development/purging was completed in order to allow the well adequate time to recover. Groundwater sampling was performed in accordance with the procedures outlined in the RI work plan (EEEPC 2005).

Prior to sampling each monitoring well, static water levels were measured and used to determine the volume of standing water in the well and the volume of water to be purged in each case (typically three volumes of water standing in each well; see Table 2-6). Submersible pumps with well-dedicated polyethylene tubing were used for purging and sampling each well during all four rounds of groundwater sampling. Dedicated bailers and new dedicated nylon cord were used for wells that had insufficient water for pumping. Temperature, pH, conductivity, and turbidity measurements were recorded throughout the well purging process and immediately prior to sampling. Purging was continued until either groundwater turbidity was below 50 NTUs or five well volumes were purged. Table 2-7 is a record summary of sample numbers, dates, and groundwater parameters that were measured as part of the purging/sampling process. See Appendix G for well purge and sample records.

2.4 Laboratory Analysis

Severn Trent Laboratories (STL) of Buffalo, New York, performed the laboratory analyses for this project. STL followed NYSDEC Analytical Services Protocol (ASP) of June 2000 for analytical methods, quality assurance (QA)/quality control (QC), holding times, and reporting requirements. Laboratory data were reported with full data package (Category B) and standard laboratory electronic data deliverable (EDD) consistent with the Automatic Data Review (ADR) program. Samples selected for PCB screening level analysis were reported with a Category A data package.

Two analytical approaches were used to analyze for PCBs in soil: a screening method and SW-846 EPA Method 8082. The screening method is a modified EPA Method 8082 using a medium-level extraction approach. This laboratory method used smaller sample size and higher detection limits to facilitate rapid extraction and analysis of the samples and provided results within 72 hours. A standard EPA Method 8082 extraction/analysis typically provides a lower detection limit analysis for PCB samples and was used for confirmation purposes during this project. Sixty-one percent of the soil samples collected and submitted for PCB analysis were processed using the screening method, and approximately 21% of these samples were also processed using the standard EPA Method 8082 PCB analysis. The other 39% of the soil samples submitted for PCB analysis were processed using the standard EPA Method 8082 PCB analysis. All groundwater monitoring well samples and all drainage water samples were analyzed using the standard EPA Method 8082 analysis. The water sample collected from the nearby residential well was analyzed for PCBs using EPA Method 608 (an alternative method similar to EPA Method 8082 that also typically provides a low detection limit analysis for PCBs).

About 70% of the soil samples that were submitted for metals analysis were tested for cadmium, chromium, lead, and mercury only, as these metals are known to be sporadically entrained within the sediment of the Hudson River from upstream sources, and because they are the metals that potentially pose the greatest human health exposure risk at the site. The remaining 30% of the samples submitted for metals analysis were tested for the full suite of 23 Target Analyte List (TAL) metals. All groundwater monitoring well samples, all drainage network water samples, and all surface soil samples collected along the intermittent drainage network at the site, were analyzed for TAL metals plus mercury using EPA Method 6010 and EPA Method 7471. The water samples collected from the nearby residential wells were analyzed for TAL metals using EPA Method 200.7

(an alternative method similar to EPA Method 6010 that also typically provides a low detection limit analysis for PCBs).

2.5 Site Survey

Lu Engineers of Penfield, New York, performed some initial site survey during the week of March 24, 2006. Surveying included measuring the horizontal locations and vertical elevations of the 12 cap boreholes, nine margin boreholes, three new groundwater monitoring wells, and the five existing groundwater monitoring wells. Surface soil sampling locations and the eight drainage network soil and water sample locations were located by EEEPC personnel using a portable global positioning system (GPS) unit. Popli Consulting Engineers and Surveyors of Penfield, New York, performed some additional site survey work on July 7, 2008. The new surveying work provided horizontal locations and vertical elevations for one of the cover boreholes, 21 of the perimeter boreholes, 36 additional points along the western property boundary, and the 10 sampling locations on a neighboring property where dredge spoil materials from the Buoy 212 site were used to construct a narrow causeway for access to the dredge spoil dewatering/disposal structure when it was first established in 1970 and where NYSDOT had set up a field office and break area for workers while the Buoy 212 dredge spoil dewatering/disposal structure was being used. Vertical control was established to the nearest ±0.1 foot for all ground level readings and all monitoring well inner casing elevations were measured to the nearest 0.01 foot. Elevations were determined relative to the North American Vertical Datum of 1988 (NAVD 88). Coordinates were provided in the New York State Plane East Zone (feet), North American Datum (NAD) 1983 to an accuracy of ±0.5 foot. GPS coordinate accuracy is estimated at ±3 feet.

2.6 Investigation-derived Waste Handling

The following types of investigation-derived waste (IDW) were generated: soil from the subsurface drilling program; water used to decontaminate equipment used during the RI; groundwater from monitoring well development, purging, and sampling; and spent personal protective equipment (PPE) and sampling equipment. Investigation-derived soils and decontamination water were containerized in 55-gallon steel drums and sampled to determine whether these wastes were potentially contaminated with PCBs and/or metals. The analytical results for the IDW are presented in Appendix F. Based on the analytical results, most of the soil cuttings were returned to the ground near where they were derived. Soils that contained trace levels of PCBs were placed in drums and removed from the site by a licensed disposal company in April of 2009. All decontamination water was containerized and later removed from the site for disposal at a licensed disposal facility.

The groundwater generated from monitoring well development, purging, and sampling was field-screened for organic compounds with a PID and visually inspected to initially determine if the water was grossly contaminated. Based on these observations and the first round of analytical results, all well development and well purge water was released to the ground near the monitoring well and allowed to infiltrate.

All PPE and all disposable sampling equipment was handled and disposed of as solid waste.

Table 2-1 Drainage Network Sample Summary, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Sample Identification Number	Date and Time Collected	Analysis					Duplicate	MS/MSD
		PCB Screen	PCB by 8082	TAL Metals	Short List Metals	TOC		
B212-SW-01	11/29/05 9:20		X	X				
B212-SW-02	11/29/05 9:35		X	X				
B212-SW-03	11/29/05 9:50		X	X				
B212-SW-04	11/29/05 10:05		X	X			X	
B212-SW-05	11/29/05 10:20		X	X				
B212-SW-06	11/29/05 10:35		X	X				
B212-SW-07	11/29/05 10:50		X	X				X
B212-SW-08	11/29/05 11:05		X	X				

Key:

MS/MSD = Matrix spike/matrix spike duplicate.
PCB = Polychlorinated biphenyl.
TAL = Target Analyte List.
TOC = Total organic carbon.

Table 2-2 Drainage Network Sample Summary, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Sample Identification Number	Date and Time Collected	Analysis					Duplicate	MS/MSD
		PCB Screen	PCB by 8082	TAL Metals	Short List Metals	TOC		
B212-SD-01	11/29/05 9:20	X		X		X		
B212-SD-02	11/29/05 9:35	X		X		X		
B212-SD-03	11/29/05 9:50	X		X		X		
B212-SD-04	11/29/05 10:05	X	X	X		X	X	
B212-SD-05	11/29/05 10:20	X		X		X		
B212-SD-06	11/29/05 10:35	X		X		X		
B212-SD-07	11/29/05 10:50	X	X	X		X		X
B212-SD-08	11/29/05 11:05	X		X		X		

Key:

MS/MSD = Matrix spike/matrix spike duplicate.
PCB = Polychlorinated biphenyl.
TAL = Target Analyte List.
TOC = Total organic carbon.

Table 2-3 Surface Soil Sample Summary, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Sample Identification Number	Date and Time Collected	Analysis					Duplicate	MS/MSD
		PCB Screen	PCB by 8082	TAL Metals	Short List Metals	TOC		
B212-SS-01	11/29/05 15:15	X						
B212-SS-02	11/29/05 15:28	X	X					
B212-SS-02/D	11/29/05 15:28	X	X				X	
B212-SS-03	11/29/05 15:37	X			X			
B212-SS-04	11/29/05 15:46	X	X					
B212-SS-05	11/29/05 15:49	X						
B212-SS-06	11/29/05 15:53	X						
B212-SS-07	11/29/05 15:59	X	X		X			
B212-SS-08	11/29/05 16:05	X						X
B212-SS-09	11/29/05 16:24	X						
B212-SS-10	11/29/05 16:28	X			X			
B212-SS-11	11/29/05 16:32	X						
B212-SS-12	11/29/05 16:33	X						
B212-SS-13	11/29/05 16:36	X						
B212-SS-14	11/29/05 16:40	X						
B212-SS-15	11/29/05 16:44	X						
B212-SS-16	11/29/05 16:48	X						
B212-SS-17	11/29/05 16:53	X						
B212-SS-18	11/29/05 16:48	X						
B212-SS-19	11/29/05 16:51	X						
B212-SS-20	11/29/05 16:53	X			X			
B212-SS-21	11/29/05 16:58	X						
B212-SS-22	11/29/05 17:04	X		X				X
B212-SS-22/D	11/29/05 17:04	X		X			X	
B212-SS-23	11/29/05 17:10	X	X					X(8082 Only)
B212-SS-24	11/29/05 17:18	X						
B212-PBH-01-01	5/16/08 10:23		X					
B212-PBH-02-01	5/16/08 10:53		X					
B212-PBH-03-01	5/16/08 11:29		X		X			
B212-PBH-04-01	5/16/08 12:02		X					
B212-PBH-05-01	6/10/08 10:43		X					
B212-PBH-06-01	6/10/08 11:11		X		X			
B212-PBH-07-01	6/10/08 11:20		X					
B212-PBH-08-01	6/10/08 11:32		X					
B212-PBH-09-01	6/10/08 11:41		X					
B212-PBH-10-01	6/10/08 11:56		X					
B212-PBH-11-01	6/10/08 13:35		X					
B212-PBH-12-01	6/10/08 13:47		X					
B212-PBH-13-01	6/10/08 14:01		X					
B212-PBH-14-01	6/10/08 14:13		X				X	
B212-PBH-15-01	6/10/08 14:27		X					X
B212-PBH-16-01	6/10/08 14:40		X					
B212-PBH-17-01	6/11/08 7:42		X	X				
B212-PBH-18-01	6/11/08 8:06		X				X	
B212-PBH-19-01	6/11/08 8:34		X					
B212-PBH-20-01	6/11/08 11:21		X					
B212-PBH-21-01	6/11/08 11:38		X					
B212-PBH-22-01	6/11/08 12:06		X		X			
B212-PBH-23-01	6/11/08 0:00		X					
B212-PBH-19a-01	6/12/08 7:02		X					
B212-PBH-23a-01	6/12/08 7:08		X		X			
B212-PBH-SS208a-01	6/12/08 7:18		X					X
B212-PBH-SS20a-01	6/12/08 7:25		X					X
B212-PBH-24-01	6/12/08 7:39		X		X			
B212-PBH-25-01	6/12/08 7:45		X					
B212-PBH-26-01	6/12/08 8:02		X					
B212-PBH-27-01	6/12/08 8:18		X					
B212-PBH-28-01	6/12/08 8:39		X				X	
B212-SBH-01-01	5/16/08 9:45		X		X			
B212-SBH-02-01	5/16/08 10:45		X					
B212-SBH-03-01	5/16/08 11:30		X					
B212-SBH-04-01	5/16/08 11:45		X					
B212-SBH-05-01	5/16/08 12:15		X					
B212-SS201	5/16/08 8:09		X					
B212-SS202	5/16/08 8:15		X					
B212-SS203	5/16/08 8:29		X					

Key:

MS/MSD = Matrix spike/matrix spike duplicate.
PCB = Polychlorinated biphenyl.
TAL = Target Analyte List.
TOC = Total organic carbon.

Table 2-4 Subsurface Soil Sample Summary, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Sample Identification Number	Date and Time Collected	Analysis					Duplicate	MS/MSD	Depth	Unit
		PCB Screen	PCB by 8082	TAL Metals	Short List Metals	TOC				
B212-CBH-01-01	3/1/06 10:30	X							2.5 - 2.8	Brown Sand - Cap
B212-CBH-01-02	3/1/06 10:45	X	X	X			X (Metals Only)	X (Metals Only)	6.0 - 8.0	Gray/Black Sand - Spoils
B212-CBH-01-03	3/1/06 10:55	X							13.5 - 14.0	Gray/Black Sand- Spoils
B212-CBH-01-04	3/1/06 11:02	X							14.2 - 14.4	Gray/Brown Silt Clay - Native Soil
B212-CBH-01-05	3/1/06 11:10	X							16.7 - 17	Brown Sand - Native 3 ft below spoils
B212-CBH-02-01	2/28/06 15:47	X							3.5 - 3.7	Tan Sand - cap
B212-CBH-02-02	2/28/06 16:03	X	X						7.0 - 8.0	Sand/Gravel - spoils
B212-CBH-02-03	2/28/06 16:14	X							11.5 - 12	Sand - Spoils
B212-CBH-02-04	2/28/06 16:44	X							18.0 - 18.2	Brown Silt - Spoils
B212-CBH-02-05	2/28/06 16:47	X							18.2 - 18.5	Brown/Black Sand - Native underlying Spoils
B212-CBH-03-01	2/28/06 11:31	X	X						5.0 - 6.0	Black Sand - Spoils
B212-CBH-03-02	2/28/06 11:40	X					X		7.0 - 8.0	Black Spoils
B212-CBH-03-03	2/28/06 11:50	X						X	8.9 - 9.7	Sand - spoils
B212-CBH-03-04	2/28/06 12:00	X							13.3 - 14	Sand - Spoils
B212-CBH-03-05	2/28/06 12:18	X							21.8 - 22.2	Brown Silt - Native
B212-CBH-04-01	2/27/06 17:07	X							4.8 - 5.4	Black Sand - Spoils
B212-CBH-04-02	2/27/06 17:19	X			X				5.5 - 6	Black Sand - Spoils
B212-CBH-04-03	2/28/06 8:14	X	X						11.0 - 12.0	Black Gravel Sand - spoils
B212-CBH-04-04	2/28/06 8:31	X							15.4 - 15.9	Black Sand - Spoils
B212-CBH-04-05	2/28/06 8:41	X						X	17.5 - 18.0	Black Sand Silt - immediately below
B212-CBH-05-01	2/27/06 15:27	X							3.6 - 4	Tan Sand - cap
B212-CBH-05-02	2/27/06 15:33	X					X		5.5 - 6	Black Sand Gravel - spoils
B212-CBH-05-03	2/27/06 15:46	X	X						8.2 - 9.5	Black Clay Silt - spoils
B212-CBH-05-04	2/27/06 16:07	X							15.5 - 16.0	Black Silt - Native
B212-CBH-05-05	2/27/06 16:12	X							16.0 - 16.4	Black Silt - Native
B212-CBH-06-01	2/21/06 15:28	X							0.6 - 0.8	Brown Clay - Cover
B212-CBH-06-02	2/21/06 15:45	X	X				X		4 - 5.2	Black Silt Sand Spoils
B212-CBH-06-03	2/21/06 16:07	X							10.5 - 10.7	Gray Sand - Spoils
B212-CBH-06-04	2/21/06 16:40	X							18.4 - 18.5	Brown Silty Clay - Native
B212-CBH-06-05	2/21/06 16:46	X						X	20.0 - 20.2	Gray Sand - Native
B212-CBH-07-01	2/24/06 13:01	X							1.3 - 1.5	Brown Clay - Cover
B212-CBH-07-02	2/24/06 13:06	X	X						4.2 - 5	Gray/Black Sand - Spoils
B212-CBH-07-03	2/24/06 13:15	X							8.2 - 8.5	Black/White Sand Spoils
B212-CBH-07-04	2/24/06 13:20	X							11.2 - 11.5	Green/Brown Sand - Native
B212-CBH-07-05	2/24/06 13:25	X							12.4 - 12.6	Green/Brown Sand - Native
B212-CBH-08-01	2/24/06 9:20	X							0.5 - 1	Brown Clay - Cover
B212-CBH-08-02	2/24/06 9:32	X			X		X (Metals Only)		4.2 - 5	Black Sand Spoils
B212-CBH-08-03	2/24/06 10:00	X							13.2 - 13.5	Black Sand Spoils
B212-CBH-08-04	2/24/06 10:32	X	X						14.6 - 15.2	Green/Brown Sand - Native
B212-CBH-08-05	2/24/06 10:14	X							16.3 - 16.5	Green/Brown Sand - Native
B212-CBH-09-01	2/24/06 7:53	X	X						1 - 1.4	YellowBrown Sand - Cover
B212-CBH-09-02	2/24/06 8:09	X							4.6 - 4.9	Black/Gray Sand Spoils
B212-CBH-09-03	2/24/06 8:15	X							7 - 7.3	Black Sand Spoils
B212-CBH-09-04	2/24/06 8:30	X							11 - 11.3	Green/Brown Sand - Native
B212-CBH-09-05	2/24/06 8:38	X							12.3 - 12.5	Green/Brown Sand - Native
B212-CBH-10-01	2/23/06 16:35	X							2.6 - 2.8	Yellow/Brown Sand - Cover

Table 2-4 Subsurface Soil Sample Summary, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Sample Identification Number	Date and Time Collected	Analysis					Duplicate	MS/MSD	Depth	Unit
		PCB Screen	PCB by 8082	TAL Metals	Short List Metals	TOC				
B212-CBH-10-02	2/23/06 16:42	X	X						4.1 - 5.1	Black Sand Spoils
B212-CBH-10-03	2/23/06 16:58	X							8.2 -8.5	Gray Sand - Native
B212-CBH-10-04	2/23/06 17:05	X			X			X (Metals Only)	10.0 - 11.0	Gray Sand - Native
B212-CBH-11-01	3/1/06 8:25	X							2.6 - 2.9	Tan Sand - cap
B212-CBH-11-02	3/1/06 8:36	X	X						5.1 - 6.0	Black Sand - Spoils
B212-CBH-11-03	3/1/06 8:44	X			X				7.0 - 7.4	Gray/Black Sand - Spoils
B212-CBH-11-04	3/1/06 9:18	X							17.2 - 17.6	Black Clay Silt - Native
B212-CBH-11-05	3/1/06 9:19	X							17.6 - 17.8	Tan Clay Brown Silt - Native
B212-CBH-12-01	2/28/06 14:27	X							3.5 - 4.0	Brown Sand - Cap
B212-CBH-12-02	2/28/06 14:31	X							5.5 - 6.0	Black Sand Gravel - Spoils
B212-CBH-12-03	2/28/06 14:41	X	X						7.5 - 8.0	Gravel - Spoils
B212-CBH-12-04	2/28/06 14:50	X							11.5 - 12	Sand - Spoils
B212-CBH-12-05	2/28/06 15:01	X							15.2 - 15.4	Black Sand - native
B212-MBH-01-01	3/1/06 16:40	X							5.5 - 6.0	Gray Sand - Spoils
B212-MBH-01-02	3/1/06 16:50	X							6.0 - 6.5	Gray Sand - Native
B212-MBH-02-01	3/1/06 15:50	X	X						5.0 - 6.0	Gray/Black Sand Silt - Spoils
B212-MBH-02-02	3/1/06 16:10	X							9.5 - 10	Gray/Black Sand Silt - Spoils
B212-MBH-02-03	3/1/06 16:15	X							10.5 - 11	Gray Sand - Native
B212-MBH-03-01	2/27/06 14:11	X							0 - 0.75	Brown Clay Silt - Native
B212-MBH-03-02	2/27/06 14:16	X							1.2 - 2.2	Dark Sand - Native
B212-MBH-04-01	2/27/06 14:33	X							0.5 - 1.5	Tan Clay Silt - Native
B212-MBH-04-02	2/27/06 14:37	X							4.1 - 4.8	Tan/Brown Clay Silt - Native
B212-MBH-05-01	3/1/06 15:00	X	X						2.3 - 2.4	Gray Sand - Spoils
B212-MBH-05-02	3/1/06 15:05	X			X			X (Metals Only)	2.4 - 3.4	Brown Silt - Native
B212-MBH-06-01	3/1/06 13:45	X	X	X					4.7 - 5.4	Gray Sand - Native
B212-MBH-07-01	2/28/06 11:02	X					X		2.7 - 3.4	Brown Silt - Native
B212-MBH-07-02	2/28/06 11:09	X						X	3.7 - 4.3	Tan Sand - Native
B212-MBH-08-01	3/1/06 12:05	X	X					X (8082 Only)	3.5 - 4.0	Black/Brown Sand - Native
B212-MBH-08-02	3/1/06 12:15	X							4.8 - 5.1	Brown Silt - Native
B212-MBH-08A-01	3/1/06 12:30	X							1.5 - 2.0	Gray/brown silt over sand - Native
B212-MW-05-01	2/22/06 8:46	X							0.4 - 0.8	Yellow/Brown Sand - Cover
B212-MW-05-02	2/22/06 8:59	X	X						4.4 - 5.7	Black Sand Silt - Spoils
B212-MW-05-03	2/22/06 9:05	X							6.6 - 6.9	Brown Sand - spoils
B212-MW-05-04	2/22/06 9:25	X							10.2 - 10.6	Brown Silt - Spoils
B212-MW-05-05	2/22/06 10:06	X		X			X (Metals Only)		18 - 19	Yellow/Brown Silt Sand - Native
B212-MW-06-01	2/22/06 16:35	X	X						0.3 - 0.9	Brown Clay - Cap
B212-MW-06-02	2/22/06 16:52	X							4 - 4.3	Gray/Black Sand - Spoils
B212-MW-06-03	2/22/06 16:53	X							4.9 - 5.1	Brown Sand - Spoils
B212-MW-06-04	2/22/06 16:59	X							6 - 6.3	Yellow/Brown Sand - Spoils
B212-MW-06-05	2/22/06 17:45	X		X				X (Metals Only)	19 - 20	Gray Sand Silt - Native
B212-MW-07-01	2/23/06 11:00	X							1.4 - 1.6	Brown Clay - Cap
B212-MW-07-02	2/23/06 11:15	X							4 - 4.4	Black Sand - Spoils
B212-MW-07-03	2/23/06 11:16	X							4.8 - 5.2	Green/Gray Sand - Spoils
B212-MW-07-04	2/23/06 11:40	X	X						11.6 - 12	Sand - Native
B212-MW-07-05	2/23/06 12:52	X		X					14.6 - 14.8	Sand - Native
B212-PBH-01-02	5/16/08 10:41		X						2.0 - 2.5	No description.
B212-PBH-02-02	5/16/08 10:58		X						2.0 - 2.5	Dark tan silts.
B212-PBH-03-02	5/16/08 11:39		X						2.0 - 2.5	Brown silty clay.
B212-PBH-04-02	5/16/08 12:15		X						2.0 - 2.5	Black silt/clay.
B212-PBH-05-02	6/10/08 10:45		X		X				0.2 - 5.0	Silty Sand, trace clay.

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Table 2-4 Buoy 212 Subsurface Soil Samp Sumry.xls-Field Sample Info-2/28/2011

Table 2-4 Subsurface Soil Sample Summary, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Sample Identification Number	Date and Time Collected	Analysis					Duplicate	MS/MSD	Depth	Unit
		PCB Screen	PCB by 8082	TAL Metals	Short List Metals	TOC				
B212-PBH-06-02	6/10/08 11:15		X						0.2 - 3.0	Silty Sand, trace clay.
B212-PBH-07-02	6/10/08 11:25		X						0.2 - 3.0	Silty Sand, trace clay.
B212-PBH-08-02	6/10/08 11:35		X	X					0.2 - 3.0	Silty Sand, trace clay.
B212-PBH-09-02	6/10/08 11:45		X		X				0.2 - 3.0	Silty Sand, trace clay.
B212-PBH-10-02	6/10/08 11:59		X						0.2 - 3.0	Silty Sand, trace clay.
B212-PBH-11-02	6/10/08 13:39		X						0.2 - 2.0	Silty Sand, trace clay.
B212-PBH-12-02	6/10/08 13:51		X						0.2 - 2.0	Silty Sand, trace clay.
B212-PBH-13-02	6/10/08 14:05		X						0.2 - 2.0	Sand, no clay.
B212-PBH-14-02	6/10/08 14:19		X						0.2 - 2.0	Sand, no clay.
B212-PBH-15-02	6/10/08 14:32		X						0.2 - 2.0	Clay followed by Silty Sand
B212-PBH-16-02	6/10/08 14:41		X		X				0.2 - 2.0	Sand, no clay.
B212-PBH-17-02	6/11/08 7:50		X						0.2 - 2.0	Clay followed by Sand
B212-PBH-18-02	6/11/08 8:12		X						0.2 - 2.0	Clay followed by Sand
B212-PBH-19-02	6/11/08 8:41		X						0.2 - 2.0	Clay followed by Sand
B212-PBH-20-02	6/11/08 11:28		X						0.2 - 2.0	Silty Sand, trace clay.
B212-PBH-21-02	6/11/08 11:44		X		X				0.2 - 2.0	Clay
B212-PBH-22-02	6/11/08 12:11		X						0.2 - 2.0	Clay followed by Silty Sand
B212-PBH-23-02	6/11/08 0:00		X						0.2 - 2.0	Clay followed by Silty Sand
B212-PBH-26-02	6/12/08 8:08		X						0.2 - 2.0	Sand followed by Silty Sand trace Clay
B212-PBH-27-02	6/12/08 8:21		X						0.2 - 2.0	Silty Sand, trace clay.
B212-SBH-01-02	5/16/08 10:05		X						2.7 - 3.0	Spoils
B212-SBH-01-03	5/16/08 10:10		X						0.3 - 0.7	Spoils
B212-SBH-01-04	5/16/08 10:15		X						1.3 - 1.7	Green clayey silt, trace gravel/sand.
B212-SBH-02-02	5/16/08 11:00		X					X	1.5 - 2.2	Silty sand
B212-SBH-03-02	5/16/08 11:40		X						1.5 - 2	Silty sand
B212-SBH-04-02	5/16/08 12:05		X						1.5 - 1.8	Silty clay
B212-SBH-05-02	5/16/08 12:45		X						1.7 - 2.2	silty sand; trace gravel
B212-SBH-05-02/D	5/16/08 12:45		X				X		1.7 - 2.2	Gray silt; spoils
B212-SBH-05-03	5/16/08 12:50		X						2.7 - 3	Gray silt; spoils
B212-SBH-05-04	5/16/08 12:55		X						0.7 - 1	Silty sand
B212-SBH-09-01	5/16/08 14:06		X						0.5 - 0.8	Silty sand
B212-PBH-14-03	7/7/08 14:18		X						4.4 - 5.0	No description.
B212-PBH-12-03	7/7/08 14:33		X						4.0 - 4.4	No description.
B212-PBH-16-03	7/7/08 14:50		X						4.3 - 4.5	No description.
B212-PBH-16-03/D	7/7/08 14:50		X				X		4.3 - 4.5	No description.

Key:

MS/MSD = Matrix spike/matrix spike duplicate.
PCB = Polychlorinated biphenyl.
TAL = Target Analyte List.
TOC = Total organic carbon.

Table 2-5 Well Construction Summary, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Monitoring Well ID	X Coordinate	Y Coordinate	TOIC Elevation (ft AMSL)	Ground Surface Elevation (ft AMSL)	Total Well Depth (ft BGS)	Screen Interval (ft BGS)	Sand Pack Interval (ft BGS)
Previously-Existing Site Groundwater Monitoring Wells							
B212-MW01	733160.2980	1606408.2042	130.31	129.18	41.68	Data not available	
B212-MW02	732987.9816	1607091.8470	127.18	125.67	38.16	Data not available	
B212-MW03S	733134.5200	1607213.5539	133.17	132.08	14.94	Data not available	
B212-M3D	733127.1394	1607209.7672	133.24	132.19	49.55	Data not available	
B212-MW04	733163.2069	1607208.2859	130.89	129.54	19.01	Data not available	
Groundwater Monitoring Wells Installed Under This RI							
B212-MW05	733044.1763	1606857.4290	137.21	134.94	23	23 - 13	23.3 - 11
B212-MW06	733114.4298	1606555.4047	135.49	133.18	22	22 - 12	23 - 10
B212-MW07	733259.7787	1606399.8765	127.59	125.33	16	16 - 6	17 - 5

Notes:
1. Horizontal Datum is North American Datum 1983 (NAD 83) and coordinates are reported in State Plane Coordinate System, New York East Zone (feet).
2. Vertical datum is North American Vertical Datum 1988 (NAVD 88).

Key:

AMSL = above mean sea level.
BGS = below ground surface.
ft = feet.
TOIC = top of inner casing.

Table 2-6 Groundwater Elevation Data, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Well ID	Inner Casing Elevation (ft AMSL)	Sample Collection Date							
		3/29/2006		6/14/2006		9/25/2006		12/11/2006	
		Water Level (ft BTOC)	Water Level Elevation (ft AMSL)	Water Level (ft BTOC)	Water Level Elevation (ft AMSL)	Water Level (ft BTOC)	Water Level Elevation (ft AMSL)	Water Level (ft BTOC)	Water Level Elevation (ft AMSL)
B212-MW-01	130.31	10.77	119.54	9.70	120.61	11.45	118.86	10.35	119.96
B212-MW-02	127.18	7.65	119.53	6.70	120.48	8.10	119.08	7.26	119.92
B212-MW-03S	133.17	9.16	124.01	8.85	124.32	10.85	122.32	9.22	123.95
B212-MW-03D	133.24	13.53	119.71	12.58	120.66	14.42	118.82	13.04	120.20
B212-MW-04	130.89	7.67	123.22	7.00	123.89	9.15	121.74	7.57	123.32
B212-MW-05	137.21	17.52	119.69	15.56	121.65	18.65	118.56	17.00	120.21
B212-MW-06	135.49	15.71	119.78	14.77	120.72	17.00	118.49	15.25	120.24
B212-MW-07	127.59	7.83	119.76	6.50	121.09	9.05	118.54	7.34	120.25
Staff Gauge North	121.72	NA	NA	NA	NA	1.53	120.19	1.90	119.82
Staff Gauge South	122.00	2.20	119.80	1.52	120.48	2.41	119.59	2.26	119.74

Note:
1. Reference elevation of staff gauge (to the top of gauge).

Key:

AMSL = Above mean sea level.
BTOC = Below top of casing.
ft = Feet.
NA = Not available.

Table 2-7 Groundwater Sample Summary, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Well ID	Sample Date	Purged Volume (gal)	pH (s.u.)	Temperature (°C)	Conductivity (µS/cm)	Turbidity (NTUs)
B212-MW-01	3/27/2006	15.00	6.640	9.200	1192.000	44.00
	6/14/2006	26.20	7.370	11.000	1070.000	2.24
	10/3/2006	15.00	7.510	10.900	1594.000	14.50
	12/13/2006	16.00	7.460	9.300	1261.000	9.60
B212-MW-02	3/27/2006	14.70	6.570	10.500	1145.000	2.18
	6/14/2006	15.00	7.310	11.900	1066.000	1.35
	10/3/2006	15.00	7.600	11.200	1065.000	4.68
	12/12/2006	16.00	7.400	9.900	1121.000	2.80
B212-MW-03S	3/27/2006	5.00	7.030	8.000	458.400	1.49
	6/14/2006	5.00	6.670	11.200	474.500	1.42
	10/3/2006	3.00	6.810	13.500	556.400	2.00
	12/12/2006	5.25	6.790	11.200	584.300	2.40
B212-MW-03D	3/27/2006	17.40	6.580	9.600	1143.000	1.13
	6/13/2006	18.00	7.360	11.900	1065.000	0.74
	10/3/2006	18.00	7.590	11.100	1060.000	8.22
	12/12/2006	18.00	7.780	8.620	1117.000	0.54
B212-MW-04	3/27/2006	5.40	7.180	7.500	504.400	15.00
	6/14/2006	5.00	6.950	11.100	493.200	21.10
	10/3/2006	4.50	6.970	13.900	544.100	24.80
	12/12/2006	6.25	6.910	10.200	476.900	5.10
B212-MW-05	3/27/2006	9.60	6.860	11.500	1310.000	25.00
	6/14/2006	21.00	6.640	13.000	1290.000	32.10
	9/29/2006	5.00	6.510	12.300	1146.000	420.00
	12/13/2006	15.00	6.820	11.200	1391.000	18.60
B212-MW-06	3/28/2006	7.00	6.190	9.500	1651.000	16.40
	6/14/2006	9.60	6.580	10.300	1487.000	22.10
	9/29/2006	4.00	6.420	11.500	1492.000	20.50
	12/13/2006	7.00	6.610	11.400	1505.000	10.30
B212-MW-07	3/28/2006	10.20	6.560	4.600	512.200	18.00
	6/14/2006	7.82	6.800	10.300	546.400	8.69
	9/29/2006	5.00	6.360	12.400	513.000	23.60
	12/13/2006	9.00	6.840	11.400	672.100	5.20

Key:

°C = Degrees Celsius.
D = Deep well
gal = Gallon.
NTUs = Nephelometric turbidity units.
s.u. = Standard units.
S = Shallow well
µS/cm = Microsiemens per centimeter.

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\Path: L:\Buffalo\NYSDEC_RIFS\Maps\MXD\Buoy_212_Addendum\RI_Report_Figs_Feb2011\Fig 2-1 Addendum Soil Sampling Nov2009 copy.mxd

N
W E
S

0 50 100 200
Feet

Figure 2-1
Remedial Investigation Sampling Locations
Buoy 212 Dredge Disposal Area
Fort Edward, New York

3 Physical Characteristics of the Study Area

3.1 Environmental Setting

The Buoy 212 site is located along the eastern bank of the Hudson River near channel marker 212 (see Figure 1-1). The site consists of a closed and covered basin and earthen containment berm structure built to dewater and hold sediment removed from the Champlain Canal/Hudson River navigation channel during routine and emergency maintenance dredging operations in the past. The settling basin system is unlined and was initially constructed by excavating the native soils on the property slightly and grading the displaced soils outward and upward to form the containment berms. In its present closed and covered state, the dredge spoil disposal structure is about 200 feet wide and extends about 850 feet along the shore of the Hudson River with a footprint covering nearly 4.1 acres on a parcel owned by New York State. Two privately owned residential properties exist to the north and east of the site. The adjoining property to the south is an open field and is being used as a temporary support area and access point to the Hudson River for the Hudson River Dredging Project.

The dredge spoil disposal structure is fenced and surrounded by trees on the north, east, and west sides. Ground elevations across the site range between 125 feet and 140 feet above mean sea level. The western margin of the Buoy 212 disposal structure has stone riprap armoring near the base and out onto the Hudson River floodplain and along the river shoreline in this area. The slopes of the disposal structure on the western and eastern sides of the site are relatively steep with an abrupt change in grade at the margins, while the slope at the southern end of the site tapers gradually and levels out to the surrounding grade near the perimeter fence and the extreme southern end of the disposal structure. The slope at the northern end of the site is relatively moderate and gradually blends with the surrounding grade in this area.

Stream gauge data collected for the Hudson River from gauges established by EEEPC for another project site on the opposite shore near Buoy 212 shows that the River surface elevation in this area fluctuated between 119 feet and 120 feet above mean sea level during the investigation activities.

Regional climate data obtained from the National Oceanic and Atmospheric Administration (NOAA) shows that the Buoy 212 site is located in a relatively humid area of the northeastern United States, characterized by mild summers and cold, but not commonly severe, winters. The majority of precipitation in the Fort Edward/Glens Falls area is derived from moisture-laden air that is transported northward by atmospheric processes from the Gulf of Mexico. According to NOAA's records for Albany County, (approximately 40 miles south of the site), the annual precipitation is evenly distributed over the year, with a 30-year average of 38.6 inches. The greatest average monthly amounts occur during the growing season, April through September. The average seasonal snowfall is 62.9 inches, with the months of January and February accounting for approximately half of the seasonal snowfall.

3.2 Geology

3.2.1 Regional Geology

The Buoy 212 site is located in the middle part of the town of Fort Edward along the extreme western edge of Washington County in New York, just south of the village of Fort Edward and along the eastern bank of the Hudson River. This part of Washington County is grouped into the Hudson-Champlain Lowland physiographic province (USDA SCS 1993). The Hudson-Champlain Lowland is a broad depression of shale and limestone eroded by glacial ice and the interglacial Hudson River.

Washington County in this area is almost entirely covered by glacial sediments, except for minor amounts of alluvial deposits along the Hudson River and present-day streams. Glacial deposits throughout the county vary in thickness and generally consist of unsorted glacial till and lacustrine deposits of gravel, sand, silt, and clay deposited by glacial melt water (USDA SCS 1993). These lake and outwash deposits were formed during movements of the Wisconsin ice sheet some 20,000 to 13,000 years ago. At some point, this ice sheet blocked drainage down the Hudson Valley and created a large glacial lake (Lake Albany) across the region that stretched approximately 200 miles from New York City to the city of Glens Falls. The various rivers and streams that emptied into the glacial Lake Albany formed delta and lake deposits in many places along the Hudson Valley. When glacial Lake Albany finally drained, the sandy sediments on the former lake floor deposits became susceptible to reworking by the prevailing northwest winds.

Bedrock in the upper Hudson River Valley near the Buoy 212 site consists of a variably folded, faulted, and lightly metamorphosed mixture of mid-Ordovician-aged shale, siltstone, and greywacke sedimentary sequences that were being deposited (reworked and deformed) in the broad shallow basin that existed in this area in response to a combination of westward advancing thrust sheet displacements, crustal flexure, episodic sediment influx, burial, and gravity-driven adjustments during the Taconic Orogeny, a mountain building event that took place approximately 450 million years ago. These lithologies are sometimes designated as Snake Hill Shale or Canajoharie Shale on some geologic maps, but naming such sequences of indistinguishable and mildly deformed shale, siltstone, and greywacke in the tectonic mélange basin near the leading edge of the Taconic overthrust belt is difficult and could be misleading. Further discussion of this carries beyond the scope of the RI. Considering this, standard lithologic descriptions will be used in this document instead of relying on uncertain formation names found on maps and in the literature.

3.2.2 Site Geology

The nature of the overburden at the Buoy 212 site was characterized by direct observation methods during this investigation. Soil samples that were recovered during the various borehole drilling and exploration programs were inspected and described. Overburden materials were observed to be 24 feet thick in one location during this work and are reported in earlier work by others, to extend to a depth of about 40 feet lower than the bottom of the Buoy 212 dredge spoil disposal structure. Bedrock was not encountered at any of the borehole locations advanced during the RI. Borehole and monitoring well drilling logs are presented in Appendix C and include some measure of the relative soil density based on blow counts recorded during split-spoon sampling.

The geologic setting for the Buoy 212 site has a varied mixture of silts, sands, gravel, and clay that were placed over bedrock by natural processes and a varied mixture of sand, silt, shale fragments, and debris that were placed over the earlier lacustrine and alluvial deposits by unnatural processes a relatively short time ago.

The overburden materials in the natural setting are located in most areas outside of the basin and berm structure at the site. The overall thickness of these native soils at Buoy 212 is not known, but earlier work by others report similar undisturbed silts, sands, gravel, and clay to a depth about 40 feet lower than the bottom of the Buoy 212 dredge spoil disposal structure.

The overburden materials in the unnatural setting are best described as mechanically reworked native soil mixed with dredge spoil materials in the closed and covered dredge spoil disposal structure. The dredge spoils are typically dark gray to black, fine to medium sands with varying amounts of silt, black shale fragments, pebble gravel, brick fragments, coal fragments, fused slag, glass shards, and wood debris. Based on observations made during borehole drilling and sampling, materials that could be characterized as dredge spoils varied in thickness from a few inches to nearly 13 feet.

The cover materials over the closed dredge spoil disposal structure at the Buoy 212 site consists of clay over sand. The clay cover varied in thickness from a few inches near the margins to approximately 2 feet over most of the disposal structure. The clay materials are typically light brown in color with occasional yellowish mottling. The clay cover material is directly over the earlier sand cover placed over the disposal structure to isolate the dredge spoils within. These sands are typically light brown to grayish-brown in color, fine-grained, and vary in thickness from a few inches to about 3 feet in some places over the site.

Figure 3-1 shows the trace of three stratigraphic cross-sections that were developed using information gathered during the soil boring programs to show the thickness and extent of the various soil, dredge spoil material, and cover material observed at the site.

Cross-section A-A′ (see Figure 3-2) approximates a north to south cut through the dredge spoil disposal structure near the Hudson River shoreline and shows that a varied mixture of dark gray to black sand, silt, shale fragments, and debris (soil that could be characterized as dredge spoil material) is present for most of disposal structure's length. This sectional view also shows that the bottom elevations of the former dewatering basin, and coincidently the lowest observation of potentially contaminated dredge spoil material at the site, range between 121.5 feet and 126 feet above mean sea level (AMSL). The upper surface or highest expression of dredge spoils within the closed disposal structure has elevations that range between 127.5 feet and 136.5 feet AMSL. The dredge spoil disposal structure is thicker near the northern end and tapers toward the southern end along trace of the cross section.

Cross-sections B-B′ (see Figure 3-3) and C-C′ (see Figure 3-4) approximate east to west cuts through the dredge spoil disposal structure in the southern and northern portions of the main dewatering basin. Cross-section B-B′ in the north shows that the base of the dredge spoil disposal structure ranges in elevation between 124 and 127.5 feet. The highest expression of dredge spoil material was about 136 feet AMSL at CBH-08 where the dredge spoil materials were the thickest and measured about 12 feet. Cross-section C-C′ toward the south depicts the base of the dredge spoil structure at elevations that range between 124 and 126 feet AMSL. The highest point along this trace was about 135 feet AMSL at CBH-01 where the dredge spoil materials were also the thickest and measured about 10 feet.

The cross-sections depict the sand cover placed over the reworked dewatering and disposal mound in late 1979 as a continuous, 6-inch to 2-foot thick layer over the entire closed structure. The cross-sections also depict the second, more impervious clay cover placed over the earlier cover and the spoils underneath in 1991, as another continuous, 6-inch to 5-foot thick layer over the entire closed structure. The combination of these two cover layers put the top surface of the potentially contaminated dredge spoil materials at depths ranging between about 1-foot and nearly 5 feet below the ground surface.

Native soil materials found below and along the margins of the closed and covered dredge spoil disposal structure consist of brown to gray silty clays inter-fingered with layers of gray to brown silty sand.

3.3 Hydrology

3.3.1 Regional Hydrology

The region immediately around the Buoy 212 site is part of the Upper Hudson River Drainage Basin that covers about 4,600 square miles in area and includes all of the rivers, creeks, streams and kills that flow into the Hudson River upstream of the tidal influence at Troy, New York, and upstream of the Mohawk River at

Waterford, New York. The Hudson River here flows through forest and farmland and is maintained at a depth of 12 feet for commercial navigation in the Champlain Canal in most of the reach between Fort Edward and the Federal Dam at Troy. The larger tributaries that flow into the Hudson River in this basin between Fort Edward and Troy include the Snook Kill, the Moses Kill, the Batten Kill, Fish Creek and the Hoosic River.

3.3.2 Site Hydrogeology

3.3.2.1 Surface Drainage and Runoff

The entire closed and covered dredge spoil disposal structure, and the parcel of land occupied by it, is covered with grasses, trees, and other vegetation. Overland water flow at the Buoy 212 site occurs primarily during heavy precipitation events or spring snow melts as surface runoff. During heavy precipitation events, runoff is shed radially away from the higher areas of the closed and covered dredge spoil disposal area to the topographic low areas along the eastern and western margins. Along the eastern margin, runoff from Buoy 212 and nearby areas intermittently flows southward and collects in the southeastern part of the Buoy 212 property. Water that intermittently collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. When the volume of collected water is not great enough to spill through the steel culvert, the runoff either infiltrates and/or evaporates without reaching the Hudson River as direct runoff. Along the western margin, runoff accumulates in the lowest portions of the narrow floodplain shelf and either drains slowly into the Hudson River through breaks in the natural and armored bank levy or infiltrates and/or evaporates without reaching the Hudson River as direct runoff.

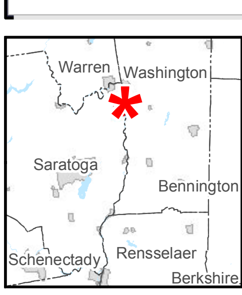
3.3.2.2 Groundwater

To assist with the interpretation of groundwater movements and tendencies at the Buoy 212 site, a round of static water level elevation readings were collected at the beginning of the four groundwater sampling events in March, June, September, and December 2006. Table 2-6 and Figures 3-5 through 3-8 present the resulting groundwater elevation data sets and the series of interpreted groundwater contour maps that are based on those measurements.

Groundwater elevations across the site ranged from approximately 118 feet to 123 feet above mean sea level during the investigation period. As expected, the lowest groundwater elevations were observed during the September monitoring event, when seasonal precipitation was relatively low.

Mapping shows that groundwater flow at this site typically moves away from the topographic rise on the eastern side and toward the Hudson River in a general west-southwest direction. Based on groundwater elevation measurements and other observations made during the RI, lines of equal groundwater elevation are nearly parallel with the shore of the river and groundwater appears to flow through the native overburden soils just below the dredge spoil materials placed at the site most of the year.

As measured on the groundwater contour map for March 2006 (see Figure 3-5), the hydraulic gradient at the site ranges from 0.004 feet per foot (ft/ft) in the middle of the site to 0.005 ft/ft at the northern end of the site. The June 2006 hydraulic gradient was considerably steeper, ranging from 0.013 ft/ft in the middle of the site to 0.004 ft/ft at the northern end. In September, groundwater elevations show a general inward gradient across the site. During this monitoring event, Hudson River elevations were higher than the adjacent groundwater elevations and the data showed an inward gradient of between 0.003 ft/ft and 0.004 ft/ft at the northern and southern ends of the site and a steeper gradient of approximately 0.03 ft/ft was observed in the middle portion of the site. The result of this scenario is a slight reversal of gradient near the shore of the Hudson River and the appearance of a groundwater depression farther upland (see Figure 3-7). The December data shows a flattening of the groundwater gradient and a more typical flow direction toward the Hudson River with hydraulic gradients measured approximately 0.003 ft/ft at the northern end and 0.008 in the middle of the site.



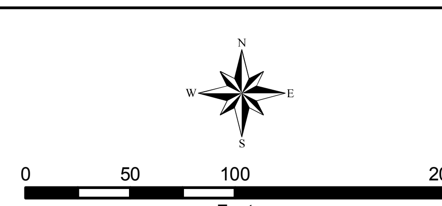


Figure 3-1
Cross-Section Location Map
Buoy 212 Dredge Disposal Area
Fort Edward, New York

02:002699.ID07.02-B2009\figure3-2.cdr-10/8/09-gra

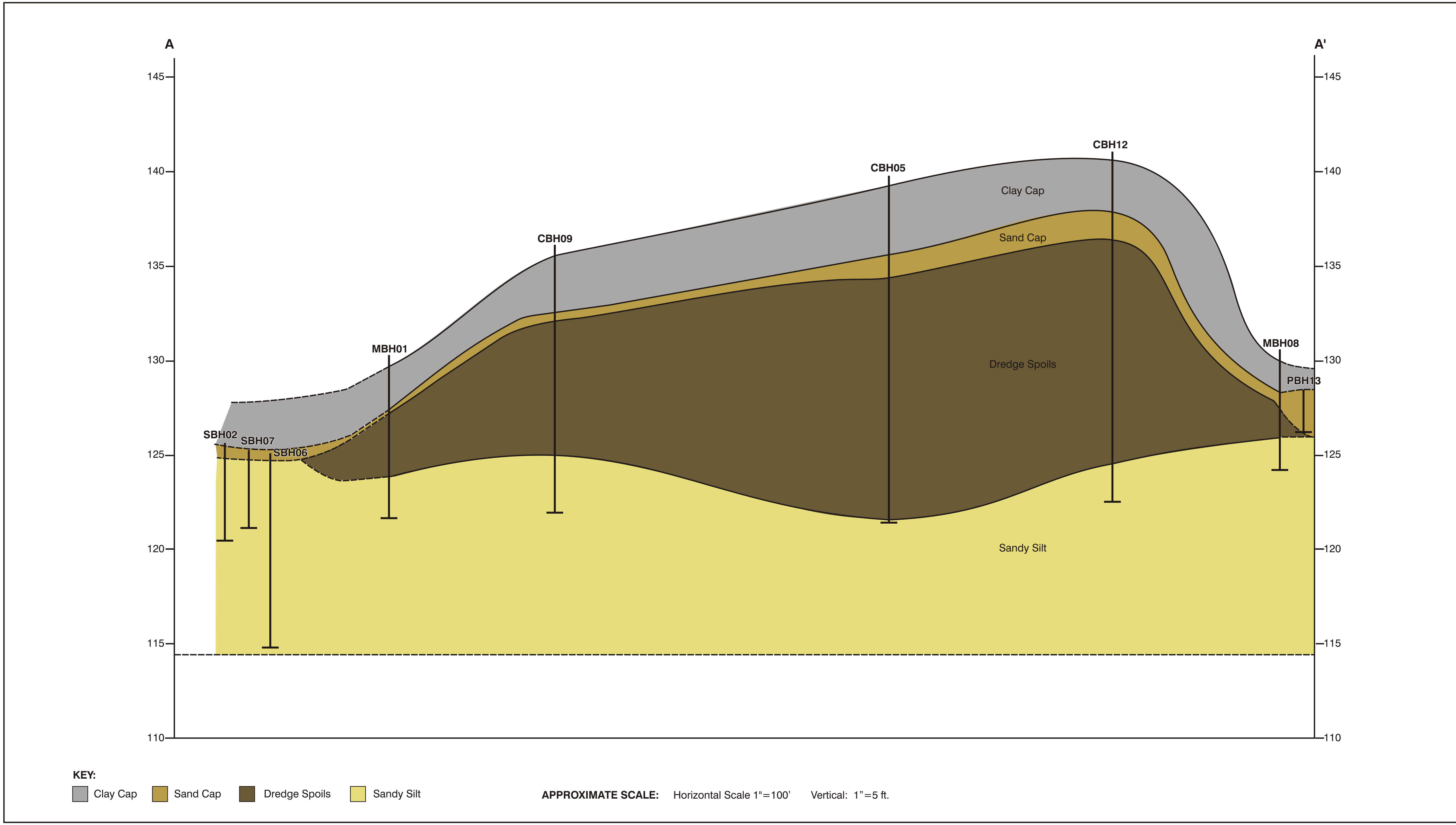
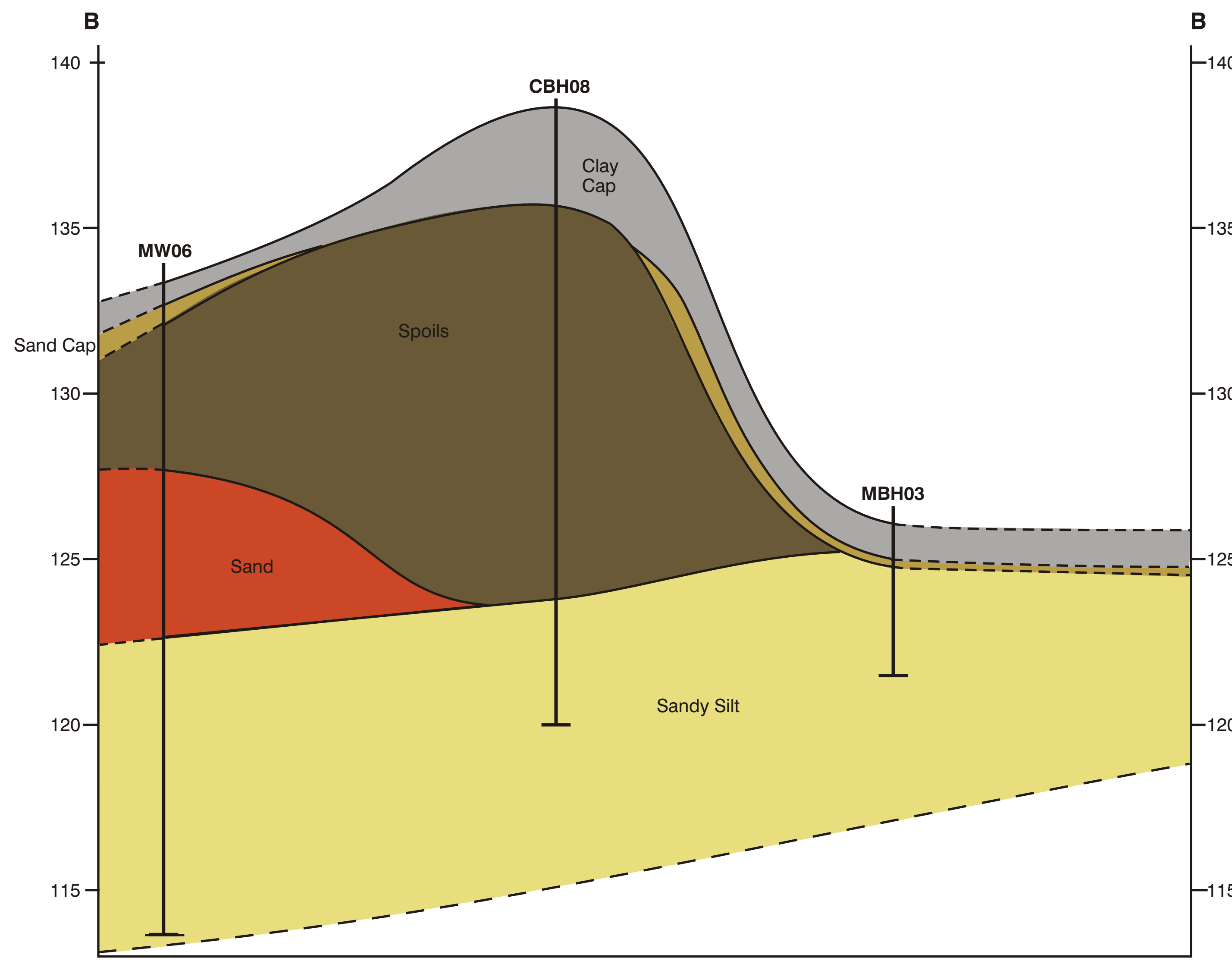


Figure 3-2 **Cross-Section A–A'**
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York

02:002699.ID07.02-B2009\figure3-3.cdr-8/8/07-gra



KEY:

Clay Cap   Sand Cap   Spoils   Sand   Sandy Silt

APPROXIMATE SCALE: Horizontal Scale 1"=25' Vertical: 1"=5 ft.

Figure 3-3 **Cross-Section B–B'**
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York

02:002699.ID07.02-B2009\figure3-4.cdr-8/8/07-gra

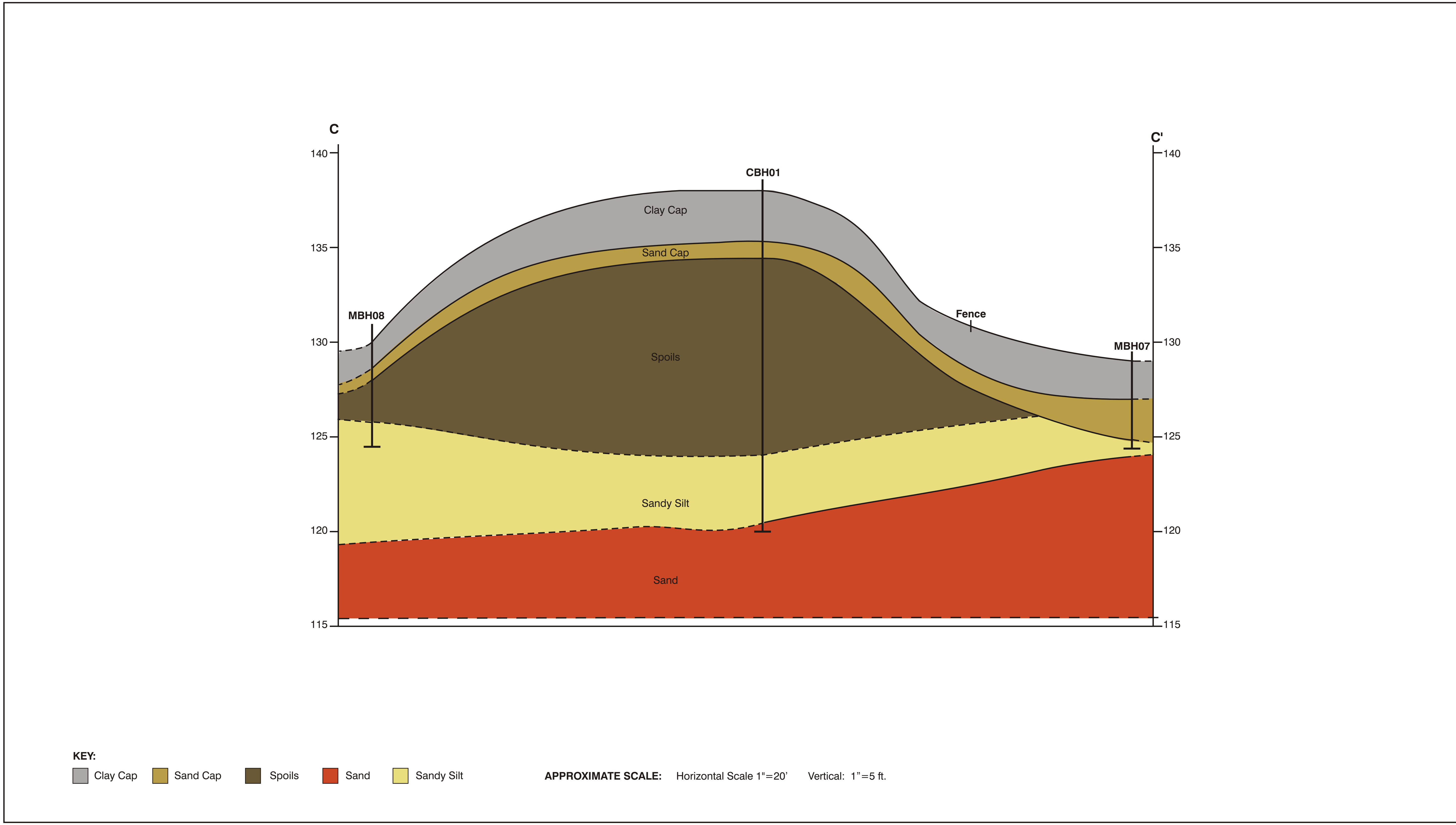
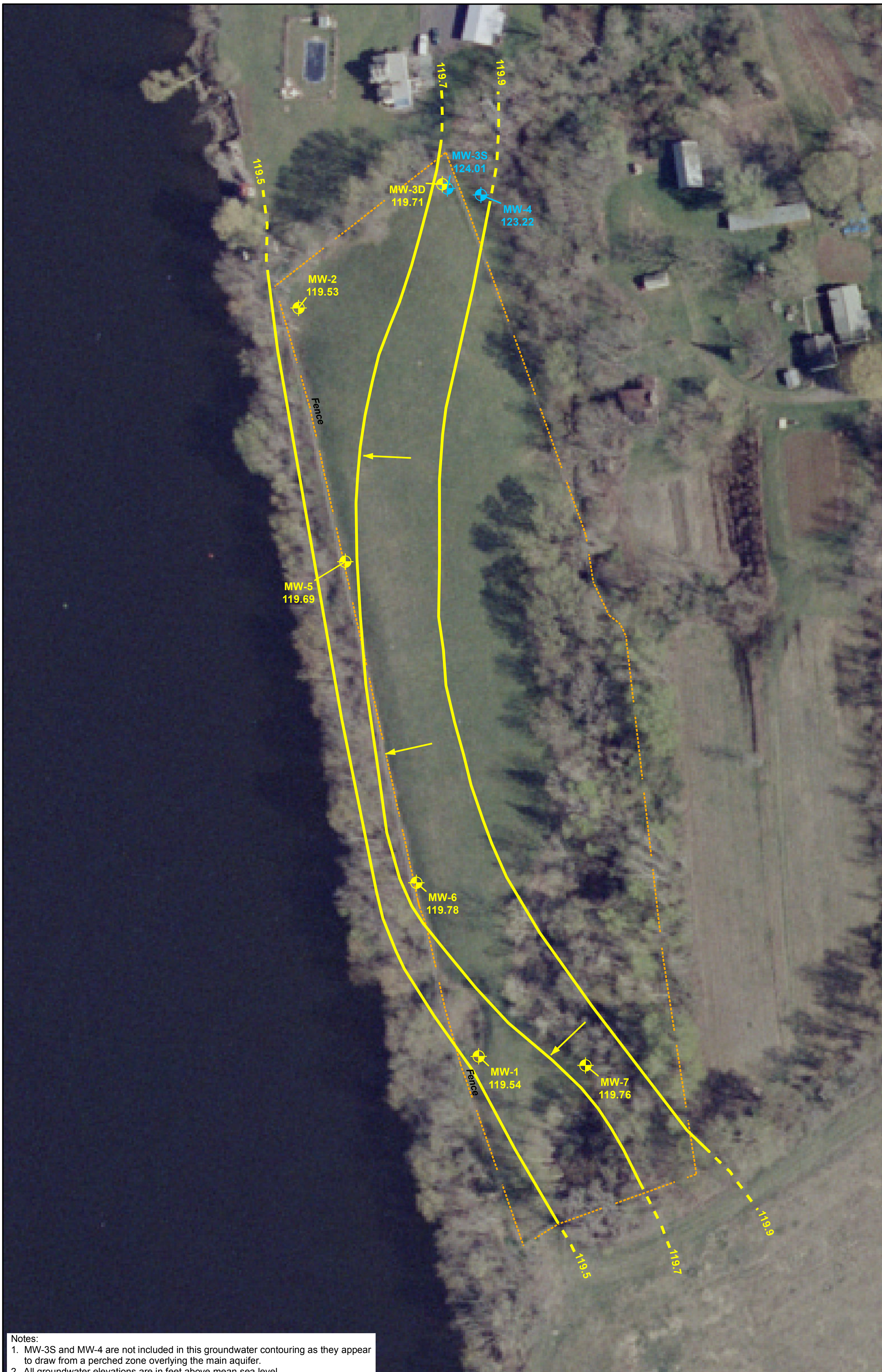


Figure 3-4 **Cross-Section C–C'**
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York



Notes:
1. MW-3S and MW-4 are not included in this groundwater contouring as they appear to draw from a perched zone overlying the main aquifer.
2. All groundwater elevations are in feet above mean sea level.

MW-05 — Monitoring Well/Groundwater Elevation
121.5 — Groundwater Contours
124.32 — Groundwater Elevation of Perched Aquifer
124.32 — Groundwater Elevation of Main Aquifer
Direction of Groundwater Flow
Fence

N S E W

0 50 100 200
Feet

Figure 3-5
March 2006 Groundwater Elevation Contour Map
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York

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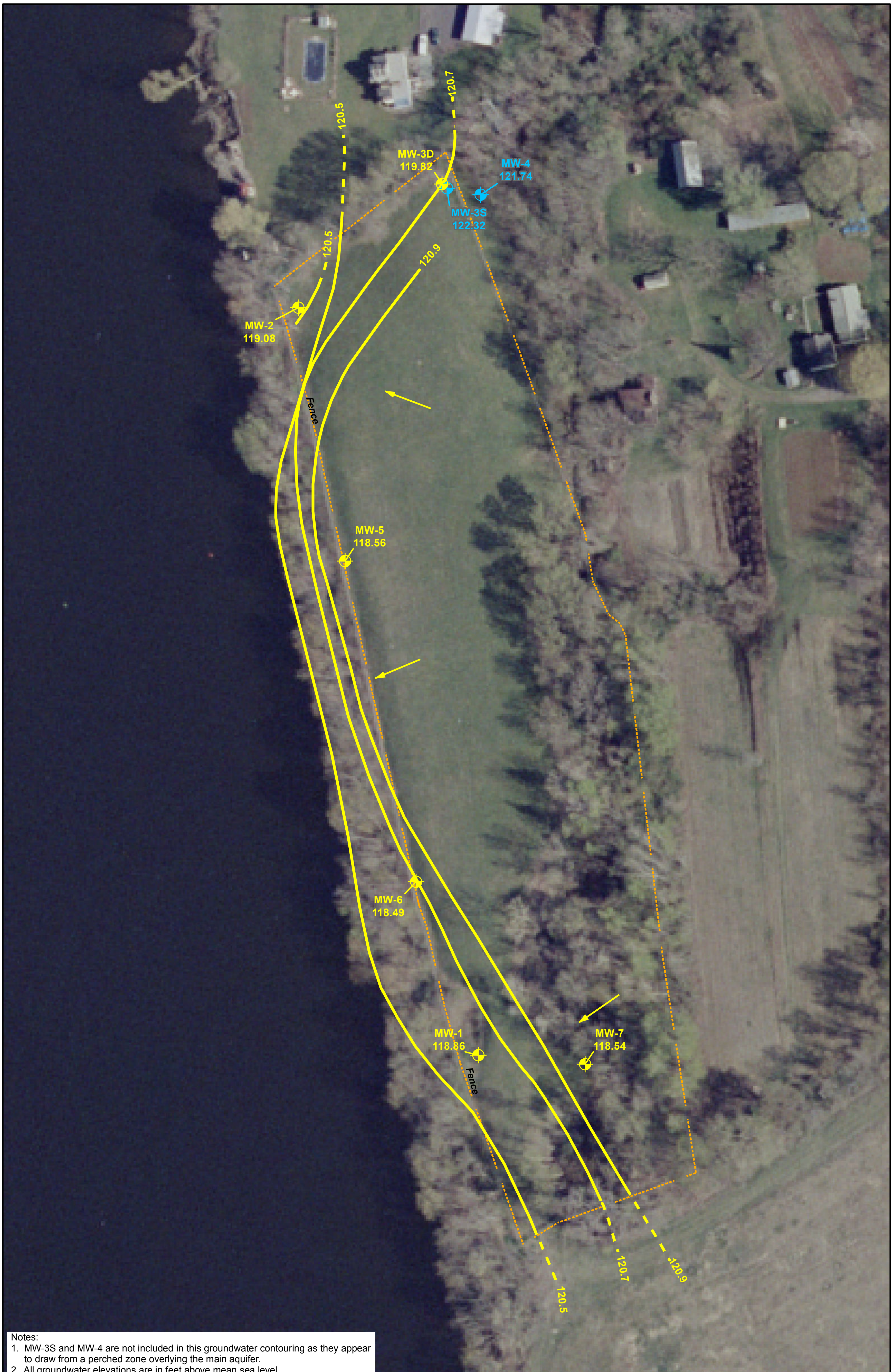
\\Path: L:\Buffalo\NYSDEC_RIFS\Maps\MXD\Buoy_212_Addendum\RI_Report_Figs_Feb2011\Fig 3-6 June 2006 GroundWater_Contours_Rev02.mxd



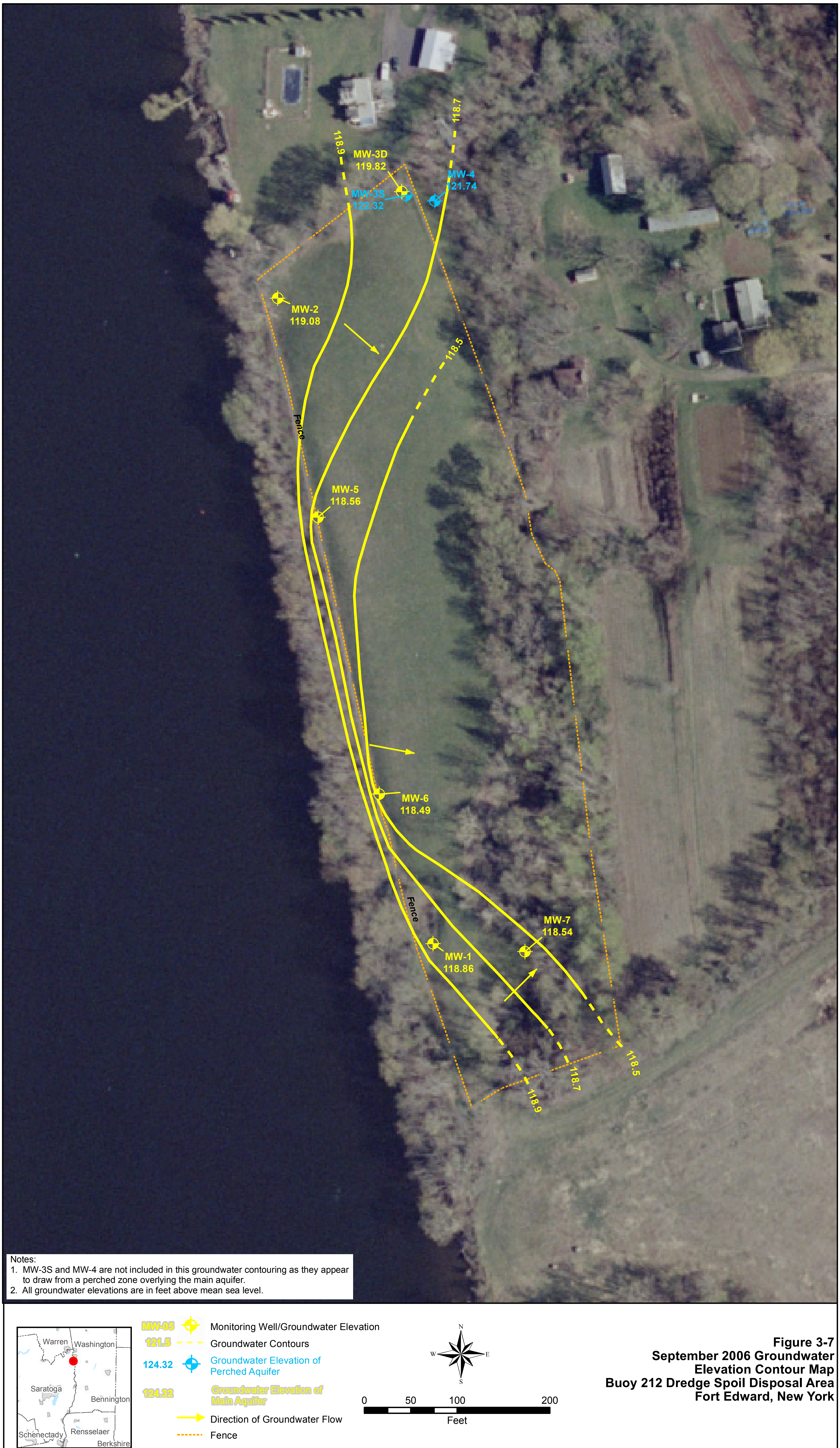
Notes:
1. MW-3S and MW-4 are not included in this groundwater contouring as they appear to draw from a perched zone overlying the main aquifer.
2. All groundwater elevations are in feet above mean sea level.

MW-05 — Monitoring Well/Groundwater Elevation
121.5 — Groundwater Contours
124.32 — Groundwater Elevation of Perched Aquifer
124.32 — Groundwater Elevation of Main Aquifer
Direction of Groundwater Flow
Fence

N W E S

0 50 100 200
Feet

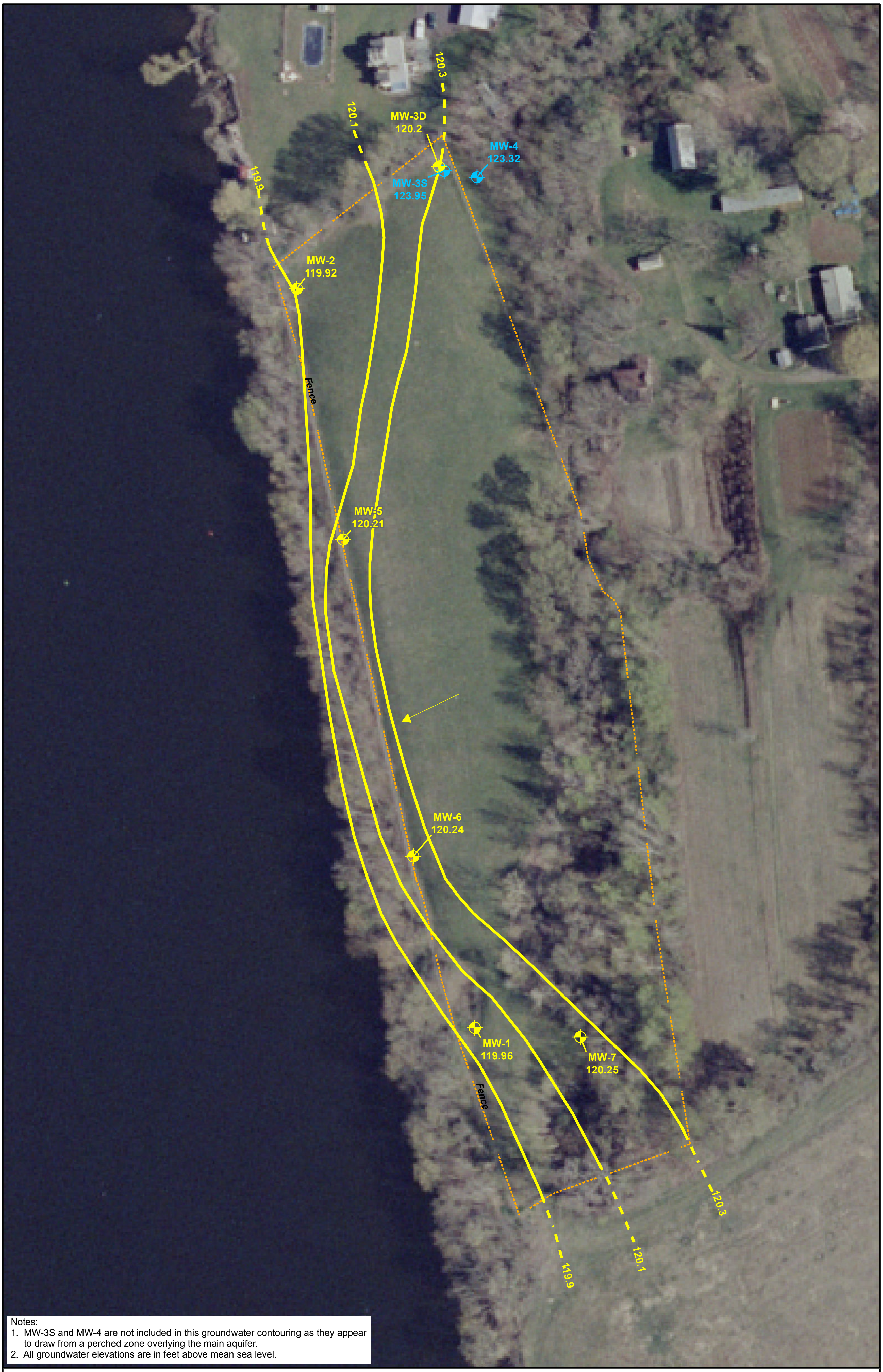
Figure 3-6
June 2006 Groundwater Elevation Contour Map
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York



Notes:
1. MW-3S and MW-4 are not included in this groundwater contouring as they appear to draw from a perched zone overlying the main aquifer.
2. All groundwater elevations are in feet above mean sea level.

MW-05 Monitoring Well/Groundwater Elevation
121.5 Groundwater Contours
124.32 Groundwater Elevation of Perched Aquifer
124.32 Groundwater Elevation of Main Aquifer
Direction of Groundwater Flow
Fence

Figure 3-7
September 2006 Groundwater Elevation Contour Map
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York



Notes:
1. MW-3S and MW-4 are not included in this groundwater contouring as they appear to draw from a perched zone overlying the main aquifer.
2. All groundwater elevations are in feet above mean sea level.

MW-05 Monitoring Well/Groundwater Elevation
121.5 Groundwater Contours
124.32 Groundwater Elevation of Perched Aquifer
124.32 Groundwater Elevation of Main Aquifer
Direction of Groundwater Flow
Fence

0 50 100 200
Feet

Figure 3-8
December 2006 Groundwater Elevation Contour Map
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York

4 Quality Assurance/Quality Control Procedures

This section describes the QA/QC procedures utilized for each environmental medium collected and analyzed for this project. The Quality Assurance Project Plan (QAPP) presented in the work plan was followed for data collection activities. The procedures described in the QAPP are consistent with the current updates of the EPA sampling procedures as described in SW-846.

4.1 Field QC Samples

Field QC samples provide a means to determine if sample quality has been compromised in the field or through shipping, and also to document overall sampling precision. The following sections describe field QC samples that were collected during this RI/FS.

Trip Blanks

Trip blanks check for the possible introduction of volatile organic compounds (VOCs) from the time the samples are collected to the time they are analyzed. Trip blanks were not generated because VOC analysis was not required.

Duplicate Samples

Consistency in both sample collection and sample analysis was checked through analysis of duplicate samples. Duplicate samples consist of aliquots of sample media placed in separate sample containers and labeled as separate samples. Duplicate samples were collected at a rate of approximately one per 20 field samples. Table 4-1 lists the duplicate samples and the original samples they duplicated. Duplicate sample analytical data are presented in the Data Usability Summary Reports (DUSRs) in Appendix F.

Field duplicate results indicated good overall precision. Some variability was observed in the metals results for the drainage water field duplicate sample. The variability is most likely a result of variations in sample turbidity.

Rinsate Samples

Rinsate samples were collected to check the effectiveness of the decontamination process on sampling equipment. One rinsate sample was collected from decontaminated split-spoons used for the collection of subsurface soil samples during drilling. No contaminants were detected in any of the rinsate blanks at concentrations exceeding laboratory background. Appendix F contains rinsate blank analytical data.

4.2 Laboratory QC Samples

Laboratory QC samples provide mechanisms to evaluate data quality based on sample integrity, holding times, method and calibration blank results, spike recoveries, surrogate recoveries, and duplicate precision. A complete listing of samples analyzed is provided in the associated DUSRs (see Appendix F). The DUSRs include attached outlier reports that were generated during data validation. The outlier reports list specific analytes outside control limits and associated samples. This is accomplished by routinely performing several internal QC checks. QC procedures used during the RI sample analyses and any potential concerns with sample analysis procedures are detailed below.

Holding Times

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

All samples were analyzed within the project-specified holding times.

Method and Calibration Blanks

Quality checks on the laboratory equipment, instrumentation, and methods reagents are conducted by analysis of method blanks. Method blanks consist of organic-free deionized water subjected to every step of the analytical process to determine possible points of laboratory contaminant introduction. Instrument calibration blanks are pure reagent matrix analyzed and compared to set instrument response baselines.

Method and calibration blanks were performed at the required frequency. Beryllium was detected in several calibration blanks as well as method blanks. The laboratory noted beryllium project reporting limits were below their standard reporting limits of 2 parts per billion (ppb) or 0.2 ppm and therefore, took no corrective action based on beryllium detected in blanks. Sample beryllium results were qualified “U” either at the practical quantitation limit (PQL) or at the reported concentration.

Surrogate Spikes

Laboratory performance for individual samples analyzed for organic compounds is established by the use of surrogate spikes. Samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recoveries may indicate some deficiency in the analytical process or that some matrix effect exists. Surrogate results falling outside QC limits are presented as outliers reported in the attachments to the DUSRs.

Surrogate recoveries for several samples had recoveries outside of QC limits. Positive results associated with low recoveries were qualified "J-" indicating a low bias. Non-detect results were qualified "UJ." Positive results associated with high recoveries were qualified "J+" indicating a high bias. Non-detect results associated with high surrogate results were not qualified. The variation in the surrogate recoveries appear to be associated with sample matrix effects.

The EPA Method 8082 screening results for sample CBH-05-04 were qualified "R," and the results deemed unusable based on no recovery of one of the surrogate compounds added and recovery below QC limits for the second surrogate compound.

Spike Samples

Spike samples simulate the background effect and interferences found in the actual samples, and the calculated percent recovery of the spike is used as a measure of the accuracy of the total analytical method. Spike samples were prepared by adding to an environmental sample (before extraction or digestion) a known amount of pure analyte to be assayed. The percent recovery of the spike analyte measures the accuracy of the method. Spikes were added at a concentration approximately midpoint on the calibration curve. Spikes (e.g., laboratory control samples) added to a matrix blank were analyzed with each sample batch to assess analytical performance not affected by sample matrix. If matrix spike samples indicated a potential matrix effect, the matrix spike blanks were evaluated to verify the problems were not due to an analytical concern. Recoveries outside QC limits are presented as an outlier in the attachments to the DUSR.

All laboratory control sample (LCS) analyses were performed at the required frequency and were within control limits except for low Aroclor 1016 and Aroclor 1260 recoveries from one EPA Method 8082 LCS. Four associated sample results were qualified "UJ" as estimated non-detect.

All matrix spike (MS) analyses were performed at the required frequency. MS recoveries indicate potential matrix problems for select metals in soil samples. The associated results are flagged "J" as estimated or "UJ" as estimated reporting limit. The potential bias from matrix effects is indicated with a negative or positive sign. The recoveries do not indicate an analytical concern. Aroclor recoveries were low for one soil MS sample. PCB results are qualified "UJ." MS recoveries for several samples for metals were outside control limits and sample results were qualified as noted above.

Laboratory Duplicate or Matrix Spike Duplicates

In addition to analytical error introduced by machinery and sample handling, error can also occasionally result from analytical process interference by a sample matrix. This can result in the reporting of analytes at concentrations higher or lower than the true concentrations. Laboratory or matrix spike duplicates (MSDs) are aliquots of the same sample that are split prior to analysis and are treated exactly the same throughout the analytical method. The relative percent difference (RPD) between the values of the MS and MSD or between the original and the duplicate was taken as a measure of the precision of the analytical method.

MS/MSD analysis was performed at the required frequency. RPD values exceeded QC limits for several MS/MSD pairs for calcium. The associated results were flagged “J” as estimated or “UJ” as non-detect with estimated reporting limits. RPD results did not indicate any analytical concerns.

4.3 Data Review

The samples were grouped by STL-Buffalo into sample delivery groups (SDGs) based on batches of no more than 20 samples, daily delivery, or requested turnaround time. The SDGs are listed with their associated samples in Appendix F. A DUSR was generated for each SDG that included Category B deliverables. A DUSR was not generated for the SDGs that contained results for PCB screening by modified EPA Method 8082 analysis. Screening reports were reviewed for completeness and compliance. DUSRs are included in Appendix F. Data for IDW soil and water disposal were not reviewed. The data reviews (both hard copy and electronic) followed the NYSDEC Guidance for the Development of DUSRs, June 1999.

Table 4-2 provides a summary of analytical methods and samples collected. Analytical data reports generated by the laboratory were checked to verify that data reported are consistent with the work plan and QAPP. In addition, all full analysis RI data were reviewed in accordance with the EPA Region II Data Validation Checklists/Guidance and the appropriate methods from the NYSDEC ASP, June 2000. The data review included an evaluation of the field and laboratory QC samples noted in Section 4.2 using the following procedure:

- **Automated Data Review (ADR) Set-up.** EEEPC set up the ADR software for all analytical parameters and QC criteria according to the QAPP. EEEPC provided the libraries to the project laboratory, STL-Buffalo, for pre-validation of their EDD submittals.

- **Completeness.** EEEPC performed a completeness check on all EDDs and compared the data to the hard copy deliverable to verify the data were reported consistently.

- **Compliance.** EEEPC processed EDDs using the ADR software to verify the data reported are compliant with the QAPP requirements. EEEPC performed an automated data validation of EDDs and generated reports of qualified data. EEEPC reviewed the ADR reports, checked the hard copy reports and case narratives, verified the automated qualifiers assigned by the program, review calibration information, and developed a DUSR for each Level B SDG.

- **Reporting.** EEEPC assigned data qualifiers and flagged all reportable data. EEEPC generated summary tables of final qualified data included in Section 5. Complete data tables are provided in Appendix F.

- **Data Management.** EEEPC developed a project-specific database with all validated data stored in Microsoft Access format.

Any deviations from acceptable QC specifications are discussed in the DUSRs (see Appendix F). The EEEPC data validators added appropriate qualifiers to the data to indicate potential concerns with data usability. These qualifiers were transferred to the data presented on summary tables in Section 5. For the RI data, the following qualifiers were added:

J - The qualifier indicates an estimated value because the associated QC data indicated a potential laboratory or matrix problem or interference. In addition, J flags assigned by the laboratory indicate the results are below the PQL, but above the instrument detection limit (IDL) or method detection limit (MDL).

J+ - Results with a "+" have the potential for positive (high) bias and are considered estimated.

J- - Results with a "-" have the potential for negative (low) bias and are considered estimated.

U - The result is considered non-detect. The laboratory assigned this flag to analytes not present at detectable concentrations (above the IDL or MDL). The data validator assigned this flag when an analyte was considered non-detect due to blank contamination. If the result is above the PQL, the PQL is considered elevated.

UJ - The result is considered non-detect at the estimated PQL shown.

Overall, the data quality was acceptable and the laboratory analysis and reporting procedures were representative of appropriate methodology for the samples collected. Table 4-3 summarizes the qualified data records for the sample reports. Six sample results were rejected for an overall completeness of greater than 99%. Laboratory QC concerns did not have a significant impact on the overall completeness and representativeness of the dataset. Copies of the laboratory reports are provided electronically as part of Appendix F.

4.4 Comparability of PCB Screening Results

Sixty-one percent of the soil samples collected and submitted for PCB analysis were processed using a screening method based on a modification of SW-846 EPA Method 8082, and approximately 21% of these samples were also processed using the standard EPA Method 8082 PCB analysis for confirmation. The modifications included the use of reduced sample size, a three-point calibration of

Aroclor 1254, and quantification based on a single point calibration for any other Aroclor detected. Overall correlation between screening and the standard EPA Method 8082 analysis was good. A detailed comparison of the screening results and confirmation samples was conducted for all six project sites included in the Hudson River upland dredge spoil disposal area/site RI program and submitted to NYSDEC under separate cover (Galloway et al 2007). A total of 302 samples at the six project sites were compared for full and screening analysis. A summary of the findings is provided below.

Screening results did not show false negatives. A total of 91 samples were reported as non-detect for screening results. Confirmation samples had PCBs detected below the screening reporting limits except for one sample. Screening results did not show any false positives. All screening results that showed a positive result also had a positive result in the confirmation samples. About half of the screening samples used for comparison (i.e., 140) had positive results below 1 ppm (restricted use residential soil cleanup objective from 6 NYCRR 375-6.8) and the confirmation sample results were very comparable. When the concentrations reported by the screening test exceeded 1 mg/kg, the comparability of the results decreased somewhat and there were more confirmation results with much higher concentrations. The screening test results exhibited an overall negative (low) bias compared to the confirmation sampling.

The negative bias at higher concentrations is most likely due to the larger sample size and more effective extraction procedures for the confirmation samples. If the contamination in the soils samples was not homogenous, the contamination would be more likely to be detected with the greater sample size used in the confirmation samples. A detailed evaluation of the positive results for both sets of samples indicates the relationship between these values was best fit by a power function ($y=1.3714*x^{1.0104}$, where y = standard 8082 result and x = screening result) (see Appendix H). For decision-making purposes, screening values should be adjusted using this relationship. For example, the SCO for restricted-residential/restricted-commercial use is 1 ppm by standard EPA Method 8082 analysis, the corresponding adjusted screening value is approximately 0.73 ppm. For a SCO of 0.1 ppm for unrestricted use by standard EPA Method 8082 analysis, the corresponding adjusted screening value is 0.075 ppm (see Appendix H).

In terms of PCB identification, most samples contained Aroclors 1242 and 1248, with some Aroclor 1254. The screening and confirmation data show similar Aroclors. It should be noted that Aroclor 1242 and 1248 are very similar chemically and often can be identified interchangeably due to slight matrix effects.

Table 4-1 Field Duplicate Sample Summary, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Matrix	Sample Date	Sample ID	Duplicate Sample ID	Analysis			
Soil	3/1/2006	CBH-01-02	CBH-01-02/D			Metals	Mercury
Soil	3/1/2006	CBH-03-02	CBH-03-02/D	Screen			
Soil	2/27/2006	CBH-05-02	CBH-05-02/D	Screen			
Soil	2/21/2006	CBH-06-02	CBH-06-02/D	Screen	PCBs		
Soil	2/24/2006	CBH-08-02	CBH-08-02/D			Metals	Mercury
Soil	3/1/2006	MBH-02-01	MBH-02-01/D	Screen	PCBs		
Soil	2/28/2006	MBH-07-01	MBH-07-01/D	Screen			
GW	6/14/2006	MW-04-GW	MW-04-GW/D		PCBs	Metals	Mercury
Soil	2/22/2006	MW-05-04	MW-05-04/D	Screen			
Soil	2/22/2006	MW-05-05	MW-05-05/D			Metals	Mercury
GW	9/29/2006	MW-06-GW	MW-06-GW/D		PCBs	Metals	Mercury
GW	12/13/2006	MW-06-GW	MW-06-GW/D		PCBs	Metals	Mercury
GW	3/28/2006	MW-07-GW	MW-07-GW/D		PCBs	Metals	Mercury
Soil	6/10/2008	PBH-14-01	PBH-14-01/D		PCBs		
Soil	6/11/2008	PBH-18-01	PBH-18-01/D		PCBs		
Soil	6/12/2008	PBH-28-01	PBH-28-01/D		PCBs		
Soil	5/16/2008	SBH-05-02	SBH-05-02/D		PCBs		
Drainage network soil	11/29/2005	SD-04	SD-04/D	Screen	PCBs	Metals	Mercury
Soil	11/29/2005	SS-02	SS-02/D	Screen	PCBs		
Soil	11/29/2005	SS-22	SS-22/D	Screen		Metals	Mercury

Key:

ID = Identification.
PCB = Polychlorinated biphenyl.
Screen = PCB screening test.

Table 4-2 Summary of Analytical Methods and Samples Collected, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Sample Matrix	Lab Method ID	Lab Method Description	Number of Samples Analyzed
Soil	415.1_LK	Total Organic Carbon by Lloyd Kahn	9
Aqueous	6010B	Metals by ICP by 6010B	47
Soil	6010B	Metals by ICP by 6010B	31
Soil	6010B Short	Metals by ICP by 6010B	23
Aqueous	7470A	Mercury by 7470A	47
Soil	7471A	Mercury by 7471A	45
Aqueous	8082	PCBs by 8082	47
Soil	8082	PCBs by 8082	161
Soil	8082-Screen	PCBs by Modified 8082	132

Key:

ID = Identification.
PCB = Polychlorinated biphenyl.

Table 4-3 Summary of Sample Completeness, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Sample Matrix	Lab Method Description	Unqualified	J	J-	J+	U	UJ	R
Aqueous	Metals	616	33	11	1	764	5	
Aqueous	Mercury	10				55		
Aqueous	PCBs	77		73		268	135	
Soil	TOC	11						
Soil	Metals	395	95	15	13	104	38	
Soil	Metals-Short	66	4	10		1		
Soil	Mercury	40	2	7		7	1	
Soil	PCBs	352	36	47	6	913	78	12
Soil	PCBs-Screen	305	9	5	79	826	12	6
	Total	**1,872**	**179**	**168**	**99**	**2,938**	**269**	**18**

Key:

ID = Identification.
J = Estimated value ("-" is biased low and "+" is biased high).
PCBs = Polychlorinated Biphenyls.
R = Sample results not usable (rejected).
TOC = Total organic carbon.
U = Not detected.
UJ = Not detected at an estimated reporting limit.

5 Nature and Extent of Contamination

5.1 Introduction

This section presents the analytical results of the RI field activities in order to develop an understanding of the nature and extent of contamination at the site. The information was used to assess the fate and transport of chemicals (see Section 6) and identify chemicals of potential concern for risk evaluation (see Section 7) that pose a potential threat to human health and/or the environment.

Screening

The analytical results (see Tables 5-1 through 5-5b) were screened against existing NYS regulatory standards, guidance values, and criteria to identify samples containing analyte concentrations that may represent a possible threat to human health and/or the environment. Groundwater analytical data were compared to standards and guidance values contained in NYSDEC, *Technical and Operational Guidance Series (TOGS 1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations)* (NYSDEC 1998a and 1998b, with updates). Soil (surface, subsurface, and drainage network soil) data were compared to soil cleanup objectives contained in NYSDEC, 6 New York Codes, Rules, and Regulations (6 NYCRR) Subpart 375-6.8, *Remedial Program Soil Cleanup Objectives*.

Under 6 NYCRR Subpart 375-6.8, NYSDEC presents various soil cleanup objectives for protection of public health based on land use criteria which include:

- **Unrestricted use**, which is a use without imposed restrictions, such as environmental easements or other land use controls; or

- **Restricted use,** which is a use with imposed restrictions, such as environmental easements, which as part of the remedy selected for the site require a site management plan that relies on institutional controls or engineering controls to manage exposure to contamination remaining at a site. Restricted use is separated into four different categories:

  1. **Residential use** is a land use category that allows a site to be used for any use other than raising livestock or producing animal products for human consumption. Restrictions on the use of groundwater are allowed, but no other institutional or engineering control relative to the

residential soil cleanup objectives, such as a site management plan, would be allowed. This land use category will be considered for single family housing;

2. **Restricted-Residential use** is a land use category that shall only be considered when there is common ownership or a single owner/managing entity of the site. Restricted-residential use shall, at a minimum, include restrictions which prohibit any vegetable gardens on a site, although community vegetable gardens may be considered with NYSDEC's approval and single-family housing. Active recreational uses, which are public uses with a reasonable potential for soil contact, such as parks, are also included under this category;

3. **Restricted-Commercial use** is a land use for the primary purpose of buying, selling or trading of merchandise or services. Commercial use includes passive recreational uses, which are public uses with limited potential for soil contact; and

4. **Restricted-Industrial use** is a land use for the primary purpose of manufacturing, production, fabrication or assembly process and ancillary services. Industrial uses do not include any recreational component.

In addition, soil cleanup objectives are presented in 6 NYCRR Subpart 375-6.8 for the protection of groundwater and ecological resources, which should be considered where applicable. The soil cleanup objectives for protection of groundwater were not included in the screening process because groundwater data is screened independently against NYSDEC TOGS 1.1.1 values.

This site is currently zoned as "Hudson River/Historic Canal Corridor," (LaBerge Group 2008) and is surrounded by residential and agricultural land uses. Due to the potential continued use of this site for the same activity in the future, the cleanup objectives selected for the Buoy 212 site is Unrestricted Residential use.

The list of inorganic analytes (i.e., metals) found in the 6 NYCRR Subpart 375-6.8 regulation is limited to 15 metals because NYSDEC's intention was to develop cleanup objectives for a priority list of contaminants commonly found at waste sites within New York State. NYS background values (95^{th} percentile) found in the Source-Distant Data Set from the NYS Brownfield Cleanup Program - Technical Support Document, Appendix D, September 2006), were used as screening criteria for those metals that were detected in site soils but are not listed in 6 NYCRR Subpart 375-6.8. For metals without a stated 6 NYCRR Subpart 375-6.8 cleanup objective and without a NYS background values eastern United States background values (95^{th} percentile) from Shacklette and Boerngen (1984) were used as the soil cleanup objective.

Although the NYSDEC, Division of Fish, Wildlife and Marine Resources provides criteria for screening contaminated sediments, the criteria are not considered applicable to the soil samples collected from the drainage network at the site because these samples are soil samples collected from intermittently wet areas. As such, there are no existing benthic aquatic or other fish communities at the drainage network soil sample locations because they are not wet or submerged long enough to support aquatic life. Consequently, an appropriate cleanup standard to evaluate the drainage network soil sample data is the 6 NYCRR Subpart 375-6.8 soil criteria.

Likewise, the drainage network water samples collected at the site are not representative of a surface water body such as a lake, river, or stream. Therefore, ambient water quality criteria were used only as a comparison guide in evaluating the drainage water analytical results. Taking this into account, the lowest available class of freshwater criteria was selected for each metal. For most of the metals the lowest criteria is for Class D waters, the best usage of which is for fishing and the water must be suitable for fish survival, but not fish propagation. For Class D waters, the standard/guidance value type applied is "acute protection of aquatic life (A [A])." For metals with no Class D standards or guidance values, Class C was selected. The best usage of Class C waters is also for fishing, but the water must be suitable for both fish survival and fish propagation. The standard/guidance value type applied for Class C waters is "chronic protection of aquatic life (A[C])". For four of the metals in the analysis, there were no Class D, C, or B standards/guidance values available. In these cases, Class A water standards/guidance values were used. The best usage of Class A waters is as a supply of drinking water (after typical treatment). The standard/guidance value type applied for Class A water is "protection of human health (H [WS]) or aesthetics (E)." For those metals identified as such in Table 5-2b, a site-wide average water hardness was used to derive the screening value. The hardness was calculated in ppm as follows:

$$\text{Hardness (ppm)} = 2.5 * [\text{Ca}] + 4.1 * [\text{Mg}];$$

Where,

[Ca] is the measured concentration of calcium in ppm, and
[Mg] is the measured concentration of magnesium in ppm.

Tables 5-1b through 5-5b present the inorganic analytical results for each sample media collected at this site.

Additionally, guidance values and standards apply to total PCB concentrations rather than individual Aroclor concentrations. As described in the *Work Plan for the Remedial Investigation and Feasibility Study at the Buoy 212 Dredge Spoil Disposal Area* (EEEPC 2005a), PCBs in soils were analyzed using both a screening method and SW-846 EPA Method 8082. Sixty-one percent of the soil samples collected and submitted for PCB analysis were processed using a screening method based on a modification of SW-846 EPA Method 8082, and approximately 21% of these samples were also processed using the standard EPA Method 8082 PCB analysis for confirmation. Screening results were compared against the standard EPA Method 8082 analysis results as discussed in Section 4.3. The results indicate a potential low bias for the screening results at concentrations near the screening criteria noted above. Based on these results, all soil sample PCB-screening-test results presented in Tables 5-1a and 5-3a through 5-5a that are within 73% of exceeding the NYS cleanup objective were bolded to show these samples may exceed criteria (see Section 4).

It is noted that Aroclor 1248 was the predominant PCB Aroclor detected in the surface soil and the drainage network soil samples collected at this site. Aroclor 1242 was the predominant PCB Aroclor detected in subsurface soil samples. PCB Aroclors were not detected in any groundwater or drainage water samples collected at this site. Individual Aroclor data summary tables are presented in Appendix H.

5.2 Drainage Network Soil and Water Samples

There are no sustained surface water bodies on this site. One area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property was identified and sampled once. Water that collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. At the time of sampling, water was flowing through the pass-through culvert and samples were collected along the water path on the west side of the disposal structure. Soil samples were also collected along the water path at the locations where the drainage water samples were collected for analysis.

Eight drainage network soil samples (SD-01 through SD-08) and eight drainage water samples (SW-01 through SW-08) were collected on November 29, 2005. Drainage network soil and water sample sets were collected at three locations (SW/SD-03 through SW/SD-05) in the drainage network along the eastern margin, at three locations (SW/SD-06 through SW/SD-08) in the area runoff collects intermittently in the southeastern part of the Buoy 212 property, and at two locations (SW/SD-01 through SW/SD-02) along the drainage network on the west side of the disposal structure and on the floodplain shelf adjacent to the Hudson River. The purpose of the sampling was to assess the potential for dispersion of site contaminants into the Hudson River and/or Champlain Canal through natural drainage and erosion. These samples were submitted to the laboratory for PCB and metals analyses as described in Section 2. A summary of analytical results for total PCBs is provided below, presented in Tables 5-1a and 5-2a, and shown on Figure 5-1. The analytical results for metals are summarized below and are presented in Tables 5-1b and 5-2b.

PCBs

PCBs were detected in two of the eight drainage network soil samples with a concentration of 2.92 ppm in sample SD-04 from the drainage network along the eastern margin, and 8.3 ppm in sample SD-01 from the drainage network on the west side of the disposal structure and on the floodplain shelf adjacent to the Hudson River. The concentration of PCBs in both drainage network soil samples exceed the NYSDEC Part 375-6.8 SCO established for the unrestricted use of the site (0.1 ppm) and the SCO applicable to the Restricted - Commercial Use of the site (1.0 ppm). The sample with the higher PCB result was located in the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. The other result was located along the margin of the cover on the eastern side of the site in the vicinity of localized areas of disturbance where burrowing animals are thought to have brought dredge spoil materials to the surface.

PCBs were not detected in any of the eight drainage water samples.

Metals

There were 17 metals detected in drainage network soil samples collected at the site. Chromium, lead, mercury, and zinc were present at concentrations exceeding NYSDEC SCOs and aluminum, calcium, iron, magnesium, and potassium were found at concentrations exceeding alternative screening criteria (New York State background concentrations). In general, the highest concentrations of metals were found at sample location B212-SD-07 in the Hudson River floodplain along the southwestern margin of the site. This location is also where the drainage network soil sample with the highest PCB result was collected.

There were 10 metals detected in the drainage water samples collected from the drainage network at the site. Of these, aluminum and iron were found at concentrations above the NYSDEC Class D surface water standards they were compared to for assessment in nearly all of the eight samples, but the results appear to represent natural conditions of the native soil rather than contamination attributable to the disposal of dredge spoil materials at this site.

5.3 Soil Investigation

Surface and subsurface soil samples were collected from several discrete locations at this site and from several points in the soil column during borehole drilling and monitoring well installation programs for this RI. The samples were collected to assess the potential for direct contact exposure to areas of potential contamination and to and characterize subsurface soil conditions in and around the dredge spoil disposal structure at this site. Soil samples were submitted to the laboratory for PCB and metals analyses as described in Section 2. A summary of analytical data for total PCBs is provided below, presented in Tables 5-3a through 5-5a, and shown on Figures 5-1 and 5-2. The metals results are summarized below and are presented in Tables 5-2b through 5-5b.

5.3.1 Surface Soil Samples

Surface soil samples (covering the 0 to 2-inch soil depth interval) were collected from 65 locations at this site to assess direct human exposures. Samples from the surface at some of the exploration boreholes advanced at this site also contributed to the overall surface soil assessment. Twenty-six samples were collected from locations on the closed and covered dredge spoil disposal structure at this site and 39 samples were collected from locations beyond the margins of the disposal structure, including 14 points in the Hudson River floodplain along the west side of the site. All 65 samples were analyzed for PCBs; 10 samples were analyzed for cadmium, chromium, lead, and mercury only; and two samples were analyzed for the full suite of 23 TAL metals.

PCBs

Results confirm PCBs at 42 surface soil sampling points with 21 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 12 samples reporting concentrations above 1.0 ppm (the restricted use - commercial - SCO applicable to this site). The highest PCB concentration in surface soil was 9.9 ppm in sample PBH-01-01 collected from the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. Nearly all of the other results found above the applicable SCOs were either located along the margins of the cover over the site or on top of the cover in the vicinity of areas where burrowing animals are thought to have brought dredge spoil materials to the surface. PCBs in soil are the risk drivers for human health and for wildlife.

In the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area, PCBs were found at levels above the 0.1 ppm SCO at the surface at sample points SS-01 through SS-09, SS-24, and PBH-01 through PBH-04, with a concentration range between 0.18 ppm and 9.9 ppm. In this area, PCBs were found above the 1.0 SCO at the surface at sample points SS-01, SS-03, SS-07, SS-08, SS-24, and PBH-01, with a concentration range between 1.61 ppm and 9.9 ppm.

In those areas located along the margins of the cover over the site or on top of the cover in the vicinity of areas where burrowing animals are thought to have brought dredge spoil materials to the surface, PCBs were found at levels above the 0.1 ppm SCO at the surface at sample points SS-20A, SS-21, PBH-13, PBH-14, PBH-15, PBH-23, PBH-25, and PBH-28, with a concentration range between 0.23 ppm and 4.3 ppm. For these same sampling points, PCBs were found at levels above the 1.0 ppm SCO in all but PBH-15 and PBH-23. The concentration range for results above 1.0 ppm was between 1.97 ppm and 4.3 ppm.

PCBs at a concentration of 0.1 ppm were found at the surface in one area north the Buoy 212 site. This sample was collected from an area sampled in the past and reported upon in the Department's July 2001 Dredge Spoils Investigation Report.

Refer to Figures 5-3 and 5-4 for depictions of the approximate extent of surface soils with PCB concentrations ≥ 0.1 ppm and with PCB concentrations ≥ 1.0 ppm - on or outside of the cover.

Metals

Results indicate that chromium and mercury (metals that may be attributable to the contaminated dredge spoil materials at the site or, in some cases, historical and reoccurring floodplain deposition of contaminated Hudson River sediments) were found at levels exceeding their respective unrestricted and commercial use SCO values in a few of the surface soil samples collected at this site. Other metals including aluminum, calcium, cobalt, iron, manganese, nickel, potassium, and sodium were found at levels exceeding their applicable SCO in one of the two samples analyzed for the full suite of 23 Target Analyte List metals during this project. None of these metals are significant risk drivers for either human health or for wildlife in light of their low frequency.

5.3.2 Subsurface Soil Sampling Results from Boreholes

One hundred and twenty-seven subsurface soil samples (deeper than the 0 to 2-inch soil depth interval) were collected from 56 locations at this site and analyzed for PCBs and metals. Subsurface soil samples were collected from the 13 cover boreholes (any boring advanced through the obvious cover over the closed dredge spoil disposal structure), the nine margin boreholes (any boring advanced in areas along the supposed margins of the cover area), the three new monitoring well boreholes, six of the southern area boreholes (any boring installed in the area south of the closed dredge spoil disposal structure), and 25 of the perimeter boreholes (any sampling point advanced using a hand auger at the site) installed in and around the closed and covered dredge spoil disposal structure as part of the exploration borehole and well drilling programs at the Buoy 212 site. These programs, and their concurrent subsurface soil sampling elements, were used to evaluate the subsurface soil and local groundwater conditions and chemistry at the Buoy 212 site; define the nature and three-dimensional extent of any identified contamination at or in the vicinity of the site; and define and evaluate potential pathways of contaminant migration. The information gathered during this program also used to define the extent of cover over the closed dredge spoil disposal structure at this site.

The cover boreholes and the monitoring well boreholes were installed to a maximum depth of 20.2 feet below the existing ground surface and up to five subsurface soil sample intervals were collected for chemical analysis from each borehole. Samples selected for chemical analysis at each of these boreholes included at least: one sample of any material that could be characterized as dredge spoil (if present and distinguishable), one sample from a soil interval above any distinguishable dredge spoil material, and one sample from a soil interval below any distinguishable dredge spoil material, as applicable. The nine margin boreholes were drilled to a maximum depth of 11 feet below the existing ground surface. The southern area boreholes were installed to depths ranging between two and eight feet using a direct-push drill rig. The perimeter boreholes were installed to a maximum depth of 2 feet using a hand auger or shovel. Up to three subsurface soil samples were collected from each of these locations. As with the cover borehole and monitoring well borehole locations, one soil sample selected for chemical analysis at each of these other boreholes included at least one sample of any material that could be characterized as dredge spoil (if present and distinguishable) and one sample from a soil interval below any distinguishable dredge spoil material, as applicable. All subsurface soil recoveries were screened with a PID for organic vapors and a description of the soil core was recorded in the logbook. All subsurface soil samples selected for chemical analysis were placed in appropriate sample containers using a dedicated stainless-steel spoon for each individual sample.

The dark gray to black, fine to medium sands with varying amounts of silt, black shale fragments, pebble gravel, brick fragments, coal fragments, fused slag, glass shards, and wood debris that could be characterized as dredge spoil materials, varied in thickness from a few inches to nearly 13 feet under the cover established at the site.

Samples were submitted to the laboratory for PCBs and total metals analyses as described in Section 2. A summary of the analytical results for total PCBs is provided below, presented in Tables 5-4a and 5-5a, and illustrated on Figure 5-2. The analytical results for metals are summarized below and are presented in Tables 5-4b and 5-5b.

PCBs

Results confirm PCBs in 76 subsurface soil samples with 66 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 53 samples reporting concentrations above 1.0 ppm (the restricted use - commercial - SCO applicable to this site). Samples containing PCB concentrations above 0.1 ppm were generally collected at depths between 4 feet and 18.5 feet below grade. The two highest PCB concentrations in the soil under the existing isolation cover were 47 ppm at a depth of 12 feet below grade in CBH-02, and 39 ppm at a depth of 14 feet below grade in CBH-03. The highest PCB concentration in the subsurface soil outside of the existing isolation cover and in the vicinity of the closed and covered former dredge spoil disposal area was 2.4 ppm. Nearly all of the subsurface soil results found above the applicable SCOs outside of the existing isolation cover were either located in samples collected from the Hudson River floodplain or in the vicinity of areas where burrowing animals have disturbed dredge spoil materials along the margins of the closed and covered dredge spoil disposal area. PCBs in soil are the risk drivers for human health and for wildlife.

In the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area, PCBs were found at levels above the 0.1 ppm SCO at depth (deeper than 2-inches) at sample points PBH-01, PBH-02, and PBH-04, with a concentration range between 0.27 ppm and 2.4 ppm. In this area, PCBs were found above the 1.0 SCO at depth at sample point PBH-01, with a concentration result of 2.4 ppm.

In those areas located along the margins of the cover over the site or on top of the cover in the vicinity of areas where burrowing animals are thought to have brought dredge spoil materials to the surface, PCBs were found at a level above the 0.1 ppm SCO at depth in sample point PBH-26, with a concentration result of 0.97 ppm. For these same sampling points, PCBs were not found at above the 1.0 ppm SCO.

Refer to Figures 5-5 and 5-6 for depictions of the approximate extent of subsurface soils with PCB concentrations ≥ 0.1 ppm and with PCB concentrations ≥ 1.0 ppm - on or outside of the cover. Figures 5-7, 5-8, and 5-9 show the distribution of PCB concentrations below the cover on the cross-sections drawn for the site and discussed in Section 3.2.2 of this report.

Metals

Cadmium and chromium (metals that may be attributable to the contaminated dredge spoil materials at the site or, in some cases, historical and reoccurring floodplain deposition of contaminated Hudson River sediments) were found at levels exceeding their respective unrestricted use SCO values in a few subsurface soil samples analyzed for these metals. Cadmium was found at CBH-04 in a sample interval between 5.5 and at 6 feet below grade and at CBH-08 in a sample interval between 4.2 and 5 feet below grade. Chromium was found at CBH-08 in a sample interval between 4.2 and 5 feet below grade and at PBH-21 in a sample interval between 0.2 and 2 feet below grade. These metals are not significant risk drivers for either human health or for wildlife at the site in light of their depth and low frequency. Iron was found at a level exceeding the applicable SCO in one of the four samples analyzed for the full suite of 23 Target Analyte List metals during this project. This one sample came from a depth interval between 1.5 and 1.9 feet below grade at CBH-04A. Iron exceeding the applicable SCO at this depth and in this low of a frequency is not significant risk driver for either human health or for wildlife at the site.

5.4 Groundwater Investigation

A total of 32 groundwater samples were collected from the three new monitoring wells and the existing five monitoring wells around the site in March, June, September, October, and December of 2006 to assess the overburden groundwater conditions at the site. All 32 samples were analyzed for PCBs and metals. In addition, a single groundwater sample was collected from a residential well near the site in June of 2008. The well draws water from the overburden aquifer. The sample was analyzed for PCBs and metals.

Mapping shows that groundwater flow at this site typically moves away from the topographic rise on the eastern side and toward the Hudson River in a general west-southwest direction (see Figures 3-5 through 3-8). Based on groundwater elevation measurements and other observations made during the Remedial Investigation, lines of equal groundwater elevation are nearly parallel with the shore of the River and groundwater appears to flow through the native overburden soils just below the dredge spoil materials placed at the site most of the year. Groundwater elevations across the site ranged from approximately 118 feet to 123 feet above mean sea level during the investigation period. As expected, the lowest groundwater elevations were observed during the September monitoring event, when seasonal precipitation was relatively low.

Samples were analyzed for PCBs and metals as described in Section 2. A summary of the analytical results for PCBs and metals in groundwater is provided below and is presented in Table 5-6.

PCBs

PCBs were not detected in any of the groundwater samples collected from the monitoring wells at this site during any sample collection event associated with this investigation. In addition, PCBs were not detected in the water sample collected from the nearby residential well in June 2008.

Metals

Cadmium, chromium, lead, and mercury - the primary metals of concern at the site and potentially attributable to the contaminated dredge spoil materials placed here, were not found at levels exceeding their respective SCO values in any of the groundwater samples. Other metals (iron, magnesium, manganese, and sodium) were found at levels that exceeded their respective SCO values in the groundwater around the site, but these findings appear to represent natural conditions. The groundwater standards for these four metals are based on aesthetics and not the protection of human health and, as such, are not considered to be a concern.

Table 5-1a Summary of Total PCB Concentrations in Drainage Network Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Total Organic Carbon (mg/Kg)	Total PCB (mg/Kg - Screening)	Total PCB (mg/Kg - Confirmation)	Field Duplicate [1] (mg/Kg)	Maximum Total PCB Concentration [2] (mg/Kg)
B212-SD-01	29-Nov-05	29000	8.3			**8.3**
B212-SD-02	29-Nov-05	5600	0.36U			ND
B212-SD-03	29-Nov-05	8500	0.29U			ND
B212-SD-04	29-Nov-05	35000	2.92	0.38	1.35 (1.7)	**2.92**
B212-SD-05	29-Nov-05	29000	0.37U			ND
B212-SD-06	29-Nov-05	14000	0.34U			ND
B212-SD-07	29-Nov-05	1900	0.38U	.38U		ND
B212-SD-08	29-Nov-05	13000	0.34U			ND

(1) Field duplicate samples listed in parentheses are from confirmation samples.

(2) Bold and shaded values exceed soil cleanup objective of 0.1 mg/Kg, while bold italicized screening test values may exceed the soil cleanup objective (NYSDEC Part 375.6-8 Unrestricte Use). The ND values are at reporting limits that are above the soil cleanup objective, however, the method detection limits (MDL) are below that level. Concentrations between the MDL and reporting limit are flagged "J" as estimated.

Key:
- mg/Kg = Milligrams/kilogram.
- ND = All Aroclors were non-detect.
- U = Not detected at the reporting limit shown.
- /D = Field duplicate sample.
- Blank spaces indicate PCBs were not analyzed for confirmation or field duplicate samples.

Table 5-1b Summary of Metals Concentrations in Drainage Network Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Analyte	Screening Criteria [(1)]	Sample ID Date	B212-SD-01 11/29/2005	B212-SD-02 11/29/2005	B212-SD-03 11/29/2005	B212-SD-04 11/29/2005	B212-SD-04/D 11/29/2005	B212-SD-05 11/29/2005
Metals by Method 6010/7471 (mg/Kg)								
Cadmium	2.5 [(2)]		1.6	0.35	0.40	1.4	1.2	0.65
Chromium	30 [(2)]		**71.6**	3.9	7.2	20.7	21.2	10.8
Lead	63 [(2)]		**110**	5.1	11.3	32.7	35.1	16.6
Mercury	0.18 [(2)]		**0.249**	0.022 U	0.049	**0.191**	**0.239**	0.099
Aluminum	15800 [(3)]		9480 J	3060 J	9330 J	13200 J	14800 J	11400 J
Antimony	2.17 [(4)]		30.5 UJ	17.7 UJ	23.2 UJ	26.0 UJ	25.7 UJ	26.3 UJ
Arsenic	13 [(2)]		4.1 U	2.4 U	3.1 U	3.8	3.4 U	3.5 U
Barium	350 [(2)]		72.2 J	15.2 J	41.1 J	86.4 J	92.9 J	67.3 J
Beryllium	7.2 [(2)]		0.52 UJ	0.15 UJ	0.41 UJ	0.73 UJ	0.65 UJ	0.51 UJ
Calcium	9190 [(3)]		5240 J	1200 J	2890 J	3520 J	3620 J	4810 J
Cobalt	13.3 [(3)]		7.0	2.2	4.3	5.7	5.3	4.5
Copper	50 [(2)]		27.9	7.4	6.2	15.0	16.7	11.1
Iron	25600 [(3)]		16900 J	9960 J	13200 J	19100 J	13400 J	13500 J
Magnesium	5130 [(3)]		2520 J	975 J	1710 J	2620 J	2950 J	2210 J
Manganese	1600 [(2)]		538 J	95.5 J	214 J	244 J	147 J	174 J
Nickel	30 [(2)]		13.0	4.5	5.8	12.5	13.7	9.2
Potassium	1890 [(3)]		915 J	376 J	422 J	1170 J	1350 J	709 J
Selenium	3.9 [(2)]		8.1 U	4.7 U	6.2 U	6.9 U	6.9 U	7.0 U
Silver	2 [(2)]		1.0 U	0.59 U	0.77 U	0.87 U	0.86 U	0.88 U
Sodium	211 [(3)]		284 UJ	165 UJ	217 UJ	243 UJ	240 UJ	245 UJ
Thallium	16.3 [(4)]		12.2 U	7.1 U	9.3 U	10.4 U	10.3 U	10.5 U
Vanadium	31 [(3)]		26.1	7.4	17.8	28.2	25.0	19.0
Zinc	109 [(2)]		**243**	**195**	60.9	109	**114**	64.6

[(1)] Bold and shaded values exceed screening criteria.

[(2)] Part 375-6.8 Unrestricted Use Soil Cleanup Objectives.

[(3)] NYS background (95th percentile), Source-Distant Data Set from NYS Brownfield Cleanup Program, Technical Support Document, Appendix D, September 2006.

[(4)] Eastern United States background (95th percentile) from Shacklette and Boerngen 1984.

Key:

J = Estimated value ("-" is biased low and "+" is biased high).

U = Not detected at the reporting limit shown.

mg/Kg = Milligrams/kilogram.

/D = Field duplicate sample.

Table 5-1b Summary of Metals Concentrations in Drainage Network Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID / Date	B212-SD-06 11/29/2005	B212-SD-07 11/29/2005	B212-SD-08 11/29/2005
Metals by Method 6010/7471 (mg/Kg)					
Cadmium	2.5 (2)		0.43	0.55	0.47
Chromium	30 (2)		8.2	27.1	9.9
Lead	63 (2)		9.5	9.2	15.4
Mercury	0.18 (2)		0.061	0.027 U	0.080
Aluminum	15800 (3)		7360 J	**18500 J**	7630 J
Antimony	2.17 (4)		20.6 UJ	19.5 UJ	20.9 UJ
Arsenic	13 (2)		2.7 U	2.8	2.8 U
Barium	350 (2)		50.3 J	140 J	71.3 J
Beryllium	7.2 (2)		0.35 UJ	0.88 UJ	0.40 UJ
Calcium	9190 (3)		3040 J	**12800 J**	2850 J
Cobalt	13.3 (3)		4.1	11.4	5.3
Copper	50 (2)		7.1	22.4	11.5
Iron	25600 (3)		11300 J	**27500 J**	14500 J
Magnesium	5130 (3)		1670 J	**7250 J**	1900 J
Manganese	1600 (2)		175 J	479 J	288 J
Nickel	30 (2)		6.0	29.6	7.0
Potassium	1890 (3)		452 J	**3160 J**	488 J
Selenium	3.9 (2)		5.5 U	5.2 U	5.6 U
Silver	2 (2)		0.69 U	0.65 U	0.70 U
Sodium	211 (3)		192 UJ	182 UJ	195 UJ
Thallium	16.3 (4)		8.2 U	7.8 U	8.3 U
Vanadium	31 (3)		15.3	31.0	18.8
Zinc	109 (2)		44.0	63.7	48.4

(1) Bold and shaded values exceed screening criteria.

(2) Part 375-6.8 Unrestricted Use Soil Cleanup Objectives.

(3) NYS background (95th percentile), Source-Distant Data Set from NYS Brownfield 2006.

(4) Eastern United States background (95th percentile) from Shacklette and Boerngen 1

Key:

J = Estimated value ("-" is biased low and "+" is biased high).

U = Not detected at the reporting limit shown.

mg/Kg = Milligrams/kilogram.

/D = Field duplicate sample.

Table 5-2a Summary of Total PCB Concentrations in Drainage Network Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Screening Criteria [1]	Total PCB Result (µg/L)	Field Duplicate Result (µg/L)	Maximum Total PCB Concentration (µg/L)
B212-SW-01	29-Nov-05	0.00012	0.47 UJ		ND
B212-SW-02	29-Nov-05	0.00012	0.48 UJ		ND
B212-SW-03	29-Nov-05	0.00012	0.48 UJ		ND
B212-SW-04	29-Nov-05	0.00012	0.48 UJ	0.48 UJ	ND
B212-SW-05	29-Nov-05	0.00012	0.47 UJ		ND
B212-SW-06	29-Nov-05	0.00012	0.48 UJ		ND
B212-SW-07	29-Nov-05	0.00012	0.50 U		ND
B212-SW-08	29-Nov-05	0.00012	0.48 UJ		ND

[1] Criteria are from NYSDEC Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations,* 1998, Table 1, Class A - D, Type W (fresh water) [micrograms per liter].

Key:
- µg/L = Micrograms per liter.
- ND = All Aroclors were non-detect.
- U = Not detected at the reporting limit show.
- UJ = Not detected at the estimated reporting limit shown.
- Blank spaces indicate PCBs were not analyzed for field duplicates.

Table 5-2b Summary of Metals Concentrations in Drainage Network Samples,
Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-SW-01 11/29/2005	B212-SW-02 11/29/2005	B212-SW-03 11/29/2005	B212-SW-04 11/29/2005	B212-SW-04/D 11/29/2005
Metals by Method 6010/7471 (µg/L)							
Aluminum	100 (3)		232	231	**1310**	**1090**	275
Antimony	3 (4)		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Arsenic	340 (2)		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Barium	1000 (4)		29.2	29.2	14.1	43.8	35.1
Beryllium	1100 (3)		0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Cadmium	8 (2,6)		1.0 U	1.0 U	1.0 U	2.6	1.0 U
Calcium	NA		53600 J	53000 J	20500 J	62100 J	61700 J
Chromium	934 (2,6)		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Cobalt	110 (2)		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Copper	24 (2,6)		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Iron	300 (2)		293	**303**	**1070**	**1200**	**364**
Lead	360 (2)		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Magnesium	35000 (4)		20200	20000	9750	23300	23700
Manganese	300 (5)		28.4	33.7	56.4	68.0	42.9

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B212 AnalyticalSummaryTables.xls-B212 Metals Table 5-2b SW-2/28/2011

Table 5-2b Summary of Metals Concentrations in Drainage Network Samples,
Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-SW-01 11/29/2005	B212-SW-02 11/29/2005	B212-SW-03 11/29/2005	B212-SW-04 11/29/2005	B212-SW-04/D 11/29/2005
Metals by Method 6010/7471 (µg/L)							
Mercury	1.4 (2)		0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Nickel	780 (2,6)		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Potassium	NA		2470	2370	802	2830	2660
Selenium	4.6 (3)		15.0 U	15.0 U	15.0 U	15.0 U	15.0 U
Silver	11 (2,6)		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Sodium	NA		30800 J-	30400 J-	5410 J-	37700 J-	38800 J-
Thallium	20 (2)		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Vanadium	190 (2)		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Zinc	195 (2,6)		20.0 U	20.0 U	20.0 U	42.7	22.7

(1) Criteria are from NYSDEC Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations,* 1998, Table 1, Class A - D (fresh water). Bold and shaded values exceed criteria.

(2) Class D, Type A(A).

(3) Class C, Type A(C).

(4) Class A, Type H(WS).

(5) Class A, Type (E).

(6) An average hardness value of 183 milligrams per liter, calculated from the measured calcium and magnesium concentrations, was used to derive this screening value.

Key:

J = Estimated value ("-" is biased low and "+" is biased high).
µg/L = Micrograms/Liter.
NA = No applicable standard or guidance value.
U = Not detected at the reporting limit shown.
UJ = Not detected at the estimated reporting limit shown.
/D = Field duplicate sample.

Table 5-2b Summary of Metals Concentrations in Drainage Network Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-SW-05 11/29/2005	B212-SW-06 11/29/2005	B212-SW-07 11/29/2005	B212-SW-08 11/29/2005
Metals by Method 6010/7471 (µg/L)						
Aluminum	100 (3)		455	707	389	241
Antimony	3 (4)		20.0 U	20.0 U	20.0 U	20.0 U
Arsenic	340 (2)		10.0 U	10.0 U	10.0 U	10.0 U
Barium	1000 (4)		31.7	21.2	23.4	26.3
Beryllium	1100 (3)		0.11 U	0.11 U	0.11 U	0.11 U
Cadmium	8 (2,6)		1.0 U	1.0 U	1.0 U	1.0 U
Calcium	NA		54200 J	23600 J	37200 J	41600 J
Chromium	934 (2,6)		4.0 U	4.0 U	4.0 U	4.0 U
Cobalt	110 (2)		4.0 U	4.0 U	4.0 U	4.0 U
Copper	24 (2,6)		10.0 U	10.0 U	10.0 U	10.0 U
Iron	300 (2)		**597**	**735**	**430**	**438**
Lead	360 (2)		5.0 U	5.0 U	5.0 U	5.0 U
Magnesium	35000 (4)		20600	8000	13000	14500
Manganese	300 (5)		41.0	61.1	38.9	37.6

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B212 AnalyticalSummaryTables.xls-B212 Metals Table 5-2b SW-2/28/2011

Table 5-2b Summary of Metals Concentrations in Drainage Network Samples,
Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-SW-05 11/29/2005	B212-SW-06 11/29/2005	B212-SW-07 11/29/2005	B212-SW-08 11/29/2005
Metals by Method 6010/7471 (µg/L)						
Mercury	1.4 (2)		0.200 U	0.200 U	0.200 U	0.200 U
Nickel	780 (2,6)		10.0 U	10.0 U	10.0 U	10.0 U
Potassium	NA		2490	1450	1890	2340
Selenium	4.6 (3)		15.0 U	15.0 U	15.0 U	15.0 U
Silver	11 (2,6)		3.0 U	3.0 U	3.0 U	3.0 U
Sodium	NA		31700 J-	12000 J-	18900 J-	20900 J-
Thallium	20 (2)		20.0 U	20.0 U	20.0 U	20.0 U
Vanadium	190 (2)		5.0 U	5.0 U	5.0 U	5.0 U
Zinc	195 (2,6)		20.0 U	20.0 U	20.0 U	20.0 U

(1) Criteria are from NYSDEC Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations,* 1998, Table 1, Class A - D (fresh water). Bold and shaded values exceed criteria.

(2) Class D, Type A(A).

(3) Class C, Type A(C).

(4) Class A, Type H(WS).

(5) Class A, Type (E).

(6) An average hardness value of 183 milligrams per liter, calculated from the measured calcium and magnesium concentrations, was used to derive this screening value.

Key:

J = Estimated value ("-" is biased low and "+" is biased high).
µg/L = Micrograms/Liter.
NA = No applicable standard or guidance value.
U = Not detected at the reporting limit shown.
UJ = Not detected at the estimated reporting limit shown.
/D = Field duplicate sample.

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B212 AnalyticalSummaryTables.xls-B212 Metals Table 5-2b SW-2/28/2011

Table 5-3a Summary of Total PCB Concentrations in Surface Soil Samples, Buoy 212 Dredge Spoils Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Total PCB (mg/Kg - Screening)	Total PCB (mg/Kg - Confirmation)	Field Duplicate [(1)] (mg/Kg)	Maximum Total PCB Concentration [(2)] (mg/Kg)
B212-SS-01	29-Nov-05	1.74			**1.74**
B212-SS-02	29-Nov-05	0.27U	0.066	0.24U (0.053)	0.066
B212-SS-03	29-Nov-05	2.11			**2.11**
B212-SS-04	29-Nov-05	0.73	0.26		**0.73**
B212-SS-05	29-Nov-05	0.59			**0.59**
B212-SS-06	29-Nov-05	0.37			**0.37**
B212-SS-07	29-Nov-05	2.5	1.52		**2.5**
B212-SS-08	29-Nov-05	1.61			**1.61**
B212-SS-09	29-Nov-05	0.27U			ND
B212-SS-10	29-Nov-05	0.3U			ND
B212-SS-11	29-Nov-05	0.26U			ND
B212-SS-12	29-Nov-05	0.24U			ND
B212-SS-13	29-Nov-05	0.32U			ND
B212-SS-14	29-Nov-05	0.21U			ND
B212-SS-15	29-Nov-05	0.27U			ND
B212-SS-16	29-Nov-05	0.3U			ND
B212-SS-17	29-Nov-05	0.25U			ND
B212-SS-18	29-Nov-05	0.32U			ND
B212-SS-19	29-Nov-05	0.25U			ND
B212-SS-20	29-Nov-05	0.28U			ND
B212-PBH-SS20A-01	12-Jun-08	3.5			**3.5**
B212-SS-21	29-Nov-05	1.97			**1.97**
B212-SS-22	29-Nov-05	0.28U		0.28U	ND
B212-SS-23	29-Nov-05	0.27U	0.27U		ND
B212-SS-24	29-Nov-05	2.61			**2.61**
B212-SS201	16-May-08	0.062			0.062
B212-SS202	16-May-08	0.017			0.017
B212-SS203	16-May-08	0.019			0.019
B212-PBH-SS208A-01	12-Jun-08	0.0052			0.0052
B212-PBH-01-01	16-May-08	9.9			**9.9**
B212-PBH-02-01	16-May-08	0.44			**0.44**
B212-PBH-03-01	16-May-08	0.45			**0.45**
B212-PBH-04-01	16-May-08	0.18			**0.18**
B212-PBH-05-01	10-Jun-08	0.041			0.041
B212-PBH-06-01	10-Jun-08	0.0068			0.0068
B212-PBH-07-01	10-Jun-08	0.020U			ND
B212-PBH-08-01	10-Jun-08	0.026			0.026
B212-PBH-09-01	10-Jun-08	0.037			0.037
B212-PBH-10-01	10-Jun-08	0.1			0.1
B212-PBH-11-01	10-Jun-08	0.018			0.018
B212-PBH-12-01	10-Jun-08	0.020U			ND
B212-PBH-13-01	10-Jun-08	2.1			**2.1**
B212-PBH-14-01	10-Jun-08	2.8		2.7	**2.8**
B212-PBH-15-01	10-Jun-08	0.63			**0.63**
B212-PBH-16-01	10-Jun-08	0.005			0.005

Table 5-3a Summary of Total PCB Concentrations in Surface Soil Samples, Buoy 212 Dredge Spoils Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Total PCB (mg/Kg - Screening)	Total PCB (mg/Kg - Confirmation)	Field Duplicate [(1)] (mg/Kg)	Maximum Total PCB Concentration [(2)] (mg/Kg)
B212-PBH-17-01	11-Jun-08	0.022U			ND
B212-PBH-18-01	11-Jun-08	0.04		0.022U	0.04
B212-PBH-19-01	11-Jun-08	0.023			ND
B212-PBH-19a-01	12-Jun-08	0.021U			ND
B212-PBH-20-01	11-Jun-08	0.022			0.022
B212-PBH-21-01	11-Jun-08	0.021U			ND
B212-PBH-22-01	11-Jun-08	0.072			0.072
B212-PBH-23-01	11-Jun-08	0.23			**0.23**
B212-PBH-23a-01	12-Jun-08	0.012			0.012
B212-PBH-24-01	12-Jun-08	0.035			0.035
B212-PBH-25-01	12-Jun-08	4.3			**4.3**
B212-PBH-26-01	12-Jun-08	0.028			0.028
B212-PBH-27-01	12-Jun-08	0.02			0.02
B212-PBH-28-01	12-Jun-08	2		0.69	**2**
B212-SBH-01-01	16-May-08	0.004			0.004
B212-SBH-02-01	16-May-08	0.056			0.056
B212-SBH-03-01	16-May-08	0.078			0.078
B212-SBH-04-01	16-May-08	0.016U			ND
B212-SBH-05-01	16-May-08	0.018U			ND

[(1)] Field duplicate samples listed in parentheses are from confirmation samples.

[(2)] Bold and shaded values exceed soil cleanup objective of 0.1 mg/Kg, while bold italicized screening test values may exceed the soil cleanup objective (NYSDEC Part 375.6-8 Unrestricted Use). The ND values are at reporting limits that are above the soil cleanup objective, however, the method detection limits (MDL) are below that level. Concentrations between the MDL and reporting limit are flagged "J" as estimated.

Key:

mg/Kg = milligrams/kilogram.

ND = All Aroclors were non-detect.

U = Not detected at the reporting limit shown.

/D = Field duplicate sample.

Blank spaces indicate PCBs were not analyzed for confirmation or field duplicate samples.

Table 5-3b Summary of Metals Concentrations in Surface Soil Samples,Buoy 212 Dredge Spoils Disposal Site, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID Date	B212-SS-03 11/29/2005	B212-SS-07 11/29/2005	B212-SS-10 11/29/2005	B212-SS-20 11/29/2005	B212-SS-22 11/29/2005	B212-SS-22/D 11/29/2005	B212-PBH-03-01 05/16/2008
Metals by Method 6010/7471 (mg/Kg)									
Cadmium	2.5 [2]		0.75	0.95	0.65	0.89	0.42	0.38	1.5
Chromium	30 [2]		9.9	**30.3**	9.3	21.4	7.8	7.8	17.3
Lead	63 [2]		7.6	53.7	13.2	12.9	9.7	8.7	**22.1**
Mercury	0.18 [2]		0.047	**0.215**	0.051	0.040	0.043	0.049	0.131
Aluminum	15800 [3]						10200	10300	
Antimony	2.17 [4]						19.0 UJ	16.5 UJ	
Arsenic	13 [2]						2.5 U	2.2 U	
Barium	350 [2]						45.4	46.5	
Beryllium	7.2 [2]						0.43 UJ	0.44 UJ	
Calcium	9190 [3]						2070	2300	
Cobalt	13.3 [3]						5.0	5.0	
Copper	50 [2]						6.7	6.0	
Iron	25600 [3]						14800 J	14800 J	
Magnesium	5130 [3]						1700 J	1720 J	
Manganese	1600 [2]						216 J	233 J	
Nickel	30 [2]						7.4	7.1	
Potassium	1890 [3]						452	426	
Selenium	3.9 [2]						5.1 U	4.4 U	
Silver	2 [2]						0.63 U	0.55 U	
Sodium	211 [3]						178 UJ	154 UJ	
Thallium	16.3 [4]						7.6 U	6.6 U	
Vanadium	31 [3]						19.4	19.6	
Zinc	109 [2]						40.2	39.5	

Table 5-3b Summary of Metals Concentrations in Surface Soil Samples,Buoy 212 Dredge Spoils Disposal Site, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID Date	B212-PBH-06-01 06/10/2008	B212-PBH-17-01 06/11/2008	B212-PBH-22-01 06/11/2008	B212-PBH-23A-01 06/12/2008	B212-PBH-24-01 06/12/2008
Metals by Method 6010/7471 (mg/Kg)							
Cadmium	2.5 [2]		0.33	0.38	0.30	0.43 J-	0.11 J-
Chromium	30 [2]		8.9	39.7	11.9	22.5	5.6
Lead	63 [2]		**9.8**	**14.7**	**6.3**	**12.5**	**3.9**
Mercury	0.18 [2]		0.061	0.028	0.027	0.013 J-	0.013 J-
Aluminum	15800 [3]			**27800**			
Antimony	2.17 [4]			0.70 U			
Arsenic	13 [2]			5.5			
Barium	350 [2]			**233**			
Beryllium	7.2 [2]			1.2			
Calcium	9190 [3]			**20700**			
Cobalt	13.3 [3]			19.2			
Copper	50 [2]			31.2			
Iron	25600 [3]			**35600**			
Magnesium	5130 [3]			**10400**			
Manganese	1600 [2]			**671**			
Nickel	30 [2]			45.4			
Potassium	1890 [3]			**3740**			
Selenium	3.9 [2]			0.76 U			
Silver	2 [2]			0.09 U			
Sodium	211 [3]			**262**			
Thallium	16.3 [4]			0.39 U			
Vanadium	31 [3]			41.6			
Zinc	109 [2]			**88.1**			

(1) Bold and shaded values exceed screening criteria.

(2) Part 375-6.8 Unrestricted Use Soil Cleanup Objectives.

(3) NYS background (95th percentile), Source-Distant Data Set from NYS Brownfield Cleanup Program, Technical Support Document, Appendix D, September 2006.

(4) Eastern United States background (95th percentile) from Shacklette and Boerngen 1984.

Key:

J = Estimated value ("-" is biased low and "+" is biased high)

mg/Kg = milligrams/kilogram

/D = Field duplicate sample.

Blank spaces indicate metals were not analyzed.

Table 5-4a Summary of Total PCB Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Start Depth (feet bgs)	End Depth (feet bgs)	Description	Total PCB (mg/Kg - Screening)	Total PCB (mg/Kg - Confirmation)	Field Duplicate [(1)] (mg/Kg)	Maximum Total PCB Concentration [(2)] (mg/Kg)
B212-CBH-01-01	1-Mar-06	2.50	2.80	Brown Sand - Cap	0.25U			ND
B212-CBH-01-02	1-Mar-06	6.00	8.00	Gray/Black Sand - Spoils	7.4	6.5		**7.4**
B212-CBH-01-03	1-Mar-06	13.50	14.00	Gray/Black Sand- Spoils	8.5			**8.5**
B212-CBH-01-04	1-Mar-06	14.20	14.40	Gray/Brown Silt Clay - Native Soil	0.32U			ND
B212-CBH-01-05	1-Mar-06	16.70	17.00	Brown Sand - Native 3 ft below spoils	0.3U			ND
B212-CBH-02-01	28-Feb-06	3.50	3.70	Tan Sand - Cap	0.24U			ND
B212-CBH-02-02	28-Feb-06	7.00	8.00	Sand/Gravel - Spoils	11	17		**17**
B212-CBH-02-03	28-Feb-06	11.50	12.00	Sand - Spoils	47			**47**
B212-CBH-02-04	28-Feb-06	18.00	18.20	Brown Silt - Spoils	6			**6**
B212-CBH-02-05	28-Feb-06	18.20	18.50	Brown/Black Sand - Native underlying Spoils	0.52			**0.52**
B212-CBH-03-01	28-Feb-06	5.00	6.00	Black Sand - Spoils	23	21		**23**
B212-CBH-03-02	28-Feb-06	7.00	8.00	Black Spoils	9.9		11	**11**
B212-CBH-03-03	28-Feb-06	8.90	9.70	Sand - Spoils	9.4			**9.4**
B212-CBH-03-04	28-Feb-06	13.30	14.00	Sand - Spoils	39			**39**
B212-CBH-03-05	28-Feb-06	21.80	22.20	Brown Silt - Native	0.3U			ND
B212-CBH-04-01	27-Feb-06	4.80	5.40	Black Sand - Spoils	3.6			**3.6**
B212-CBH-04-02	27-Feb-06	5.50	6.00	Black Sand - Spoils	6.7			**6.7**
B212-CBH-04-03	28-Feb-06	11.00	12.00	Black Gravel Sand - Spoils	10	26		**26**
B212-CBH-04-04	28-Feb-06	15.40	15.90	Black Sand - Spoils	35			**35**
B212-CBH-04-05	28-Feb-06	17.50	18.00	Black Sand Silt - immediately below spoils	14			**14**
B212-CBH-04A-01	16-May-08	1.42	1.83	No description	0.14			**0.14**
B212-CBH-04A-02	16-May-08	4.33	4.50	No description	0.0058			0.0058
B212-CBH-05-01	27-Feb-06	3.60	4.00	Tan Sand - Cap	0.21U			ND
B212-CBH-05-02	27-Feb-06	5.50	6.00	Black Sand Gravel - Spoils	6.1		4.4	**6.1**
B212-CBH-05-03	27-Feb-06	8.40	8.90	Black Clay Silt - Spoils	2.8	3.7		**3.7**
B212-CBH-05-04	27-Feb-06	15.40	16.00	Black Silt - Native	20.98			**20.98**
B212-CBH-05-05	27-Feb-06	16.00	16.40	Black Silt - Native	0.39			**0.39**
B212-CBH-06-01	21-Feb-06	0.60	0.80	Brown Clay - Cover	0.26U			ND
B212-CBH-06-02	21-Feb-06	4.00	5.20	Black Silt Sand Spoils	13	14	11 (11)	**14**
B212-CBH-06-03	21-Feb-06	10.50	10.70	Gray Sand - Spoils	4.3			**4.3**
B212-CBH-06-04	21-Feb-06	18.40	18.50	Brown Silty Clay - Native	0.22U			ND
B212-CBH-06-05	21-Feb-06	20.00	20.20	Gray Sand - Native	0.24U			ND
B212-CBH-07-01	24-Feb-06	1.30	1.50	Brown Clay - Cover	0.28U			ND
B212-CBH-07-02	24-Feb-06	4.20	5.00	Gray/Black Sand - Spoils	19	16		**19**

Table 5-4a Summary of Total PCB Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Start Depth (feet bgs)	End Depth (feet bgs)	Description	Total PCB (mg/Kg - Screening)	Total PCB (mg/Kg - Confirmation)	Field Duplicate [1] (mg/Kg)	Maximum Total PCB Concentration [2] (mg/Kg)
B212-CBH-07-03	24-Feb-06	8.20	8.50	Black/White Sand Spoils	16			**16**
B212-CBH-07-04	24-Feb-06	11.20	11.50	Green/Brown Sand - Native	0.16			**0.16**
B212-CBH-07-05	24-Feb-06	12.40	12.60	Green/Brown Sand - Native	0.29U			ND
B212-CBH-08-01	24-Feb-06	0.50	1.00	Brown Clay - Cover	0.28U			ND
B212-CBH-08-02	24-Feb-06	4.20	5.00	Black Sand Spoils	24			**24**
B212-CBH-08-03	24-Feb-06	13.20	13.50	Black Sand Spoils	33			**33**
B212-CBH-08-04	24-Feb-06	14.60	15.20	Green/Brown Sand - Native	0.22U	0.22U		ND
B212-CBH-08-05	24-Feb-06	16.30	16.50	Green/Brown Sand - Native	0.22U			ND
B212-CBH-09-01	24-Feb-06	1.00	1.40	Yellow Brown Sand - Cover	0.32U	0.32U		ND
B212-CBH-09-02	24-Feb-06	4.60	4.90	Black/Gray Sand Spoils	26			**26**
B212-CBH-09-03	24-Feb-06	7.00	7.30	Black Sand Spoils	1.7			**1.7**
B212-CBH-09-04	24-Feb-06	11.00	11.30	Green/Brown Sand - Native	0.23U			ND
B212-CBH-09-05	24-Feb-06	12.30	12.50	Green/Brown Sand - Native	0.22U			ND
B212-CBH-10-01	23-Feb-06	2.60	2.80	Yellow/Brown Sand - Cover	0.2U			ND
B212-CBH-10-02	23-Feb-06	4.10	5.10	Black Sand Spoils	18	21		**21**
B212-CBH-10-03	23-Feb-06	8.20	8.50	Gray Sand - Native	0.27U			ND
B212-CBH-10-04	23-Feb-06	10.00	11.00	Gray Sand - Native	0.23U			ND
B212-CBH-11-01	1-Mar-06	2.60	2.90	Tan Sand - Cap	0.21U			ND
B212-CBH-11-02	1-Mar-06	5.10	6.00	Black Sand - Spoils	8.1	7.6		**8.1**
B212-CBH-11-03	1-Mar-06	7.00	7.40	Gray/Black Sand - Spoils	8.2			**8.2**
B212-CBH-11-04	1-Mar-06	17.20	17.60	Black Clay Silt - Native	16			**16**
B212-CBH-11-05	1-Mar-06	17.60	17.80	Tan Clay Brown Silt - Native	0.27U			ND
B212-CBH-12-01	28-Feb-06	3.50	4.00	Brown Sand - Cap	0.22U			ND
B212-CBH-12-02	28-Feb-06	5.50	6.00	Black Sand Gravel - Spoils	5			**5**
B212-CBH-12-03	28-Feb-06	7.50	8.00	Gravel - Spoils	6.4	6.7		**6.7**
B212-CBH-12-04	28-Feb-06	11.50	12.00	Sand - Spoils	6.6			**6.6**
B212-CBH-12-05	28-Feb-06	15.20	15.40	Black Sand - Native	1.6			**1.6**
B212-MBH-01-01	1-Mar-06	5.50	6.00	Gray Sand - Spoils	16			**16**
B212-MBH-01-02	1-Mar-06	6.00	6.50	Gray Sand - Native	0.25			**0.25**
B212-MBH-02-01	1-Mar-06	5.00	6.00	Gray/Black Sand Silt - Spoils	13	23		**23**
B212-MBH-02-02	1-Mar-06	9.50	10.00	Gray/Black Sand Silt - Spoils	14			**14**
B212-MBH-02-03	1-Mar-06	10.50	11.00	Gray Sand - Native	0.26U			ND
B212-MBH-03-01	27-Feb-06	0.00	0.75	Brown Clay Silt - Native	0.18U			ND
B212-MBH-03-02	27-Feb-06	1.20	2.20	Dark Sand - Native	3			**3**

Table 5-4a Summary of Total PCB Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Start Depth (feet bgs)	End Depth (feet bgs)	Description	Total PCB (mg/Kg - Screening)	Total PCB (mg/Kg - Confirmation)	Field Duplicate [1] (mg/Kg)	Maximum Total PCB Concentration [2] (mg/Kg)
B212-MBH-04-01	27-Feb-06	0.50	1.50	Tan Clay Silt - Native	9.8			**9.8**
B212-MBH-04-02	27-Feb-06	4.10	4.80	Tan/Brown Clay Silt - Native	0.7			**0.7**
B212-MBH-05-01	1-Mar-06	2.30	2.40	Gray Sand - Spoils	7.4	9		**9**
B212-MBH-05-02	1-Mar-06	2.40	3.40	Brown Silt - Native	0.27U			ND
B212-MBH-06-01	1-Mar-06	4.70	5.40	Gray Sand - Native	1	2.9		**2.9**
B212-MBH-07-01	28-Feb-06	2.70	3.40	Brown Silt - Native	0.16		0.12	**0.16**
B212-MBH-07-02	28-Feb-06	3.70	4.30	Tan Sand - Native	0.26U			0
B212-MBH-08-01	1-Mar-06	3.50	4.00	Black/Brown Sand - Native	9.2	8.14		**9.2**
B212-MBH-08-02	1-Mar-06	4.80	5.10	Brown Silt - Native	0.24U			ND
B212-MBH-08A-01	1-Mar-06	1.50	2.00	Gray/brown silt over sand - Native	4.2			**4.2**
B212-PBH-01-02	16-May-08	2.00	2.50	No description	2.4			**2.4**
B212-PBH-02-02	16-May-08	2.00	2.50	Dark Brown Silty Sand	0.27			**0.27**
B212-PBH-03-02	16-May-08	2.00	2.50	Brown Silty Clay	0.052			0.052
B212-PBH-04-02	16-May-08	2.00	2.50	Black Silt/Clay	0.39			**0.39**
B212-PBH-05-02	10-Jun-08	0.17	5.00	Silty Sand/Trace Clay	0.021U			ND
B212-PBH-06-02	10-Jun-08	0.17	3.00	Silty Sand/Trace Clay	0.02U			ND
B212-PBH-07-02	10-Jun-08	0.17	3.00	Silty Sand/Trace Clay	0.021U			ND
B212-PBH-08-02	10-Jun-08	0.17	3.00	Silty Sand/Trace Clay	0.021U			ND
B212-PBH-09-02	10-Jun-08	0.17	3.00	Silty Sand/Trace Clay	0.021U			ND
B212-PBH-10-02	10-Jun-08	0.17	3.00	Silty Sand/Trace Clay	0.021U			ND
B212-PBH-11-02	10-Jun-08	0.17	2.00	Silty Sand/Trace Clay	0.02U			ND
B212-PBH-12-02	10-Jun-08	0.17	2.00	Silty Sand/Trace Clay	0.23			**0.23**
B212-PBH-13-02	10-Jun-08	0.17	2.00	Sand	2.7			**2.7**
B212-PBH-14-02	10-Jun-08	0.17	2.00	Sand	2.6			**2.6**
B212-PBH-15-02	10-Jun-08	0.17	2.00	Clay over silty sand	0.0053			0.0053
B212-PBH-16-02	10-Jun-08	0.17	2.00	Sand	0.2			**0.2**
B212-PBH-17-02	11-Jun-08	0.17	2.00	Clay followed by sand	0.057			0.057
B212-PBH-18-02	11-Jun-08	0.17	2.00	Clay followed by sand	0.02U			ND
B212-PBH-19-02	11-Jun-08	0.17	2.00	Clay followed by sand	0.065			0.065
B212-PBH-20-02	11-Jun-08	0.17	2.00	Silty Sand/Trace Clay	0.022U			ND
B212-PBH-21-02	11-Jun-08	0.17	2.00	Clay	0.006			0.006
B212-PBH-22-02	11-Jun-08	0.17	2.00	Clay followed by Silty Sand	0.026			0.026
B212-PBH-23-02	11-Jun-08	0.17	2.00	Clay followed by Silty Sand	3.7			**3.7**
B212-PBH-26-02	12-Jun-08	0.17	2.00	Sand followed by Silty Sand/Trace Clay	0.97			**0.97**

Table 5-4a Summary of Total PCB Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Start Depth (feet bgs)	End Depth (feet bgs)	Description	Total PCB (mg/Kg - Screening)	Total PCB (mg/Kg - Confirmation)	Field Duplicate [1] (mg/Kg)	Maximum Total PCB Concentration [2] (mg/Kg)
B212-PBH-27-02	12-Jun-08	0.17	2.00	Silty Sand/Trace Clay	0.016			0.016
B212-SBH-01-02	16-May-08	2.67	3.00	Spoils	41			**41**
B212-SBH-01-03	16-May-08	0.33	0.67	Spoils	2.1			**2.1**
B212-SBH-01-04	16-May-08	1.33	1.67	No description	0.02U			ND
B212-SBH-02-02	16-May-08	1.50	2.20	Silty sand	0.018U			ND
B212-SBH-03-02	16-May-08	1.50	2.00	Silty Sand	0.018U			ND
B212-SBH-04-02	16-May-08	1.50	1.80	Silty clay	0.065			0.065
B212-SBH-05-02	16-May-08	1.70	2.20	Silty Sand/Trace gravel/gray silt/spoils	3.5		4.1	**4.1**
B212-SBH-05-03	16-May-08	2.70	3.00	Gray Silt/Spoils	0.84			**0.84**
B212-SBH-05-04	16-May-08	0.70	1.00	Silty Sand	1.4			**1.4**
B212-SBH-09-01	16-May-08	0.50	0.80	Silty Sand	0.0201			0.0201

[1] Field duplicate samples listed in parentheses are from confirmation samples.

[2] Bold and shaded values exceed soil cleanup objective of 0.1 mg/Kg, while bold italicized screening test values may exceed the soil cleanup objective (NYSDEC Part 375.6-8 Unrestricted Use). The ND values are at reporting limits that are above the soil cleanup objective, however, the method detection limits (MDL) are below that level. Concentrations between the MDL and reporting limit are flagged "J" as estimated.

Key:
- bgs = Below ground surface.
- mg/Kg = Milligrams/kilogram.
- ND = All Aroclors were non-detect.
- U = Not detected at the reporting limit shown.
- PCB = Polychlorinated biphenyls.
- Blank spaces indicate PCBs were not analyzed for confirmation or field duplicate samples.

Table 5-4b Summary of Metals Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID Depth (ft bgs) Date	B212-CBH-01-02 6.0 - 8.0 03/01/2006	B212-CBH-01-02/D 6.0 - 8.0 03/01/2006	B212-CBH-04-02 5.5 - 6 02/27/2006	B212-CBH-08-02 4.2 - 5 02/24/2006	B212-CBH-08-02/D 4.2 - 5 02/24/2006
Metals by Method 6010/7471 (mg/Kg)							
Cadmium	2.5 [2]		1.2	1.2	**2.6 J-**	**3.5**	**17.6**
Chromium	30 [2]		25.0	22.1	27.5	**36.5**	**45.6**
Lead	63 [2]		24.3	22.5	30.6 J-	43.4	50.3
Mercury	0.18 [2]		0.100	0.114	0.120	0.166	0.156
Aluminum	15800 [3]		2480	2670			
Antimony	2.17 [4]		17.6 U	17.1 U			
Arsenic	13 [2]		2.3 U	2.3 U			
Barium	350 [2]		29.2	35.3			
Beryllium	7.2 [2]		0.14 U	0.17 U			
Calcium	9190 [3]		1490	1560			
Cobalt	13.3 [3]		2.0	2.0			
Copper	50 [2]		10.1	11.6			
Iron	25600 [3]		4730 J+	5130 J+			
Magnesium	5130 [3]		1110	1130			
Manganese	1600 [2]		36.1	39.3			
Nickel	30 [2]		4.2	4.4			
Potassium	1890 [3]		404	452			
Selenium	3.9 [2]		4.7 U	4.6 U			
Silver	2 [2]		0.59 U	0.57 U			
Sodium	211 [3]		164 U	160 U			
Thallium	16.3 [4]		7.0 U	6.8 U			
Vanadium	31 [3]		7.9	6.1			
Zinc	109 [2]		30.1	30.2			

(1) Bold and shaded values exceed screening criteria.

(2) Part 375-6.8 Unrestricted Use Soil Cleanup Objectives.

(3) NYS background (95th percentile), Source-Distant Data Set from NYS Brownfield Cleanup Program, Technical Support Document, Appendix D, September 2006.

(4) Eastern United States background (95th percentile) from Shacklette and Boerngen 1984.

Key:

bgs = Below ground surface..

J = Estimated value ("-" is biased low and "+" is biased high).

U = Not detected at the reporting limit shown.

mg/Kg = Milligrams/kilogram.

/D = Field duplicate sample.

Blank spaces indicate metals were not analyzed.

Table 5-4b Summary of Metals Concentrations in Borehole Subsurface Soil Samples,
Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID / Depth (ft bgs) / Date	B212-CBH-10-04 10.0 - 11.0 02/23/2006	B212-CBH-11-03 7.0 - 7.4 03/01/2006	B212-MBH-05-02 2.4 - 3.4 03/01/2006	B212-MBH-06-01 4.7 - 5.4 03/01/2006	B212-CBH-04A-01 1.5 -1.9 05/16/2008
Metals by Method 6010/7471 (mg/Kg)							
Cadmium	2.5 [2]		0.25 U	0.57 J-	0.36 J-	0.33	0.59
Chromium	30 [2]		5.2	22.1	11.1	8.9	12.4
Lead	63 [2]		1.8	18.3 J-	4.6 J-	6.9	5.6
Mercury	0.18 [2]		0.022 UJ	0.072	0.041	0.021 U	0.020 J
Aluminum	15800 [3]					7210	14700
Antimony	2.17 [4]					17.6 U	0.69 U
Arsenic	13 [2]					2.3 U	2.7
Barium	350 [2]					34.1	74.7
Beryllium	7.2 [2]					0.29 U	0.58
Calcium	9190 [3]					1560	3920
Cobalt	13.3 [3]					3.7	10.5
Copper	50 [2]					6.6	9.3
Iron	25600 [3]					8660 J+	**38000**
Magnesium	5130 [3]					1560	2150
Manganese	1600 [2]					100	698
Nickel	30 [2]					6.4	9.4
Potassium	1890 [3]					500	403
Selenium	3.9 [2]					4.7 U	0.75 U
Silver	2 [2]					0.59 U	0.09 U
Sodium	211 [3]					164 U	138 J
Thallium	16.3 [4]					7.0 U	0.57 J
Vanadium	31 [3]					12.8	30.1
Zinc	109 [2]					28.3	42.9

[1] Bold and shaded values exceed screening criteria.

[2] Part 375-6.8 Unrestricted Use Soil Cleanup Objectives.

[3] NYS background (95th percentile), Source-Distant Data Set from NYS Bro
D, September 2006.

[4] Eastern United States background (95th percentile) from Shacklette and Bo

Key:

bgs = Below ground surface..

J = Estimated value ("-" is biased low and "+" is biased high).

U = Not detected at the reporting limit shown.

mg/Kg = Milligrams/kilogram.

/D = Field duplicate sample.

Blank spaces indicate metals were not analyzed.

Table 5-4b Summary of Metals Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID / Depth (ft bgs) / Date	B212-PBH-05-02 0.2 - 5.0 06/10/2008	B212-PBH-08-02 0.2 - 3.0 06/10/2008	B212-PBH-09-02 0.2 - 3.0 06/10/2008	B212-PBH-16-02 0.2 - 2.0 06/10/2008	B212-PBH-21-02 0.2 - 2.0 06/11/2008
Metals by Method 6010/7471 (mg/Kg)							
Cadmium	2.5 [2]		0.26 J	0.24 J	0.19 J	0.20 J	0.31
Chromium	30 [2]		10.0	9.7	10.1	8.5	**40.4**
Lead	63 [2]		6.5	9.7	4.6	8.6	13.4
Mercury	0.18 [2]		0.025	0.044	0.031	0.040	0.016 J
Aluminum	15800 [3]			12000			
Antimony	2.17 [4]			0.74 U			
Arsenic	13 [2]			2.3 J			
Barium	350 [2]			94.4			
Beryllium	7.2 [2]			0.51			
Calcium	9190 [3]			2570			
Cobalt	13.3 [3]			6.8			
Copper	50 [2]			7.5			
Iron	25600 [3]			16300			
Magnesium	5130 [3]			1930			
Manganese	1600 [2]			446			
Nickel	30 [2]			7.9			
Potassium	1890 [3]			408			
Selenium	3.9 [2]			0.81 U			
Silver	2 [2]			0.14 U			
Sodium	211 [3]			152 U			
Thallium	16.3 [4]			0.41 U			
Vanadium	31 [3]			22.2			
Zinc	109 [2]			49.7			

(1) Bold and shaded values exceed screening criteria.

(2) Part 375-6.8 Unrestricted Use Soil Cleanup Objectives.

(3) NYS background (95th percentile), Source-Distant Data Set from NYS Bro D, September 2006.

(4) Eastern United States background (95th percentile) from Shacklette and Bo

Key:

bgs = Below ground surface..

J = Estimated value ("-" is biased low and "+" is biased high).

U = Not detected at the reporting limit shown.

mg/Kg = Milligrams/kilogram.

/D = Field duplicate sample.

Blank spaces indicate metals were not analyzed.

Table 5-5a Summary of Total PCB Concentrations in Monitoring Well Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Start Depth (feet bgs)	End Depth (feet bgs)	Description	Total PCB (mg/Kg - Screening)	Total PCB (mg/Kg - Confirmation)	Field Duplicate [(1)] (mg/Kg)	Maximum Total PCB Concentration [(2)] (mg/Kg)
B212-MW-05-01	22-Feb-06	0.40	0.80	Yellow/Brown Sand - Cover	0.26U			ND
B212-MW-05-02	22-Feb-06	4.40	5.70	Black Sand Silt - Spoils	24	16		**24**
B212-MW-05-03	22-Feb-06	6.60	6.90	Brown Sand - Spoils	0.29U			ND
B212-MW-05-04	22-Feb-06	10.20	10.60	Brown Silt - Spoils	0.27U		0.22 U	ND
B212-MW-05-05	22-Feb-06	18.00	19.00	Yellow/Brown Silt Sand - Native	0.26U			ND
B212-MW-06-01	22-Feb-06	0.30	0.90	Brown Clay - Cap	0.27U	0.27U		ND
B212-MW-06-02	22-Feb-06	4.00	4.30	Gray/Black Sand - Spoils	10			**10**
B212-MW-06-03	22-Feb-06	4.90	5.10	Brown Sand - Spoils	0.26U			ND
B212-MW-06-04	22-Feb-06	6.00	6.30	Yellow/Brown Sand - Spoils	0.21U			ND
B212-MW-06-05	22-Feb-06	19.00	20.00	Gray Sand Silt - Native	0.27U			ND
B212-MW-07-01	23-Feb-06	1.40	1.60	Brown Clay - Cap	0.34U			ND
B212-MW-07-02	23-Feb-06	4.00	4.40	Black Sand - Spoils	7			**7**
B212-MW-07-03	23-Feb-06	4.80	5.20	Green/Gray Sand - Spoils	0.23U			ND
B212-MW-07-04	23-Feb-06	11.60	12.00	Sand - Native	0.26U	0.26U		ND
B212-MW-07-05	23-Feb-06	14.60	14.80	Sand - Native	0.23U			ND

(1) Field duplicate samples listed in parentheses are from confirmation samples.

(2) Bold and shaded values exceed soil cleanup objective of 0.1 mg/Kg, while bold italicized screening test values may exceed the soil cleanup objective (NYSDEC Part 375.6-8 Unrestricted Use). The ND values are at reporting limits that are above the soil cleanup objective, however, the method detection limits (MDL) are below that level. Concentrations between the MDL and reporting limit are flagged "J" as estimated.

Key:

bgs = Below ground surface.

U = Not detected.

µg/Kg = Micrograms/kilogram.

mg/Kg = Milligrams/kilogram.

ND = All Aroclors were non-detect.

U = Not detected at the reporting limit shown.

Blank spaces indicate PCBs were not analyzed for confirmation or field duplicate samples.

Table 5-5b Summary of Metals Concentrations in Monitoring Well Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site

Analyte	Screening Criteria (1)	Sample ID / Depth (ft bgs) / Date	B212-MW-05-05 / 18 - 19 / 02/22/2006	B212-MW-05-05/D / 18 - 19 / 02/22/2006	B212-MW-06-05 / 19 - 20 / 02/22/2006	B212-MW-07-05 / 14.6 - 14.8 / 02/23/2006
Metals by Method 6010/7471 (mg/Kg)						
Cadmium	2.5 (2)		0.23 U	0.24 U	0.27 U	0.23 U
Chromium	30 (2)		5.4	8.0	7.2	7.0
Lead	63 (2)		1.4	1.2	2.3	2.9
Mercury	0.18 (2)		0.020 U	0.022 U	0.020 U	0.022 U
Aluminum	15800 (3)		6130 J	6600 J	7160 J	5390 J
Antimony	2.17 (4)		17.0 U	17.9 U	19.9 UJ	17.5 U
Arsenic	13 (2)		2.3 U	2.4 U	2.7 U	2.3 U
Barium	350 (2)		27.1 J	32.6 J	46.0 J	36.8 J
Beryllium	7.2 (2)		0.29 UJ	0.29 UJ	0.31 UJ	0.37 UJ
Calcium	9190 (3)		2520	2720	2400	4640
Cobalt	13.3 (3)		2.2	2.1	2.0	4.0
Copper	50 (2)		2.8	3.7	5.4	5.5
Iron	25600 (3)		11300 J	12600 J	6790 J	8710 J
Magnesium	5130 (3)		1510 J	1500 J	1620 J	2030 J
Manganese	1600 (2)		134 J	153 J	102 J	111 J
Nickel	30 (2)		3.8	4.2	5.0	6.2
Potassium	1890 (3)		233	284	568	655
Selenium	3.9 (2)		4.5 U	4.8 U	5.3 U	4.7 U
Silver	2 (2)		0.57 U	0.60 U	0.66 U	0.58 U
Sodium	211 (3)		159 U	180	190	163 U
Thallium	16.3 (4)		6.8 U	7.1 U	8.0 U	7.0 U
Vanadium	31 (3)		15.3	17.4	10.9	15.1

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B212 AnalyticalSummaryTables.xls-B212 Metals Table 5-5b MW -2/28/2011

Table 5-5b Summary of Metals Concentrations in Monitoring Well Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site

Analyte	Screening Criteria [1]	Sample ID Depth (ft bgs) Date	B212-MW-05-05 18 - 19 02/22/2006	B212-MW-05-05/D 18 - 19 02/22/2006	B212-MW-06-05 19 - 20 02/22/2006	B212-MW-07-05 14.6 - 14.8 02/23/2006
Zinc	109 [2]		26.7	27.6	31.3	29.6

[1] Bold and shaded values exceed screening criteria.

[2] Part 375-6.8 Unrestricted Use Soil Cleanup Objectives.

[3] NYS background (95th percentile), Source-Distant Data Set from NYS Brownfield Cleanup Program, Technical Support Document, Appendix D, September 2006.

[4] Eastern United States background (95th percentile) from Shacklette and Boerngen 1984.

Key:

bgs = Below ground surface.

J = Estimated value ("-" is biased low and "+" is biased high).

U = Not detected at the reporting limit shown.

mg/Kg = Milligrams/kilogram.

/D = Field duplicate sample.

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples,
Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID / Date	B212-MW-01-GW 03/27/2006	B212-MW-01-GW 06/14/2006	B212-MW-01-GW 10/03/2006	B212-MW-01-GW 12/13/2006	B212-MW-02-GW 03/27/2006
PCBs by Method 8082 (μg/L)							
AROCLOR 1016	0.09		0.47 U	0.47 UJ	0.48 U	0.48 U	0.47 U
AROCLOR 1221	0.09		0.47 U	0.47 UJ	0.48 U	0.48 U	0.47 U
AROCLOR 1232	0.09		0.47 U	0.47 UJ	0.48 U	0.48 U	0.47 U
AROCLOR 1242	0.09		0.47 U	0.47 UJ	0.48 U	0.48 U	0.47 U
AROCLOR 1248	0.09		0.47 U	0.47 UJ	0.48 U	0.48 U	0.47 U
AROCLOR 1254	0.09		0.47 U	0.47 UJ	0.48 U	0.48 U	0.47 U
AROCLOR 1260	0.09		0.47 U	0.47 UJ	0.48 U	0.48 U	0.47 U
Metals by Method 6010/7471 (μg/L)							
CADMIUM	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHROMIUM	50		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
LEAD	25		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
MERCURY	0.7		0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
ALUMINUM	NA		2830	200 U	409	406	200 U
ANTIMONY	3		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
ARSENIC	25		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
BARIUM	1000		100	67.5	84.0	62.1	99.4
BERYLLIUM	3		0.26 U	0.18 U	0.19 U	0.04 U	0.21 U
CALCIUM	NA		122000	108000	144000	115000	113000
COBALT	NA		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
COPPER	200		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
IRON	300		**9650**	**3710**	**5520**	**4920**	**3900**
MAGNESIUM	35000		**54200**	**48700**	**66800**	**53500**	**60900**
MANGANESE	300		**306**	216	211	197	126
NICKEL	100		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-MW-01-GW 03/27/2006	B212-MW-01-GW 06/14/2006	B212-MW-01-GW 10/03/2006	B212-MW-01-GW 12/13/2006	B212-MW-02-GW 03/27/2006
POTASSIUM	NA		3530	2390	2880	2330	2230
SELENIUM	10		15.0 U	15.0 U	15.0 U	15.0 U	15.0 U
SILVER	50		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
SODIUM	20000		**93700**	**87000**	**140000**	**96000**	**71000**
THALLIUM	0.5		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
VANADIUM	NA		5.1	5.0 U	5.0 U	5.0 U	5.0 U
ZINC	2000		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* , 1998, Table 1, Class GA.

Bolded and shaded values exceed screening criteria.

Key:

J = Estimated value ("-" is biased low and "+" is biased high)

PCB = Polychlorinated Biphenyls

U = Not detected (lab reporting limit show)

UJ = Not detected, reporting limit is estimated

µg/L = micrograms/Liter

/D = Field Duplicate Sample

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID / Date	B212-MW-02-GW 06/14/2006	B212-MW-02-GW 10/03/2006	B212-MW-02-GW 12/12/2006	B212-MW-03D-GW 03/27/2006	B212-MW-03D-GW 06/13/2006
PCBs by Method 8082 (µg/L)							
AROCLOR 1016	0.09		0.48 UJ	0.48 U	0.48 U	0.47 U	0.47 UJ
AROCLOR 1221	0.09		0.48 UJ	0.48 U	0.48 U	0.47 U	0.47 U
AROCLOR 1232	0.09		0.48 UJ	0.48 U	0.48 U	0.47 U	0.47 U
AROCLOR 1242	0.09		0.48 UJ	0.48 U	0.48 U	0.47 U	0.47 U
AROCLOR 1248	0.09		0.48 UJ	0.48 U	0.48 U	0.47 U	0.47 U
AROCLOR 1254	0.09		0.48 UJ	0.48 U	0.48 U	0.47 U	0.47 U
AROCLOR 1260	0.09		0.48 UJ	0.48 U	0.48 U	0.47 U	0.47 UJ
Metals by Method 6010/7471 (µg/L)							
CADMIUM	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHROMIUM	50		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
LEAD	25		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
MERCURY	0.7		0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
ALUMINUM	NA		200 U	1530	200 U	200 U	200 U
ANTIMONY	3		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
ARSENIC	25		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
BARIUM	1000		96.4	101	92.6	102	96.8
BERYLLIUM	3		0.11 U	0.19 U	0.04 U	0.21 U	0.45 U
CALCIUM	NA		109000	96600	99800	101000	96700
COBALT	NA		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
COPPER	200		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
IRON	300		**3730**	**4970**	**3570**	**4620**	**4450**
MAGNESIUM	35000		**60400**	**53400**	**56300**	**43400**	**41300**
MANGANESE	300		124	154	120	139	131
NICKEL	100		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

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Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-MW-02-GW 06/14/2006	B212-MW-02-GW 10/03/2006	B212-MW-02-GW 12/12/2006	B212-MW-03D-GW 03/27/2006	B212-MW-03D-GW 06/13/2006
POTASSIUM	NA		2190	2690	2220	2740	2800
SELENIUM	10		15.0 U	15.0 U	15.0 U	15.0 U	15.0 U
SILVER	50		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
SODIUM	20000		**66600**	**67500**	**70500**	**101000**	**97900**
THALLIUM	0.5		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
VANADIUM	NA		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
ZINC	2000		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* , 1998, Table 1, Class GA.

Bolded and shaded values exceed screening criteria.

Key:

J = Estimated value ("-" is biased low and "+" is biased high)

PCB = Polychlorinated Biphenyls

U = Not detected (lab reporting limit show)

UJ = Not detected, reporting limit is estimated

μg/L = micrograms/Liter

/D = Field Duplicate Sample

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples,
Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID / Date	B212-MW-03D-GW 10/03/2006	B212-MW-03D-GW 12/12/2006	B212-MW-03S-GW 03/27/2006	B212-MW-03S-GW 06/14/2006	B212-MW-03S-GW 10/03/2006
PCBs by Method 8082 (µg/L)							
AROCLOR 1016	0.09		0.48 U	0.48 U	0.47 U	0.48 UJ	0.47 U
AROCLOR 1221	0.09		0.48 U	0.48 U	0.47 U	0.48 U	0.47 U
AROCLOR 1232	0.09		0.48 U	0.48 U	0.47 U	0.48 U	0.47 U
AROCLOR 1242	0.09		0.48 U	0.48 U	0.47 U	0.48 U	0.47 U
AROCLOR 1248	0.09		0.48 U	0.48 U	0.47 U	0.48 U	0.47 U
AROCLOR 1254	0.09		0.48 U	0.48 U	0.47 U	0.48 U	0.47 U
AROCLOR 1260	0.09		0.48 U	0.48 U	0.47 U	0.48 UJ	0.47 U
Metals by Method 6010/7471 (µg/L)							
CADMIUM	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHROMIUM	50		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
LEAD	25		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
MERCURY	0.7		0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
ALUMINUM	NA		200 U	200 U	200 U	200 U	200 U
ANTIMONY	3		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
ARSENIC	25		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
BARIUM	1000		96.8	96.3	15.4	17.6	30.8
BERYLLIUM	3		0.19 U	0.04 U	0.21 U	0.38 U	0.25 U
CALCIUM	NA		89800	94400	47000	46700	51700
COBALT	NA		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
COPPER	200		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
IRON	300		**4320**	**4380**	50.0 U	50.0 U	50.0 U
MAGNESIUM	35000		**38000**	**41300**	17600	17400	20000
MANGANESE	300		135	136	3.0 U	3.0 U	4.4
NICKEL	100		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

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Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-MW-03D-GW 10/03/2006	B212-MW-03D-GW 12/12/2006	B212-MW-03S-GW 03/27/2006	B212-MW-03S-GW 06/14/2006	B212-MW-03S-GW 10/03/2006
POTASSIUM	NA		2710	2600	2470	2780	2970
SELENIUM	10		15.0 U	15.0 U	15.0 U	15.0 U	15.0 U
SILVER	50		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
SODIUM	20000		**96800**	**95200**	**24800**	**29300**	**37000**
THALLIUM	0.5		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
VANADIUM	NA		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
ZINC	2000		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* , 1998, Table 1, Class GA.

Bolded and shaded values exceed screening criteria.

Key:

J = Estimated value ("-" is biased low and "+" is biased high)

PCB = Polychlorinated Biphenyls

U = Not detected (lab reporting limit show)

UJ = Not detected, reporting limit is estimated

µg/L = micrograms/Liter

/D = Field Duplicate Sample

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples,
Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID / Date	B212-MW-03S-GW 12/12/2006	B212-MW-04-GW/D 06/14/2006	B212-MW-04-GW 03/27/2006	B212-MW-04-GW 06/14/2006	B212-MW-04-GW 10/03/2006
PCBs by Method 8082 (µg/L)							
AROCLOR 1016	0.09		0.47 U	0.47 UJ	0.47 U	0.48 UJ	0.49 U
AROCLOR 1221	0.09		0.47 U	0.47 UJ	0.47 U	0.48 U	0.49 U
AROCLOR 1232	0.09		0.47 U	0.47 UJ	0.47 U	0.48 U	0.49 U
AROCLOR 1242	0.09		0.47 U	0.47 UJ	0.47 U	0.48 U	0.49 U
AROCLOR 1248	0.09		0.47 U	0.47 UJ	0.47 U	0.48 U	0.49 U
AROCLOR 1254	0.09		0.47 U	0.47 UJ	0.47 U	0.48 U	0.49 U
AROCLOR 1260	0.09		0.47 U	0.47 UJ	0.47 U	0.48 UJ	0.49 U
Metals by Method 6010/7471 (µg/L)							
CADMIUM	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHROMIUM	50		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
LEAD	25		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
MERCURY	0.7		0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
ALUMINUM	NA		200 U	279	543	608 J	673
ANTIMONY	3		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
ARSENIC	25		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
BARIUM	1000		21.5	58.2	51.4	70.9	68.3
BERYLLIUM	3		0.04 U	0.24 U	0.21 U	0.31 U	0.19 U
CALCIUM	NA		61500	37100	37900	39200	42100
COBALT	NA		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
COPPER	200		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
IRON	300		50.0 U	**2230**	**1160**	**4540 J**	**2410**
MAGNESIUM	35000		23900	15100	16000	16000	17200
MANGANESE	300		3.0 U	34.3	20.6	61.5 J	65.6
NICKEL	100		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID Date	B212-MW-03S-GW 12/12/2006	B212-MW-04-GW/D 06/14/2006	B212-MW-04-GW 03/27/2006	B212-MW-04-GW 06/14/2006	B212-MW-04-GW 10/03/2006
POTASSIUM	NA		2640	12000	9830	13000	12400
SELENIUM	10		15.0 U	15.0 U	15.0 U	15.0 U	15.0 U
SILVER	50		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
SODIUM	20000		**24000**	**36800**	**35800**	**38800**	**39900**
THALLIUM	0.5		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
VANADIUM	NA		5.0 U	5.0 U	5.0 U	6.2	5.0 U
ZINC	2000		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

[1] New York State Department of Environmental Conservation, Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* , 1998, Table 1, Class GA.

Bolded and shaded values exceed screening criteria.

Key:

J = Estimated value ("-" is biased low and "+" is biased high)

PCB = Polychlorinated Biphenyls

U = Not detected (lab reporting limit show)

UJ = Not detected, reporting limit is estimated

µg/L = micrograms/Liter

/D = Field Duplicate Sample

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria [(1)]	Sample ID Date	B212-MW-04-GW 12/12/2006	B212-MW-05-GW 03/27/2006	B212-MW-05-GW 06/14/2006	B212-MW-05-GW 09/29/2006	B212-MW-05-GW 12/13/2006
PCBs by Method 8082 (μg/L)							
AROCLOR 1016	0.09		0.48 U	0.47 U	0.47 U	0.48 U	0.47 U
AROCLOR 1221	0.09		0.48 U	0.47 U	0.47 U	0.48 U	0.47 U
AROCLOR 1232	0.09		0.48 U	0.47 U	0.47 U	0.48 U	0.47 U
AROCLOR 1242	0.09		0.48 U	0.47 U	0.47 U	0.48 U	0.47 U
AROCLOR 1248	0.09		0.48 U	0.47 U	0.47 U	0.48 U	0.47 U
AROCLOR 1254	0.09		0.48 U	0.47 U	0.47 U	0.48 U	0.47 U
AROCLOR 1260	0.09		0.48 U	0.47 U	0.47 U	0.48 U	0.47 U
Metals by Method 6010/7471 (μg/L)							
CADMIUM	5		1.0 U	1.0 U	1.0 U	1.0 U	1.9
CHROMIUM	50		4.0 U	4.0 U	4.0 U	16.5	4.0 U
LEAD	25		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
MERCURY	0.7		0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
ALUMINUM	NA		200 U	2450	5610	16400	1310
ANTIMONY	3		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
ARSENIC	25		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
BARIUM	1000		46.7	127	136	174	117
BERYLLIUM	3		0.04 U	0.22 U	0.83 U	0.79 U	0.14 U
CALCIUM	NA		34700	149000	140000	151000	142000
COBALT	NA		4.0 U	24.3	27.5	25.3	25.9
COPPER	200		10.0 U	10.0 U	10.0 U	11.1	10.0 U
IRON	300		**625**	**155000**	**182000**	**133000**	**185000**
MAGNESIUM	35000		14300	31300	29200	29800	28400
MANGANESE	300		23.9	**5540**	**4380**	**8900**	**5610**
NICKEL	100		10.0 U	10.0 U	10.0 U	12.0	10.0 U

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-MW-04-GW 12/12/2006	B212-MW-05-GW 03/27/2006	B212-MW-05-GW 06/14/2006	B212-MW-05-GW 09/29/2006	B212-MW-05-GW 12/13/2006
POTASSIUM	NA		9660	743	966	1480	577
SELENIUM	10		15.0 U	15.0 U	15.0 U	15.0 U	15.0 U
SILVER	50		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
SODIUM	20000		**30800**	4510	4210	4500	3660
THALLIUM	0.5		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
VANADIUM	NA		5.0 U	10.2	14.3	36.1	8.8
ZINC	2000		10.0 U	19.8	23.4	71.8	14.0

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* , 1998, Table 1, Class GA.

Bolded and shaded values exceed screening criteria.

Key:

J = Estimated value ("-" is biased low and "+" is biased high)

PCB = Polychlorinated Biphenyls

U = Not detected (lab reporting limit show)

UJ = Not detected, reporting limit is estimated

μg/L = micrograms/Liter

/D = Field Duplicate Sample

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-MW-06-GW/D 09/29/2006	B212-MW-06-GW/D 12/13/2006	B212-MW-06-GW 03/28/2006	B212-MW-06-GW 06/14/2006	B212-MW-06-GW 09/29/2006
PCBs by Method 8082 (µg/L)							
AROCLOR 1016	0.09		0.48 U	0.48 U	0.47 U	0.47 UJ	0.48 U
AROCLOR 1221	0.09		0.48 U	0.48 U	0.47 U	0.47 UJ	0.48 U
AROCLOR 1232	0.09		0.48 U	0.48 U	0.47 U	0.47 UJ	0.48 U
AROCLOR 1242	0.09		0.48 U	0.48 U	0.47 U	0.47 UJ	0.48 U
AROCLOR 1248	0.09		0.48 U	0.48 U	0.47 U	0.47 UJ	0.48 U
AROCLOR 1254	0.09		0.48 U	0.48 U	0.47 U	0.47 UJ	0.48 U
AROCLOR 1260	0.09		0.48 U	0.48 U	0.47 U	0.47 UJ	0.48 U
Metals by Method 6010/7471 (µg/L)							
CADMIUM	5		1.0 U	1.9	1.0 U	1.0 U	1.0 U
CHROMIUM	50		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
LEAD	25		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
MERCURY	0.7		0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
ALUMINUM	NA		1460 J	434	656	2080	851 J
ANTIMONY	3		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
ARSENIC	25		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
BARIUM	1000		129	166	169	171	130
BERYLLIUM	3		0.29 U	0.15 U	0.45 U	0.88 U	0.30 U
CALCIUM	NA		212000	185000	180000	177000	216000
COBALT	NA		16.9	21.7	23.6	20.0	18.9
COPPER	200		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
IRON	300		**153000**	**217000**	**264000**	**224000**	**179000**
MAGNESIUM	35000		**35700**	32200	29700	28900	**36900**
MANGANESE	300		**9650**	**8120**	**7850**	**8630**	**9640**
NICKEL	100		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID Date	B212-MW-06-GW/D 09/29/2006	B212-MW-06-GW/D 12/13/2006	B212-MW-06-GW 03/28/2006	B212-MW-06-GW 06/14/2006	B212-MW-06-GW 09/29/2006
POTASSIUM	NA		500 U	500 U	542	672	500 U
SELENIUM	10		15.0 U	15.0 U	15.0 U	15.0 U	15.0 U
SILVER	50		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
SODIUM	20000		8320	7360	6410	6310	8450
THALLIUM	0.5		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
VANADIUM	NA		9.8	8.6	10.6	13.0	8.2
ZINC	2000		14.8	12.7	13.6	12.6	12.6

[1] New York State Department of Environmental Conservation, Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* , 1998, Table 1, Class GA.

Bolded and shaded values exceed screening criteria.

Key:

J = Estimated value ("-" is biased low and "+" is biased high)

PCB = Polychlorinated Biphenyls

U = Not detected (lab reporting limit show)

UJ = Not detected, reporting limit is estimated

µg/L = micrograms/Liter

/D = Field Duplicate Sample

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria (1)	Sample ID Date	B212-MW-06-GW 12/13/2006	B212-MW-07-GW/D 03/28/2006	B212-MW-07-GW 03/28/2006	B212-MW-07-GW 06/14/2006
PCBs by Method 8082 (µg/L)						
AROCLOR 1016	0.09		0.48 U	0.47 U	0.47 U	0.47 UJ
AROCLOR 1221	0.09		0.48 U	0.47 U	0.47 U	0.47 UJ
AROCLOR 1232	0.09		0.48 U	0.47 U	0.47 U	0.47 UJ
AROCLOR 1242	0.09		0.48 U	0.47 U	0.47 U	0.47 UJ
AROCLOR 1248	0.09		0.48 U	0.47 U	0.47 U	0.47 UJ
AROCLOR 1254	0.09		0.48 U	0.47 U	0.47 U	0.47 UJ
AROCLOR 1260	0.09		0.48 U	0.47 U	0.47 U	0.47 UJ
Metals by Method 6010/7471 (µg/L)						
CADMIUM	5		2.0	1.0 U	1.0 U	1.0 U
CHROMIUM	50		4.0 U	4.0 U	4.0 U	4.0 U
LEAD	25		5.0 U	5.0 U	5.0 U	5.0 U
MERCURY	0.7		0.200 U	0.200 U	0.200 U	0.200 U
ALUMINUM	NA		348	1970	1890	361
ANTIMONY	3		20.0 U	20.0 U	20.0 U	20.0 U
ARSENIC	25		10.0 U	10.0 U	10.0 U	10.0 U
BARIUM	1000		161	40.7	40.4	26.2
BERYLLIUM	3		0.15 U	0.21 U	0.21 U	0.11 U
CALCIUM	NA		180000	63500	63300	69400
COBALT	NA		20.8	4.5	4.1	4.0 U
COPPER	200		10.0 U	10.0 U	10.0 U	10.0 U
IRON	300		**211000**	**23800**	**23600**	**20600**
MAGNESIUM	35000		31200	13100	13000	14500
MANGANESE	300		**7890**	**1350**	**1340**	**1230**
NICKEL	100		10.0 U	10.0 U	10.0 U	10.0 U

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Buoy 212 3-GW Table Rnd 1-4.xls-2/28/2011

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria [(1)]	Sample ID Date	B212-MW-06-GW 12/13/2006	B212-MW-07-GW/D 03/28/2006	B212-MW-07-GW 03/28/2006	B212-MW-07-GW 06/14/2006
POTASSIUM	NA		500 U	1340	1330	1240
SELENIUM	10		**16.4**	15.0 U	15.0 U	15.0 U
SILVER	50		3.0 U	3.0 U	3.0 U	3.0 U
SODIUM	20000		7120	16500	16800	19300
THALLIUM	0.5		20.0 U	20.0 U	20.0 U	20.0 U
VANADIUM	NA		8.3	6.1	5.0	5.0 U
ZINC	2000		12.0	13.7	20.3	10.0 U

[(1)] New York State Department of Environmental Conservation, Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* , 1998, Table 1, Class GA.

Bolded and shaded values exceed screening criteria.

Key:

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PCB = Polychlorinated Biphenyls

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UJ = Not detected, reporting limit is estimated

µg/L = micrograms/Liter

/D = Field Duplicate Sample

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID / Date	B212-MW-07-GW 09/29/2006	B212-MW-07-GW 12/13/2006
PCBs by Method 8082 (µg/L)				
AROCLOR 1016	0.09		0.48 U	0.48 U
AROCLOR 1221	0.09		0.48 U	0.48 U
AROCLOR 1232	0.09		0.48 U	0.48 U
AROCLOR 1242	0.09		0.48 U	0.48 U
AROCLOR 1248	0.09		0.48 U	0.48 U
AROCLOR 1254	0.09		0.48 U	0.48 U
AROCLOR 1260	0.09		0.48 U	0.48 U
Metals by Method 6010/7471 (µg/L)				
CADMIUM	5		1.0 U	1.0 U
CHROMIUM	50		4.0 U	4.0 U
LEAD	25		5.0 U	5.0 U
MERCURY	0.7		0.200 U	0.200 U
ALUMINUM	NA		601	200 U
ANTIMONY	3		20.0 U	20.0 U
ARSENIC	25		10.0 U	10.0 U
BARIUM	1000		32.0	28.2
BERYLLIUM	3		0.07 U	0.04 U
CALCIUM	NA		55400	86100
COBALT	NA		4.0 U	4.2
COPPER	200		10.0 U	10.0 U
IRON	300		**13400**	**25600**
MAGNESIUM	35000		10800	17900
MANGANESE	300		**1000**	**1670**
NICKEL	100		10.0 U	10.0 U

Table 5-6 Summary of PCBs and Metals Concentrations in Groundwater Samples, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Screening Criteria [1]	Sample ID Date	B212-MW-07-GW 09/29/2006	B212-MW-07-GW 12/13/2006
POTASSIUM	NA		1190	1190
SELENIUM	10		15.0 U	15.0 U
SILVER	50		3.0 U	3.0 U
SODIUM	20000		**28400**	18400
THALLIUM	0.5		20.0 U	20.0 U
VANADIUM	NA		5.0 U	5.0 U
ZINC	2000		10.0 U	10.0 U

[1] New York State Department of Environmental Conservation, Technical and Operational Guidance #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* , 1998, Table 1, Class GA.

5-48

Bolded and shaded values exceed screening criteria.

Key:

J = Estimated value ("-" is biased low and "+" is biased high)

PCB = Polychlorinated Biphenyls

U = Not detected (lab reporting limit show)

UJ = Not detected, reporting limit is estimated

µg/L = micrograms/Liter

/D = Field Duplicate Sample

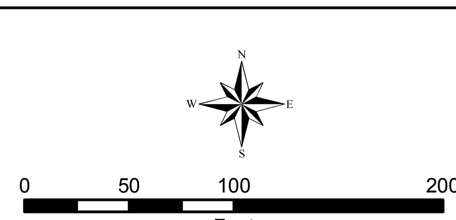

Figure 5-1
Surface Soil and Drainage Way Soil PCB Concentrations
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York

© Ecology and Environment Engineering P.C. GIS Department Project #
\Path: L:\Buffalo\NYSDEC_RIFS\Maps\MXD\Buoy_212_Addendum\RI_Report_Figs_Feb2011\Fig 5-2 Subsurface_and_Monitoring_Well_Results_Oct2009.mxd

Warren, Rutland, Washington, Saratoga, Bennington, Schenectady, Rensselaer, Berkshire

- Existing Monitoring Well
- Cover Soil Boring (CBH)
- Margin Soil Boring (MBH)
- Monitoring Well
- *Cover Soil Boring (CBH) PCB SCO Exceedances
- *Margin Soil Boring (MBH) PCB SCO Exceedances
- Perimeter Soil Boring
- Southern Soil Boring
- Perimeter Soil Boring PCB SCO Exceedances
- Southern Soil Boring PCB SCO Exceedances
- Fence
- Parcel Boundary

0 50 100 200
Feet

*Highlighted PCB values represent SCO exceedances
PPM = Parts Per Million
ND = Not Detected
PCB = Polychlorinated Biphenyl

Figure 5-2
Subsurface Borehole and Monitoring Well Sample Locations
Buoy 212 Dredge Spoil Area
Fort Edward, New York

02:002699.ID07.02-B2009\Figure 5-3.cdr-02/24/11-GRA

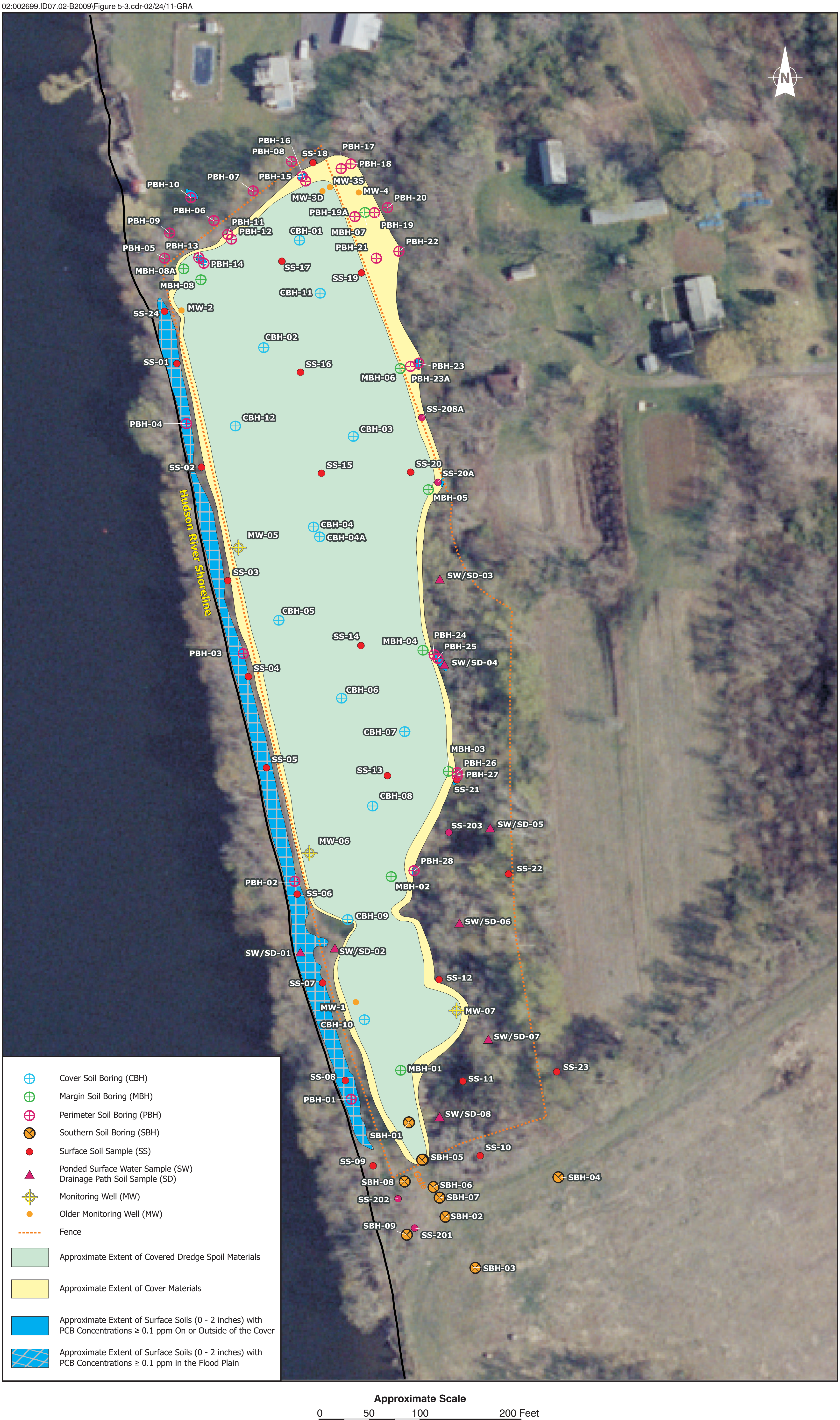

Figure 5-3 **Approximate Extent of Surface Soils (0 - 2 inches) with PCB Concentrations ≥ 0.1 ppm - On or Outside of the Cover, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York**

02:002699.ID07.02-B2009\Figure 5-4.cdr-02/24/11-GRA

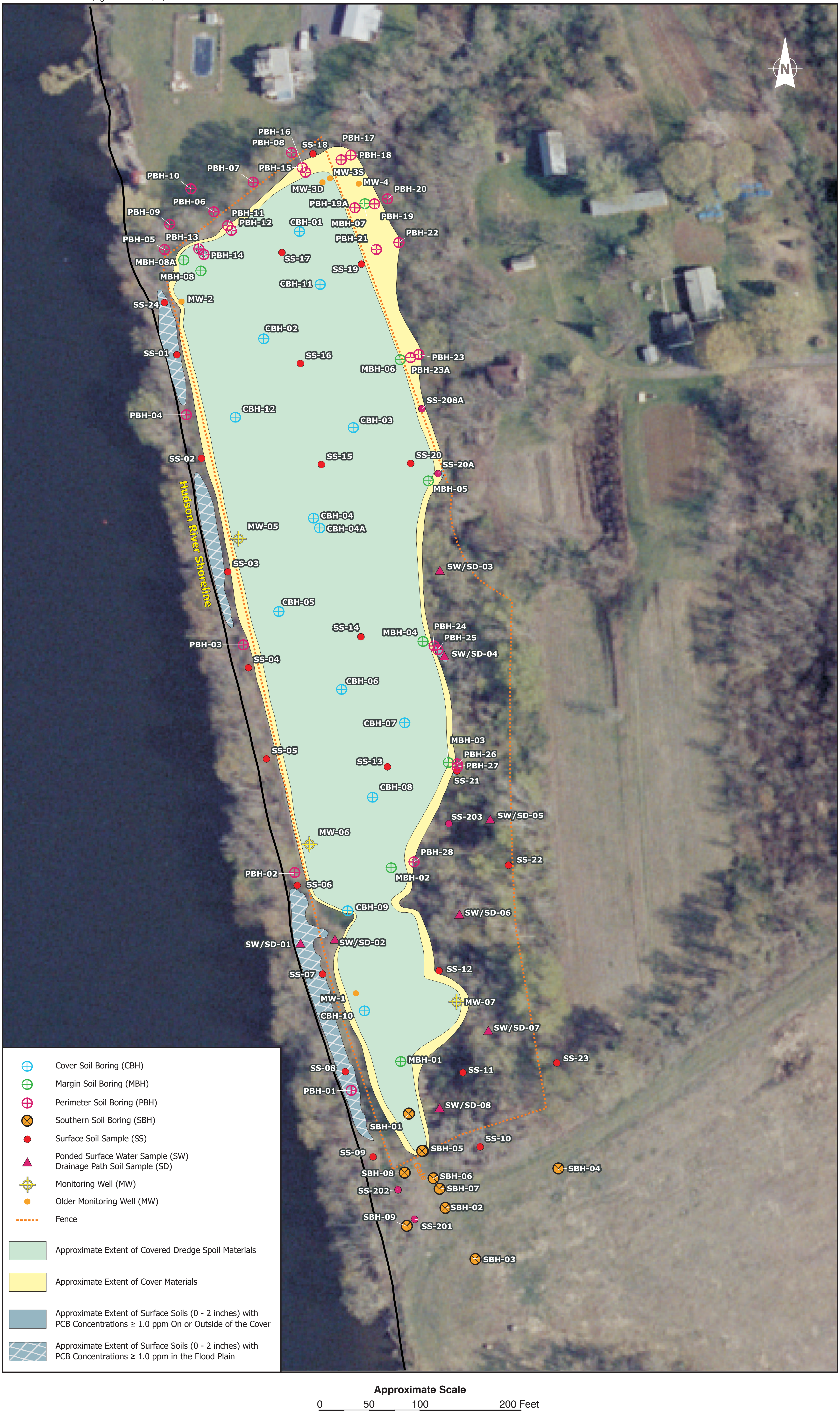

Figure 5-4 Approximate Extent of Surface Soils (0 - 2 inches) with PCB Concentrations ≥ 1.0 ppm - On or Outside of the Cover, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

02:002699.ID07.02-B2009\Figure 5-5.cdr-02/24/11-GRA

Figure 5-5 Approximate Extent of Subsurface Soils (> 2 inches) with PCB Concentrations ≥ 0.1 ppm - On or Outside of the Cover, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

02:002699.ID07.02-B2009\Figure 5-6.cdr-02/24/11-GRA

Figure 5-6 Approximate Extent of Subsurface Soils (> 2 inches) with PCB Concentrations ≥ 1.0 ppm - On or Outside of the Cover, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

02:002699.ID07.02-B2009\Figure 5-7.cdr-02/24/11-GRA

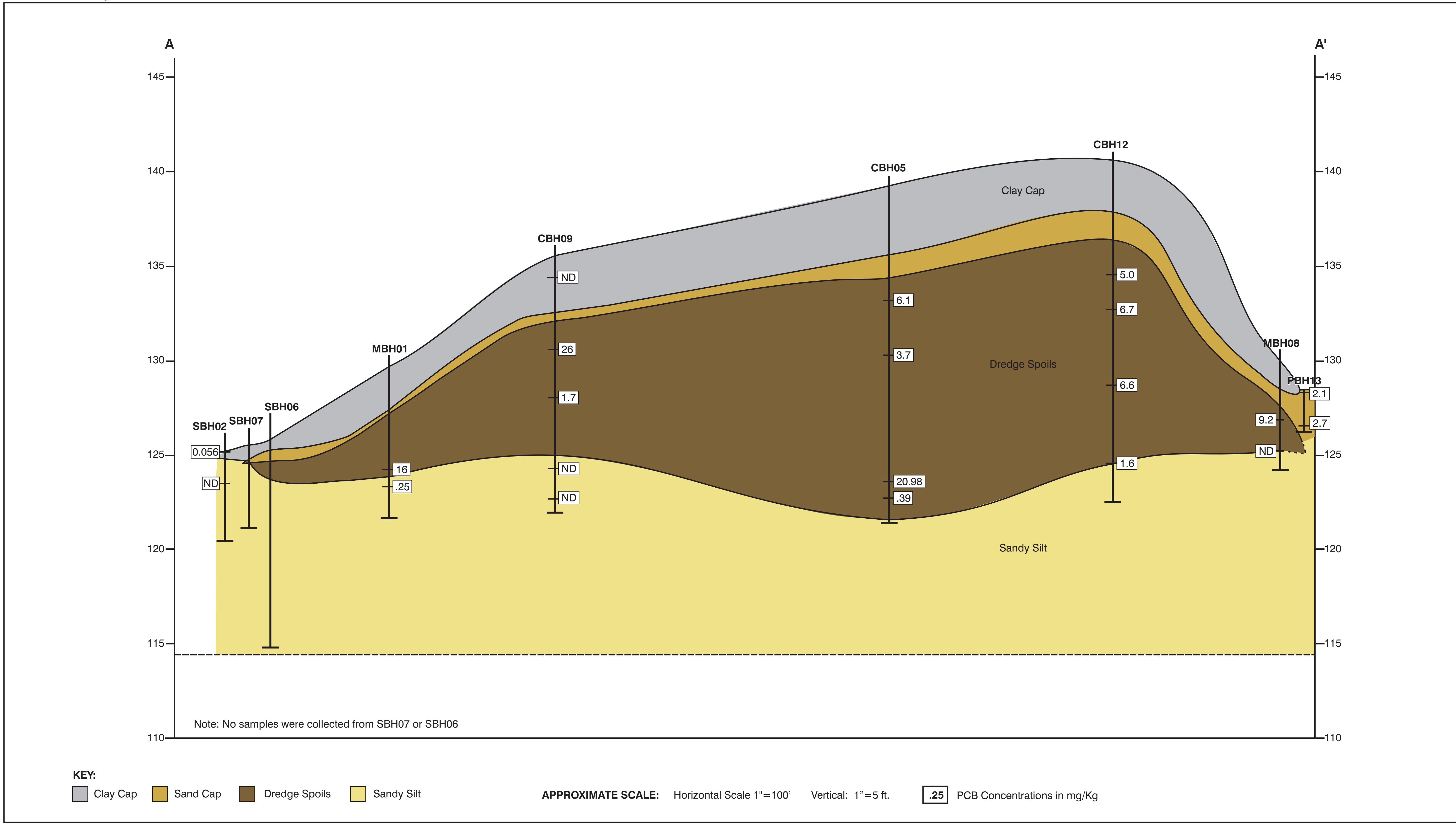

Figure 5-7 **Subsurface Soil PCB Results, Cross-Section A-A', Buoy 212 Soil Disposal Area, Fort Edward, New York**

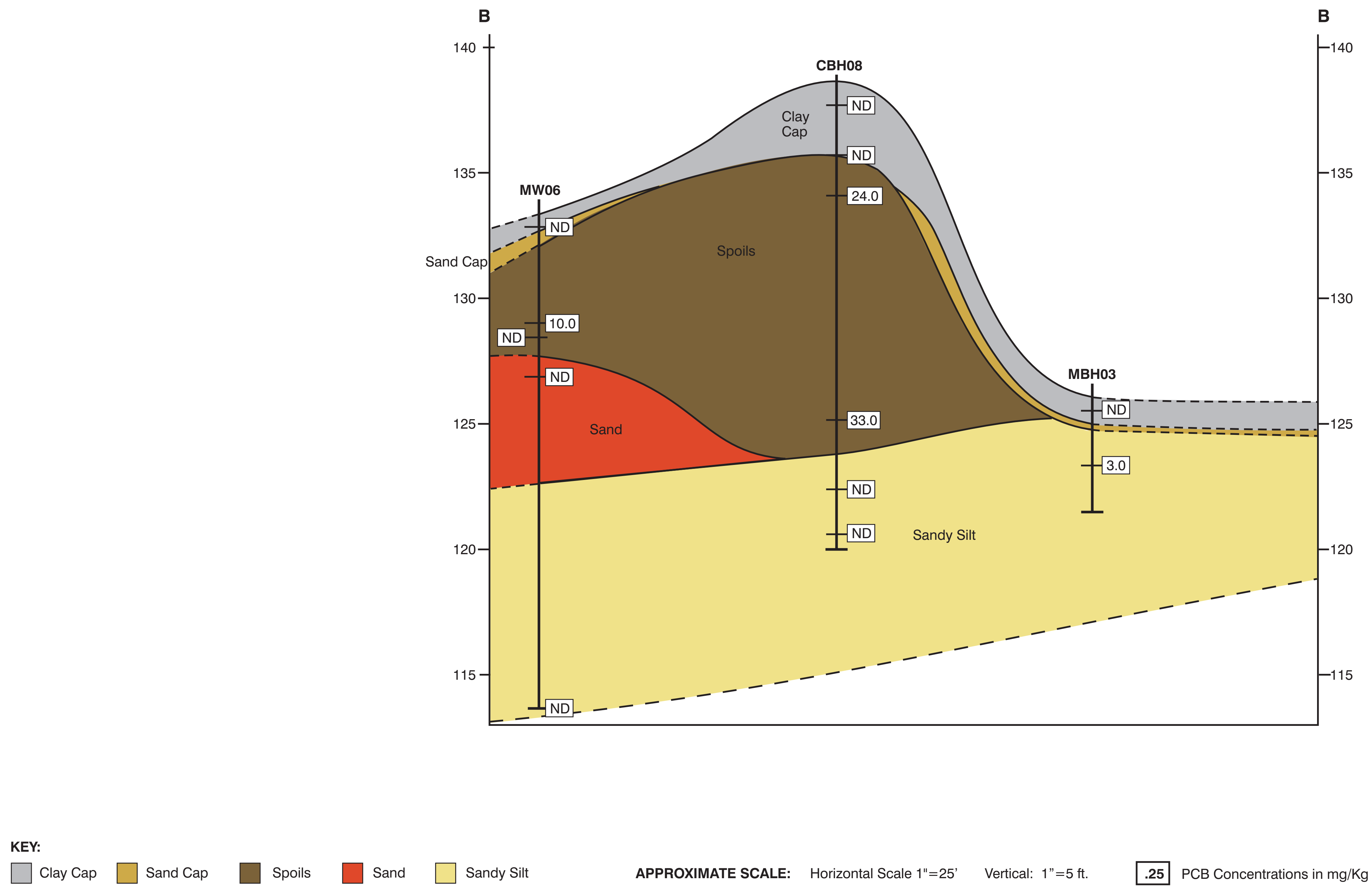

Figure 5-8 **Subsurface Soil PCB Results**
Coss-Section B–B'
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York

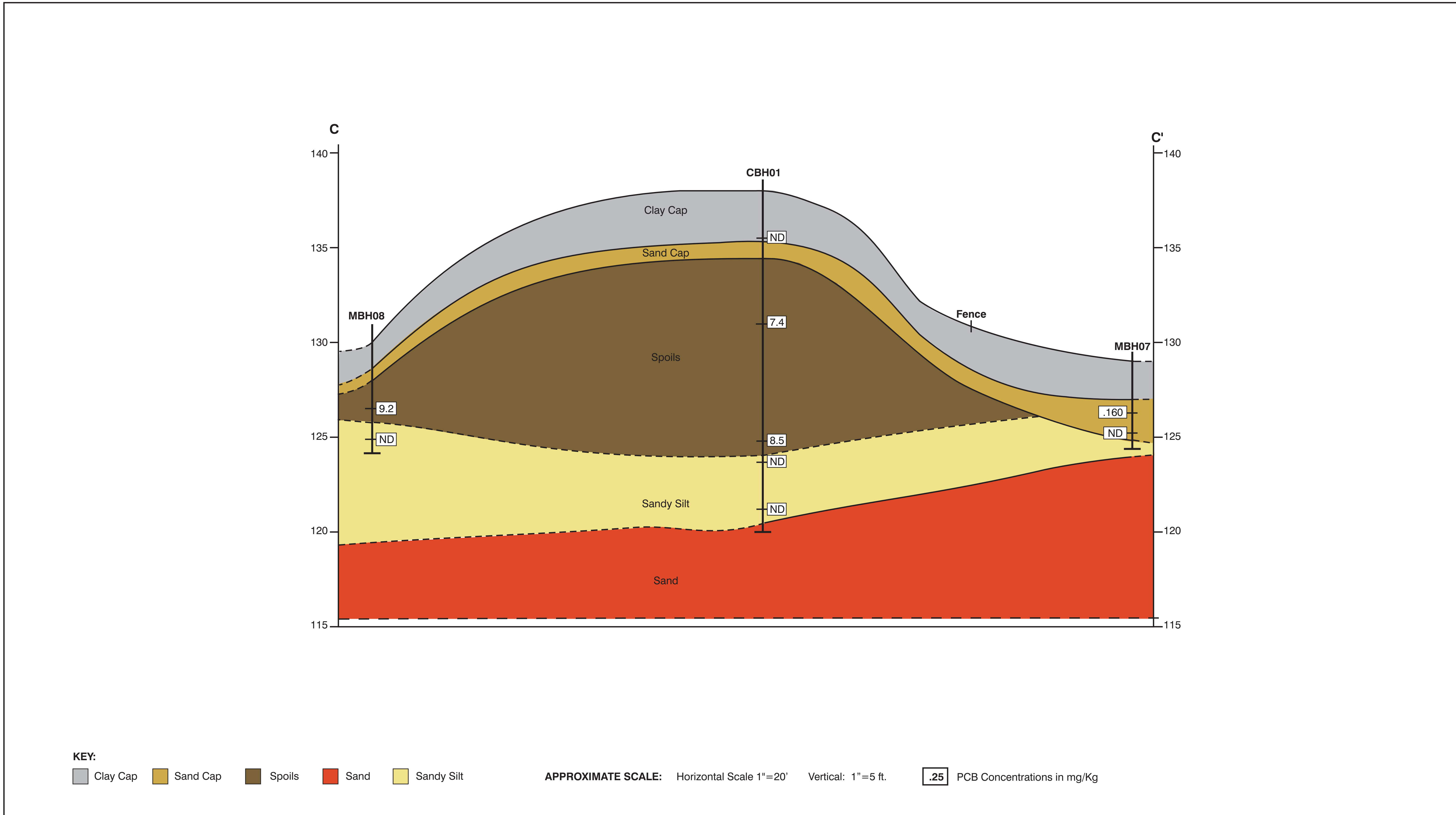

Figure 5-9 **Subsurface Soil PCB Results**
Cross-Section C–C'
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York

6 Fate and Transport

6.1 Introduction

This section describes the chemical persistence and the behavioral character of the contaminants identified at the Buoy 212 site, and discusses the natural and man-induced mechanisms that may result in, and/or influence, the migration of those contaminants. Using this information along with site-specific data and various observations made during this RI, the potential pathways of contaminant migration will be assessed.

The placement and stockpiling of dredge spoil material associated with routine and emergency maintenance dredging operations of the New York State Champlain Canal/Hudson River navigation channel between Canal Lock 7 (Fort Edward) and the floating red nun channel marker Buoy 212 south of Lock 7, have resulted in the disposal of hazardous wastes, including PCBs and metals. These wastes, sporadically entrained within the sediment of the Hudson River and subsequently removed with some of the sediment from the Champlain Canal/Hudson River navigation channel as dredge spoil material in the past, have contaminated the soil at the Buoy 212 site. Historical and reoccurring floodplain deposition of contaminated Hudson River sediments appear to have contaminated the soil upon the narrow floodplain shelf between the Hudson River and the western margin of the closed and covered Buoy 212 dredge spoil disposal site. Even though some environmental samples collected at the site contain metals that can be attributed to site activities at concentrations above the recommended SCOs or alternative screening criteria, in general, the number of metal exceedances was less frequent than the number of PCB exceedances. Therefore, PCBs are the primary contaminants of concern at this site and are the only contaminants considered further in this discussion. Conclusions regarding the nature and extent of PCB contamination at the site are summarized below.

- A total of 32 groundwater samples were collected from the three new monitoring wells and the existing five monitoring wells around the site in March, June, September, October, and December of 2006 to assess the overburden groundwater conditions at the site. All 32 samples were analyzed for PCBs. PCBs were not detected in any of the groundwater samples collected from the monitoring wells at this site during any sample collection event associated with this investigation.

- A single groundwater sample was collected from a residential well near the site in June of 2008. The well draws water from the overburden aquifer. The sample was analyzed for PCBs. PCBs were not detected in the water sample collected from this residential well.

- There are no sustained surface water bodies on this site. One area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property was identified and sampled once. Water that collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. At the time of sampling, water was flowing through the pass-through culvert and samples were collected along the water path on the west side of the disposal structure. Eight drainage water samples were collected - three locations were in the drainage network along the eastern margin, three locations were in the area runoff collects intermittently in the southeastern part of the Buoy 212 property, and two locations were along the drainage network on the west side of the disposal structure and on the floodplain shelf adjacent to the Hudson River. All samples were submitted to the laboratory for PCB analysis. PCBs were not detected in any of the eight drainage water samples.

- Eight drainage network soil samples were collected from the drainage network at the site at the same locations where the drainage water samples were collected for analysis. All eight soil samples were analyzed for PCBs. PCBs were detected in two of the eight drainage network soil samples with a concentration of 2.92 ppm in sample SD-04 and 8.3 ppm in sample SD-01. The concentrations of PCBs in both drainage network soil samples exceed the SCO established for the unrestricted use of the site (0.1 ppm) and the SCO applicable to the restricted - commercial use of the site (1.0 ppm). The sample with the higher PCB result was located in the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. The other result was located along the margin of the cover on the eastern side of the site in the vicinity of an area where burrowing animals are thought to have brought dredge spoil materials to the surface.

- Surface soil samples (covering the 0 to 2-inch soil depth interval) were collected from 65 locations at this site to assess direct human exposures. Samples from the surface at some of the exploration boreholes advanced at this site also contributed to the overall surface soil assessment. Twenty-six samples were collected from locations on the closed and covered dredge spoil disposal structure at this site and 39 samples were collected from locations beyond the margins of the disposal structure, including 14 points in the Hudson River floodplain along the west side of the site. All 65 samples were analyzed for PCBs. Results confirm PCBs at 42 surface soil sampling points with 21 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 12 samples reporting concentrations above 1.0 ppm (the restricted use - commercial - SCO applicable to this site). The highest PCB concentration in surface soil was 9.9 ppm in sample PBH-01-01 collected from the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. Nearly all of the other results found above the applicable SCOs were either located along the margins of the cover over the site or on top of the cover in the vicinity of areas where burrowing animals are thought to have brought dredge spoil materials to the surface.

- One hundred and twenty-seven subsurface soil samples (deeper than the 0 to 2-inch soil depth interval) were collected from 56 locations at this site. Subsurface soil samples were collected from the 13 cover boreholes, the nine margin boreholes, the three new monitoring well boreholes, six of the southern area boreholes, and 25 of the perimeter boreholes installed in and around the closed and covered dredge spoil disposal structure as part of the exploration borehole and well drilling programs at the Buoy 212 site. All 127 samples were analyzed for PCBs. Results confirm PCBs in 76 subsurface soil samples with 66 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 53 samples reporting concentrations above 1.0 ppm (the restricted use - commercial - SCO applicable to this site). Samples containing PCB concentrations above 0.1 ppm were generally collected at depths between 4 feet and 18.5 feet below grade. The two highest PCB concentrations in the soil under the existing isolation cover were 47 ppm at a depth of 12 feet below grade in CBH-02, and 39 ppm at a depth of 14 feet below grade in CBH-03. The highest PCB concentration in the subsurface soil outside of the existing isolation cover and in the vicinity of the closed and covered former dredge spoil disposal area was 2.4 ppm. Nearly all of the subsurface soil results found above the applicable SCOs outside of the existing isolation cover were either located in samples collected from the Hudson River floodplain or in the vicinity of areas where burrowing animals are thought to have disturbed dredge spoil materials along the margins of the closed and covered dredge spoil disposal area.

6.2 Potential Sources of Contamination and Routes of Migration

6.2.1 Source Areas

The closed and covered basin and earthen containment berm complex at this site had been used to dewater and hold sediment/dredge spoil material associated with routine and emergency maintenance dredging operations of the New York State Champlain Canal/Hudson River navigation channel between Champlain Canal Lock 7 (Fort Edward) and the floating red nun channel marker Buoy 212 south of Lock 7 in the past. Some of these dredge spoil materials have been found to contain variable concentrations of PCBs and have been confirmed as a source for some of the known distribution of PCB contamination at this site. Historical and reoccurring floodplain deposition of contaminated Hudson River sediments appear to have contaminated the soil upon the narrow floodplain shelf between the Hudson River and the western margin of the closed and covered Buoy 212 dredge spoil disposal site. Some of the soils in the floodplain have been found to contain variable concentrations of PCBs and have been confirmed as a source for some of the known distribution of PCB contamination at this site.

Previous studies (Malcolm Pirnie 1992) estimated that the closed and covered basin and earthen containment berm structure at the Buoy 212 site contained 72,400 cubic yards of PCB-contaminated materials (not including the interim cover constructed in 1991). Taking into account the extent of exploration work and sampling done to define the nature and three-dimensional extent of any identified contamination at or in the vicinity of the site during this remedial investigation, the estimated volume of contaminated material in the closed and covered dredge spoil disposal structure was revised to be 56,000 CY.

6.2.2 Potential Routes of Migration

Natural and man-induced mechanisms that can result in the migration of contaminants from their source areas include: overland water flow, infiltration, groundwater flow, subsurface tunnels and utilities, volatilization, excavation, grading, and vehicular traffic. Considering subsurface tunnels and utilities were not identified within the study area, acknowledging that PCBs were not present in the groundwater at and around the site, and recognizing that the volatilization of PCBs within the closed and covered dredge spoil disposal structure at this site is not likely, this discussion will only cover potential migration through overland water flow, infiltration, and a few man-induce mechanisms including excavation, grading, and vehicular traffic. The impacts of these mechanisms vary by source area and specific site conditions.

Overland Water Flow

Overland water flow could result in the migration of site contaminants if those contaminants are exposed at or on the ground surface, present in soils at or near the surface, and/or are exposed to the influence of overland water flow.

Overland water flow at the Buoy 212 site occurs primarily during heavy precipitation events or spring snow melts as surface runoff. During heavy precipitation events, runoff is shed radially away from the higher areas of the closed and covered dredge spoil disposal area to the topographic low areas along the eastern and western margins. Along the eastern margin, runoff from Buoy 212 and nearby areas intermittently flows southward and collects in the southeastern part of the Buoy 212 property. Water that intermittently collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. When the volume of collected water is not great enough to spill through the steel culvert, the runoff either infiltrates and/or evaporates without reaching the Hudson River as direct runoff. Along the western margin, runoff accumulates in the lowest portions of the narrow floodplain shelf and either drains slowly into the Hudson River through breaks in the natural and armored bank levy or infiltrates and/or evaporates without reaching the Hudson River as direct runoff.

Infiltration

Infiltration of precipitation would be expected in areas that are not covered by a relatively impermeable barrier such as concrete, asphalt, or clay. At the Buoy 212 site, a clay cover that is up to 24-inches thick prevents the infiltration of precipitation into the closed disposal structure. However, recognizing that there are some areas of soil contamination that are not covered by the relatively impermeable barrier in place over the dredge spoil disposal structure, infiltration of precipitation and the subsequent flow/percolation of water through the unsaturated zone to groundwater, can cause water soluble contaminants on the surface or in the vadose zone to migrate downward to the water table. Considering that PCBs are relatively insoluble in water, they are not expected to appreciably leach into groundwater. The potential for PCB migration by water is further reduced by the presence of organic carbon in the soil between the surface and the top of the groundwater table, providing carbon sites where PCBs may bind.

Man-induced Mechanisms

The Buoy 212 dredge spoil disposal structure is closed and covered with a relatively impermeable barrier and is fenced along its perimeter. Unauthorized access to the closed and covered disposal cell and the adjoining Hudson River floodplain area is limited. Considering the current setting of the Buoy 212 site, the migration of PCBs bound to surface soil is very limited.

6.3 Contaminant Persistence and Behavioral Characteristics

In general, chemical compounds of a similar chemical type behave similarly in the environment. However, considering that a chemical's behavior is dependent on their physical and chemical properties as well as prevailing environmental conditions, such as the presence of bacteria, pH variations, and oxidation-reduction conditions, significant differences in behavior of chemical compounds may be observed. Water solubility is a critical property affecting the environmental transport of a chemical: highly soluble chemicals can be rapidly leached from soil and are generally more mobile in groundwater or surface water that comes in contact with the contaminated soil. A compound’s volatilization rate out of the water depends on its vapor pressure and water solubility: highly water-soluble compounds generally have lower volatilization rates from water than compounds with low water solubility. Vapor pressure and Henry’s Law constants are measures of volatilization behavior.

PCBs are a group of 209 different synthetic chlorinated compounds called congeners, in which one to 10 chlorine atoms are attached to a biphenyl base (two benzene rings consisting of hydrogen and carbon atoms). Most PCB congeners are colorless to light yellow oily liquids or waxy solids that reportedly have no known smell or taste, however, some persons have reported that they can detect PCBs by smell. PCBs were commercially produced for use in the United States from 1929 through the early 1980s and are not known to exist naturally (Erickson 1986). They were (and continue to be) marketed worldwide under various trade names. Monsanto Corporation was the major producer of PCBs in the United States and sold the compound under the trade name Aroclor. Aroclor formulations are identified by a four-digit numbering system, where the first two digits indicate the type of mixture and the last two digits indicate the approximate chlorine content by weight percent (varying between 21 and 68%). For example, Aroclor 1242 contains an average chlorine weight percent of 42%. The only exception to this identification system is Aroclor 1016 (with an average chlorine weight percent of 41%) since it is the distillate obtained when Aroclor 1242 is fractionated (ATSDR 2000).

Although the physical and chemical properties vary widely across the compound class, in general, PCBs have low vapor pressures and are relatively insoluble in water (their degree of solubility decreases with increased chlorination) (ATSDR 2000). PCBs are chemically and physically stable compounds that do not readily degrade in the environment after disposal or dissemination. Most PCBs do not mix with water in the environment and instead, settle into riverbeds, lake bottoms, and on floodplains. In the water, a small amount of PCBs might remain dissolved, but most adhere to organic particles and bottom sediments. PCBs also bind strongly to soil.

Due to their non-flammability, chemical stability, high boiling point and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including dielectric fluids for capacitors and transformers, heat transfer fluids, hydraulic fluids, lubricating and cutting oils, and as additives in pesticides, paints, carbonless copy “NCR” paper, adhesives, sealants, plastics, reactive flame retardants, and as a fixative for microscopy. More than 1.5 billion pounds of PCBs were manufactured in the United States before production was banned in 1977.

Their chemical and physical stability has also been responsible for their continuing low-level persistence in the environment. PCBs are generally unalterable by microorganisms or by chemical reaction (they do not readily degrade). The stable nature of PCBs also lends to accumulation in the fatty tissues of animals once the PCBs are released into the environment. These accumulations increase as the tissue from contaminated animals moves through the food web. Because of bioaccumulation, the concentration of PCBs found in fish tissues is expected to be considerably higher than the average concentration of PCBs in the water from which the fish were taken.

Acute toxic effects in the environment include death of animals, birds, or fish, and death or low growth rate in plants. Chronic effects from PCBs may include shortened lifespan, reproductive problems, lower fertility, and changes in appearance or behavior. The primary concern of PCBs in surface water is the chronic effect of bioaccumulation.

Under specific conditions PCBs may be destroyed by chemical, thermal, and biochemical processes. Because of their high thermodynamic stability, all degradation mechanisms are difficult. Intentional degradation as a treatment of unwanted PCBs generally requires high heat or catalysis. Environmental and metabolic degradation generally proceeds quite slowly relative to most other compounds.

Incineration is the conventional destruction technology for these extremely recalcitrant compounds, but other technologies, such as solvent extraction and thermal desorption, also are being applied. PCBs remedial technologies will be evaluated in the FS that will be submitted under separate cover.

7 Human Health Risk Evaluation

7.1 Introduction

Section 5 summarizes the contaminants that were detected in surface soil, subsurface soil, drainage network soil and water, and ground water at the site. The data summary tables provided in Section 5 show that PCBs and various metals are present in some of the environmental samples collected at the site, and identifies those with concentrations that exceed NYS regulatory standards and guidance values. Although these regulatory criteria were developed to be protective of health, the mere presence of environmental contamination at higher concentrations does not necessarily pose an actual risk to human health.

For contamination to pose a human health risk, both of the following conditions must be true:

- There must be a complete pathway of exposure from the contamination to human receptors; and
- The magnitude of a receptors' exposure to contamination must be sufficient to cause an adverse health effect.

If there is no complete pathway of exposure, there will be no risk associated with the contamination. If a complete pathway exists, but the magnitude of the receptor's exposure is low, the associated risk may not be significant. Both factors need to be considered when evaluating potential human health risks posed by site contamination.

For soil at the Buoy 212 site, the chemicals of potential concern (COPCs) were identified by comparing the concentration of each chemical detected in soil that could be characterized as dredge spoil material from areas under the cover at the site, surface and subsurface soil from areas outside of the existing isolation cover at the site including from the Hudson River floodplain or in the vicinity of areas where burrowing animals are thought to have disturbed dredge spoil materials along the margins of the closed dredge spoil disposal structure, and drainage network soils from the drainage network at the site, with the applicable NYSDEC SCOs provided in 6 NYCRR Subpart 375-6.8. For metals with no established SCO, alternative screening criteria were used in the comparison, including NYS background (Source-Distant Dataset from NYSDEC 2006) and eastern United

States background soil concentrations (Shacklette and Boerngen 1984). Restricted commercial soil cleanup objectives were used to evaluate the site in Section 5 of this report, however, for the purpose of this human health risk assessment, the SCOs for unrestricted residential use were used for screening. Using the more stringent unrestricted residential screening levels for the human health evaluation ensures that all COPCs are considered and takes into account such things as the potential for recreational use at the closed and covered dredge spoil disposal structure and the current lack of SCOs to cover such a recreational scenario.

Drainage network soil samples collected from the drainage network at the site were considered to be surface soils for the purpose of this assessment and evaluated using the soil screening values.

Class GA groundwater standards and guidance values (NYSDEC 1998) were used as a comparison base for the chemicals detected in groundwater at this site. Chemicals with concentrations that exceeded either promulgated groundwater standards or the established SCOs were selected as the COPCs for groundwater.

The chemicals identified as being of potential concern in the environmental media at the Buoy 212 site are summarized in Table 7-1.

For soil (including soil that could be characterized as dredge soil material and drainage network soil), the COPCs include PCBs, chromium, cadmium, lead, and mercury. Iron, calcium, potassium, magnesium, sodium, and the other metals detected in soil or drainage network soil at concentrations exceeding the alternative screening criteria, do not have any NYSDEC-published health-based screening criteria as these metals are all essential micronutrients. Considering this and recognizing that all of the metals in this group were found at concentrations below levels typically associated with adverse health effects, none of these metals were included as a COPC for soil during this assessment.

Complete exposure pathways for drainage water and groundwater were not identified at the Buoy 212 site and the chemicals in these two environmental media were not evaluated in this risk assessment.

Soil samples collected for PCB analysis during this project were processed using two similar analytical methods, standard EPA Method 8082 and a screening-level analysis based on EPA Method 8082, which primarily differed only in the method used to extract PCBs from the sample matrix. The two methods are discussed in more detail in Section 4.4. Sixty-one percent of the soil samples collected and submitted for PCB analysis were processed using the screening method, and approximately 21% of these samples were also processed using the standard EPA Method 8082 PCB analysis. The other 39% of the soil samples submitted for PCB analysis were processed using the standard EPA Method 8082 PCB analysis. Comparison of the results of the two methods used on the same samples showed that, on average, standard EPA Method 8082 gave higher results than the screening method. Thus the PCB data were effectively expressed in two different scales, much like temperatures expressed in the Fahrenheit and Celsius scales. To use the results in risk assessment calculations, it was necessary to convert all of the values to a single scale. Being the standard EPA method, Method 8082 is considered more reliable than the modified screening method; therefore, for samples with results available from both methods, the standard EPA Method 8082 values were used. For samples with only screening method results, the screening test values were converted to estimated EPA Method 8082 values using the mathematical relationship between the two sets of values obtained by regression analysis. Comparison of the analyses indicated that a power function best described the relationship between PCB concentrations reported for the two analytical methods, assuming a variety of shapes for the underlying data distribution (see Appendix H). The mathematical relationship used to correct the screening test data was:

$$y = 1.3714x^{1.0104}$$

Where:

x = reported screening test PCB concentration; and
y = estimated EPA Method 8082 PCB concentration.

6 NYCRR Subpart 375-6.8 SCOs for PCBs are expressed in terms of total PCBs. Total PCB concentrations in site samples were calculated by summing all detected concentrations for individual Aroclors in the samples.

7.2 Conceptual Site Model

Under the existing site conditions (see Section 1.2 for a site description), the residents living adjacent to the closed and covered dredge spoil disposal structure are unlikely to have any contact with soils at Buoy 212 site during outdoor activities and considering the limited access to all areas at the site, recreational use of the Buoy 212 property is also unlikely. The only current human users at and near this site include adult NYSDOT workers involved in sample collections, site inspections, and/or site maintenance activities (like mowing and fence repair) as needed. NYSDOT workers were assumed to be exposed to soil/dredge spoil material at the surface and/or brought to the surface during earth moving activities, in all areas of the site, but primarily within the fenced area where the closed and covered dredge spoil disposal structure is situated. Exposure could occur through incidental ingestion via hand-to-mouth contact, dermal contact, and inhalation of airborne particles or vapors.

The site has been closed and covered since late 1979 and was improved in 1991 when a clay cover was placed over the older cover and fencing was installed around the perimeter of the structure to restrict access to the dredge spoil disposal structure. No alternate future use of the site is expected, however, alternate future uses cannot be ruled out. Residential properties adjoin the dredge spoil disposal structure at the Buoy 212 site, and although redevelopment is highly unlikely, it is possible that residential redevelopment could occur. If the site is redeveloped in its current state, potential future site users could include site residents and temporary construction, utility, and maintenance workers. During this hypothetical redevelopment, subsurface soil/dredge spoil material could be brought to the surface as a result of grading and excavation activities associated with construction. Thus, potential future site residents and temporary construction, utility, and maintenance workers were assumed to be exposed to soils/dredge spoil materials to a depth of 10 feet through incidental ingestion via hand-to-mouth contact, dermal contact, and inhalation of airborne particles or vapors. Considering that public water is available now and most likely would be for any hypothetical future residential use of the site, the exposure pathway for groundwater is and is likely to remain incomplete and further evaluation is unnecessary.

7.3 Risk Assessment Approach

Risk and hazard estimates were prepared for the receptors and exposure pathways identified in the conceptual site model using the Spatial Analysis and Decision Assistance (SADA) computer program, version 4.1 (TIEM 2005).

7.3.1 Exposure Assessment

Default exposure factor values recommended in various EPA risk assessment guidance documents were used in the computations. These values are equal to or somewhat higher and more conservative (health protective) than values identified in the draft Brownfield Cleanup Program technical support document (NYSDEC/NYSDOH 2006). A summary of the exposure factor values used in this assessment is provided in Table I-1 and I-2 in Appendix I. NYSDOT workers were assumed to be exposed to soil/dredge spoil material at the surface and/or brought to the surface during earth moving activities, in all areas of the site, but primarily within the fenced area where the closed and covered dredge spoil disposal structure is situated. It is also assumed that a maintenance worker mows the open areas of the site two times per month over a six month growing season during the year, which yields 12 days of exposure per year for that worker. Potential future residents and temporary construction, utility, and maintenance workers were assumed to be exposed to existing surface and subsurface soils to a depth of 10 feet below grade. In addition, as a worse case, it is assumed that future site residents will obtain their drinking and household water from wells installed on site even though public water is available.

When calculating risk and hazard, it was assumed that a receptor has random access across the entire site. While the maximum detected value was used for site screening to identify COPCs, the 95th percentile of the mean of the concentration data (95% upper confidence limit) was used to calculate the exposure point concentration for each chemical. The 95th percentile provides a conservative estimate of the true average concentration at the site. One-half of a samples detection limit was used to calculate exposure point concentrations when a contaminant was not detected in a particular sample. To evaluate PCB risks and hazards at this site and to compare the sample results with the soil cleanup objectives listed for total PCBs in 6 NYCRR Subpart 375-6.8, the detected concentration for each Aroclor (Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, and Aroclor 1260) found in a particular sample was summed to provide a total PCB concentration for that sample. The summed PCB concentrations were used to calculate the exposure point concentration as described above. When PCBs were not detected in the sample, the detection limit for each Aroclor was summed and one-half of the summed detection limit was used in calculating the exposure point concentration. When duplicate samples were collected, the average concentrations of each contaminant at a sampling point were used as exposure point concentrations to calculate point risk and hazard estimates.

7.3.2 Toxicity Assessment

Quantitative toxicity estimates - cancer potency factors and non-cancer reference doses - provided by the SADA program were used. These values were compiled by the Risk Assessment Information System (RAIS 2006) from the hierarchy of toxicity values recommended by the EPA:

1. Integrated Risk Information System (IRIS) and cited references.

2. Provisional Peer Reviewed Toxicity Values (PPRTV) and cited references developed for the EPA Office of Superfund Remediation and Technology Innovation programs.

3. Other toxicity values including:

   - California Environmental Protection Agency toxicity values, available on the California Environmental Protection Agency's Internet website at http://www.oehha.ca.gov/risk/chemicalDB/index.asp;

   - The Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs - addressing non-cancer effects only), available on ATSDR's Internet website at http://www.atsdr.cdc.gov/mrls.html;

   - The EPA Superfund Health Effects Assessment Summary Tables database and cited references; and

   - Additional sources of toxicity values.

7.4 Risk Estimates

A summary of the area-wide risk estimates for all receptor groups is provided in Table 7-2. Detailed risk estimate tables are included in Appendix I.

Current Site Use

The estimated excess cancer risks associated with exposure to the identified COPCs (PCBs, chromium, cadmium, lead, and mercury) in soil for current site users (adult NYSDOT workers involved in sample collections, site inspections, and/or site maintenance activities as needed) are below the 1E-04 to 1E-06 range generally considered acceptable by the EPA and NYSDEC/NYSDOH, and the non-cancer hazard estimates for these receptors are below the level of potential concern - a non-cancer hazard index of 1. Therefore no adverse health effects would be expected in these receptors as a result of exposure to COPCs at the site. A detailed summary of the excess cancer risks and hazards calculated for maintenance workers can be found in Table I-3 located in Appendix I.

Future Site Use

The estimated excess cancer risk calculated for potential future site users (construction workers and adult and child residents) exposed to the identified COPCs in soil are within or below the generally acceptable range of 1E-04 to 1E-06. The non-cancer hazard estimates for potential future site construction workers and adult residents exposed to soil are at or below the maximum generally acceptable value of potential concern - a non-cancer hazard index of 1. The non-cancer hazard index estimate calculated for exposure to soil for the potential future child resident was 7, indicating that there may be the potential for adverse health effects due to exposure to PCB-contaminated soil/dredge spoil material. However, due to the uncertainly associated with reference doses and the conservative nature of this assessment, resident child exposure to PCB-contaminated soil/dredge spoil material is not likely to result in any adverse health effects. This potential hazard is attributable to presumed PCB exposure to soil at the surface in the Hudson River floodplain along the western margin of the Buoy 212 site outside of the Buoy 212 perimeter fence. Detailed risk and hazard summaries for future receptors can be found in Tables I-4 and I-5.

7.5 Human Health Risk Summary

Human health excess cancer risk and non-cancer hazard estimates were calculated for current and potential future users of the Buoy 212 Dredge Spoil Disposal Site. Current human site users are adult NYSDOT workers involved in sample collections, site inspections, and/or site maintenance activities (like mowing and fence repair) as needed. NYSDOT workers were assumed to soil/dredge spoil material at the surface and/or brought to the surface during earth moving activities, in all areas of the site, but primarily within the fenced area where the closed and covered dredge spoil disposal structure is situated. If the site is redeveloped in its current state, potential future site users include site residents and temporary construction, utility, and maintenance workers. During this hypothetical redevelopment, subsurface soil/dredge spoil material could be brought to the surface as a result of grading and excavation activities associated with construction. Thus, potential future residents and temporary construction, utility, and maintenance workers were assumed to be exposed to soils/dredge spoil materials to a depth of 10 feet.

For soil at the Buoy 212 site, the chemicals of potential concern (COPCs) were identified by comparing the concentration of each chemical detected in soil that could be characterized as dredge spoil material from areas under the cover at the site, surface and subsurface soil from areas outside of the existing isolation cover at the site including from the Hudson River floodplain or in the vicinity of areas where burrowing animals are thought to have disturbed dredge spoil materials along the margins of the closed dredge spoil disposal structure, and drainage network soils from the drainage network at the site, with the applicable NYSDEC SCOs provided in 6 NYCRR Subpart 375-6.8. For metals with no established SCO, alternative screening criteria were used in the comparison, including NYS background (Source-Distant Dataset from NYSDEC 2006) and eastern United States background soil concentrations (Shacklette and Boerngen 1984).

For soil (including soil that could be characterized as dredge soil material and drainage network soil), the COPCs include PCBs, chromium, cadmium, lead, and mercury. Risk and hazards were calculated for each of these chemicals, with the exception of lead. Because of the unique toxicological effects of lead exposure, the risk associated with lead exposure is assessed differently than other contaminants found at the Buoy 212 site. Lead assessment is discussed further in the uncertainties section of this document. Iron, calcium, potassium, magnesium, sodium, and the other metals detected in soil or drainage network soil at concentrations exceeding the alternative screening criteria, do not have any NYSDEC-published health-based screening criteria as these metals are all essential micronutrients. Considering this and recognizing that all of the metals in this group were found at concentrations below levels typically associated with adverse health effects, none of these metals were included as a COPC for soil during this assessment.

Complete exposure pathways for drainage water and groundwater were not identified at the Buoy 212 site and the chemicals in these two environmental media were not evaluated in this risk assessment.

While the maximum detected value was used for site screening to identify COPCs, the 95th percentile of the mean of the concentration data (95% upper confidence limit) was used to calculate exposure point concentrations for each chemical. Exposure point concentrations were combined with applicable exposure factors and toxicity information to calculate excess cancer risk and the non-cancer hazards.

The estimated excess cancer risks associated with exposure to the identified COPCs (PCBs, chromium, cadmium, lead, and mercury) in soil for current site users (adult NYSDOT workers involved in sample collections, site inspections, and/or site maintenance activities as needed) are below the 1E-04 to 1E-06 range generally considered acceptable by the EPA and NYSDEC/NYSDOH, and the non-cancer hazard estimates for these receptors are below the level of potential concern - a non-cancer hazard index of 1. Therefore no adverse health effects would be expected in these receptors as a result of exposure to COPCs at the site.

The estimated excess cancer risk calculated for potential future site users (construction workers and adult and child residents) exposed to the identified COPCs in soil are within or below the generally acceptable range of 1E-04 to 1E-06. The non-cancer hazard estimates for potential future site construction workers and adult residents exposed to soil are at or below the maximum generally acceptable value of potential concern - a non-cancer hazard index of 1. The non-cancer hazard index estimate calculated for exposure to soil for the potential future child resident was 7, indicating that there may be the potential for adverse health effects due to exposure to PCB-contaminated soil/dredge spoil material. However, due to the uncertainly associated with reference doses and the conservative nature of this assessment, resident child exposure to PCB-contaminated soil/dredge spoil material is not likely to result in any adverse health effects. This potential hazard is attributable to presumed PCB exposure to soil at the surface in the Hudson River floodplain along the western margin of the Buoy 212 site outside of the Buoy 212 perimeter fence.

Nature of Potential Adverse Effects

The majority of excess cancer risk or non-cancer hazard was associated with soil exposure to PCBs in contaminated soil/dredge spoil material. Potential adverse effects of exposure to PCBs are presented below. The information presented in this section is drawn from the ATSDR public health statements for PCBs (ATSDR 2000) and manganese (ATSDR 2000b).

Polychlorinated Biphenyls

Many studies have looked at how PCBs can affect human health. A characteristic, acne-like skin condition (chloracne) can occur in people exposed to high levels of PCB compounds. These effects on the skin are well documented, and are not likely to result from general environmental exposure. Some studies in workers suggest that exposure to PCBs may also cause irritation of the nose and lungs, gastrointestinal discomfort, changes in the blood and liver, and depression and fatigue. Several studies have linked low birth weights of babies and abnormal responses to tests of infant behavior to exposure of their mothers to PCBs during pregnancy. Other studies suggest that the immune system may be affected in children born to and nursed by mothers exposed to increased levels of PCBs.

In animals, PCB exposure has been linked to various kinds of health effects, including anemia, acne-like skin conditions, and liver, stomach, and thyroid gland injuries. Other effects caused by PCBs in animals include reductions in the immune system function, behavioral alterations, and impaired reproduction. Some PCBs can mimic or block the action of hormones from the thyroid and other endocrine glands. Because hormones influence the normal functioning of many organs, some of the effects of PCBs may result from endocrine changes.

Studies of workers provide some evidence that PCBs were associated with certain types of cancer in humans, such as cancer of the liver and biliary tract. Rats that ate food containing PCB mixtures throughout their lives developed liver cancer. Based on the evidence for cancer in animals, the Department of Health and Human Services (DHHS) has stated that PCBs may reasonably be anticipated to be carcinogens. Both the EPA and the International Agency for Research on Cancer (IARC) have determined that PCBs are probably carcinogenic to humans.

7.6 Uncertainties

There are numerous uncertainties associated with all aspects of environmental risk assessments. Key uncertainties affecting the exposure assessment are the frequency and extent of exposure to contaminated media. These are difficult parameters to estimate. For example, it was assumed that the NYSDOT workers involved in site maintenance activities come to the site to mow two times a month during the growing season. Consider too, that the potential future exposure scenarios evaluated are hypothetical. When site-specific information is not available, the exposure factor values used in evaluating these scenarios are the standard default values judged by the EPA to be adequately protective for these receptors.

There are various uncertainties associated with quantitative toxicity estimates, however, the values recommended by EPA that were used include safety factors that make them much more likely to overestimate than underestimate a chemical's true toxicity.

Lead was detected at a level above the applicable SCG value in one soil sample collected along the drainage network on the west side of the disposal structure and on the floodplain shelf adjacent to the Hudson River. Lead in soil was not evaluated considering the unique toxicology of lead and considering that the 110 ppm concentration of lead found in the given sample is well below EPA's Soil Lead Hazard Standard of 400 ppm (EPA 2001).

There is uncertainty associated with the application of the adjustment factor to EPA Method 8082-screening values. However, the adjustment factor was developed using site-specific data (see Section 7.1 Appendix H) and the use of this factor is preferable (more conservative and health-protective) than using the unadjusted data. Finally, there is uncertainty about whether the postulated exposure scenarios will actually occur. The current exposure scenario are known or likely to occur; however the potential future scenarios and their associated risk estimates are hypothetical and may never actually occur.

Table 7-1 Frequency of Exceedance (FoE) of Screening Criteria in Environmental Media at the Site Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Chemical	CAS Number	Surface Soil FoE	Subsurface Soil FoE	Drainage Network Soil FoE	Groundwater FoE	Drainage Network Water FoE
Aluminum	7429-90-5	1/2	0/7	1/8	0/32	8/8
Antimony	7440-36-0	0/2	0/7	0/8	0/32	0/8
Arsenic	7440-38-2	0/2	0/7	0/8	0/32	0/8
Barium	7440-39-3	1/2	0/7	0/8	0/32	0/8
Beryllium	7440-41-7	0/2	0/7	0/8	0/32	0/8
Cadmium	7440-43-9	0/11	3/16	0/8	0/32	0/8
Calcium	7440-70-2	1/2	0/7	1/8	0/32	0/8
Chromium	7440-47-3	1/11	2/16	1/8	0/32	0/8
Cobalt	7440-48-4	0/2	0/7	0/8	0/32	0/8
Copper	7440-50-8	0/2	0/7	0/8	0/32	0/8
Iron	7439-89-6	1/2	1/7	1/8	28/32	7/8
Lead	7439-92-1	6/11	0/16	1/8	0/32	0/8
Magnesium	7439-95-4	1/2	0/7	1/8	14/32	0/8
Manganese	7439-96-5	1/2	0/7	0/8	13/32	0/8
Mercury	7439-97-6	1/11	0/16	2/8	0/32	0/8
Nickel	7440-02-0	0/2	0/7	0/8	0/32	0/8
Potassium	7440-09-7	1/2	0/7	1/8	0/32	0/8
Selenium	7782-49-2	0/2	0/7	0/8	1/32	0/8
Silver	7440-22-4	0/2	0/7	0/8	0/32	0/8
Sodium	7440-23-5	1/2	0/7	4/8	21/32	0/8
Thallium	7440-28-0	0/2	0/7	0/8	0/32	0/8
Vanadium	7440-62-2	0/2	0/7	0/8	0/32	0/8
Zinc	7440-66-6	1/2	0/7	3/8	0/32	0/8
Total PCBs	**1336-36-3**	**20/64**	**66/131**	**1/8**	**0/32**	**0/8**

Notes:

* Chemicals and environmental media for which exceedances occur are highlighted.

** Chemicals and environmental media for the four metals of concern and PCBs for which exceedances occur are highlighted and bold.

Key:

CAS = Chemical Abstract Service.

FoE = Frequency of Exceedance.

Table 7-2 Summary of Excess Cancer Risks and Non-Cancer Hazards for Buoy 212 Site, Fort Edward, New York

Time Frame	Exposure Scenario	Media	Risk	Hazard (Adult)	Hazard (Child)
Current	Maintenance Worker	Surface soil and drainage network soil (0 - 0.5 feet below grade)	1.8E-07	1.E-02	NA
Future	Construction Worker	Soil (0 - 10 feet below grade) and drainage way soil	1.3E-07	9.E-02	NC
	Adult and Child Resident		4.4E-05	1.E+00	7.E+00

Key:

NA = Pathway is not applicable.
NC = SADA program does not calculate risk or hazard for this exposure scenario.

8 Ecological Risk Assessment

8.1 Introduction

This section evaluates potential impacts of site-related contaminants on the ecological resources at the Buoy 212 site. As specified in EEEPC (2005a), this assessment was conducted consistent with NYSDEC guidance for characterizing threats to fish and wildlife at inactive hazardous waste sites (NYSDEC 1994a). Specifically, this assessment satisfies the first two steps of NYSDEC (1994a), which call for a site description (Step 1) and contaminant-specific impact assessment (Step 2). This assessment also is consistent with ecological risk assessment guidance issued by the EPA, including:

- *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA 1997);
- *Guidelines for Ecological Risk Assessment* (EPA 1998);
- *Wildlife Exposure Factors Handbook* (EPA 1993); and
- *Guidance for Developing Ecological Soil Screening Levels* (EPA 2005a).

In addition to the above mentioned state and federal guidance documents, this assessment also utilizes publications from Oak Ridge National Laboratory (ORNL) and recent articles from the peer-reviewed literature, as appropriate. The goal of the assessment is to determine if risks from site-related chemicals are great enough to warrant further evaluation, or if ecological risks are negligible and no further work is required.

This assessment is limited to terrestrial and intermittent aquatic habitats that are on the parcel of land occupied by the Buoy 212 site and does not include the adjacent Hudson River or the Champlain Canal. The Hudson River and the portions of the Champlain Canal that are within it are being addressed by the EPA Hudson River PCBs Superfund Site remedial program.

8.2 Site Location and Description

The Buoy 212 Dredge Spoil Disposal Area site is located along the eastern shore of the Hudson River in the Town of Fort Edward (Washington County), about 1.3

miles down-river (south) of Champlain Canal Lock 7 and near the floating red nun Buoy 212 that marks the eastern margin of the navigation channel of the Champlain Canal within the Hudson River (see Figures 1-1 and 1-2). The site consists of a closed and covered basin and earthen containment berm complex built by the Waterways Maintenance Division of the NYSDOT to dewater and hold sediment removed from the Champlain Canal/Hudson River navigation channel south of Canal Lock 7 - with emphasis on the navigation channel in the Hudson River between the Buoy 212 and Buoy 216 channel markers - in conjunction with routine and emergency maintenance dredging operations of the Canal System. The unlined settling basin system at this site was initially constructed by excavating the native soils on the property slightly and grading the displaced soils outward and upward to form the various containment berms. During subsequent maintenance operations, it is likely that some of the older dredge spoil materials were re-graded in order to deepen the settling basin and accommodate the disposal of additional dredge spoil materials. In its present closed and covered state, the dredge spoil disposal structure is about 200 feet wide and extends about 850 feet along the shore of the Hudson River with a footprint covering nearly 4.1 acres on a parcel owned by New York State. The adjoining property to the north is privately owned and occupied by a single dwelling and a few outbuildings. The residence on this property is connected to a public water supply. The adjoining property to the east is occupied by a single dwelling and several outbuildings and small service structures. There is a private well on this property that draws water from the overburden aquifer. The well is approximately 300 feet away from the eastern margin of the site. The adjoining property to the south is an open field and is being used as a temporary support area and access point to the Hudson River for the Hudson River Dredging Project. Sections 1 and 3 of this report provide additional information about the design, construction, operation, and current condition of the Buoy 212 site.

8.2.1 Site Maps

Figure 1-1 shows the topography of the Buoy 212 site and the surrounding area. The site appears relatively level on Figure 1-1. However, it should be noted that ground elevations across the site range between 125 feet and 140 feet above mean sea level. The western margin of the Buoy 212 disposal structure has stone rip-rap armoring near the base and out onto the Hudson River floodplain and along the River shore in this area. The slopes of the disposal structure on the western and eastern sides of the site are relatively steep with an abrupt change in grade at the margins, while the slope at the southern end of the site tapers gradually and levels out to the surrounding grade near the perimeter fence and the extreme southern end of the disposal structure. The slope at the northern end of the site is relatively moderate and gradually blends with the surrounding grade in this area. Land uses within 2 miles of the site are primarily residential and agricultural. Ecological community types and drainage pathways on the site are shown on Figure 8-1 and described below. Wetlands and surface water features on and near the site are shown on Figure 8-2.

8.2.2 Description of Fish and Wildlife Resources

8.2.2.1 Ecological Community Types

Figure 8-1 shows community types, based on Edinger et al. (2002), which occur on the site. The community types were identified by an Ecology and Environment, Inc. ecologist during a site visit conducted in December 2005. Four main community types were identified on the site: mowed lawn, successional northern hardwood forest, ditch/artificial intermittent stream (drainage network), and (intermittently flooded) palustrine cultural wetland (see Figure 8-1). No significant or unique habitats were identified among them. These community types are described below.

Mowed Lawn

The mowed-lawn community covers the surface of the closed and covered dredge spoil disposal structure and comprises approximately 60% of the site. The predominant plant species are grasses, which were 2 to 3 inches high at the time of the site visit. About 30 small bird houses mounted on posts are evenly distributed across the surface of the mowed area.

Successional Northern Hardwood

The successional northern hardwood (SNH) community type accounts for approximately 35% of the site area (see Figure 8-1). This community type occupies much of the area around the covered disposal structure. Predominant tree species include cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), bigtooth aspen (*Populus grandidentata*), yellow birch (*Betula alleghaniensis*), ash (*Fraxinus* spp.), red oak (*Quercus rubra*), and sumac (*Rhus* spp.). Understory species present in this community type include dogwood, grape vines (*Vitis* spp.), goldenrod (*Solidago* spp.), and blackberry (*Rubus* spp.). Finally, on the eastern side of the site, several willow trees (*Salix* spp.) are present along a drainage path that flows through the SNH community type.

Ditch/Artificial Intermittent Stream (Drainage Network)

A ditch/stream enters the site near the middle of its eastern border, flows southward through the SNH community type, crosses the site from east to west through a conduit, and eventually flows to the Hudson River (see Figure 8-1). Water depth in the center of the stream channel varied from 6 to 12 inches at the time of the site visit. The width of the stream varied considerably. In some areas, the stream was confined to a well-defined channel that was 2 to 3 feet wide. In other areas, the stream flow spread out horizontally, inundating an area 10 feet or more from the channel.

Palustrine Cultural Wetland (Intermittently Flooded)

An intermittently flooded forested wetland area is located near the southeast corner of the site (see Figure 8-1). It appears to have been created by placement of dredge spoils on the site, which impeded drainage of water from this area to the Hudson River. Cottonwood and bigtooth aspen trees are common in this area. The area is not identified as a wetland on the National Wetland Inventory (NWI) map for the site vicinity (see Figure 8-2), perhaps because of its small size.

8.2.2.2 Species of Special Concern

In August 2006, the New York State (NYS) Natural Heritage Program (NHP) was contacted for information on species and habitats of concern in the site vicinity. The NHP indicated that the following species have been observed within a 2-mile radius of the site:

Birds

- Short-eared owl (*Asio flammeus*); NYS legal status: endangered.
- Northern harrier (*Circus cyaneus*); NYS legal status: threatened.

Plants

- Small whorled pogonia (*Isotria medeoloides*); NYS legal status: endangered.
- Hooker's orchid (*Platanthera hookeri*); NYS legal status: endangered.

These species were not observed at the site during the site reconnaissance in December 2005; however, it is unlikely that the small whorled pogonia or Hooker's orchid would have been evident at this time of year. Consequently, the occurrence of these two plant species at the site cannot be definitively ruled out; however, it seems unlikely that they would be found at the Buoy 212 site given that the site is elevated and regularly mowed and both plant species prefer shaded, swampy habitats. Finally, the NHP indicated that Dead Creek Valley, which lies approximately 1 mile east of the site, is considered a raptor winter conservation area. A copy of the letter received from the NHP is included in Appendix J.

Information on federally listed endangered, threatened, proposed, and candidate species in Washington County was obtained from the United States Fish and Wildlife Service (USFWS) Web site (http://www.fws.gov/northeast/nyfo/es/section7/htm). The USFWS Web site indicates that the federally listed endangered Indiana bat (*Myotis sodalist*) and federally listed threatened small whorled pagonia (*Isotria medeoloides*) may occur in Washington County. As noted above, the small whorled pagonia was not observed at the site and is unlikely to be found there. The presence of the Indiana bat at or near the site cannot be definitively ruled out at this time.

8.2.2.3 Observations of Stress

No signs of stressed vegetation or wildlife were observed at the Buoy 212 site during site visits or sampling conducted there by EEEPC personnel.

8.2.3 Description of Fish and Wildlife Resource Values

8.2.3.1 Value to Associated Fauna

The Buoy 212 site contains forested, grass-covered, and intermittent aquatic habitats. These habitats are likely to be attractive to some wildlife species.

Wildlife and evidence of wildlife observed at the site by EEEPC personnel include white-tail deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), various song birds, and burrows of woodchuck (*Marmota monax*). The intermittent stream that crosses the site is likely to attract semi-aquatic mammals such as the raccoon (*Procyon lotor*) and provide breeding habitat for amphibians. Given that this stream flows through a forested area, it seems unlikely that the stream would attract wading birds and/or waterfowl, especially given that much more attractive habitat for such species is provided by the Hudson River.

8.2.3.2 Value to Humans

Currently, the Buoy 212 site receives no human use. The closed and covered dredge spoil disposal structure is completely fenced and no-trespassing signs are posted on the gate to discourage public access.

8.2.4 Identification of Fish and Wildlife Regulatory Criteria

The following regulatory criteria and acts potentially are relevant to any RI/FS activities that may be undertaken at the site for the purpose of assessing or reducing ecological impacts:

- Clean Water Act, 233 U.S.C. 1261 et seq. Sec 404;
- The Freshwater Wetlands Act (Article 24 ECL, 6 NYCRR, Parts 663 and 664);
- Significant habitats and species of the NHP;
- NYSDEC Ambient Water Quality Standards and Guidance Values (1998a); and
- NYSDEC Technical Guidance for Screening Contaminated Sediments (1999).

In addition, ecological risk assessment guidance from NYSDEC and the EPA also are applicable (see Section 8.1).

8.3 Screening-Level Problem Formulation

Problem formulation is the first step in the ecological risk assessment process and identifies the goals, breadth, and focus of the assessment (EPA 1997, 1998). The problem formulation step identifies potential site-related contaminants, ecological receptors, and exposure pathways. A site conceptual model is then developed to summarize the relationship between stressors and receptors. Lastly, assessment endpoints and measures (previously called measurement endpoints) are developed to guide the remaining steps of the risk assessment process. The problem formulation step for the Buoy 212 site is based on a review of existing reports and information, as described below.

8.3.1 Contaminant Sources and Migration Pathways

A single unlined settling basin and earthen containment berm structure at the Buoy 212 site was used to dewater and hold sediment/dredge spoil material associated with routine and emergency maintenance dredging operations of the New York State Champlain Canal/Hudson River navigation channel between Champlain Canal Lock 7 (Fort Edward) and the floating red nun channel marker Buoy 212 south of Lock 7 in the past. Records indicate that sediment dewatering operations at Buoy 212 started in 1970. The last dewatering operations occurred near the end of 1979 when the dredge spoil dewatering/disposal structure was reworked into a smooth mound, covered with 12-inches of sand, and seeded. In 1991, a TSCA-approved clay cover/cover was added over the existing 'standard turf' cover. As described earlier, PCB contamination at the Buoy 212 site is attributable to the presence of PCB wastes (from activities at two upstream General Electric plant site sources) in some Hudson River sediments that were removed from the Champlain Canal/Hudson River navigation channel as dredge spoil material. Section 1 provides specific information regarding the amounts and dates of dredge spoil placement at the site. As discussed elsewhere in this report:

- Historical and reoccurring floodplain deposition of contaminated Hudson River sediments appear to have contaminated the soil upon the narrow floodplain shelf between the Hudson River and the western margin of the closed and covered Buoy 212 dredge spoil disposal site.

- Overland water flow at the Buoy 212 site occurs primarily during heavy precipitation events or spring snow melts as surface runoff. During heavy precipitation events, runoff is shed radially away from the higher areas of the closed and covered dredge spoil disposal area to the topographic low areas along the eastern and western margins. Along the eastern margin, runoff from Buoy 212 and nearby areas intermittently flows southward and collects in the southeastern part of the Buoy 212 property. Water that intermittently collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. When the volume of collected water is not great enough to spill through the steel culvert, the runoff either infiltrates and/or evaporates without reaching the Hudson River as direct runoff. Along the western margin, runoff accumulates in the lowest portions of the narrow floodplain shelf and either drains slowly into the Hudson River through breaks in the natural and armored bank levy or infiltrates and/or evaporates without reaching the Hudson River as direct runoff.

- Recognizing that there are some areas of soil contamination that are not covered by the relatively impermeable barrier in place over the Buoy 212 dredge spoil disposal structure, infiltration of precipitation and the subsequent flow/percolation of water through the unsaturated zone to groundwater, can cause water soluble contaminants on the surface or in the vadose zone to migrate downward to the water table. Considering that PCBs are relatively insoluble in water, they are not expected to appreciably leach into groundwater. The potential for PCB migration by water is further reduced by the presence of organic carbon in the soil between the surface and the top of the groundwater table, providing carbon sites where PCBs may bind.

- The Buoy 212 dredge spoil disposal structure is closed and covered with a relatively impermeable barrier and is fenced along its perimeter. Unauthorized access to the closed and covered disposal cell and the adjoining Hudson River floodplain area is limited. Considering the current setting of the Buoy 212 site, the migration of PCBs bound to surface soil is very limited.

8.3.2 Site-Related Contaminants

The principal site-related contaminants are PCBs and metals (chromium, cadmium, lead, and mercury) as identified by the preliminary screening of surface and subsurface soil from areas outside of the existing isolation cover at the site including from the Hudson River floodplain or in the vicinity of areas where burrowing animals are thought to have disturbed dredge spoil materials along the margins of the closed dredge spoil disposal structure, soil that could be characterized as dredge spoil material from areas under the cover at the site, drainage network soil and water, and groundwater samples. A chief goal of this assessment is to screen newly collected data against ecological risk-based thresholds to identify a complete list of COPCs for ecological receptors at the site. The screening is conducted in Sections 8-4 to 8-6. A summary of the COPCs identified by this process is presented in Section 8.7.

8.3.3 Ecological Receptors

Based on EEEPC's review of available information, the following ecological receptor groups appear to have the potential be affected by site-related contaminants at the Buoy 212 site:

- Terrestrial plants and soil invertebrates living on and near the site;

- Populations of mammals, birds, and reptiles that use the site to satisfy their food and habitat needs; and

- Amphibians and benthic life using the intermittent drainage network on the site.

This screening-level ERA focuses on the terrestrial and aquatic habitats that are within the Buoy 212 parcel and does not include the nearby Hudson River or the Champlain Canal. The Hudson River and the portions of the Champlain Canal that are within it are being addressed by the EPA Hudson River PCBs Superfund Site remedial program. The need for follow-up ecological assessment work in the waterways adjacent to the site will be decided after completion of the RI in consultation with NYSDEC.

8.3.4 Preliminary Conceptual Site Model

Potential receptors and exposure pathways are summarized in the site conceptual model shown in Figure 8-3. Terrestrial plants and soil invertebrates on the Buoy 212 site may be exposed to site-related chemicals by direct contact with contaminated soil. Birds, mammals, and reptiles that use the site may be exposed to site-related chemicals by incidental ingestion of contaminated soil, consumption of contaminated prey, and consumption of contaminated water. However, for wildlife, consumption of contaminated surface water typically accounts for only a minor fraction of total exposure because chemicals usually are found at much lower concentrations in water (ppb concentration range) compared with soil and prey (ppm concentration range). Direct contact with contaminated soil and water also is considered a minor route of exposure for birds, mammals, and reptiles due to the protection provided by their external coverings (i.e., fur, feathers, and scales). Amphibians and benthic invertebrates using the drainage network may be affected by direct contact with, or ingestion of, contaminated water and/or contaminated soil within the drainage network, and through the food chain.

8.3.5 Assessment Endpoints and Measures

Assessment endpoints are expressions of the ecological resources that are to be protected (EPA 1997). An assessment endpoint consists of an ecological entity and a characteristic of the entity that is important to protect. According to the EPA (1998), assessment endpoints do not represent a desired achievement or goal, and should not contain words such as protect or restore, or indicate a direction for change such as loss or increase. Assessment endpoints are distinguished from management goals by their neutrality (EPA 1998).

Measurements used to evaluate risks to the assessment endpoints are termed "measures" and may include measures of effect (e.g., results of drainage network soil toxicity tests), measures of exposure (e.g., chemical concentrations in soil) and/or measures of ecosystem and receptor characteristics (e.g., habitat characteristics or water quality conditions) (EPA 1998). Based on the site ecology, potential site-related contaminants, and preliminary conceptual model, the ecological resources potentially at risk at the Buoy 212 site include populations of plants, soil invertebrates, mammals, birds, reptiles, amphibians, and benthic invertebrates that use the site. The assessment endpoints and measures for these receptor groups are described below.

Plant Communities

Assessment Endpoint. Sustainability (survival, growth, and reproduction) of terrestrial and wetland plant communities that can stabilize site soils and provide shelter and food for invertebrates and wildlife.

Measure. Measured concentrations of site-related chemicals in soils from upland and drainage network areas, which can be compared with published phytotoxicity benchmarks.

Soil Invertebrate Community

Assessment Endpoint. Sustainability (survival, growth, and reproduction) of soil invertebrates that can condition/process soil and serve as a food source for wildlife.

Measure. Measured concentrations of site-related chemicals in soil, which can be compared with published benchmarks for effects on soil invertebrates.

Bird and Mammal Populations

Assessment endpoint. Sufficient rates of survival, growth, and reproduction of herbivorous, omnivorous, and carnivorous birds and mammals to sustain healthy populations on and near the site.

Measure. Measured concentrations of site-related chemicals in environmental media from the site, which can be used to model dietary exposure to site-related chemicals for comparison with published toxicity thresholds.

Amphibian Population

Assessment Endpoint. Sustainability (survival, growth, reproduction) of amphibians on the site.

Measure. Measured concentrations of site-related chemicals in drainage water from the on-site drainage network, which can be compared with water quality criteria.

Benthic Invertebrate Community

Assessment Endpoint. Sustainability (survival, growth, and reproduction) of the drainage network invertebrate community in the on-site drainage network.

Measure. Measured concentrations of site-related chemicals in drainage networkway soils from the on-site drainage network, which can be compared with screening benchmarks for effects on benthic invertebrates.

Reptile Population

Assessment Endpoint. Sustainability (survival, growth, reproduction) of reptiles on the site.

Measure. None. Methods for assessing risks to reptiles from chemical contamination are poorly developed. Consequently, reptiles are not quantitatively evaluated in this assessment.

8.3.6 Data Sources for the ERA

To assess risk to terrestrial ecological receptors, this screening-level ERA uses the results of the surface and subsurface soil samples collected at the site in 2005 at depths up to six feet below grade. Soil samples up to six feet below grade were used because earthworms and burrowing mammals are likely to contact soil down to this depth. To assess risks to amphibians and benthic invertebrates, drainage network soil and water samples collected from the on-site drainage network in 2005 are used. The drainage network soil samples collected in 2005 were also used as the basis for assessing the risks to mammalian wildlife (e.g., raccoon) that may forage in the area.

8.4 Terrestrial Plant and Soil Fauna Risk Screening

8.4.1 Plant Risk Screening

To evaluate potential risks to on-site vegetation, concentrations of total PCBs and metals in soil samples from the site were compared with phytotoxicity benchmarks. Selenium and thallium hypothetically exceeded the available benchmarks (see Table 8-1). Selenium and thallium were not detected in soil samples from the site, but could not be ruled out as COPCs for plants because the quantitation limits achieved during sample analysis exceeded their respective screening benchmarks by more than half. Any assessments made for these two metals will be hypothetical in nature.

8.4.2 Soil Fauna Risk Screening

To evaluate potential risks to soil invertebrates, concentrations of total PCBs and metals in soil samples from the site were compared with screening benchmarks for effects on earthworms. Mercury exceeded its benchmark in four of the ten samples collected (see Table 8-2). However, three of the exceedances occurred in samples collected between four and six feet below grade where the potential for exposure is limited. No other chemicals exceeded the available screening benchmarks. Overall, these results suggest that risks to soil invertebrates from chemicals in soil at the site are minimal.

8.5 Drainage Network Soil and Water Risk Screening

This section evaluates potential risks to amphibians and benthic invertebrates that may use the habitat provided by the on-site drainage network area.

8.5.1 Drainage Network Water

PCBs were not detected in any of the drainage water samples collected at the site. To complete the screening assessment, a number equal to one half of the quantitation limit for the sample analysis was used for comparison against the screening criterion. In this case, 0.25 parts per billion (ppb) was used. Considering that the number used is several orders of magnitude greater than the 0.00012 ppb screening criterion, all eight samples theoretically exceeded the criterion (see Table 8-3). (Note that the PCB criterion in Table 8-3 applies to wildlife, not aquatic life.) For the purposes of this assessment, the screening benchmark for PCBs was exceeded and suggests that unmeasured PCB levels in the drainage water from the on-site drainage network may be great enough to affect wildlife through the food chain. Possible risks to wildlife from PCBs in the food chain are evaluated further in Section 8.6.

Five metals (aluminum, iron, selenium, silver, and thallium) were identified as COPCs in drainage water (see Table 8-3). Selenium, silver, and thallium were undetected in all samples but could not be eliminated as COPCs in drainage water because the quantitation limits achieved during sample analysis exceeded their respective screening benchmarks by more than half. Any assessments made for these three metals will be hypothetical in nature. Aluminum and iron were detected in all drainage water samples at concentrations from 2 to 5 times greater than their respective screening benchmarks.

8.5.2 Drainage Network Soils

Two soil benchmarks (low- and severe-level) for each chemical were used to screen the drainage network soil data for effects on benthic invertebrates. The two benchmarks define concentration ranges that are rarely, occasionally, and frequently associated with adverse effects.

Total PCBs and 10 metals (antimony, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and zinc) exceeded their low-level effect benchmark, but not their severe-level benchmark (see Table 8-4). For total PCBs and most metals, the frequency of exceedance was low (three of nine samples or less), suggesting that drainage network soil contamination by these substances is not widespread. Cadmium exceeded its low-level benchmark in four of eight drainage network soil samples.

Antimony was not detected in drainage network soils collected from the site. To complete the screening assessment, a number equal to one half of the quantitation limit for the sample analysis was used for comparison against the screening criterion. In this case, 10 ppm was used. Considering that the number used is five times greater than the 2 ppm screening criterion, all nine samples theoretically exceeded the benchmark (see Table 8-4).

8.6 Wildlife Risk Screening

This section presents an evaluation of potential risks to wildlife at the Buoy 212 site. The evaluation was performed in accordance with state, federal, and other available guidance for ecological risk assessment (e.g., NYSDEC 1994a; EPA 1997, 1998, 2005a; Sample et al. 1996). The wildlife risk evaluation consists of three parts: (1) exposure assessment, (2) ecological effects assessment, and (3) risk characterization. The exposure assessment (Section 8.6.1) estimates wildlife exposure to site-related chemicals using measured concentrations of chemicals in environmental media and exposure parameters for the chosen receptor species. The ecological effects assessment (Section 8.6.2) summarizes the potential toxic effects of site-related chemicals on wildlife by establishing a toxicity reference value for each chemical for each receptor. The risk characterization (Section 8.6.3) combines the results of the exposure and ecological effects assessments to provide an estimate of risk to wildlife at the site.

8.6.1 Exposure Assessment

This section discusses potential wildlife exposures to organic chemicals and metals at the site. Potential receptors and exposure pathways were generally discussed in Sections 8.3.3 and 8.3.4 and identified in the ecological conceptual site model (see Figure 8-3). This section describes specific wildlife exposure scenarios that will be evaluated in the assessment, estimates levels of facility-related chemicals in exposure media, and quantifies exposure.

8.6.1.1 Wildlife Exposure Scenarios and Pathways

Five wildlife species representing different functional groups were selected as receptors for the assessment: (1) American robin (*Turdus migratorius*); (2) short-tailed shrew (*Blarina brevicauda*); (3) red-tailed hawk (*Buteo jamaicensis*); (4) red fox (*Vulpes vulpes*); and (5) raccoon (*Procyon lotor*). The robin and shrew have relatively small home ranges and could derive a large portion of their food and habitat requirements from the site. In addition, both the robin and shrew feed extensively on soil invertebrates, such as earthworms, and thus are often highly exposed to contaminants in soil. The red fox and red-tailed hawk are carnivores and thus are highly susceptible to hydrophobic organic contaminants such as PCBs that bioaccumulate in food chains. The raccoon is an omnivorous mammal that often forages in aquatic habitats. Given its foraging behavior, the raccoon is likely to use the on-site drainage network, where it may be exposed to site-related chemicals in water, drainage network soils, and prey.

For these five wildlife receptors, this assessment evaluates exposure from incidental ingestion of contaminated soil and consumption of contaminated prey. Exposure through drinking was not quantitatively evaluated because consumption of surface water accounts for only a small fraction of the total chemical exposure for wildlife. This is due to the fact that chemicals typically occur in soil and biota at much greater concentrations (ppm concentration range) than in surface water (part per billion concentration range). An example exposure calculation is provided in Appendix K as an illustration. Direct contact with contaminated soil and water is considered a minor route of exposure for wildlife due to the protection provided by fur and feathers, and was not quantitatively evaluated. A summary of important life-history characteristics of the chosen receptor species is provided below.

- **American Robin.** The American robin (*Turdus migratorius*) is a common resident of open areas, woodland edges, and early successional habitats (EPA 1993). The makeup of the diet varies seasonally, with invertebrates making up the majority of food items during the spring and early summer. During this time, robins feed on the ground, searching the soil and leaf litter for invertebrates, such as earthworms. Robins establish small territories during the breeding season, and potentially could reside entirely within the area provided by the site. Northern populations typically winter in southern locations.

- **Short-Tailed Shrew.** The short-tailed shrew (*Blarina brevicauda*) is a small, carnivorous mammal that is common in many habitats, especially those with abundant vegetative cover (EPA 1993). The shrew feeds primarily on invertebrates, including insects, earthworms, slugs, and snails. Vertebrates and plants typically make up a minor component of the diet. The species is active year-round. Shrews have a relatively small home range (EPA 1993) and potentially could reside entirely within the area provided by the Buoy 212 site.

- **Raccoon.** The raccoon (*Procyon lotor*) is the most abundant and widespread medium-sized omnivore in North America. Raccoons are found near virtually every aquatic habitat (EPA 1993). They also are common in suburban residential areas and cultivated and abandoned farmlands. Raccoons use surface water for both drinking and foraging. The raccoon is an omnivore and opportunistic feeder. They feed primarily on fleshy fruits, nuts, acorns, and corn, but also eat grain, insects, frogs, crayfish, eggs, and virtually any animal and vegetable matter. The proportion of the diet depends on location and season, although plant material is usually a more important component of the diet than animal material. Typically, it is only in the spring and early summer that raccoons eat more animal than plant material. The size of a raccoon's home range depends on several factors, including its sex and age, habitat quality, food sources, and season. Values from a few hectares to more than a few thousand hectares have been reported, although home ranges of several hundred hectares appear to be most common (EPA 1993). Raccoons may forage in the on-site ditch/stream and wetland area. However, given their limited size, it seems unlikely that these habitats could provide a large part of the food or other needs of this receptor.

- **Red Fox.** Red foxes (*Vulpes vulpes*) use a wide variety of habitats, but prefer areas with a diverse mix of habitats (EPA 1993). The fox is an opportunistic feeder, but small mammals generally make up a large proportion of the diet; other food items include birds, fruit, and carrion. The fox is active year-round. Home-range size varies from 100 to over 1,000 hectares, so the site (2.9 acres or 1.2 ha) would represent only a small proportion of total feeding area for this species (EPA 1993).

- **Red-tailed Hawk.** The red-tailed hawk (*Buteo jamaicensis*) is the most common hawk species in the United States (EPA 1993). Red-tails are found in a wide variety of habitats, including woodlands, wetlands, pastures, prairies, and deserts. They appear to prefer a mixed landscape containing old fields, wetlands, and pastures for foraging interspersed with groves of woodlands, bluffs, and streamside trees for perching and nesting. Red-tails hunt primarily from an elevated perch, often near woodland edges. Small mammals, including mice, shrews, voles, rabbits, and squirrels are important prey, particularly in the winter. Red-tails also eat other prey, depending on availability, including birds, lizards, snakes, and large insects. Red-tails are territorial throughout the year, including winter. The more northerly red-tailed hawk populations are migratory while the more southerly are not. Home range size can vary from a few hundred hectares to over 1,500 hectares, depending on the habitat; therefore, the site (1.2 ha) would represent only a small proportion of total feeding area for this species.

Finally, herbivorous wildlife species were not directly evaluated in this assessment because they are considered to be at lower risk than the chosen receptors species. Generally, concentrations of bioaccumulative contaminants are lower in plants and the animals feeding on them than in higher trophic-level organisms. Therefore, use of the receptors identified above is considered to be protective of herbivorous wildlife found at the site.

8.6.1.2 Wildlife Exposure Calculations

The total chemical exposure for wildlife receptors was calculated as the sum of exposures from diet and from incidental soil ingestion. As noted above, chemical exposure from surface-water consumption was not quantitatively evaluated because it represents a minor component of total exposure (see Appendix K). Dietary exposure is calculated by multiplying the chemical concentration in each food item by its fraction of the total diet and summing the contribution from each item. This sum is then multiplied by the receptor's site use factor (SUF), exposure duration (ED), and ingestion rate (IR), and divided by the receptor's body weight (BW), as shown in the following equation:

$$EE_{diet} = ([(C_1 \text{ x } F_1) + (C_2 \text{ x } F_2) + \ldots (C_n \text{ x } F_n)] \text{ x SUF x ED x IR})/BW$$

where:

EE_{diet} = Estimated exposure from diet (mg/kg-day);
C_n = Chemical concentration in food item *n* (mg/kg dry weight);
F_n = Fraction of diet represented by food item *n*;
SUF = Site use factor (unit-less);
ED = Exposure duration (unit-less), equal to fraction of year spent at site;
IR = Ingestion rate of receptor (kg/day dry weight); and
BW = Body weight of receptor (kg fresh weight).

The SUF indicates the portion of an animal's home range represented by the site. If the home range is larger than the site, the SUF equals the site area divided by the home range area. If the site area is greater than or equal to the home range, the SUF is equal to 1. ED is the percentage of the year spent in the site area by the receptor species. Home-range size, IR, and BW for the robin, shrew, raccoon, fox, and hawk were taken from EPA (1993), Sample and Suter (1994), and Sample et al. (1996). The values are presented in Table 8-5. Critical exposure assumptions are described in Section 8.6.1.3.

Wildlife exposure to chemicals through incidental ingestion of soil is estimated in a manner similar to dietary exposure. Specifically, the soil chemical concentration is multiplied by the soil IR and then multiplied by the SUF and ED and divided by BW. Soil ingestion estimates for the receptor species were taken from Sample and Suter (1994), Sample et al. (1996), and Beyer et al. (1994). The values are presented in Table 8-5.

The total exposure for a receptor is the sum of exposure from diet and soil ingestion, as represented by the following equation:

$$EE_{total} = EE_{diet} + EE_{soil}$$

where:

EE_{total} = total exposure (mg/kg-day);
EE_{diet} = estimated exposure from diet (mg/kg-day);
EE_{soil} = estimated exposure from soil ingestion (mg/kg-day).

8.6.1.3 Screening-Level Exposure Assumptions

Diet

The robin and shrew were conservatively assumed to prey entirely on earthworms. Earthworms were chosen as a representative prey item for these receptors because earthworms are abundant in eastern New York State, are important in the diets of shrews and robins, and have been well studied compared with other groups of soil invertebrates. The diet of the raccoon was conservatively assumed to consist entirely of crayfish from the on-site drainage network. Crayfish were chosen as a representative aquatic prey species for the raccoon because they are abundant in NYS and are known to be readily eaten by raccoons (EPA 1993). The diets of the hawk and fox were assumed to consist entirely of small mammals. Table 8-5 summarizes the assumed diets. Contaminant levels in earthworms, crayfish, and small mammals were estimated as described in Section 8.6.1.4.

Site Use and Exposure Duration

To provide a conservative estimate of exposure to site-related chemicals, the SUF and ED were assumed to be 1 for all receptors. That is, the site was assumed to be a closed system and the shrew, robin, raccoon, fox, and hawk were assumed to derive all of their food and habitat requirements from the site. These assumptions are highly conservative and often are used in screening-level ecological risk assessments to avoid overlooking chemicals that may be of concern for wildlife (EPA 1997).

8.6.1.4 Exposure Point Concentrations

Soil

Maximum soil concentrations of total PCBs and metals were used as the EPCs to estimate exposure for the robin, shrew, fox, and hawk. For this assessment, soil samples collected between the surface and six feet below grade were considered. The soil EPCs were used for three purposes: (1) to estimate exposure from incidental soil ingestion; (2) to model chemical concentrations in earthworms, the assumed prey for the shrew and robin; and (3) to model chemical concentrations in small mammals, the assumed prey of the fox and hawk. Soil EPCs are listed in Table 8-6 and 8-7.

Earthworms

For PCBs, the expected concentration in earthworms was calculated from the soil EPC using the log-linear regression equation developed by Sample et al. (1998a). For metals, uptake factors and equations from the EPA (2005a) were used. In most cases, these uptake factors and equations are from Sample et al. (1998a). An uptake factor of 1.0 was assumed for antimony and thallium. Table 8-6 lists the soil-to-earthworm uptake factors and earthworm EPCs used in this assessment.

Small Mammals

Except for mercury, metals concentrations in small mammals were calculated from the soil EPC using soil-to-small mammal uptake factors and regression equations from EPA (2005a), which were compiled from Sample et al. (1998b) and Baes et al. (1984). A soil-to-small mammal uptake factor for mercury was taken directly from Sample et al. (1998b). For PCBs, a bioaccumulation factor of 1.0 was assumed (i.e., the chemical concentration in small mammals was set equal to the surface soil EPC). Small-mammal uptake factors and EPCs are listed in Table 8-7.

Drainage network Soils

The maximum detected concentration was used to estimate wildlife exposure to chemicals in drainage network soils. The drainage network soil EPCs were used for two purposes: (1) to estimate exposure from incidental drainage network soil ingestion for the raccoon and (2) to model chemical concentrations in crayfish, the assumed prey of the raccoon. Drainage network soil EPCs are listed in Table 8-8.

Crayfish

For PCBs and metals, the expected concentration in crayfish was calculated from the drainage network soil EPC using the drainage network soil-to-benthic invertebrate bioaccumulation equations developed by Bechtel Jacobs (1998). For metals not addressed by Bechtel Jacobs (1998), a bioaccumulation factor of 1.0 was assumed (i.e., the prey chemical concentration was set equal to the drainage network soil EPC). Raccoon prey EPCs are listed in Table 8-8.

8.6.2 Ecological Effects Assessment

No observed adverse effect level (NOAEL) and lowest observed adverse effect level (LOAEL) toxic reference values (TRVs) for the chemicals of interest were taken from EPA (2005b to 2005j), Sample et al. (1996), or the scientific literature. The TRVs used in this assessment are listed in Table 8-9.

8.6.3 Wildlife Risk Characterization

The potential risks posed by site-related chemicals were determined by calculating a hazard quotient (HQ) for each contaminant for each endpoint species. The HQ was determined by dividing the total exposure (EE_{total}) by the appropriate TRV, as shown in the following equation:

$$HQ = EE_{total}/TRV$$

Hazard quotients for each receptor were calculated based on both the NOAEL and LOAEL TRVs, and are abbreviated as HQ-NOAEL and HQ-LOAEL, respectively. For a given receptor and chemical, a HQ-NOAEL greater than 1.0 indicates that the estimated exposure exceeds the highest dose at which no adverse effect was observed. Such a result does not imply that the receptor is at risk, especially if the HQ-NOAEL is only marginally above 1.0. A HQ-LOAEL greater than 1.0 suggests that a chronic adverse affect if possible to an individual receptor, assuming that the estimated exposure for that receptor is accurate. Tables 8-10 through 8-14 present the estimated exposures from food and soil ingestion, total exposure, and HQs for the robin, shrew, raccoon, fox, and hawk.

8.6.3.1 Invertivorous Wildlife

The American robin and the short-tailed shrew were evaluated as representative invertivorous wildlife species. Both receptors may be at risk from total PCBs, cadmium, and chromium (see Tables 8-10 and 8-11). Lead may also pose a risk to the robin (see Table 8-10). Antimony, selenium, and thallium may pose some hypothetical risk to the shrew (see Table 8-11)considering that none of these elements were detected in any soil samples from the site and that their quantitation limits, which were more than half the benchmark criterion, were used to estimate exposure. Hence, the HQs for the shrew relative to antimony, selenium, and thallium are highly uncertain and likely overestimated. Based on the magnitude of the HQs, the primary risk driver for the robin and shrew are total PCBs.

8.6.3.2 Carnivorous Wildlife

The red-tailed hawk and red fox were evaluated as representative carnivorous wildlife species and may be at risk from exposure to PCBs (see Tables 8-12 and 8-13). Thallium may pose some hypothetical risk to the fox (see Table 8-13), but considering that thallium was not detected in any soil samples from the site and that its quantitation limit was used to estimate exposure, the risks from thallium are highly uncertain and likely overestimated.

8.6.3.3 Semi-Aquatic Mammals

The raccoon was evaluated as a wildlife receptor with a potential to be exposed to chemicals in drainage network soils in the on-site drainage network. This receptor may be at risk from total PCBs, antimony, selenium, and thallium (see Table 8-14).

The HQs for antimony and thallium are highly elevated (see Table 8-14), but considering that neither of these elements were detected in any drainage network soil samples from the site and that their quantitation limits, which were more than half the benchmark criterion, were used to estimate exposure, the risks from antimony and thallium are highly uncertain and likely overestimated. The next highest HQs for the raccoon were from total PCBs (see Table 8-14). Finally, the NOAEL-based HQ for selenium only marginally exceeded 1 (see Table 8-14), but again, considering that selenium was not detected in any drainage network soil samples from the site and that its quantitation limit was used to estimate exposure, the risks from selenium are highly uncertain and likely overestimated.

8.6.4 Effect of Explosive Duration (ED), Site Use Factor (SUF), and Other Parameters on Wildlife Risk Estimates

To provide a more realistic evaluation of risks to wildlife, the SUF and ED were changed as follows:

- For the American robin, the ED was changed from 1.0 to 0.5 to account for the migratory behavior of this species.

- For the red-tailed hawk, the HQs were recalculated based on a more realistic SUF of 0.006. This SUF is based on the area of the Buoy 212 site (1.2 ha) divided by a conservative estimate of home range size (200 ha) for the red-tailed hawk (see Section 8.6.1.1). In addition, an ED of 0.5 was assumed based on the migratory behavior of this species.

- For the red fox, the HQs were recalculated based on a more realistic SUF of 0.012. This SUF is based on the area of the Buoy 212 site (1.2 ha) divided by a conservative estimate of home range size (100 ha) for the fox (see Section 8.6.1.1).

- For the raccoon, the exposure estimates were recalculated based on a more realistic SUF of 0.002. This SUF is based on the area of the Buoy 212 site (1.2 ha) divided by the average home range size for this receptor (630 ha; EPA 1993).

Table 8-15 illustrates the effect of these changes on the HQs for these receptors (only chemicals with HQs greater than 1 in Tables 8-10 to 8-14 are included in Table 8-15). No chemicals are predicted to pose a risk to the hawk, fox, or raccoon when receptor-specific estimates of the SUF and ED are used. For the robin, total PCBs, cadmium, chromium, and lead are retained as COPCs, but the HQs are reduced by a factor of 2. For the shrew, there is no justification for using an ED or SUF less than 1.0; hence, the HQs for this receptor are unchanged.

The recalculated HQs in Table 8-15 are referred to as “moderately conservative” because they still are based on maximum chemical concentrations in soil from the site. The HQs would be further reduced if the average (or 95% upper confidence limit on the average) chemical concentrations in soil were used to estimate exposure. If this were done, it seems likely that the only risks that would remain would be for the robin and shrew from total PCBs.

8.7 Summary of Chemicals of Potential Concern

Table 8-16 provides a summary of COPCs for the ecological receptor groups evaluated in this assessment. The shaded cells in Table 8-16 indicate the primary COPCs and receptor groups at risk; these are:

- Total PCBs in soil based on risks to song birds and small mammals feeding extensively on soil invertebrates (e.g., American robin, short-tailed shrew); and
- Aluminum and iron in drainage water from the drainage network based on exceedances of NYSDEC Class D surface water standards for these elements in nearly all water samples from these habitats. The immature life stages of amphibians may be impacted by these substances.

The other chemicals designated as COPCs in Table 8-16 are considered of minor importance because they exceeded screening benchmarks in only one or a few samples, were not detected in most samples, or, for wildlife, were found not to pose a risk when more realistic exposure assumptions were considered.

8.8 Uncertainty Evaluation

Significant sources of uncertainty in this ecological risk assessment include the following:

- **Bioavailability.** The bioavailability of chemicals in environmental media at the Buoy 212 site is poorly understood. To be conservative, it was assumed that 100% of the chemicals in soil and drainage water were bioavailable to all ecological receptors. If bioavailability is less than 100%, which seems likely, the potential risks to all categories of ecological receptors would be correspondingly lower.
- **Reliability of Soil Benchmarks.** Many of the available soil screening benchmarks for plants and soil fauna were developed from laboratory studies in which chemical solutions were added to clean soil to arrive at a range of test concentrations. In such studies, the added chemicals are highly bioavailable. Comparing total chemical concentrations in soil to solution-based benchmarks is conservative and likely to result in an overestimation of risk. For aluminum, EPA (2003) has deemed that such a comparison is inappropriate.
- **Availability of Soil Benchmarks.** As indicated in Tables 8-1 to 8-4, screening benchmarks are not available for all chemicals in soil. For example, soil screening benchmarks for plants and soil fauna are not available for total PCBs. Hence, potential risks to certain receptor groups from certain chemicals could not be evaluated.
- **Dissolved Metals in Drainage Water.** These data are lacking for the site. Most of NYSDEC's water quality standards for metals are based on dissolved

concentrations. Comparing total (unfiltered) sample concentrations to these standards is a conservative screening approach and may have resulted in aluminum and iron being inappropriately identified as COPCs in drainage water.

- **COPCs in Wildlife Prey.** Food-chain transfer of chemicals at the site is poorly understood. The potential risks to wildlife at the site are largely driven by estimated concentrations of chemicals in wildlife prey. For this assessment, prey concentrations were estimated from measured soil concentrations using uptake factors from the literature. Or, if a literature-based uptake factor was not available, it was assumed that the prey concentration was the same as the soil concentration. The uncertainty associated with this approach often is high because a number of site-specific factors affect food-chain transfer of chemicals. In general, the uptake factors used in this assessment are intended to provide a conservative estimate of chemicals in wildlife prey and are likely to result in an overestimation of risk.

- **Wildlife Diet.** Uncertainty may result from the assumptions made about the diets of the wildlife receptors evaluated in this assessment. For the shrew and robin, the assumption of a diet consisting entirely of earthworms is conservative. In addition to earthworms, shrews consume other invertebrates (i.e., slugs, snails, centipedes, and various insects), fungi, plant materials, and small mammals (EPA 1993). Similarly, robins also consume other invertebrates (i.e., sowbugs, spiders, and various insects) and plant materials (EPA 1993). These foods are less intimately associated with the soil matrix than earthworms, and thus accumulate lesser amounts of soil contamination. The diet assumed for the shrew and robin in this assessment likely overestimates exposure and risks from chemicals in soil. The diet assumed for the raccoon (100% crayfish from the on-site stream) also is highly conservative. Raccoons typically consume a considerable amount of plant material (see Section 8.6.1.1).

- **Chemical Concentrations in Environmental Media:** The detection limit-based approach used to identify COPCs and develop hazard quotients in this assessment for antimony, selenium, and thallium in all media samples; and for silver in drainage water samples made the assessment of risks from these elements highly uncertain. In many cases, these uncertainties suggested risks to wildlife when used in food-chain modeling. Based on sampling data and consideration of past site uses, the risks presented in this screening-level ERA for these elements may be greatly overestimated.

8.9 Summary and Recommendations

The assessment endpoints for this ERA were stated in Section 8.3.5. For the reasons given below, this assessment suggests that current levels of environmental contamination at the site do not pose an elevated risk to communities of terrestrial plants and soil invertebrates, but may pose a risk to some wildlife species, amphibians, and benthic invertebrates.

8.9.1 Plant Communities

Chemicals detected in soil did not exceed the available phytotoxicity screening benchmarks. Considering this, soils at the site do not pose a risk to terrestrial plant communities.

8.9.2 Soil Fauna Community

The mercury screening benchmark was marginally exceeded at four sampling locations on site; however, three of the exeedances occurred in samples collected between four and six feet below grade, where the potential for exposure is limited. No other chemicals exceeded the available screening benchmarks. Overall, these results suggest that risks to soil invertebrates from chemicals in soil at the site are minimal.

8.9.3 Bird and Mammal Populations

Based on food-chain modeling results, total PCBs in soil are likely to pose a risk to song birds, such as the American robin, and small mammals, such as the short-tailed shrew, that feed extensively on soil invertebrates. Risks to carnivorous birds and mammals and other wildlife species with large home ranges appear to be minimal.

8.9.4 Amphibian Populations

Immature stages of amphibians in the area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property may be at risk from aluminum and iron based on comparison with surface water standards for these substances in the drainage water samples collected from at the site.

8.9.5 Benthic Invertebrate Community

Benthic organisms in the intermittent drainage network along the eastern site margin and on the floodplain shelf adjacent to the Hudson River may be affected by several substances (total PCBs, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and vanadium) that were reported above established benchmarks for benthic-life protection in the drainage network soil samples collected from these areas. However, considering that only low-level effect benchmarks were exceeded in a few samples, the likelihood of a community-level impact probably is low.

8.9.6 Recommendations for Future Work

- A detailed study of earthworms collected from the Buoy 212 parcel that involves chemical analysis for total PCBs should be considered to establish a site-specific measurement for the amount of PCB uptake in earthworms as prey of invertivorous wildlife and reduce uncertainty in the risk estimates for the robin and shrew.

- Additional ecological evaluation should be considered for the Buoy 212 site that involves the collection of drainage water and soil from the area where precipitation intermittently flows along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property for use in short-term, chronic toxicity tests to assess whether or not chemicals that exceed benchmarks in the water and soil from these areas result in observable toxicity.

Table 8-1 Phytotoxicity Screening Results, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Minimum Detected Value	Maxiumum Detected Value	Number of Samples[1]	Frequency of Detection	Soil Phytotoxicity Benchmark[2]	Frequency of Exceedances Phytotoxicity Benchmark
PCBs (µg/kg)						
Total PCBs	66	26,000	68	35/65	NA	NA
Metals (mg/kg)						
Antimony	ND	ND	3	0/3	NA	NA
Arsenic	ND	ND	2	0/3	18	0/3
Barium	34.1	46.5	2	3/3	NA	NA
Beryllium	ND	ND	2	0/3	NA	NA
Cadmium	0.33	17.6	11	11/11	32	0/11
Chromium	7.8	456	11	11/11	NA	NA
Cobalt	3.7	5	3	3/3	13	0/3
Copper	6	6.7	3	3/3	60	0/3
Lead	4.6	53.7	11	11/11	120	0/11
Manganese	100	233	3	3/3	1500	0/3
Mercury	0.04	0.215	11	10/11	0.3	0/10
Nickel	6.4	7.4	3	3/3	100	0/3
Selenium	ND	ND	3	0/3	1	3/3
Silver	ND	ND	3	0/3	2	0/3
Thallium	ND	ND	3	0/3	1	3/3
Vanadium	12.8	19.6	3	3/3	50	0/3
Zinc	28.3	40.2	3	3/3	50	0/3

Note:

1. Collected between 0 and 6 feet below ground surface (BGS).
2. USEPA (2005c, d, f, g, h, and i, respectively) for arsenic, barium, cadmium, chromium, cobalt, and lead. Appendix 2 of Alloway (1990) for copper, manganese, mercury, nickel, and vanadium. Efroymson et al. (1997a) for selenium, silver, thallium, and zinc.

Key:

NA = Not Applicable.
ND = Not detected.
mg/kg = Milligrams per kilogram.
µg/kg = Micrograms per kilogram.
PCBs = Polychlorinated biphenyl.
gray shading = Exceeds benchmark.

Table 8-2 Soil Fauna Screening Results, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Minimum Detected Value	Maxiumum Detected Value	Number of Samples[1]	Frequency of Detection	Soil Invertebrate Benchmark[2]	Frequency of Exceedances Invertebrate Benchmark
PCBs (µg/kg)						
Total PCBs	66	26,000	68	35/65	NA	NA
Metals (mg/kg)						
Antimony	ND	ND	3	0/3	78	0/3
Arsenic	ND	ND	2	0/3	NA	NA
Barium	34.1	46.5	2	3/3	330	0/3
Beryllium	ND	ND	2	0/3	40	0/3
Cadmium	0.33	17.6	11	11/11	140	0/11
Chromium	7.8	456	11	11/11	NA	NA
Cobalt	3.7	5	3	3/3	NA	NA
Copper	6	6.7	3	3/3	50	0/3
Lead	4.6	53.7	11	11/11	1700	0/11
Manganese	100	233	3	3/3	NA	NA
Mercury	0.04	0.215	11	10/11	0.1	4/10
Nickel	6.4	7.4	3	3/3	200	0/3
Selenium	ND	ND	3	0/3	70	0/3
Silver	ND	ND	3	0/3	NA	NA
Thallium	ND	ND	3	0/3	NA	NA
Vanadium	12.8	19.6	3	3/3	NA	NA
Zinc	28.3	40.2	3	3/3	200	0/3

Note:

1. Collected between 0 and 6 feet below ground surface (BGS).
2. USEPA (2005 b, c, d, e, f, g, h, i, and j, respectively) for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, and vanadium. Efroymson et al. (1997b) for copper, mercury, nickel, selenium, and zinc for earthworms.

Key:

NA = Not available or not applicable.
ND = Not detected.
mg/kg = Milligrams per kilogram.
µg/kg = Micrograms per kilogram.
PCB = Polychlorinated biphenyl.
gray shading = Exceeds benchmark.

Table 8-3 Surface Water Screening Results for the On-site Ditch/Stream, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Minimum Detected Value	Maxiumum Detected Value	Number of Samples	Frequency of Detection	Chronic - Surface Water Screening Benchmark	Frequency of Exceedance Surface Water Benchmark
PCB (µg/L)						
Total PCBs	ND	ND	8	0/8	0.00012	8/8
Metals (µg/L, total)						
Aluminum	231	1,310	9	9/9	100	9/9
Antimony	ND	ND	9	0/9	NA	NA
Arsenic	ND	ND	9	0/9	150	0/9
Barium	14.1	43.8	9	9/9	NA	NA
Beryllium	ND	ND	9	0/9	1100	0/9
Cadmium*	2.6	2.6	9	1/9	3.2	0/9
Calcium	20,500	62,100	9	9/9	NA	NA
Chromium*	ND	ND	9	0/9	117	0/9
Cobalt	ND	ND	9	0/9	5	0/9
Copper*	ND	ND	9	0/9	14.4	0/9
Iron	293	1,200	9	9/9	300	8/9
Lead*	ND	ND	9	0/9	6.9	0/9
Magnesium	8,000	23,700	9	9/9	NA	NA
Manganese	28.4	68	9	9/9	NA	NA
Mercury	ND	ND	9	0/9	0.77	0/9
Nickel*	ND	ND	9	0/9	83	0/9
Selenium	ND	ND	9	0/9	4.6	9/9
Silver	ND	ND	9	0/9	0.1	9/9
Thallium	ND	ND	9	0/9	8	9/9
Vanadium	ND	ND	9	0/9	14	0/9
Zinc*	22.7	42.7	9	2/9	123	0/9

Notes:

1. Screening values for surface water were taken from NYSDEC (1998).
2. Metals criteria apply to the dissolved form for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc; to the acid soluble form for beryllium, cobalt, thalllium and vanadium; and to the ionic form for silver. The total PCB criterion applies to wildlife, not aquatic life. NYSDEC does not have a PCB criterion for aquatic-life effects.

Key:

NA = Not available or not applicable.
ND = Not detected.
PCB = Polychlorinated biphenyl.
mg/L = Milligrams per liter.
µg/L = Micrograms per liter.
* = Benchmark based on site-specific average hardness of 174 mg/L of $CaCO_3$.
gray shading = Screening value exceeded.

Source: Ecology and Environment Engineering, P.C., 2007

Table 8-4 Sediment Screening Results for the On-site Ditch/Stream, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Minimum Detected Value	Maxiumum Detected Value	Number of Samples	Frequency of Detection	Sediment Benchmark Low Level Effects	Sediment Benchmark Severe Level Effects	Frequency of Exceedance Low Level Benchmark	Frequency of Exceedance Severe Level Benchmark
PCB (µg/kg)								
Total PCBs	2920	8300	8	2/8	193	27,608	2/8	0/8
Metals (mg/kg)								
Antimony	ND	ND	9	0/9	2	25	9/9	0/9
Arsenic	2.8	3.8	9	2/9	6	33	0/2	0/2
Barium	15.2	140	9	9/9	NA	NA	NA	NA
Beryllium	ND	ND	9	0/9	NA	NA	NA	NA
Cadmium	0.35	1.6	9	9/9	0.6	9	4/9	0/9
Chromium	3.9	71.6	9	9/9	26	110	2/9	0/9
Cobalt	2.2	11.4	9	9/9	NA	NA	NA	NA
Copper	6.2	27.9	9	9/9	16	110	3/9	0/9
Iron	9,960	27,500	9	9/9	20,000	40,000	1/9	0/9
Lead	5.1	110	9	9/9	31	110	3/9	0/9
Manganese	95.5	538	9	9/9	460	1100	2/9	0/9
Mercury	0.049	0.249	9	6/9	0.15	1.3	3/6	0/6
Nickel	4.5	29.6	9	9/9	16	50	1/9	0/9
Selenium	ND	ND	9	0/9	NA	NA	NA	NA
Silver	ND	ND	9	0/9	1	2.2	0/9	0/9
Thallium	ND	ND	9	0/9	NA	NA	NA	NA
Vanadium	7.4	31	9	9/9	NA	NA	NA	NA
Zinc	44	243	9	9/9	120	270	2/9	0/9

Note:
1. Sediment screening values taken from NYSDEC (1999). Benchmarks for total PCB's were adjusted to 1% total organic carbon (TOC).

Key:

NA = Not available or not applicable.
ND = Not detected.
PCB = Polychlorinated biphenyl.
mg/kg = Milligrams per kilogram.
µg/kg = Micrograms per kilogram.
gray shading = Benchmark exceeded.

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SLERA Tables (except 8-15) Buoy 212 (+CM).xls-Table 8-4 SED scrn-2/28/2011

Source: Ecology and Environment Engineering, P.C., 2007

Table 8-5 Exposure Parameters for Wildlife Species, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Species	Dietary Composition		Soil Ingestion (kg/d) dry	Home Range (ha)	Fraction Soil in Dry Diet	Food Ingestion Rate (kg/d) wet	Percent Water in Diet	Food Ingestion Rate (kg/d) dry	Body Weight (kg wet)
	Earthworms	Small Mammals							
Terrestrial Invertivores									
American Robin[a]	100%		0.00019	0.42	0.104	0.093	80%	0.0186	0.077
Short Tailed Shrew[b]	100%		0.00023	0.39	0.13	0.009	80%	0.0018	0.015
Terrestrial Carnivores									
Red-tailed Hawk[c]		100%	0.00033	233	0.01	0.109	70%	0.033	1.126
Red Fox[d]		100%	0.0038	1038	0.028	0.45	70%	0.135	4.5
Semi-aquatic Omnivore		**Crayfish**							
Raccoon[e]		100%	0.027	630	0.094	1.1	75%	0.283	5.3

Notes:

a - Home range size, food ingestion (wet), and body mass taken without modification from Sample and Suter (1994). Soil ingestion of 10.4% (dry mass) assumed based on data from Beyer et al. (1994) for American woodcock.

b - Home-range size, food ingestion (wet), and body mass taken without modification from Sample and Sutter (1994). Soil ingestion of 13% (dry mass) based on data from Talmage and Walton (1993) as cited in Sample and Suter (1994) .

c - Home-range size, food ingestion (wet), and body mass taken without modification from Sample and Sutter (1994). Soil ingestion of 1% (dry mass) assumed.

d - Food ingestion (wet) and body mass taken without modification from Sample and Sutter (1994). Soil ingestion of 2.8% (dry mass) based on Beyer et al. (1994). Home range size is average of six values reported in USEPA (1993).

e - Home range and body weigh from (USEPA 1993). Food ingestion (dry) calculated from allometric equations presented in Sample et al. (1996). Soil ingestion of 9.4% (dry mass) based on Beyer et al. (1994).

Key:

ha = Hectacre.
kg/d = Kilograms per day.
kg = Kilograms.

Source: Ecology and Environment Engineering, P.C., 2007

Table 8-6 Exposure Point Concentration Summary for American Robin and Short-tailed Shrew, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Minimum Detected Value	Maxiumum Detected Value	Number of Samples	Frequency of Detection	Exposure Point Concentration Soil	BAF Earthworm	EPC Earthworm
PCB µg/kg							
Total PCBs	66	26,000	68	35/65	26,000	see note 1	345,250
Metals mg/kg							
Antimony	ND	ND	3	0/3	9.5	1.00	9.50
Arsenic	ND	ND	2	0/3	1.25	see note 1	0.28
Barium	34.1	46.5	2	3/3	46.5	0.091	4.23
Beryllium	ND	ND	2	0/3	0.22	0.045	0.01
Cadmium	0.33	17.6	11	11/11	17.6	see note 1	80.96
Chromium	7.8	456	11	11/11	456	0.306	139.54
Cobalt	3.7	5	3	3/3	5	0.122	0.61
Copper	6	6.7	3	3/3	6.7	0.515	3.45
Lead	4.6	53.7	11	11/11	53.7	see note 1	20.02
Manganese	100	233	3	3/3	233	see note 1	18.33
Mercury	0.04	0.215	11	10/11	0.215	see note 1	0.42
Nickel	6.4	7.4	3	3/3	7.4	1.059	7.84
Selenium	ND	ND	3	0/3	2.55	see note 1	1.84
Silver	ND	ND	3	0/3	0.31	2.045	0.63
Thallium	ND	ND	3	0/3	3.8	1.00	3.80
Vanadium	12.8	19.6	3	3/3	19.6	0.042	0.82
Zinc	28.3	40.2	3	3/3	40.2	see note 1	287.3

Notes:
1. Soil-to-earthworm regression equation used to calculate earthworm EPC. See text for references used.
2. EPC for antimony, arsenic, beryllium, selenium, silver, and thallium set equal to one-half of the highest quantitation limit.

Key:
- BAF = Bioaccumulation factor.
- EPC = Exposure Point Concentration.
- PCB = Polychlorinated biphenyl.
- mg/kg = Milligrams per kilogram.
- µg/kg = Micrograms per kilogram.
- ND = Non-detect.

Source: Ecology and Environment Engineering, P.C., 2007

Table 8-7 Exposure Point Concentration Summary for Red-tailed Hawk and Red Fox, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Minimum Detected Value	Maxiumum Detected Value	Number of Samples	Frequency of Detection	Exposure Point Concentration Soil	BAF Small Mammal	EPC Small Mammal
PCB µg/kg							
Total PCBs	66	26,000	68	35/65	26,000	1.00	26,000
Metals mg/kg							
Antimony	ND	ND	3	0/3	9.5	see note 1	0.02
Arsenic	ND	ND	2	0/3	1.25	see note 1	0.010
Barium	34.1	46.5	2	3/3	46.5	0.0012	0.056
Beryllium	ND	ND	2	0/3	0.22	see note 1	0.01
Cadmium	0.33	17.6	11	11/11	17.6	see note 1	1.10
Chromium	7.8	456	11	11/11	456	see note 1	20.75
Cobalt	3.7	5	3	3/3	5	see note 1	0.094
Copper	6	6.7	3	3/3	6.7	see note 1	10.1
Lead	4.6	53.7	11	11/11	53.7	see note 1	6.28
Manganese	100	233	3	3/3	233	0.0205	4.7765
Mercury	0.04	0.215	11	10/11	0.215	0.0543	0.0117
Nickel	6.4	7.4	3	3/3	7.4	see note 1	1.99
Selenium	ND	ND	3	0/3	2.55	see note 1	0.94
Silver	ND	ND	3	0/3	0.31	0.004	0.0012
Thallium	ND	ND	3	0/3	3.8	0.1124	0.4271
Vanadium	12.8	19.6	3	3/3	19.6	0.0123	0.241
Zinc	28.3	40.2	3	3/3	40.2	see note 1	101.9

Notes:
1. Soil-to-small mammal regression equation used to calculate small-mammal EPC. See text for references used.
2. EPC for antimony, arsenic, beryllium, selenium, silver, and thallium set equal to one-half of the highest quantitation limit.

Key:
BAF = Bioaccumulation factor.
EPC = Exposure Point Concentration.
PCB = Polychlorinated biphenyl.
mg/kg = Milligrams per kilogram.
µg/kg = Micrograms per kilogram.
ND = Non-detect.

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SLERA Tables (except 8-15) Buoy 212 (+CM).xls-Table 8-7 EPC Carnivore -2/28/2011

Source: Ecology and Environment Engineering, P.C., 2007

Table 8-8 Exposure Point Concentration Summary for Raccoon, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Minimum Detected Value	Maximum Detected Value	Number of Samples	Frequency of Detection	Exposure Point Concentration Sediment	BSAF Crayfish	EPC Crayfish
PCB µg/kg							
Total PCBs	2920	8300	8	2/8	8300	4.67	38,761
Metals mg/kg							
Antimony	ND	ND	9	0/9	15.2	1	15
Arsenic	2.8	3.8	9	2/9	3.8	see note 1	1.4
Barium	15.2	140	9	9/9	140	1	140
Beryllium	ND	ND	9	0/9	0.44	1	0.44
Cadmium	0.35	1.6	9	9/9	1.6	see note 1	1.5
Chromium	3.9	71.6	9	9/9	71.6	see note 1	7.7
Cobalt	2.2	11.4	9	9/9	11.4	1	11.4
Copper	6.2	27.9	9	9/9	27.9	see note 1	31.0
Iron	9,960	27,500	9	9/9	27,500	1	27,500
Lead	5.1	110	9	9/9	110	see note 1	7.2
Manganese	95.5	538	9	9/9	538	1	538
Mercury	0.049	0.249	9	6/9	0.249	1.136	0.283
Nickel	4.5	29.6	9	9/9	29.6	0.486	14.4
Selenium	ND	ND	9	0/9	4.05	1	4.1
Silver	ND	ND	9	0/9	0.5	1	0.5
Thallium	ND	ND	9	0/9	6.10	1	6.10
Vanadium	7.4	31	9	9/9	31	1	31.0
Zinc	44	243	9	9/9	243	see note 1	198

Notes:

1. Crayfish EPC calculated from sediment-to-benthic invertebrate bioaccumulation equation from Bechtel Jacobs (1998). See text for further explanation.
2. EPCs for antimony, beryllium, selenium, silver and thallium set equal to one-half of greatest quantitation limit.

Key:

BSAF = Biota Sediment Accumulation factor.
EPC = Exposure Point Concentration.
NA = Not available or not applicable.
mg/kg = Milligrams per kilogram.
µg/kg = Micrograms per kilogram.

Source: Ecology and Environment Engineering, P.C., 2007

Table 8-9 Toxicity Reference Values for Wildlife, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Wildlife Class	NOAEL TRV (mg/kg/day)	Critical Effect	LOAEL TRV (mg/kg/day)	Critical Effect	Reference and Comments
PCBs µg/kg						
Total PCBs	Birds	0.18	Reproduction	1.8	Reproduction	Sample et al. (1996).
	Mammals	0.14	Reproduction	0.69	Reproduction	Sample et al. (1996).
Metals mg/kg						
Antimony	Birds	NA	NA	NA	NA	NA
	Mammals	0.059	Reproduction	0.59	Reproduction	USEPA (2005b). Highest bounded NOAEL (0.059 mg/kg-d) for growth or reproduction below lowest bounded LOAEL (0.59 mg/kg-d) for growth or reproduction from 20 laboratory toxicity studies.
Arsenic	Birds	2.24	Reproduction	3.55	Growth	USEPA(2005c). Lowest NOAEL for growth, reproduction, or survival from nine laboratory toxicity studies. Lowest LOAEL for growth, reproduction, or survival greater than selected NOAEL.
	Mammals	1.04	Growth	1.66	Growth	USEPA (2005c). Highest bounded NOAEL for growth, reproduction, or survival less than lowest bounded LOAEL for growth, reproduction, or survival from 62 laboratory toxicity studies.
Barium	Birds	20.8	Survival	41.7	Survival	Sample et al. 1996.
	Mammals	51.8	Reproduction, growth, and survival	121	Growth and survival	USEPA (2005d). Geometric mean NOAEL for growth, reproduction, and survival from 12 laboratory toxicity studies. Lowest bounded LOAEL for reproduction, growth, or survival greater than geometric mean NOAEL.
Beryllium	Birds	NA	NA	NA	NA	NA
	Mammals	0.532	Survival	NA	NA	USEPA (2005e). Lowest NOAEL for growth, reproduction, or survival from four laboratory toxicity studies.
Cadmium	Birds	1.47	Reproduction, growth, and survival	2.37	Reproduction	USEPA (2005f). Geometric mean NOAEL for growth, reproduction, and survival from 49 laboratory toxicity studies. Lowest bounded LOAEL for growth, reproduction, or survival greater than geometric mean NOAEL.
	Mammals	0.77	Growth	1	Growth	USEPA (2005f). Highest bounded NOAEL (0.77 mg/kg-d) for reproduction, growth, or survival less than the lowest bounded LOAEL (1.0 mg/kg-d) from 141 laboratory toxicity studies.
Chromium	Birds	2.66	Reproduction, growth, and survival	2.78	Survival	USEPA (2005g). Geometric mean NOAEL for growth, reproduction, and survival from 17 laboratory toxicity studies. Lowest bounded LOAEL for reproduction, growth, or survival greater than geometric mean NOAEL.
	Mammals	2.4	Reproduction and growth	NA	NA	USEPA (2005g). Geometric mean of NOAELs for reprodcution and growth from 14 laboratory studies with trivalent chromium.
Cobalt	Birds	7.61	Growth	7.8	Growth	USEPA (2005h). Geometric mean NOAEL for growth from 10 laboratory toxicity studies. Lowest bounded LOAEL for growth or reproduction greater than geometric mean NOAEL.
	Mammals	7.33	Reproduction and Growth	10.9	Reproduction	USEPA (2005h). Geometric mean NOAEL for reproduction and growth based on 21 laboratory toxicity studies. Lowest bounded LOAEL for growth or reproduction greater than geometric mean NOAEL.

Source: Ecology and Environment Engineering, P.C., 2007

Table 8-9 Toxicity Reference Values for Wildlife, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Wildlife Class	NOAEL TRV (mg/kg/day)	Critical Effect	LOAEL TRV (mg/kg/day)	Critical Effect	Reference and Comments
Copper	Birds	47	Growth	61.7	Growth	Sample et al. (1996).
	Mammals	11.7	Survival	15.14	Survival	Sample et al. (1996).
Lead	Birds	1.63	Reproduction	1.94	Reproduction	USEPA (2005i). Highest bounded NOAEL (1.63 mg/kg-d) for growth, reproduction, or survival lower than the lowest bounded LOAEL (1.94 mg/kg-d) for growth, reproduction, or survival based on 57 laboratory toxicity studies.
	Mammals	4.7	Growth	5	Growth	USEPA (2005i). Highest bounded NOAEL (4.7 mg/kg-d) for growth, reproduction, or survival lower than the lowest bounded LOAEL (5 mg/kg-d) for growth, reproduction, or survival based on 220 laboratory toxicity studies.
Manganese	Birds	977	Growth	NA	NA	Sample et al. (1996).
	Mammals	88	Reproduction	284	Reproduction	Sample et al. (1996).
Mercury	Birds	0.45	Reproduction	0.9	Reproduction	Sample et al. (1996).
	Mammals	13.2	Reproduction and survival	NA	NA	Sample et al. (1996).
Nickel	Birds	77.4	Growth and survival	107	Growth and survival	Sample et al. (1996).
	Mammals	40	Reproduction	80	Reproduction	Sample et al. (1996).
Selenium	Birds	0.5	Reproduction	1	Reproduction	Sample et al. (1996).
	Mammals	0.2	Reproduction	0.33	Reproduction	Sample et al. (1996).
Silver	Birds	NA	NA	NA	NA	NA
	Mammals	NA	NA	NA	NA	NA
Thallium	Birds	NA	NA	NA	NA	NA
	Mammals	0.0074	Reproduction	0.074	Reproduction	Sample et al. (1996).
Vanadium	Birds	0.344	Growth	0.413	Reproduction	USEPA (2005j). Highest bounded NOAEL (0.344 mg/kg-d) for growth, reproduction, or survival less than lowest bounded LOAEL (0.413 mg/kg-d) for reproduction, growth, or survival based on 94 laboratory toxicity studies.
	Mammals	4.16	Reproduction and growth	5.11	Growth	USEPA (2005j). Highest bounded NOAEL (4.16 mg/kg-d) for growth or reproduction less than lowest bounded LOAEL (5.11 mg/kg-d) for growth, reproduction, or survival based on 94 laboratory toxicity studies.
Zinc	Birds	70	Reproduction	124	Reproduction	Jackson et al. (1986)
	Mammals	160	Reproduction	320	Reproduction	Sample et al. (1996).

Key:

TRV = Toxicity reference value.
mg/kg/day = Milligrams per kilogram per day.
NA = No value available.
LOAEL = Lowest observed adverse effect level.
NOAEL = No observed adverse effect level.

Source: Ecology and Environment Engineering, P.C., 2007

Table 8-10 American Robin Exposure Estimates and Hazard Quotients, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	American robin							
	EPC soil	EE-soil (mg/kg/d)	EE-diet (mg/kg/d)	EE-total (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	HQ-NOAEL	HQ-LOAEL
PCBs (µg/kg)								
Total PCBs	26,000	0.064	83.40	83.46	0.18	1.8	463.7	46.37
Metals (mg/kg)								
Antimony	9.5	0.023	2.29	2.32	NA	NA	NA	NA
Arsenic	1.25	0.003	0.07	0.07	2.24	3.55	0.032	0.020
Barium	46.5	0.115	1.02	1.14	20.8	41.7	0.055	0.027
Beryllium	0.22	0.001	0.002	0.00	NA	NA	NA	NA
Cadmium	17.6	0.043	19.56	19.60	1.47	2.37	13.334	8.270
Chromium	456	1.125	33.71	34.83	2.66	2.78	13.094	12.529
Cobalt	5	0.012	0.15	0.16	7.61	7.8	0.021	0.020
Copper	6.7	0.017	0.83	0.85	47	61.7	0.018	0.014
Lead	53.7	0.133	4.84	4.97	1.63	1.94	3.048	2.561
Manganese	233	0.575	4.43	5.00	977	NA	0.005	NA
Mercury	0.215	0.001	0.10	0.10	0.45	0.9	0.227	0.114
Nickel	7.4	0.018	1.89	1.91	77.4	107	0.025	0.018
Selenium	2.55	0.006	0.45	0.45	0.5	1	0.903	0.451
Silver	0.31	0.001	0.15	0.15	NA	NA	NA	NA
Thallium	3.8	0.009	0.92	0.93	NA	NA	NA	NA
Vanadium	19.6	0.048	0.20	0.25	0.344	0.413	0.719	0.599
Zinc	40.2	0.099	69.40	69.50	70	124	0.993	0.561

Key:

EE-diet = Estimated chemical exposure from diet.
EE-soil = Estimated chemical exposure from incidental soil ingestion.
EE-total = Total chemical exposure.
EPC = Exposure point concentration.
HQ = Hazard quotient.
LOAEL = Lowest observed adverse effect level.
NOAEL = No observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg/day = Milligrams per kilogram per day.
µg/kg = Micrograms per kilogram.
NA = Not available.
Grey shading = HQ exceeds 1.0.

Table 8-11 Short-Tailed Shrew Exposure Estimates and Hazard Quotients, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Short Tailed Shrew							
	EPC soil	EE-soil (mg/kg/d)	EE-diet (mg/kg/d)	EE-total (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	HQ-NOAEL	HQ-LOAEL
PCB (µg/kg)								
Total PCBs	26,000	0.399	41.43	41.83	0.14	0.69	299	61
Metals (mg/kg)								
Antimony	9.5	0.146	1.14	1.29	0.059	0.59	21.791	2.179
Arsenic	1.25	0.019	0.03	0.05	1.04	1.66	0.051	0.032
Barium	46.5	0.713	0.51	1.22	51.8	121	0.024	0.010
Beryllium	0.22	0.003	0.001	0.00	0.532	NA	0.009	NA
Cadmium	17.6	0.270	9.72	9.99	0.77	1	12.968	9.985
Chromium	456	6.992	16.74	23.74	2.4	NA	9.890	NA
Cobalt	5	0.077	0.073	0.15	7.33	10.9	0.020	0.014
Copper	6.7	0.103	0.41	0.52	11.7	15.14	0.044	0.034
Lead	53.7	0.823	2.40	3.23	4.7	5	0.686	0.645
Manganese	233	3.573	2.20	5.77	88	284	0.066	0.020
Mercury	0.215	0.003	0.051	0.05	13.2	NA	0.004	NA
Nickel	7.4	0.113	0.94	1.05	40	80	0.026	0.013
Selenium	2.55	0.039	0.221	0.26	0.2	0.33	1.301	0.789
Silver	0.31	0.005	0.076	0.08	NA	NA	NA	NA
Thallium	3.8	0.058	0.456	0.51	0.0074	0.074	69.495	6.950
Vanadium	19.6	0.301	0.099	0.40	4.16	5.11	0.096	0.078
Zinc	40.2	0.616	34.48	35.09	160	320	0.219	0.110

Key:

EE-diet = Estimated chemical exposure from diet.
EE-soil = Estimated chemical exposure from incidental soil ingestion.
EE-total = Total chemical exposure.
EPC = Exposure point concentration.
HQ = Hazard quotient.
LOAEL = Lowest observed adverse effect level.
NOAEL = No observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg/day = Milligrams per kilogram per day.
µg/kg = Micrograms per kilogram.
NA = Not available.
Grey shading = HQ exceeds 1.0.

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SLERA Tables (except 8-15) Buoy 212 (+CM).xls-Table 8-11 HQ Shrew-2/28/2011

Table 8-12 Red-Tailed Hawk Exposure Estimates and Hazard Quotients, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Red-Tailed Hawk							
	EPC soil	EE-soil (mg/kg/d)	EE-diet (mg/kg/d)	EE-total (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	HQ-NOAEL	HQ-LOAEL
PCB (µg/kg)								
Total PCBs	26,000	0.0076	0.762	0.7696	0.18	1.8	4.3	0.4
Metals (mg/kg)								
Antimony	9.5	0.0028	0.0005	0.0033	NA	NA	NA	NA
Arsenic	1.25	0.0004	0.0003	0.0006	2.24	3.55	0.000	0.000
Barium	46.5	0.0136	0.0016	0.0153	20.8	41.7	0.001	0.000
Beryllium	0.22	0.0001	0.0003	0.0003	NA	NA	NA	NA
Cadmium	17.6	0.0052	0.0323	0.0375	1.47	2.37	0.025	0.016
Chromium	456	0.1336	0.6083	0.7419	2.66	2.78	0.279	0.267
Cobalt	5	0.0015	0.0028	0.0042	7.61	7.8	0.001	0.001
Copper	6.7	0.0020	0.2972	0.2992	47	61.7	0.006	0.005
Lead	53.7	0.0157	0.1841	0.1998	1.63	1.94	0.123	0.103
Manganese	233	0.0683	0.1400	0.2083	977	NA	0.000	NA
Mercury	0.215	0.0001	0.0003	0.0004	0.45	0.9	0.001	0.000
Nickel	7.4	0.0022	0.0582	0.0604	77.4	107	0.001	0.001
Selenium	2.55	0.0007	0.0275	0.0283	0.5	1	0.057	0.028
Silver	0.31	0.0001	0.0000	0.0001	NA	NA	NA	NA
Thallium	3.8	0.0011	0.0125	0.0136	NA	NA	NA	NA
Vanadium	19.6	0.0057	0.0071	0.0128	0.344	0.413	0.037	0.031
Zinc	40.2	0.0118	2.9864	2.9982	70	124	0.043	0.024

Key:

EE-diet = Estimated chemical exposure from diet.
EE-soil = Estimated chemical exposure from incidental soil ingestion.
EE-total = Total chemical exposure.
EPC = Exposure point concentration.
HQ = Hazard quotient.
LOAEL = Lowest observed adverse effect level.
NOAEL = No observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg/day = Milligrams per kilogram per day.
µg/kg = Micrograms per kilogram.
NA = Not available.
Grey shading = HQ exceeds 1.0.

Table 8-13 Red Fox Exposure Estimates and Hazard Quotients, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Red Fox							
	EPC soil	EE-soil (mg/kg/d)	EE-diet (mg/kg/d)	EE-total (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	HQ-NOAEL	HQ-LOAEL
PCB (µg/kg)								
Total PCBs	26,000	0.0220	0.7800	0.802	0.14	0.69	5.73	1.16
Metals (mg/kg)								
Antimony	9.5	0.0080	0.0005	0.0085	0.059	0.59	0.144	0.014
Arsenic	1.25	0.0011	0.0003	0.0013	1.04	1.66	0.001	0.001
Barium	46.5	0.0393	0.0017	0.0409	51.8	121	0.001	0.000
Beryllium	0.22	0.0002	0.0003	0.0005	0.532	NA	0.001	NA
Cadmium	17.6	0.0149	0.0331	0.0479	0.77	1	0.062	0.048
Chromium	456	0.3851	0.6226	1.0077	2.4	NA	0.420	NA
Cobalt	5	0.0042	0.0028	0.0070	7.33	10.9	0.001	0.001
Copper	6.7	0.0057	0.3043	0.3099	11.7	15.14	0.026	0.020
Lead	53.7	0.0453	0.1884	0.2338	4.7	5	0.050	0.047
Manganese	233	0.1968	0.1433	0.3401	88	284	0.004	0.001
Mercury	0.215	0.0002	0.0004	0.0005	13.2	NA	0.000	NA
Nickel	7.4	0.0062	0.0596	0.0658	40	80	0.002	0.001
Selenium	2.55	0.0022	0.0282	0.0303	0.2	0.33	0.152	0.092
Silver	0.31	0.0003	0.0000	0.0003	NA	NA	NA	NA
Thallium	3.8	0.0032	0.0128	0.0160	0.0074	0.074	2.165	0.217
Vanadium	19.6	0.0166	0.0072	0.0238	4.16	5.11	0.006	0.005
Zinc	40.2	0.0339	3.0570	3.0909	160	320	0.019	0.010

Key:

EE-diet = Estimated chemical exposure from diet.
EE-soil = Estimated chemical exposure from incidental soil ingestion.
EE-total = Total chemical exposure.
EPC = Exposure point concentration.
HQ = Hazard quotient.
LOAEL = Lowest observed adverse effect level.
NOAEL = No observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg/day = Milligrams per kilogram per day.
µg/kg = Micrograms per kilogram.
NA = Not available.
Grey shading = HQ exceeds 1.0.

Table 8-14 Raccoon Exposure Estimates and Hazard Quotients, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Racoon							
	EPC soil	EE-soil (mg/kg/d)	EE-diet (mg/kg/d)	EE-total (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	HQ-NOAEL	HQ-LOAEL
PCB (µg/kg)								
Total PCBs	8300	0.042	2.07	2.11	0.14	0.69	15.09	3.06
Metals (mg/kg)								
Antimony	15.2	0.077	0.812	0.889	0.059	0.59	15.07	1.51
Arsenic	3.8	0.019	0.075	0.094	1.04	1.66	0.09	0.06
Barium	140	0.713	7	8	51.8	121	0.16	0.07
Beryllium	0.44	0.002	0.023	0.03	0.532	NA	0.05	NA
Cadmium	1.6	0.008	0.081	0.09	0.77	1	0.12	0.09
Chromium	71.6	0.365	0.411	0.78	2.4	NA	0.32	NA
Cobalt	11.4	0.058	0.609	0.67	7.33	10.9	0.09	0.06
Copper	27.9	0.142	1.653	1.80	11.7	15.14	0.15	0.12
Iron	27,500	140	1,468	1,608	NA	NA	NA	NA
Lead	110	0.560	0.386	0.95	4.7	5	0.20	0.19
Manganese	538	3	29	31	88	284	0.36	0.11
Mercury	0.249	0.001	0.015	0.02	13.2	NA	0.00	NA
Nickel	29.6	0.151	0.768	0.92	40	80	0.02	0.01
Selenium	4.05	0.021	0.216	0.24	0.2	0.33	1.18	0.72
Silver	0.5	0.003	0.027	0.03	NA	NA	NA	NA
Thallium	6.10	0.031	0.326	0.36	0.0074	0.074	48.22	4.82
Vanadium	31	0.158	1.655	1.81	4.16	5.11	0.44	0.35
Zinc	243	1.238	10.561	11.80	160	320	0.07	0.04

Note: Antimony and thallium were not detected in sediment. Sediment EPC for these metals equals one-half of the greatest quantitation limt.

Key:

EE-diet = Estimated chemical exposure from diet.
EE-soil = Estimated chemical exposure from incidental soil ingestion.
EE-total = Total chemical exposure.
EPC = Exposure point concentration.
HQ = Hazard quotient.
LOAEL = Lowest observed adverse effect level.
NOAEL = No observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg/day = Milligrams per kilogram per day.
µg/kg = Micrograms per kilogram.
NA = Not available.
Grey shading = HQ exceeds 1.0.

Table 8-15 Effect of Site Use Factor and Exposure Duration on Hazard Quotients for Wildlife, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Chemical	Highly Conservative Case [A]		Moderately Conservative Case [B]			
	HQ-NOAEL	HQ-LOAEL	SUF	ED	HQ-NOAEL	HQ-LOAEL
American Robin						
Total PCBs	464	46.4	1	0.5	232	23.2
Cadmium	13.3	8.3	1	0.5	6.7	4.2
Chromium	13.1	12.5	1	0.5	6.6	6.3
Lead	3.0	2.6	1	0.5	1.5	1.3
Short-Tailed Shrew						
Total PCBs	299	61	1	1	299	61
Antimony	21.8	2.2	1	1	21.8	2.2
Cadmium	13.0	10.0	1	1	13.0	10.0
Chromium	9.9	NA	1	1	9.9	NA
Selenium	1.3	0.79	1	1	1.3	0.79
Thallium	69.5	6.9	1	1	69.5	6.9
Red-tailed Hawk						
Total PCBs	4.3	0.4	0.006	0.5	0.013	0.001
Red Fox						
Total PCBs	5.7	1.2	0.012	1	0.068	0.014
Thallium	2.2	0.22	0.012	1	0.026	0.003
Raccoon						
Total PCBs	15.1	3.1	0.002	1	0.03	0.006
Antimony	15.1	1.5	0.002	1	0.03	0.003
Selenium	1.2	0.72	0.002	1	0.002	0.001
Thallium	48.2	4.8	0.002	1	0.096	0.0096

Notes:

[A] Robin, shrew, hawk, fox, and raccoon HQs from Tables 8-10 to 8-14, respectively. Both SUF and ED = 1.0.

[B] HQs for moderately conservative case determined by multiplying HQs from highly conservative case by receptor-specific SUF and ED. See Section 8.6.4 for method for estimating SUF and ED.

Key:

ED = Exposure duration (i.e., fraction of year spent at the site).
HQ = Hazard quotient.
LOAEL = Lowest observed adverse effect level.
NOAEL = No observed adverse effect level.
PCBs = Polychlorinated biphenyl.
SUF = Site use factor (i.e., fraction of receptor's home range represented by the site).
Gray Shading = HQ exceeds 1.0.

Table 8-16 Summary of Chemicals Exceeding Screening Benchmarks or Toxicity Reference Values, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

Analyte	Environmental Medium and Receptor Group							
	Soil				Sediment			Water
			Wildlife[C]			Wildlife[E]		
	Plants[A]	Soil Fauna[B]	NOAEL	LOAEL	Benthic Life[D]	NOAEL	LOAEL	Amphibians[F]
PCBs µg/kg								
Total PCBs			X	X	X			X
Metals mg/kg								
Aluminum								X
Antimony			X	X	X			
Arsenic								
Barium								
Cadmium			X	X	X			
Chromium			X	X	X			
Cobalt								
Copper					X			
Iron					X			X
Lead			X	X	X			
Manganese					X			
Mercury		X			X			
Nickel					X			
Selenium	X		X					X
Silver								X
Thallium	X		X	X				X
Vanadium								
Zinc					X			

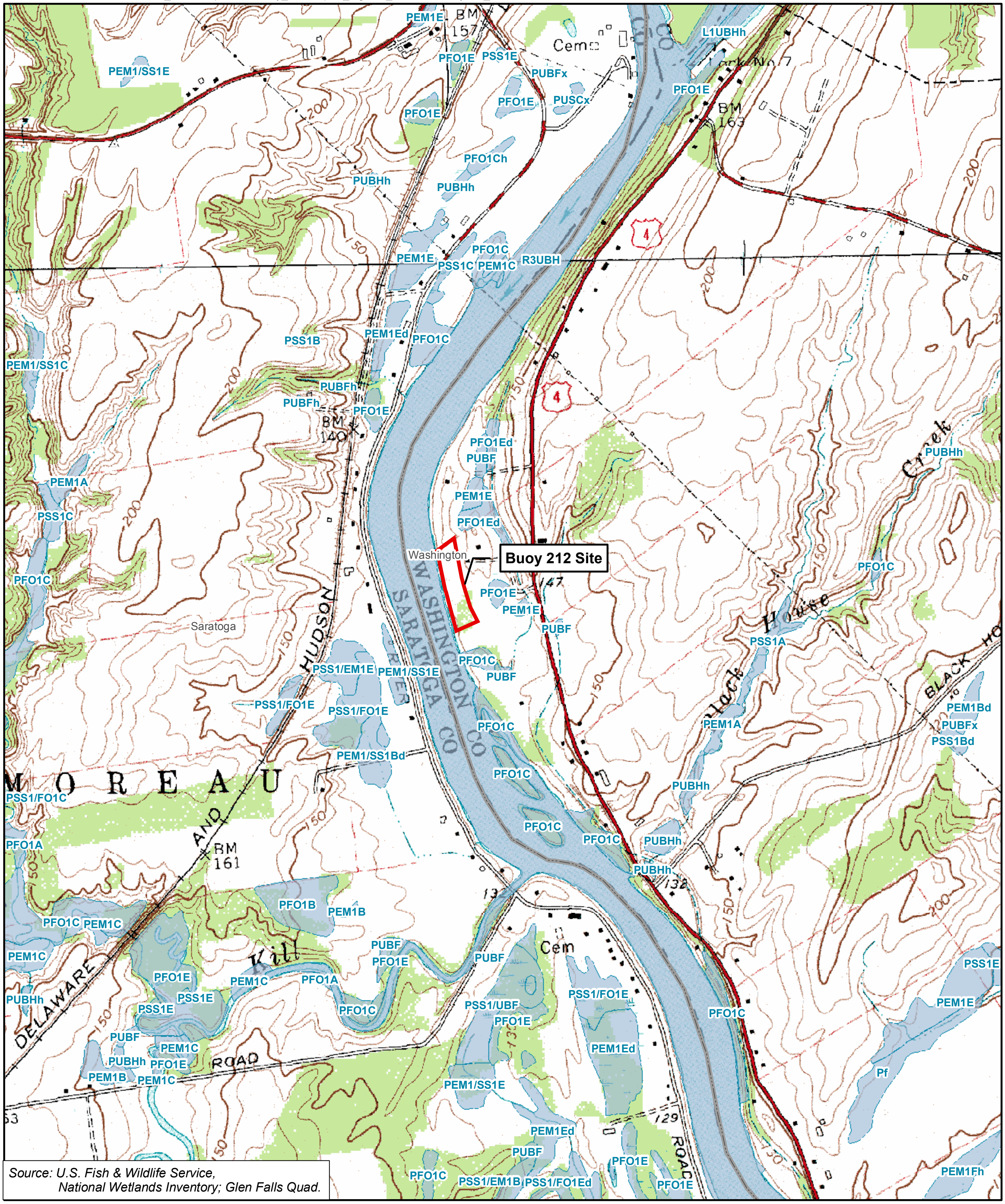
Notes:
A - Based on comparing soil chemical concentrations to phytotoxicity benchmarks (see Table 8-1)
B - Based on comparing soil chemical concentrations to earthworm screening benchmarks (see Table 8-2)
C - Based on modeled exposure estimates for the robin, shrew, fox, and hawk (see Tables 8-10 and 8-13)
D - Based on comparing chemical concentrations in sediment to sediment benchmarks (see Table 8-4)
E - Based on modeled exposure estimates for the raccoon (see Table 8-14)
F - Based on comparing chemical concentrations in water to chronic surface water standards (see Table 8-3)

Key:
LOAEL = Lowest observed adverse effect level.
µg/kg = Micrograms per kilogram.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.
Shading = Primary COPC based on considerations described in text.
TRV = Toxicity reference value.
X = Benchmark or TRV exceeded.

Source: Ecology and Environment Engineering, P.C., 2007

Note: Ecological covertype boundaries are based on site reconnaissance conducted by EEEPC personnel in December 2005.

Figure 8-1
Site Ecological Covertypes and Drainage Pathways
Buoy 212 Dredge Spoil Disposal Area
Fort Edward, New York



Source: U.S. Fish & Wildlife Service,
National Wetlands Inventory; Glen Falls Quad.

Key:

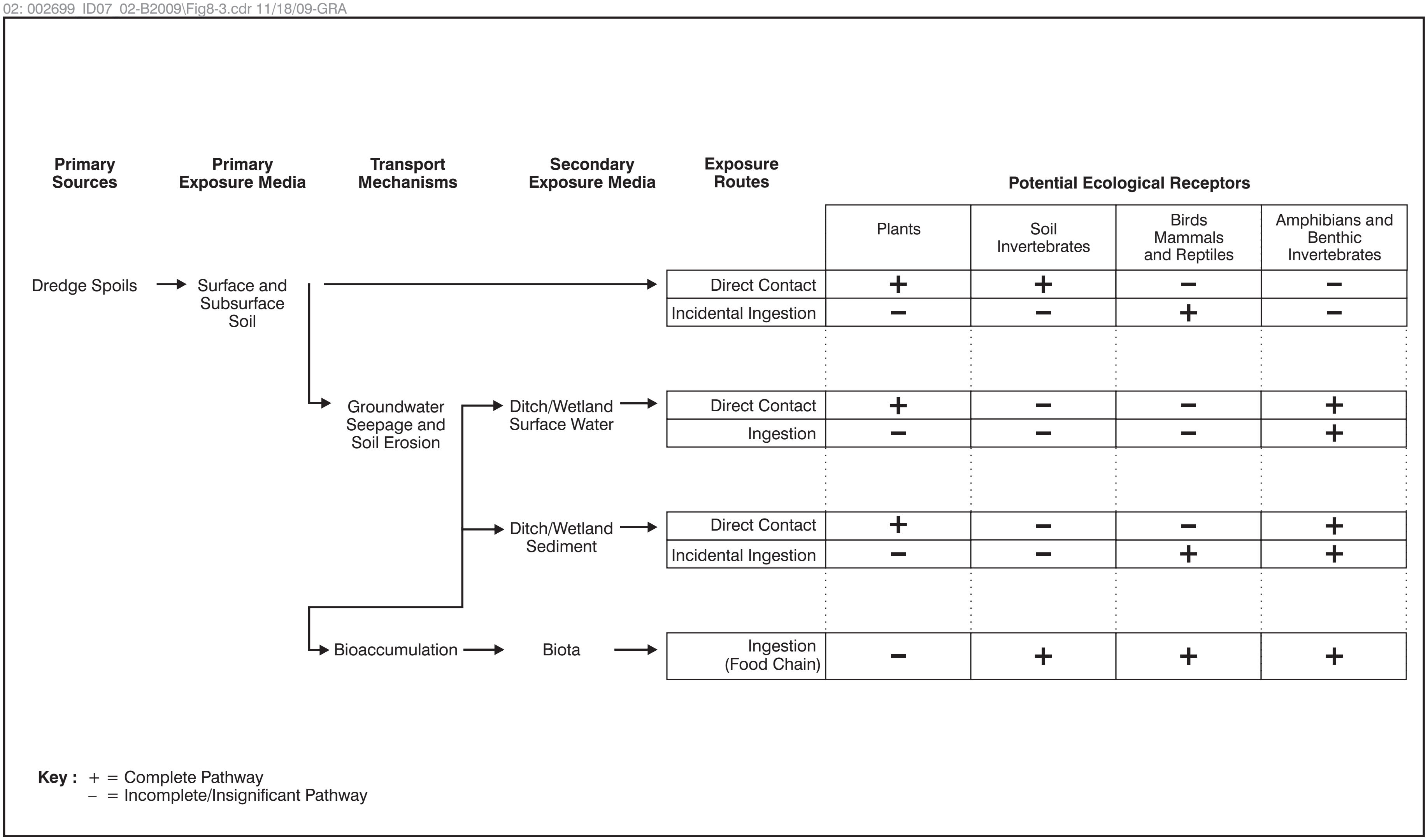
- Approximate Site Boundary
- National Wetland Inventory (NWI) Wetlands

N
W E
S

0 1,000 2,000
Feet

Figure 8-2
NWI Wetlands in the Vicinity of the Buoy 212 Dredge Spoil Disposal Area Fort Edward, New York

02: 002699_ID07_02-B2009\Fig8-3.cdr 11/18/09-GRA



SOURCE: Ecology and Environment Engineering, PC, 2006

Figure 8-3 Preliminary Ecological Conceptual Site Model, Buoy 212 Dredge Spoil Disposal Area, Fort Edward, New York

9 Summary and Conclusions

9.1 Project Summary

Summary of Site Investigation

The tasks associated with the Buoy 212 RI activities included site reconnaissance and a records search; a surface soil sampling program; a subsurface soil sampling program; exploration borehole and well drilling programs with concurrent subsurface soil sampling elements; groundwater monitoring well installation and groundwater sampling programs; a drainage network soil and water sampling program; surveying and mapping programs; completion of a human health risk evaluation and a screening-level ecological risk assessment; and report preparation. The investigation began in April 2005 and extended to July 2008. Quarterly groundwater sampling was performed in March, June, October, and December 2006.

EEEPC completed the elements of the remedial investigation at the Buoy 212 project site under State Superfund Contract Work Assignment D004435-07 with the NYSDEC DER. Analytical services were provided by Severn Trent Laboratories in Amherst, New York, and data validation was conducted by EEEPC. Drilling and excavation services were provided by GeoLogic NY, Inc. of Cortland, New York and Aztech Technologies of Balston Spa, New York in 2006 and 2008, respectively. Joseph C. Lu Engineers of Penfield, New York, provided surveying services during investigation activities performed in 2006. Popli Consulting Engineers and Surveyors of Penfield, New York provided surveying services during the supplemental investigation work.

9.2 Nature and Extent of Contamination

The following is a summary of the investigations conducted and the contaminants of concern detected at the site:

9.2.1 Drainage Network Soil and Water Sampling

There are no sustained surface water bodies on this site. One area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property was identified and sampled once. Water that collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. At the time of sampling, water was flowing through the pass-through culvert and samples were collected along the water path on the west side of the disposal structure. Soil samples were also collected along the water path at the locations where the drainage water samples were collected for analysis.

Eight drainage network soil samples and eight drainage water samples were collected at this site. Drainage network soil and water sample sets were collected at three locations in the drainage way along the eastern margin, at three locations in the area runoff collects intermittently in the southeastern part of the Buoy 212 property, and at two locations along the drainage network on the west side of the disposal structure and on the floodplain shelf adjacent to the Hudson River. The following summarizes the results:

- Two of the eight drainage network samples contained PCBs at concentrations of 2.9 ppm and 8.3 ppm.; These results are at concentrations greater than the NYSDEC Part 375-6.8 SCO established for the unrestricted use of the site (0.1 ppm) and for the SCO applicable to the restricted - commercial use of the site (1.0 ppm). The sample with the higher PCB result was located in the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. The other result was located along the margin of the cover on the eastern side of the site in the vicinity of an area where burrowing animals are thought to have brought dredge spoil materials to the surface.

- Seventeen metals were detected in drainage network soil samples collected from the site. Chromium, lead, mercury and zinc were present at concentrations exceeding applicable NYSDEC SCOs and aluminum, calcium, iron, magnesium, and potassium were found at concentrations exceeding alternative screening criteria (New York State (95th percentile), Source-Distant Data Set from NYS Brownfield Cleanup Program, Technical Support Document, Appendix D, September 2006). In general, the highest concentrations of metals were found at a sample location in the Hudson River floodplain along the southwestern margin of the site. This location is also where the drainage network soil sample with the highest PCB result was collected.

- None of the eight drainage water samples that were collected contained PCBs.

- A total of 10 metals were detected in the drainage water samples collected in the drainage network at the site. Of these, aluminum and iron were detected at concentrations above the NYSDEC Class D surface water standards they were compared to for assessment in nearly all of the eight samples, but the results appear to represent natural conditions of the native soil rather than contamination attributable to the disposal of dredge spoil materials at this site.

9.2.2 Surface Soil Samples

Surface soil samples (covering the 0 to 2-inch soil depth interval) were collected from 65 locations at this site to assess direct human exposures. Samples from the surface at some of the exploration boreholes advanced at this site also contributed to the overall surface soil assessment. Twenty-six samples were collected from locations on the closed and covered dredge spoil disposal structure at this site and 39 samples were collected from locations beyond the margins of the disposal structure, including 14 points in the Hudson River floodplain along the west side of the site. All 65 samples were analyzed for PCBs; 10 samples were analyzed for cadmium, chromium, lead, and mercury only; and two samples were analyzed for the full suite of 23 TAL metals. The following summarizes the analytical results:

- Results confirm PCBs at 42 surface soil sampling points with 21 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 12 samples reporting concentrations above 1.0 ppm (the restricted use - commercial - SCO applicable to this site). The highest PCB concentration in surface soil was 9.9 ppm in sample PBH-01-01 collected from the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. Nearly all of the other results found above the applicable SCOs were either located along the margins of the cover over the site or on top of the cover in the vicinity of areas where burrowing animals are thought to have brought dredge spoil materials to the surface. PCBs in soil are the risk drivers for human health and for wildlife.

- Results indicate that chromium and mercury (metals that may be attributable to the contaminated dredge spoil materials at the site or, in some cases, historical and reoccurring floodplain deposition of contaminated Hudson River sediments) were found at levels exceeding their respective unrestricted and commercial use SCO values in a few of the surface soil samples collected at this site. Other metals including aluminum, calcium, cobalt, iron, manganese, nickel, potassium, and sodium were found at levels exceeding their applicable SCO in one of the two samples analyzed for the full suite of 23 Target Analyte List metals during this project. None of these metals are significant risk drivers for either human health or for wildlife in light of their low frequency.

9.2.3 Subsurface Soil

9.2.3.1 Subsurface Soil Sampling Results from Boreholes

One hundred and twenty-seven subsurface soil samples (deeper than the 0 to 2-inch soil depth interval) were collected from 56 locations at this site and analyzed for PCBs and metals. Subsurface soil samples were collected from the 13 cover boreholes (any boring advanced through the obvious cover over the closed dredge spoil disposal structure), the nine margin boreholes (any boring advanced in areas along the supposed margins of the cover area), the three new monitoring well boreholes, six of the southern area boreholes (any boring installed in the area south of the closed dredge spoil disposal structure), and 25 of the perimeter boreholes (any sampling point advanced using a hand auger at the site) installed in and around the closed and covered dredge spoil disposal structure as part of the exploration borehole and well drilling programs at the Buoy 212 site. These programs, and their concurrent subsurface soil sampling elements, were used to evaluate the subsurface soil and local groundwater conditions and chemistry at the Buoy 212 site; define the nature and three-dimensional extent of any identified contamination at or in the vicinity of the site; and define and evaluate potential pathways of contaminant migration. The information gathered during this program also used to define the extent of cover over the closed dredge spoil disposal structure at this site.

The cover boreholes and the monitoring well boreholes were installed to a maximum depth of 20.2 feet below the existing ground surface and up to five subsurface soil sample intervals were collected for chemical analysis from each borehole. Samples selected for chemical analysis at each of these boreholes included at least: one sample of any material that could be characterized as dredge spoil (if present and distinguishable), one sample from a soil interval above any distinguishable dredge spoil material, and one sample from a soil interval below any distinguishable dredge spoil material, as applicable. The nine margin boreholes were drilled to a maximum depth of 11 feet below the existing ground surface. The southern area boreholes were installed to depths ranging between two and eight feet using a direct-push drill rig. The perimeter boreholes were installed to a maximum depth of two feet using a hand auger or shovel. Up to three subsurface soil samples were collected from each of these locations. As with the cover borehole and monitoring well borehole locations, one soil sample selected for chemical analysis at each of these other boreholes included at least one sample of any material that could be characterized as dredge spoil (if present and distinguishable) and one sample from a soil interval below any distinguishable dredge spoil material, as applicable. All subsurface soil recoveries were screened with a PID for organic vapors and a description of the soil core was recorded in the logbook. All subsurface soil samples selected for chemical analysis were placed in appropriate sample containers using a dedicated stainless-steel spoon for each individual sample.

The dark gray to black, fine to medium sands with varying amounts of silt, black shale fragments, pebble gravel, brick fragments, coal fragments, fused slag, glass shards, and wood debris that could be characterized as dredge spoil materials, varied in thickness from a few inches to nearly 13 feet under the cover established at the site. The following summarizes the analytical results:

- Results confirm PCBs in 76 subsurface soil samples with 66 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 53 samples reporting concentrations above 1.0 ppm (the restricted use - commercial - SCO applicable to this site). Samples containing PCB concentrations above 0.1 ppm were generally collected at depths between 4 feet and 18.5 feet below grade.

- The two highest PCB concentrations in the soil under the existing isolation cover were 47 ppm at a depth of 12 feet below grade in CBH-02, and 39 ppm at a depth of 14 feet below grade in CBH-03.

- The highest PCB concentration in the subsurface soil outside of the existing isolation cover and in the vicinity of the closed and covered former dredge spoil disposal area was 2.4 ppm. Nearly all of the subsurface soil results found above the applicable SCOs outside of the existing isolation cover were either located in samples collected from the Hudson River floodplain or in the vicinity of areas where burrowing animals are thought to have disturbed dredge spoil materials along the margins of the closed and covered dredge spoil disposal area.

- PCBs in soil are the risk drivers for human health and for wildlife.

- Cadmium and chromium (metals that may be attributable to the contaminated dredge spoil materials at the site or, in some cases, historical and reoccurring floodplain deposition of contaminated Hudson River sediments) were found at levels exceeding their respective unrestricted use SCO values in a few subsurface soil samples analyzed for these metals. Cadmium was found at CBH-04 in a sample interval between 5.5 and at 6 feet below grade and at CBH-08 in a sample interval between 4.2 and 5 feet below grade. Chromium was found at CBH-08 in a sample interval between 4.2 and 5 feet below grade and at PBH-21 in a sample interval between 0.2 and 2 feet below grade. These metals are not significant risk drivers for either human health or for wildlife at the site in light of their depth and low frequency.

- Iron was found at a level exceeding the applicable SCO in one of the four samples analyzed for the full suite of 23 Target Analyte List metals during this project. This one sample came from a depth interval between 1.5 and 1.9 feet below grade at CBH-04A. Iron exceeding the applicable SCO at this depth and in this low of a frequency is not significant risk driver for either human health or for wildlife at the site.

9.2.4 Groundwater

A total of 32 groundwater samples were collected from eight groundwater monitoring wells around the site in March, June, September-October, and December of 2006 to assess the overburden groundwater conditions at the site. All 32 samples were analyzed for PCBs and metals. In addition, a single groundwater sample was collected from a residential well near the site in June of 2008. The well draws water from the overburden aquifer. The sample was analyzed for PCBs and metals.

Mapping shows that groundwater flow at this site typically moves away from the topographic rise on the eastern side and toward the Hudson River in a general west-southwest direction. Based on groundwater elevation measurements and other observations made during the Remedial Investigation, lines of equal groundwater elevation are nearly parallel with the shore of the River and groundwater appears to flow through the native overburden soils just below the dredge spoil materials placed at the site most of the year. Groundwater elevations across the site ranged from approximately 118 feet to 123 feet above mean sea level during the investigation period. As expected, the lowest groundwater elevations were observed during the September monitoring event, when seasonal precipitation was relatively low. The following summarizes the analytical results:

- PCBs were not detected in any of the groundwater samples collected from the monitoring wells at this site during any sample collection event associated with this investigation. In addition, PCBs were not detected in the water sample collected from the nearby residential well in June 2008.

- Cadmium, chromium, lead, and mercury - the primary metals of concern at the site and potentially attributable to the contaminated dredge spoil materials placed here, were not found at levels exceeding their respective SCO values in any of the groundwater samples. Other metals (iron, magnesium, manganese, and sodium) were found at levels that exceeded their respective SCO values in the groundwater around the site, but these findings appear to represent natural conditions. The groundwater standards for these four metals are based on aesthetics and not the protection of human health and, as such, are not considered to be a concern.

9.3 Fate and Transport

The placement and stockpiling of dredge spoil material associated with routine and emergency maintenance dredging operations of the New York State Champlain Canal/Hudson River navigation channel between Canal Lock 7 (Fort Edward) and the floating red nun channel marker Buoy 212 south of Lock 7, have resulted in the disposal of hazardous wastes, including PCBs and metals. These wastes, sporadically entrained within the sediment of the Hudson River and subsequently removed with some of the sediment from the Champlain Canal/Hudson River navigation channel as dredge spoil material in the past, have contaminated the soil at the Buoy 212 site. Historical and reoccurring floodplain deposition of contaminated Hudson River sediments appear to have contaminated the soil upon the narrow floodplain shelf between the Hudson River and the western margin of the closed and covered Buoy 212 dredge spoil disposal site. Even though some environmental samples collected at the site contain metals that can be attributed to site activities at concentrations above the recommended SCOs or alternative screening criteria, in general, the number of metal exceedances was less frequent than the number of PCB exceedances. Therefore, PCBs are the primary contaminants of concern at this site.

9.3.1 Source Areas

The closed and covered basin and earthen containment berm complex at this site had been used to dewater and hold sediment/dredge spoil material associated with routine and emergency maintenance dredging operations of the New York State

Champlain Canal/Hudson River navigation channel between Champlain Canal Lock 7 (Fort Edward) and the floating red nun channel marker Buoy 212 south of Lock 7 in the past. Some of these dredge spoil materials have been found to contain variable concentrations of PCBs and have been confirmed as a source for some of the known distribution of PCB contamination at this site. Historical and reoccurring floodplain deposition of contaminated Hudson River sediments appear to have contaminated the soil upon the narrow floodplain shelf between the Hudson River and the western margin of the closed and covered Buoy 212 dredge spoil disposal site. Some of the soils in the floodplain have been found to contain variable concentrations of PCBs and have been confirmed as a source for some of the known distribution of PCB contamination at this site.

Previous studies (Malcolm Pirnie 1992) estimated that the closed and covered basin and earthen containment berm structure at the Buoy 212 site contained 72,400 cubic yards of PCB-contaminated materials (not including the interim cover constructed in 1991). Taking into account the extent of exploration work and sampling done to define the nature and three-dimensional extent of any identified contamination at or in the vicinity of the site during this remedial investigation, the estimated volume of contaminated material in the closed and covered dredge spoil disposal structure was revised to be 56,000 cubic yards.

9.3.2 Routes of Migration

Natural mechanisms that can result in the migration of contaminants from their source areas at this site were determined to be overland water flow and infiltration in areas not under the relatively impermeable cover established over the closed dredge spoil disposal structure at this site. Each mechanism is summarized below:

- Overland water flow at the Buoy 212 site occurs primarily during heavy precipitation events or spring snow melts as surface runoff. During heavy precipitation events, runoff is shed radially away from the higher areas of the closed and covered dredge spoil disposal area to the topographic low areas along the eastern and western margins. Along the eastern margin, runoff from Buoy 212 and nearby areas intermittently flows southward and collects in the southeastern part of the Buoy 212 property. Water that intermittently collects in this area has the potential to drain from the east side of the closed and covered former dredge spoil disposal structure to the west side through a steel culvert when the water level is high enough to spill through. Once on the west side of the dredge spoil disposal structure, the water drains across a narrow floodplain shelf to the adjacent Hudson River. When the volume of collected water is not great enough to spill through the steel culvert, the runoff either infiltrates and/or evaporates without reaching the Hudson River as direct runoff. Along the western margin, runoff accumulates in the lowest portions of the narrow floodplain shelf and either drains slowly into the Hudson River through breaks in the natural and armored bank levy or infiltrates and/or evaporates without reaching the Hudson River as direct runoff.

- Recognizing that there are some areas of soil contamination that are not covered by the relatively impermeable barrier in place over the Buoy 212 dredge spoil disposal structure, infiltration of precipitation and the subsequent flow/percolation of water through the unsaturated zone to groundwater, can cause water soluble contaminants on the surface or in the vadose zone to migrate downward to the water table. Considering that PCBs are relatively insoluble in water, they are not expected to appreciably leach into groundwater. The potential for PCB migration by water is further reduced by the presence of organic carbon in the soil between the surface and the top of the groundwater table, providing carbon sites where PCBs may bind.

- The Buoy 212 dredge spoil disposal structure is closed and covered with a relatively impermeable barrier and is fenced along its perimeter. Unauthorized access to the closed and covered disposal cell and the adjoining Hudson River floodplain area is limited. Considering the current setting of the Buoy 212 site, the migration of PCBs bound to surface soil is very limited.

9.4 Qualitative Human Health Risk Evaluation

PCBs, cadmium, chromium, lead, and, mercury have been identified as the COPCs in some of environmental samples collected at this site and were evaluated along current and potential future exposure pathways to assess the potential for human exposure risks. The magnitude of exposure and likelihood of potential adverse health effects were assessed qualitatively through comparisons with appropriate risk-based concentrations that were available.

Current human users at and near the closed and covered dredge spoil disposal structure include adult NYSDOT workers involved in sample collections, site inspections, and/or site maintenance activities (like mowing and fence repair) as needed. NYSDOT workers were assumed to be exposed to soil/dredge spoil material at the surface and/or brought to the surface during earth moving activities, in all areas of the site, but primarily within the fenced area where the closed and covered dredge spoil disposal structure is situated. However unlikely, if the site is redeveloped in its current state, potential future site users could include site residents and temporary construction, utility, and maintenance workers. During this hypothetical redevelopment, subsurface soil/dredge spoil material could be brought to the surface as a result of grading and excavation activities associated with construction. Thus, potential future site residents and temporary construction, utility, and maintenance workers were assumed to be exposed to soils/dredge spoil materials to a depth of 10 feet.

The estimated excess cancer risks associated with exposure to the identified COPCs in soil for current site users (adult NYSDOT workers involved in sample collections, site inspections, and/or site maintenance activities as needed) are below the ranges generally considered acceptable by the EPA and NYSDEC/NYSDOH, and the non-cancer hazard estimates for these receptors are below the level of potential concern - a non-cancer hazard index of 1. Therefore no adverse health effects would be expected in these receptors as a result of exposure to COPCs at the site.

The estimated excess cancer risk calculated for potential future site users (construction workers and adult and child residents) exposed to the identified COPCs in soil are within or below the generally acceptable range. The non-cancer hazard estimates for potential future site construction workers and adult residents exposed to soil are at or below the maximum generally acceptable value of potential concern - a non-cancer hazard index of 1. The non-cancer hazard index estimate calculated for exposure to soil for the potential future child resident was 7, indicating that there may be the potential for adverse health effects due to exposure to PCB-contaminated soil/dredge spoil material. However, due to the uncertainly associated with reference doses and the conservative nature of this assessment, resident child exposure to PCB-contaminated soil/dredge spoil material is not likely to result in any adverse health effects. This potential hazard is attributable to presumed PCB exposure to soil at the surface in the Hudson River floodplain along the western margin of the Buoy 212 site outside of the Buoy 212 perimeter fence.

9.5 Screening-Level Ecological Risk Assessment

The ecological risk assessment evaluated the existing and potential impacts from the Buoy 212 site to fish and wildlife receptors. This assessment was limited to terrestrial and aquatic habitats that are within the Buoy 212 parcel and does not include the nearby Hudson River or the Champlain Canal. The Hudson River and the portions of the Champlain Canal that are within it are being addressed by the EPA Hudson River PCBs Superfund Site remedial program. The ERA results are summarized below:

- Chemicals detected in soil did not exceed the available phytotoxicity screening benchmarks. Considering this, soils at the site do not pose a risk to terrestrial plant communities.

- The mercury screening benchmark was marginally exceeded at four sampling locations on site; however, three of the exeedances occurred in samples collected between four and six feet below the ground surface, where the potential for exposure is limited. No other chemicals exceeded the available screening benchmarks. Overall, these results suggest that risks to soil invertebrates from chemicals in soil at the site are minimal.

- Based on food-chain modeling results, total PCB concentrations in soil are likely to pose a risk to song birds, such as the American robin, and small mammals, such as the short-tailed shrew, that feed extensively on soil invertebrates. Risks to carnivorous birds and mammals and other wildlife species with large home ranges appear to be minimal.

- Immature stages of amphibians in the area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property may be at risk from aluminum and iron based on comparison with surface water standards for these substances in the drainage water samples collected from the site.

- Benthic organisms in the intermittent drainage network along the eastern site margin and on the floodplain shelf adjacent to the Hudson River may be affected by several substances (total PCBs, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and vanadium) that were reported above established benchmarks for benthic-life protection in the drainage network soil samples collected from these areas. However, considering that only low-level effect benchmarks were exceeded in a few of the samples, the likelihood of a community-level impact probably is low.

Overall, the current environmental conditions at the site pose little or no risk to communities of terrestrial plants and soil invertebrates, but may pose a risk to some wildlife species and perhaps also to aquatic life in the intermittent drainage network on the site and on the floodplain adjacent to the Hudson River

9.6 Conclusions and Recommendations

Conclusions

- The placement and stockpiling of dredge spoil material associated with routine and emergency maintenance dredging operations of the New York State Champlain Canal/Hudson River navigation channel between Champlain Canal Lock 7 (Fort Edward) and the floating red nun channel marker Buoy 212 south of Lock 7, have resulted in the disposal of hazardous wastes, including PCBs and metals. These wastes, sporadically entrained within the sediment of the Hudson River and subsequently removed with some of the sediment from the Champlain Canal/Hudson River navigation channel as dredge spoil material in the past, have contaminated the soil at the Buoy 212 dredge spoil disposal site.

- Historical and reoccurring floodplain deposition of contaminated Hudson River sediments appear to have contaminated the soil upon the narrow floodplain shelf between the Hudson River and the western margin of the closed and covered Buoy 212 dredge spoil disposal site.

- PCB-contaminated soils/dredge spoil materials are found throughout the closed and covered dredge spoil disposal structure at the Buoy 212 site. These soils/dredge spoil materials are typically dark gray to black, fine to medium sands with varying amounts of silt, black shale fragments, pebble gravel, brick fragments, coal fragments, fused slag, glass shards, and wood debris. Based on observations made during borehole drilling and sampling, materials that could be characterized as dredge spoils varied in thickness from a few inches to nearly 13 feet under the cover established at the site.

- PCBs are present in surface and subsurface soil in some areas of the site at concentrations that exceed the recommended SCOs. However, considering all factors associated with assessing the potential for human exposure, the concentrations of PCBs found in the contaminated soil/dredge spoil are not likely to result in adverse health effects and represent a low risk to humans under the current and anticipated future uses for the site.

- PCBs in surface soil samples (covering the 0 to 2-inch soil depth interval) were confirmed at 42 surface soil sampling points with 21 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 12 samples reporting concentrations above 1.0 ppm (the restricted use - commercial - SCO). The highest PCB concentration in surface soil was 9.9 ppm in a sample collected from the Hudson River floodplain along the southwestern margin of the closed and covered dredge spoil disposal area. Nearly all of the other results found above the applicable SCOs were either located along the margins of the cover over the site or on top of the cover in the vicinity of areas where burrowing animals are thought to have brought dredge spoil materials to the surface.

- PCBs in subsurface soil samples (deeper than the 0 to 2-inch soil depth interval) were confirmed in 76 subsurface soil samples with 66 samples reporting concentrations above 0.1 ppm (the unrestricted use SCO) and 53 samples reporting concentrations above 1.0 ppm (the restricted use - commercial - SCO). The highest PCB concentration in the soil under the existing isolation cover was 47 ppm. The highest PCB concentration in the subsurface soil outside of the existing isolation cover and in the vicinity of the closed and covered former dredge spoil disposal area was 2.4 ppm. Nearly all of the subsurface soil results found above the applicable SCOs outside of the existing isolation cover were either located in samples collected from the Hudson River floodplain or in the vicinity of areas where burrowing animals are thought to have disturbed dredge spoil materials along the margins of the closed and covered dredge spoil disposal area.

- Although the immature stages of amphibians in the area where precipitation intermittently drains along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property may be at risk from aluminum and iron based on comparison with surface water standards for these substances, environmental contamination attributable to the dredge spoil materials at the site poses little or no risk to communities of terrestrial plants, invertebrates in soil, or carnivorous birds and mammals.

- Monitoring continues to demonstrate that groundwater is not being impacted by any contaminants attributable to the dredge spoil materials at Buoy 212.

- A single residential well near the site that draws water from the overburden aquifer has been sampled and did not show any impact attributable to the site.

Recommendations for Future Work.

- A detailed study of earthworms collected from the Buoy 212 parcel that involves chemical analysis for total PCBs should be considered to establish a site-specific measurement for the amount of PCB uptake in earthworms as prey of invertivorous wildlife and reduce uncertainty in the risk estimates for the American robin and short-tailed shrew.

- Additional ecological evaluation should be considered for the Buoy 212 site that involves the collection of drainage water and soil from the area where precipitation intermittently flows along the eastern margin and collects intermittently in the southeastern part of the Buoy 212 property for use in short-term, chronic toxicity tests to assess whether chemicals that exceed benchmarks in the water and soil from these areas result in observable toxicity.

The findings of these proposed studies/evaluations (if implemented) will be submitted under separate cover. A companion feasibility study has been done to address the contamination identified in this RI and provides remedial alternative recommendations.

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A Particulate Monitoring Data

Dust Monitoring Data collected upwind at Buoy 212 on 21st February, 2006			
DataRAM Tag Number .... 1 Number of logged points.......... 7 Start time (hr: min: sec day/mon/yr)... 15:26:56 21-Feb-06 Elapsed time (hr: min: sec).............. 01:45:00 Averaging Time (sec)............. 10 Logging period (hr: min: sec)...... 00:15:00 Cal Factor (%).................... 100 StelConc (ug/m3)................. 0.0 STEL occurrence after start (hr: min: sec)....... 00:00:00 Overall Avg Conc (ug/m3).......... 36.6 Overall Max Conc (ug/m3).......... 53.5 at Point#...1 Overall Min Conc (ug/m3).......... 0.0 at Point#...1			
Point Label	Minimum (ug/m^3)	Average (ug/m^3)	Maximum (ug/m^3)
2/21/2006 15:41	0	38.1	53.5
2/21/2006 15:56	30.3	35.9	41.8
2/21/2006 16:11	30.1	34.6	38.8
2/21/2006 16:26	33	36.5	43.1
2/21/2006 16:41	32.2	35.5	43.7
2/21/2006 16:56	32.6	35.6	41.3
2/21/2006 17:11	34	40	46.4

Dust Monitoring Data collected downwind at Buoy 212 on 21st February, 2006			
DataRAM Tag Number .... 1 Number of logged points.......... 7 Start time (hr:min:sec day/mon/yr)... 15:21:09 21-Feb-06 Elapsed time (hr: min: sec).............. 01:45:00 Averaging Time (sec)............. 10 Logging period (hr:min:sec)...... 00:15:00 Cal Factor (%).................... 100 StelConc (ug/m3)................. 0.0 STEL occurrence after start (hr:min:sec)....... 00:00:00 Overall Avg Conc (ug/m3).......... 29.1 Overall Max Conc (ug/m3).......... 89.4 at Point#...2 Overall Min Conc (ug/m3).......... 0.0 at Point#...1			
Point Label	Minimum (ug/m^3)	Average (ug/m^3)	Maximum (ug/m^3)
2/21/2006 15:36	0	28.9	42.9
2/21/2006 15:51	23.6	31.4	89.4
2/21/2006 16:06	22.5	26.9	36.7
2/21/2006 16:21	23.7	29.4	50.4
2/21/2006 16:36	24.8	28.7	39.1
2/21/2006 16:51	24.5	28.2	41.9
2/21/2006 17:06	24.6	30.5	46.8

Dust Monitoring Data collected upwind at Buoy 212 on 22nd February, 2006			
DataRAM Tag Number .... 2 Number of logged points.......... 5 Start time (hr:min:sec day/mon/yr)... 16:25:41 22-Feb-06 Elapsed time (hr: min: sec)............. 01:15:00 Averaging Time (sec)............. 10 Logging period (hr:min:sec)...... 00:15:00 Cal Factor (%).................... 100 StelConc (ug/m3)................. 0.0 STEL occurrence after start (hr:min:sec)....... 00:00:00 Overall Avg Conc (ug/m3).......... 46.1 Overall Max Conc (ug/m3).......... 75.6 at Point#...5 Overall Min Conc (ug/m3).......... 0.0 at Point#...1			
Point Label	Minimum (ug/m^3)	Average (ug/m^3)	Maximum (ug/m^3)
2/22/2006 16:40	0	48.1	55.2
2/22/2006 16:55	42.2	46.2	50.2
2/22/2006 17:10	39.2	45.1	53.8
2/22/2006 17:25	37.1	43.4	59.3
2/22/2006 17:40	37.3	47.7	75.6

Dust Monitoring Data collected downwind at Buoy 212 on 22nd February, 2006			
DataRAM Tag Number .... 2 Number of logged points.......... 5 Start time (hr:min:sec day/mon/yr)... 16:25:09 22-Feb-06 Elapsed time (hr: min: sec)............. 01:15:00 Averaging Time (sec)............. 10 Logging period (hr:min:sec)...... 00:15:00 Cal Factor (%).................... 100 StelConc (ug/m3)................. 0.0 STEL occurrence after start (hr:min:sec)....... 00:00:00 Overall Avg Conc (ug/m3).......... 36.2 Overall Max Conc (ug/m3).......... 60.1 at Point#...5 Overall Min Conc (ug/m3).......... 0.0 at Point#...1			
Point Label	Minimum (ug/m^3)	Average (ug/m^3)	Maximum (ug/m^3)
2/22/2006 16:40	0	38.1	57.1
2/22/2006 16:55	32	36.2	46
2/22/2006 17:10	29.8	33.9	40
2/22/2006 17:25	29.1	34.6	52.2
2/22/2006 17:40	25.7	38.2	60.1

B

Photographic Log

Photo/Frame No.:	Buoy212-1	**Direction of View:**	
Date/Time:	11/30/05 12/01/05	**Subject:**	Southeast corner of **Buoy 212** site showing flooded condition.
Photographer:	Carl Mach, E&E HQ		

Photo/Frame No.:	Buoy212-2	**Direction of View:**	
Date/Time:	11/30/05 12/01/05	**Subject:**	Stream leaving **Buoy 212** site. Note wooded character of the narrow strip of land between the site and Hudson River.
Photographer:	Carl Mach, E&E HQ		

Photo/Frame No.:	Buoy212-3	**Direction of View:**	
Date/Time:	11/30/05 12/01/05	**Subject:**	View of stream in shallow ravine on **Buoy 212** site. Note boundary fence and turbid water.
Photographer:	Carl Mach, E&E HQ		

Photo/Frame No.:	Buoy212-4	**Direction of View:**	South
Date/Time:	11/30/05 12/01/05	**Subject:**	Wide spot in stream on **Buoy 212** site
Photographer:	Carl Mach, E&E HQ		

Photo/Frame No.:	Buoy212-5	**Direction of View:**	North
Date/Time:	11/30/05 12/01/05	**Subject:**	Surface of **Buoy 212** site
Photographer:	Carl Mach, E&E HQ		

Photo/Frame No.:	Buoy212-6	**Direction of View:**	NNW
Date/Time:	11/30/05 12/01/05	**Subject:**	Surface of **Buoy 212** site. Note birdhouses, mowed surface, fence, and Hudson River.
Photographer:	Carl Mach, E&E HQ		

Photo/Frame No.:	Buoy212-7	**Direction of View:**	
Date/Time:	11/30/05 12/01/05	**Subject:**	South gate at **Buoy 212** site.
Photographer:	Carl Mach, E&E HQ		

Photo/Frame No.:	Buoy212-8	**Direction of View:**	
Date/Time:	11/30/05 12/01/05	**Subject:**	South gate at **Buoy 212** site.
Photographer:	Carl Mach, E&E HQ		

Photo/Frame No.: ____________ **Direction of View:** ____________
Date/Time: ____________ **Subject:** ____________
Photographer: ____________ ____________

Photo/Frame No.: ____________ **Direction of View:** ____________
Date/Time: ____________ **Subject:** ____________
Photographer: ____________ ____________

Photo/Frame No.: __________ Direction of View: __________
Date/Time: __________ Subject: __________
Photographer: __________

Photo/Frame No.: __________ Direction of View: __________
Date/Time: __________ Subject: __________
Photographer: __________

C Borehole and Monitoring Well Logs

Borehole Record for MBH01

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. MBH 01

DRILLING LOG FOR MB01

Project Name: Buoy 212

Site Location: Ft Edward, NY

Date Started/Finished: 3/1/06

Drilling Company: GeoLogic NY

Driller's Name: Dave Lyons

Geologist's Name: Rick Watt

Geologist's Signature: RWatt

Rig Type (s): CME 45

Drilling Method (s): HSA / Split spoon

Bit Size (s): N/A   Auger Size (s): 4¼" ID

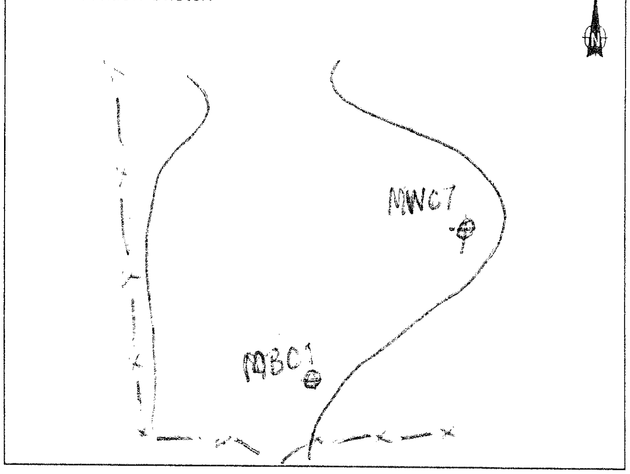
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 8'

Total Depth of Corehole Is: N/A

Water Level (TOIC)		
Date	Time	Level(Feet)

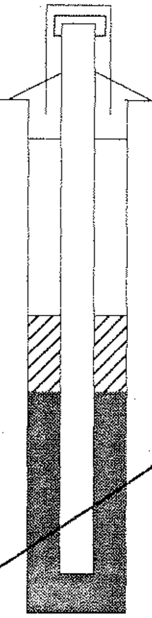
Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID (ppm)	Comments
1	1	3	3				1.2'			0	
2		4	4								
3	2	3	10				1.8			0	
4		7	6								
5	3	7	7				2.0'			0.6	Sample MB01-01 5.5-6.0' 1040 RB screen
6		6	6								
7	4	5	5				1.9'			0	Sample MB01-02 6.0-6.5' 1050 RB screen
8		3	3								
9					B.O.H. = 8'						
10											
11											
12											
13											
14											
15											

MB-01

SCREENED WELL



Stick-up ________ ft

Top of Grout ________ ft

Top of Seal at ________ ft

Top of Sand Pack ________ ft

Top of Screen at ________ ft

Bottom of Screen at ________ ft

Bottom of Hole at ________ ft

Bottom of Sandpack at ________

Lock Number ________

Inner Casing Material ________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:
Bentonite Pellets ________

Cement ________

Borehole Diameter ________ inches

Cement/ Bentonite ________

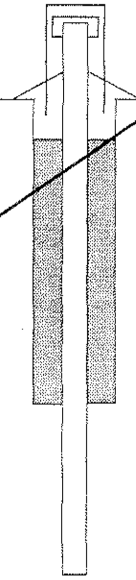
Grout ________

Screen Slot Size ________

Screen Type ________
☐ PVC ________
☐ Stainless Steel ________

Pack Type/Size:
☐ Sand ________
☐ Gravel ________
☐ Natural ________

OPEN-HOLE WELL



Stick-up ________ ft

Inner Casing Material ________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ________ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ________

Bottom of Corehole ________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-2.6' Light brown/tan clay (cap), moist	○	○	○
2	2.6'-2.7' Light brown fine grained sand (cap), moist	○	○	○
3	2.7'-6.0' Dark gray to black silty sand w/ wood fragments	○	○	○
4	(spoils); thin gravel layer at top of interval	○	○	○
5	6-8' Gray fine-grained sand, wet (native)	○	○	○
6		○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

BOREHOLE NO. MBH-03

Borehole Record for MB-02

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. ~~MW-03~~

DRILLING LOG FOR MB02

Project Name: Buoy 212

Site Location: Ft. Edward, NY

Date Started/Finished: 3/1/00

Drilling Company: Geologic NY

Driller's Name: Dave Lyons

Geologist's Name: Rick Watt

Geologist's Signature: [signature]

Rig Type (s): CME 45

Drilling Method (s): HSA / split spoon

Bit Size (s): N/A

Auger Size (s): 4 1/4" ID

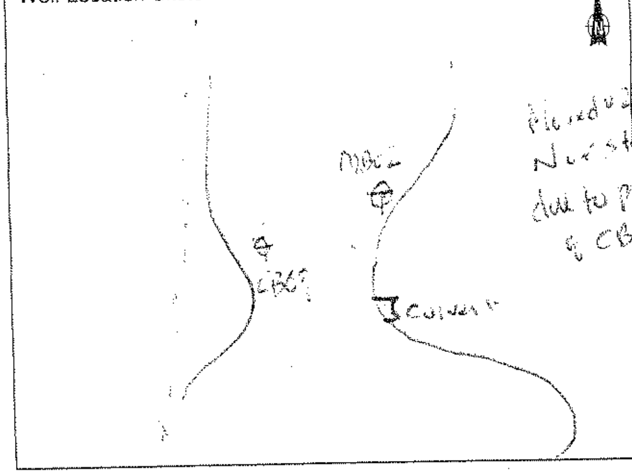
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 12'

Total Depth of Corehole Is: N/A

Water Level (TOIC)		
Date	Time	Level(Feet)

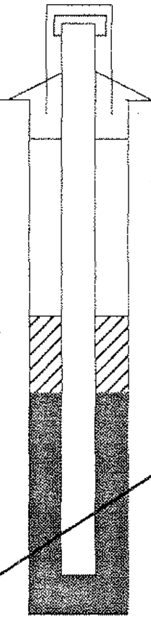
Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID (ppm)	Comments
1	1	4	4				1.2'			0	
2		2	3								
3	2	2	2				2.0'			0	
4		2	2								
5	3	2	3				1.6'			0	sample MB02-01 5-6' 1350 screen for full PCB + dupe for both.
6		5	5								
7	4	2	3				1.1'			0	
8		7	7								
9	5	6	7				1.7'			0	sample MB02-02 9.5-10' 1410 screen PCB
10		7	7								
11	6	4	3				2.0'			0	sample MB02-03 10.5-11' 1415 screen PCB
12		2	2								
13				B.O.H. = ~~10'~~ 12'							
14											
15											

MB-02

SCREENED WELL



Stick-up ____________ ft

Top of Grout ____________ ft

Top of Seal at ________ ft

Top of Sand Pack ________ ft

Top of Screen at _______ ft

Bottom of Screen at ____________ ft

Bottom of Hole at ________________ ft

Bottom of Sandpack at __________

Lock Number ____________

Inner Casing Material ______________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ______________

Cement ______________

Borehole Diameter ________ inches

Cement/ Bentonite ______________

Grout ______________

Screen Slot Size ___________

Screen Type ___________

☐ PVC ______________

☐ Stainless Steel ______

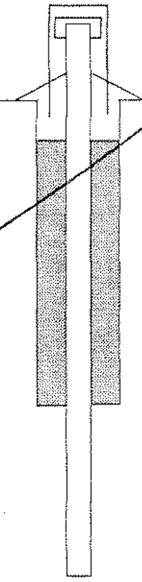
Pack Type/Size:

☐ Sand ______________

☐ Gravel ______________

☐ Natural ______________

OPEN-HOLE WELL



Stick-up ____________ ft

Inner Casing Material ______________

Inner Casing Inside Diameter __________ inches

Outer Casing Diameter __________ inches

Borehole Diameter _________ ft

Bedrock __________ ft

Bottom of Rock Socket/ Outer Casing _______ ft

Bottom of Inner Casing __________ ft

Corehole Diameter ____________

Bottom of Corehole ____________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-2' Light brown/tan clay (cap)	○	○	○
2	2-4.6' Light brown fine-grained sand (cap material); moist	○	○	○
3	4.6-10.5' Dark gray to black sand w/ trace silt, wood	○	○	○
4	fragment @ 5.3' (probable spoils). Occasional	○	○	○
5	wood fragments @ depth.	○	○	○
6	10.5-12' Gray fine-grained sand; moist (native).	○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

BOREHOLE NO. MB-02

Borehole Record for MBH-Ø3

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. MBH 04

BOREHOLE NO. MBH 03

BOREHOLE NO. MBH02

DRILLING LOG FOR MGH Ø3

Project Name: Buoy 212

Site Location: Ft. Edward, NY

Date Started/Finished: 2/27/06

Drilling Company: —

Driller's Name: ID KEEPer - Done By Hand

Geologist's Name: Jon Nickerson

Geologist's Signature: Jon Nickerson

Rig Type (s): N/A

Drilling Method (s): Hand Auger (1")

Bit Size (s): N/A Auger Size (s): 1 1/4"

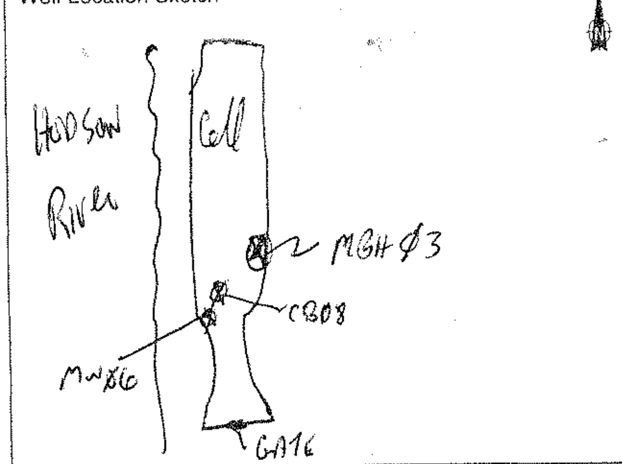
Auger/Split Spoon Refusal: —

Total Depth of Borehole Is: 5.0'

Total Depth of Corehole Is: —

Water Level (TOIC)		
Date	Time	Level (Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~HNu~~/OVA (ppm) P.I.D.	Comments
	1		CL/SL	-	1	100%	-		0	1st Sample 0'-1' 14:11
1										
2	2		S						0	2nd Sample 1'-2' 14:16
3			S			100%				
4	3		S/CL			100%			0	
5	(4)									
			B.O.H: 4.2' BGS							
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

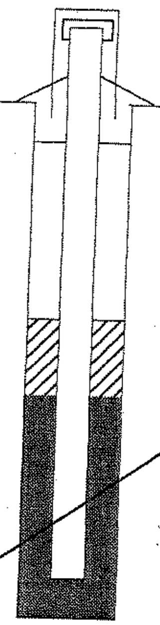
Lock Number ____________

SCREENED WELL

Inner Casing Material ____________

Inner Casing Inside Diameter _____ inches

Stick-up ____________ ft



GROUND SURFACE

Top of Grout ____________ ft

Top of Seal at ________ ft

Top of Sand Pack ________ ft

Top of Screen at _______ ft

Bottom of Screen at ____________ ft

Bottom of Hole at ____________ ft

Bottom of Sandpack at ____________

Quantity of Material Used:
Bentonite Pellets ____________

Cement ____________

Borehole Diameter ________ inches

Cement/ Bentonite ____________

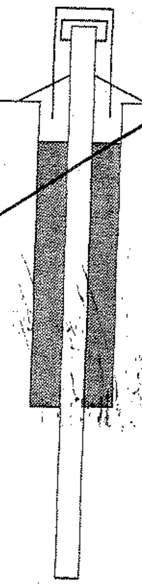
Grout ____________

Screen Slot Size ____________

Screen Type ____________
- ☐ PVC ____________
- ☐ Stainless Steel ______

Pack Type/Size:
- ☐ Sand ____________
- ☐ Gravel ____________
- ☐ Natural ____________

OPEN-HOLE WELL



Stick-up ____________ ft

Inner Casing Material ____________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ______ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ____________

Bottom of Corehole ____________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0"–9": BROWN DAMP CLAY SILT; TRACE GRAVEL (<5%).	X		
2	9" → 1.2' TAN F.G.-M.G. BROWN SAND (CAP)	X		
3	1.2 → 2.2 [illegible] F.G. SAND W/ TRACE GRAVEL.		X	
4	W @ 2.7' BGS 2.2' → 3.2': F.G.-M.G. SAND; F GRAVEL -			X
5	C. SAND % INCREASES [illegible] ≈ 10% W 3.0'-3.2'.			X
6	3.2'–3.9': MORE SAND, AS ABOVE, THEN 3.9' → 4.2': DARK			X
7	BROWN SILTY CLAY; SATURATED; LOW-[illegible] COHESION.			
8				
9				
10				
11				
12				
13				
14				
15				

Borehole Record for MBH Ø4

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. MBH Ø3

BOREHOLE NO. MBHØ6

BOREHOLE NO. MBH Ø7

BOREHOLE NO. MBH Ø8

DRILLING LOG FOR B212 MBH-Ø4

Project Name B/24 212

Site Location FORT EDWARD, NY

Date Started/Finished 9/07/06

Drilling Company HAND - Auger

Driller's Name J. Nicholson

Geologist's Name John Nicholson

Geologist's Signature [signature]

Rig Type (s) N/A HAND Auger

Drilling Method (s) HAND Auger

Bit Size (s) — Auger Size (s) 1¼"

Auger/Split Spoon Refusal N/A

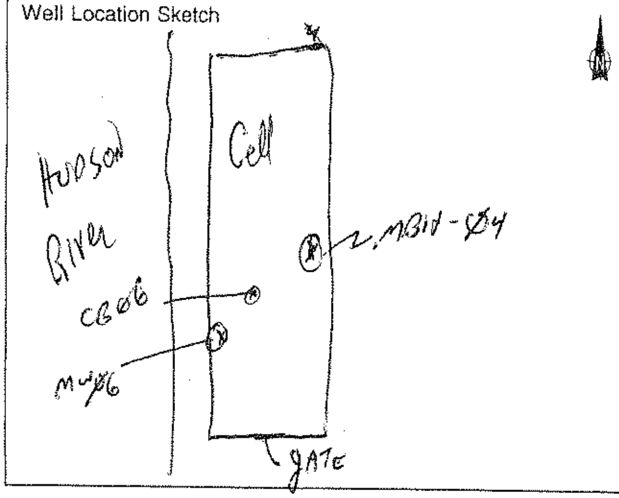
Total Depth of Borehole Is N/A

Total Depth of Corehole Is 5'

Water Level (TOIC)

Date	Time	Level(Feet)

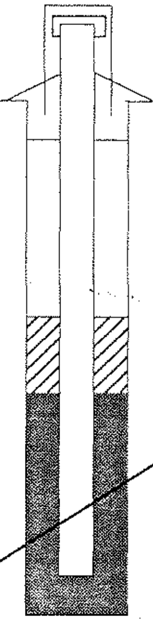
Well Location Sketch



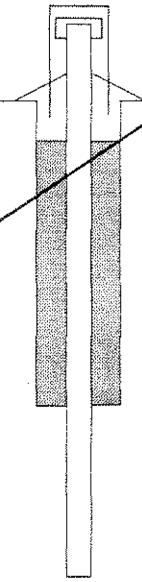
Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID (ppm)	Comments
			CL/SI S							
1	1			—	—	100%			0	Sample MBH-Ø4-Ø1 1435 0.5'-1.5'
2	2					100%				
3	3					100%			0	
4									0	14:37 Sample MBH-Ø4-Ø2 4.1'-4.8'
5										
6			B.O.H.	= 5.0'						
7										
8										
9										
10										
11										
12										
13										
14										
15										

MB-04

SCREENED WELL		Lock Number ____	
		Inner Casing Material ____	
Stick-up ____ ft		Inner Casing Inside Diameter ____ inches	
		GROUND SURFACE	
Top of Grout ____ ft		Quantity of Material Used:	
		Bentonite Pellets ____	
Top of Seal at ____ ft		Cement ____	
		Borehole ____ inches Diameter	
Top of Sand Pack ____ ft		Cement/ Bentonite ____	
Top of Screen at ____ ft		Grout ____	
		Screen Slot Size ____	
Bottom of Screen at ____ ft		Screen Type ____	
		☐ PVC ____	
		☐ Stainless Steel ____	
Bottom of Hole at ____ ft		Pack Type/Size:	
		☐ Sand ____	
		☐ Gravel ____	
Bottom of Sandpack at ____		☐ Natural ____	



OPEN-HOLE WELL



Stick-up ____ ft

Inner Casing Material ____

Inner Casing Inside Diameter ____ inches

Outer Casing Diameter ____ inches

Borehole Diameter ____ ft

Bedrock ____ ft

Bottom of Rock Socket/ Outer Casing ____ ft

Bottom of Inner Casing ____ ft

Corehole Diameter ____

Bottom of Corehole ____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0"–6" TAN CLAY SILT DAMP	○	○	○
2	0.5'–1.5' TAN F.G.–M.G SAND. DAMP. SAMPLE MBH-04-01	○	○	○
3	1.5 – 2.5 SAND AS ABOVE	○	○	○
4	2.5 – 3.5 SAND, W/ ROOTS THROUGHOUT DAMP – MOIST	○	○	○
5	4' SAND SAND → 4', TAN AND BROWN CLAY SILT. DAMP	○	○	○
6	TO 5'	○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

BOREHOLE NO. MBH-05

BOREHOLE NO. MBH-06

BOREHOLE NO. MBH-07

BOREHOLE NO. MBH-08

Borehole Record for MB-Ø5

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. [illegible]

BOREHOLE NO. [illegible]

BOREHOLE NO. [illegible]

DRILLING LOG FOR MB05

Project Name: Buoy 212

Site Location: Ft. Edward, NY

Date Started/Finished: 3/1/06

Drilling Company: GeoLogic NY

Driller's Name: Dave Lyons

Geologist's Name: Rick Watt

Geologist's Signature: RWatt

Rig Type (s): CME 45

Drilling Method (s): HSA / Splitspoon

Bit Size (s): N/A Auger Size (s): 4¼" ID

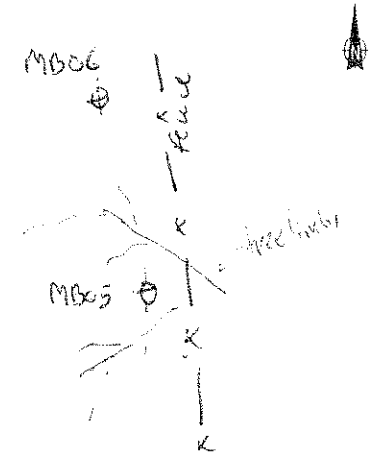
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 6'

Total Depth of Corehole Is: N/A

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



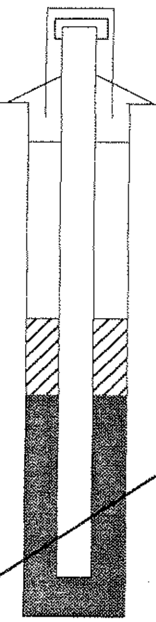
Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~HNu/OVA~~ (ppm)	Comments
1	1	6 4				1.4'			0	
2		4 4								Sample MB05-01 1500
3	2	4 4				1.6'			0	2.3-2.4' screen/full PCB
4		3 4								Sample 2.4-3.4' 1500
5	3	3 4				1.8'			0	MB05-02 short and then f MS
6		4 5								& screen PCB
7				B.O.H. = 6'						
8										
9										
10										
11										
12										
13										
14										
15										

MB-Ø5

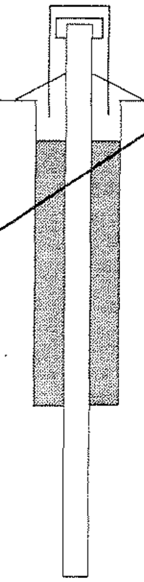
Lock Number ____________

Stick-up ____________ ft

SCREENED WELL



OPEN-HOLE WELL



Stick-up ____________ ft

Top of Grout ____________ ft

Top of Seal at ________ ft

Top of Sand Pack ________ ft

Top of Screen at ______ ft

Bottom of Screen at ____________ ft

Bottom of Hole at ____________ ft

Bottom of Sandpack at ____________

Inner Casing Material ____________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ____________

Cement ____________

Borehole ________ inches Diameter

Cement/ Bentonite ____________

Grout ____________

Screen Slot Size ________

Screen Type ________

- ☐ PVC ________
- ☐ Stainless Steel ____

Pack Type/Size:

- ☐ Sand ________
- ☐ Gravel ________
- ☐ Natural ________

Inner Casing Material ____________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ______ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ____________

Bottom of Corehole ____________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-0.9' Light brown to tan clay (cap material)	○	○	○
2	@ Wood chunk @ 0.9'	○	○	○
3	0.9-2.3' Medium brown fine-grained sand, moist	○	○	○
4	2.3-2.4' Dark gray sand, possible spoils	○	○	○
5	2.4-4.0' Dark brown silt (native)	○	○	○
6	4-4.6' Dark gray silt/very fine sand, saturated	○	○	○
7	4.6-5.2' Brown silty sand, wet	○	○	○
8	5.2-6.0' Mottled gray/light brown silty clay	○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

BOREHOLE NO.

Borehole Record for MB-06

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO.

BOREHOLE NO.

DRILLING LOG FOR MBOG

Project Name: Buoy 212

Site Location: Ft. Edward, NY

Date Started/Finished: 3/1/06

Drilling Company: GeoLogic NY

Driller's Name: Dave Lyons

Geologist's Name: Rick Watt

Geologist's Signature: [signature]

Rig Type (s): CME 45

Drilling Method (s): HSA / split spoon

Bit Size (s): N/A Auger Size (s): 4 1/4" ID

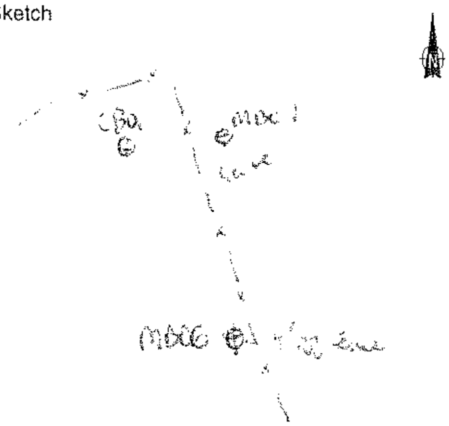
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 8'

Total Depth of Corehole Is: N/A

Water Level (TOIC)		
Date	Time	Level(Feet)

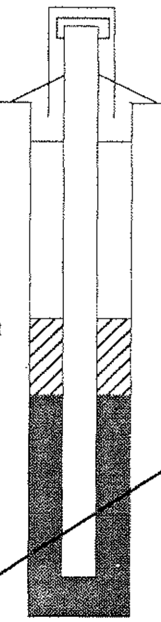
Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~HNu/OVA~~ (ppm)	Comments
		6	4								
1	1	5	5				1.2'			0	
2		3	3								
3	2	3	3				1.5'			0	
4		4	4								Sample MBOG-01
5	3	3	3				1.5'			0	~~5.7~~ 4.7-5.4' 13:45
6		3	3								PCB screen / PAH
7	4	4	5				1.9'			0	1.2 Metals ~~[illegible]~~ RW 3/2/06
8											
9					B.O.H. = 8'						
10											
11											
12											
13											
14											
15											

MB-06

SCREENED WELL



Stick-up ________ft

GROUND SURFACE

Top of Grout ________ft

Top of Seal at ________ft

Top of Sand Pack ________ft

Top of Screen at ________ft

Bottom of Screen at ________ft

Bottom of Hole at ________ft

Bottom of Sandpack at ________

Lock Number ________

Inner Casing Material ________

Inner Casing Inside Diameter ____ inches

Quantity of Material Used:

Bentonite Pellets ________

Cement ________

Borehole Diameter ________ inches

Cement/ Bentonite ________

Grout ________

Screen Slot Size ________

Screen Type ________

☐ PVC ________

☐ Stainless Steel ________

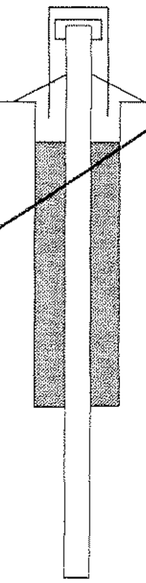
Pack Type/Size:

☐ Sand ________

☐ Gravel ________

☐ Natural ________

OPEN-HOLE WELL



Stick-up ________ft

Inner Casing Material ________

Inner Casing Inside Diameter ________inches

Outer Casing Diameter ________inches

Borehole Diameter ________ft

Bedrock ________ft

Bottom of Rock Socket/ Outer Casing ________ft

Bottom of Inner Casing ________ft

Corehole Diameter ________

Bottom of Corehole ________ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-~~5.7~~ 4.7' Light brown/tan clay (cap); moist.	○	○	○
2	~~5.7~~ 4.7'-7.0' Gray fine grained sand, wood fragments @ top	○	○	○
3	(@ base of clay). Sand is wet.	○	○	○
4	7.0'→ Same sand but coarser grained than above	○	○	○
5	(Medium grained); saturated.	○	○	○
6	No spoils observed to 8'. terminate boring	○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

BOREHOLE NO. MB-06

BOREHOLE NO. [illegible]

Borehole Record for MBH-Ø7

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. MW-Ø8

DRILLING LOG FOR MB11 8

Project Name: Buoy 212

Site Location: Fort EDWARD, NY

Date Started/Finished: 2/28/06

Drilling Company: N/A

Driller's Name: N/A

Geologist's Name: Jon Nickeyson

Geologist's Signature: [signature] — N/A

Rig Type (s):

Drilling Method (s): Hand Auger

Bit Size (s): N/A Auger Size (s): 1¼"

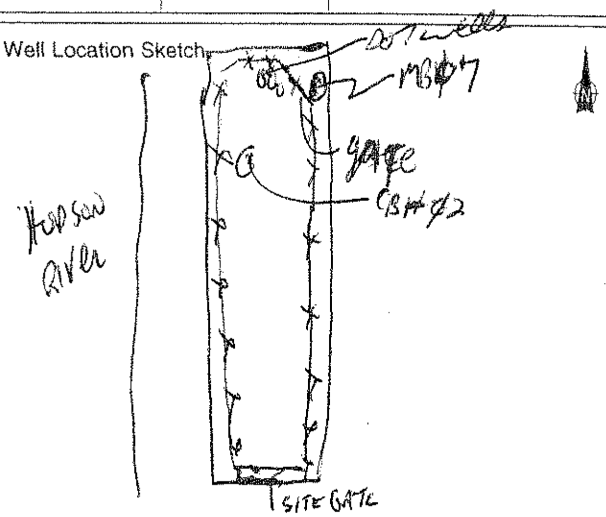
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: N/A

Total Depth of Corehole Is: 5.6'

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler (N/A HAND AUGER)	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID (ppm)	Comments
	1		Cc			12"				
1	2		cc			12"			0	
2	3		S/sc			12"				2.7-3.4 Sample of 11:02 MS/MSD
3									0	
4			S						0	3.1-4.3 11:10 11:09
5										
6			E.O.H. 5.6'							
7										
8										
9										
10										
11										
12										
13										
14										
15										

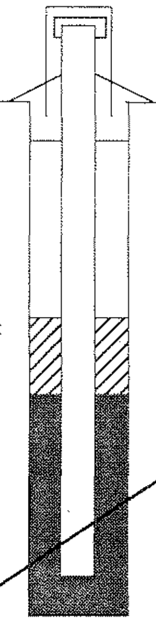
MB-07

Lock Number ____________

Inner Casing Material ____________

Inner Casing Inside Diameter ____ inches

SCREENED WELL



Stick-up __________ ft

GROUND SURFACE

Top of Grout __________ ft

Top of Seal at ________ ft

Top of Sand Pack ________ ft

Top of Screen at _______ ft

Bottom of Screen at __________ ft

Bottom of Hole at __________ ft

Bottom of Sandpack at __________

Quantity of Material Used:

Bentonite Pellets ____________

Cement ____________

Borehole Diameter ________ inches

Cement/ Bentonite ____________

Grout ____________

Screen Slot Size ____________

Screen Type ____________

☐ PVC ____________

☐ Stainless Steel ________

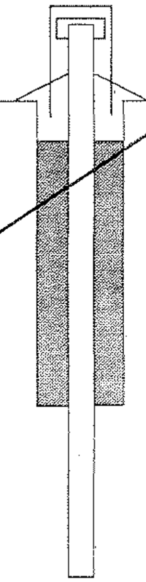
Pack Type/Size:

☐ Sand ____________

☐ Gravel ____________

☐ Natural ____________

OPEN-HOLE WELL



Stick-up __________ ft

Inner Casing Material ____________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing _______ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ____________

Bottom of Corehole ________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	Tight Brown clay, Damp. mod - highly Cohesive; no inclusions. 0'-2.3'	X		
2	2.3' - 2.7 Tight Brown F.g Silty Sand.			
3	2.7 - 3.4 Brown silt dry Sample #1			
4	3.4 - 3.7 Tan F.g Sand			
5	3.7 - 4.3 Tan F.g. Sand Sample #2			
6	4.3 - 5.4 Tan F.g sand,			
7	5.4 - 5.6 F.g. ~~silty~~ Sandy silt. Saturated			X
8				
9				
10				
11				
12				
13				
14				
15				

BOREHOLE NO. [illegible]

Borehole Record for MB08

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MB08

Project Name: Buoy 212

Site Location: Ft. Edward, NY

Date Started/Finished: 3-1-06

Drilling Company: Geologic NY

Driller's Name: Dave Lyons

Geologist's Name: Rick Watt

Geologist's Signature: RWatt

Rig Type (s): CME 45

Drilling Method (s): HSA / split spoon

Bit Size (s): N/A Auger Size (s): 4¼" ID

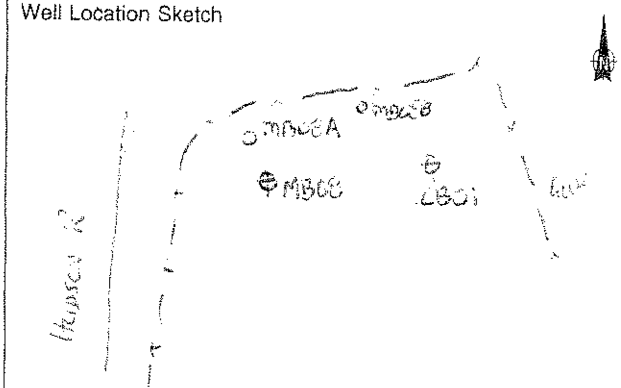
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 6'

Total Depth of Corehole Is: N/A

Water Level (TOIC)		
Date	Time	Level(Feet)

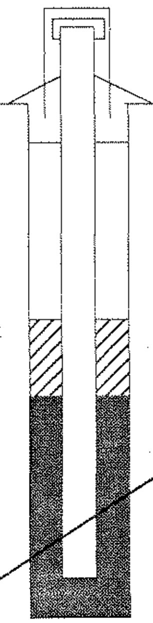
Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~HNu/OVA~~ (ppm)	Comments
1	1	4 3 / 2 5				1.7'			0	
2										
3	2	4 4 / 3 3				1.5'			0	Sample MB08-01 12:05 3.5-4.0' PCB Screen / Full + MS/MSD
4										
5	3	4 4 / 3 4				1.6'			0	Sample MB08-02 4.8-5.1' Screen Only 12:15
6										~~Sample~~
7				6.0.H	= 6'					~~5.5-6.0~~
8										
9										
10										
11										
12										
13										
14										
15										

MB-08

SCREENED WELL



Lock Number ____________

Inner Casing Material ____________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Stick-up ____________ ft

Top of Grout ____________ ft

Top of Seal at ________ ft

Top of Sand Pack ________ ft

Top of Screen at ______ ft

Bottom of Screen at ____________ ft

Bottom of Hole at ____________ ft

Bottom of Sandpack at ____________

Quantity of Material Used:
Bentonite Pellets ____________

Cement ____________

Borehole Diameter ________ inches

Cement/ Bentonite ____________

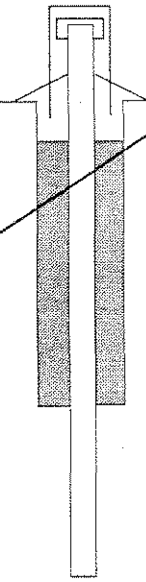
Grout ____________

Screen Slot Size ____________

Screen Type ____________
☐ PVC ____________
☐ Stainless Steel ____________

Pack Type/Size:
☐ Sand ____________
☐ Gravel ____________
☐ Natural ____________

OPEN-HOLE WELL



Stick-up ____________ ft

Inner Casing Material ____________

Inner Casing Inside Diameter ____________ inches

Outer Casing Diameter ____________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ________ ft

Bottom of Inner Casing ____________ ft

Corehole Diameter ____________

Bottom of Corehole ____________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-1.4' Light brown clay (cap); moist.			
2	1.4-2.0' Medium brown, fine-grained sand (cap); Moist.			
3	2.0'-4.5' Black w/ brown Mottling, medium grained sand with			
4	some silt at 4'			
5	4.5-4.7' Dark gray silt			
6	4.7-6.0' Med brown silt			
7				
8	MB08A - hand dug hole using soil probe (7/8" core)			
9	approx 15' NNW from MB08 ~8' S of fence (inside)			
10	Sample to 2.5', all grayish brown silt over fine-grained			
11	sand (native).			
12	Collect sample MB08A-01 1.5-2.0' PCB Screen. 12:3?			
13				
14	MB08B - hand dug hole using soil probe (7/8" core)			
15	All native light brown silt and fine-grained sand			

No sample for Lab.

6' south of fence, 52' from CB01 & 76' from MB08

Borehole Record for CB-01

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

CBØ1

DRILLING LOG FOR CBHØ1

Project Name: Bldg 212

Site Location: Ft. Edward, NY

Date Started/Finished: 3/1/00

Drilling Company: GeoLogic NY

Driller's Name: Dave Lyons

Geologist's Name: Rick Watt

Geologist's Signature: R Watt

Rig Type (s): CME 45

Drilling Method (s): HSA / Split spoon

Bit Size (s): NA Auger Size (s): 4 1/4" ID

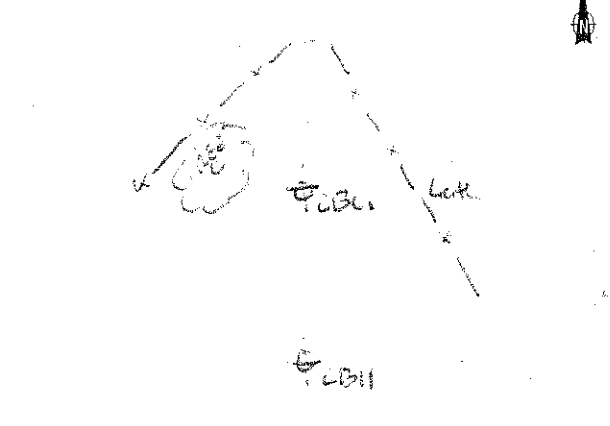
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 18'

Total Depth of Corehole Is: 18'

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

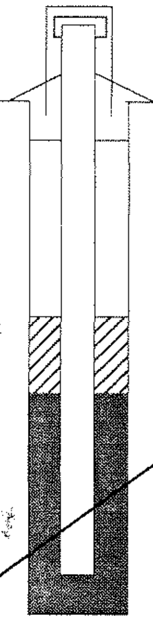


Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~HNu/OVA~~ (ppm)	Comments
1, 2	1	6 5 / 2 3				1.7			0	Sample CB01-01 2.5-2.8' PCB screen 10:30
3, 4	2	4 5 / 6 5				0.8			0	
5, 6	3	3 3 / 2 3				1.4'			0	Sample CB01-02 screen / Full PCB, TAL Metal + dupe 6-8' [illegible] 10:45
7, 8	4	1 1 / 2 1				1.9'			0	
9, 10	5	3 6 / 5 7				1.8'			0	
11, 12	6	4 5 / 5 6				1.7'			0	
13, 14	7	2 2 / 2 2				1.6			0	Sample CB01-03 13.5-14.0' 10:55 screen PCB only
15	8	1 1				1.9'			0	Sample CB01-04 14.2-14.4' 1102 screen PCB only

CB#101

Lock Number ______

SCREENED WELL



Stick-up ______ ft

Top of Grout ______ ft

Top of Seal at ______ ft

Top of Sand Pack ______ ft

Top of Screen at ______ ft

Bottom of Screen at ______ ft

Bottom of Hole at ______ ft

Bottom of Sandpack at ______

Inner Casing Material ______

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ______

Cement ______

Borehole Diameter ______ inches

Cement/ Bentonite ______

Grout ______

Screen Slot Size ______

Screen Type ______

☐ PVC ______

☐ Stainless Steel ______

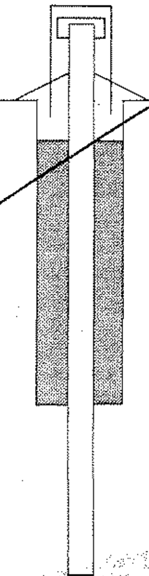
Pack Type/Size:

☐ Sand ______

☐ Gravel ______

☐ Natural ______

OPEN-HOLE WELL



Stick-up ______ ft

Inner Casing Material ______

Inner Casing Inside Diameter ______ inches

Outer Casing Diameter ______ inches

Borehole Diameter ______ ft

Bedrock ______ ft

Bottom of Rock Socket/ Outer Casing ______ ft

Bottom of Inner Casing ______ ft

Corehole Diameter ______

Bottom of Corehole ______ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0 - 0.2' Topsoil w/ grass	○	○	○
2	0.2 - 2.4' Light brown clay; Moist (cap)	○	○	○
3	2.4 - 3.0' Light brown Fine grained sand; moist (cap)	○	○	○
4	3.0 - 14.0' Spoils Dark gray to black Fine grained sand	○	○	○
5	w/ occasional wood chips & shale fragments.	○	○	○
6	Darker color with depth, some coarser sand & some silt w/	○	○	○
7	depth; moist	○	○	○
8	14.0 - 16.6' Light gray brown silt w/ trace clay; Moist	○	○	○
9	to wet; (native soil)	○	○	○
10	16.6 - 17.5' Brown fine grained sand (grading from silt above)	○	○	○
11	17.5 - 18' Brown Medium to coarse sand.	○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

BOREHOLE NO

CBH01

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~HNu/OVA~~ (ppm)	Comments
		WOH	1									
16												Sample CB-01-05 screen PCBs 11:10 16.7-17.0'
17	9	2	2					2.0'			0	
		2	5									
18				BOH = 18' BGS								
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
41												
42												
43												
44												
45												

Borehole Record for CBH-02

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. CBH-3

DRILLING LOG FOR CSH-02

Project Name: Qvey 212

Site Location: Fort Edward, NY

Date Started/Finished: 2/28/06

Drilling Company: ADT Geologic, NY

Driller's Name: Dave Lyons

Geologist's Name: Jen Macrossa

Geologist's Signature: [illegible]

Rig Type (s): CME-45

Drilling Method (s): HSA

Bit Size (s): N/A Auger Size (s): 4 1/4"

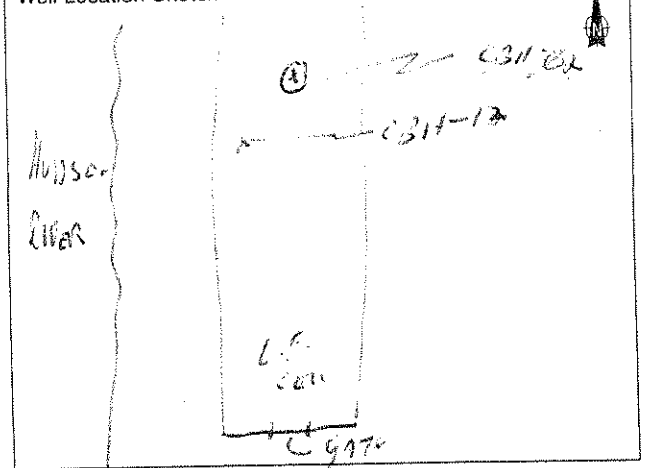
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: ~~20'~~ 18'

Total Depth of Corehole Is: 20'

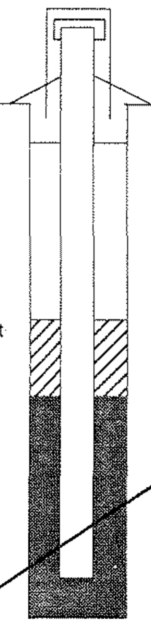
Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	~~HNu/OVA~~ PID (ppm)	Comments
1	1	4	3	CL			1.4			0	
2		3	4	~~ML~~							SM-6-01 15:47 3.5-3.7
3	2	4	6				1.6			0	
4		6	9	S							
5	3	3	4	SL/S			2			0	
6		6	9								
7	4	5	8				2			0	SM-6-02 7-8 16:05
8		6	6								
9	5	2	3				2			0	
10		3	3								Sample 3 11.5-12 16:14
11	6	[illegible]	2				1.8			0	
12		3	3								
13	7	2	2				.4			0.4	
14		3	3								
15		2	1								

CBØ2



Stick-up ________ ft

Top of Grout
________ ft

Top of Seal at ________ ft

Top of Sand Pack ________ ft

Top of Screen at ________ ft

Bottom of Screen at ________ ft

Bottom of Hole at ________ ft

Bottom of Sandpack at ________

Lock Number ________

Inner Casing Material ________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ________

Cement ________

Borehole Diameter ________ inches

Cement/ Bentonite ________

Grout ________

Screen Slot Size ________

Screen Type ________

☐ PVC ________

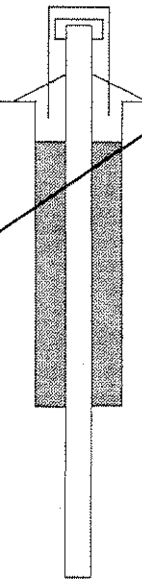
☐ Stainless Steel ________

Pack Type/Size:

☐ Sand ________

☐ Gravel ________

☐ Natural ________



Stick-up ________ ft

Inner Casing Material ________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ________ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ________

Bottom of Corehole ________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-3.5 Tight Brown clay, Damp	○	○	○
2	3.5-4.8 TAN F.g.-m.g SAND; well sorted; Damp	○	○	○
3	4.8-6 BLACK SILTY SAND (SPOILS) COARSE-MED;	○	○	○
4	Some WOOD FRAGMENTS AT 5.5'. Damp	○	○	○
5	6'-8' CONTINUED SAND/GRAVEL: 6.1-6.4: SOME BLACK SHALE	○	○	○
6	Fragments (30%) to 5 mm; ANGULAR (Sample 2)	○	○	○
7	8'-10' INCREASE IN QUARTZ SAND; Same SAND/GRAVEL AS ABOVE	○	○	○
8	10-12 CONTINUES SAND/GRAVEL; BLACK w/ LIGHT QUARTZ.	○	○	○
9	Sample 3: (11.5-12.0)	○	○	○
10	12-14 SAND MATRIX; pocket of DENSE SILT @ 13.1-13.4.	○	○	○
11		○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

BOREHOLE NO. CBH-3

BOREHOLE NO. CRH-4

CBH-02

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	8	2	4	SL-S				1.0'			0	
16												
17	9	3	3					2'				
		4	4									[illegible] 4
18		2	3									18.0-18.2 16:44
19	10	2	2					1.8'				18.2-18.5 16:47
20												[illegible] 5
21				B.O.H = 20'								
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
41												
42												
43												
44												
45												

CBH-02

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moisture Content: Moist	Moisture Content: Wet
16	15.0→18 Extensive wood chips (50%) within	○	○	○
17	Black silt + sand. Angular Black slag	○	○	○
18	fragments: 10%. (All Spoils)	○	○	○
19		○	○	○
20	Spoils to 18.2', then abrupt change to ~~Gray~~ Brown	○	⊗	○
21	compacted silt, moist.	○	○	○
22	Silt 18.2→20.0	○	○	○
23		○	○	○
24		○	○	○
25		○	○	○
26		○	○	○
27		○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45		○	○	○

BOREHOLE NO. CBH-3

BOREHOLE NO. CBH-4

Borehole Record for CBH-03

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR CBH-03

Project Name: Buoy 212

Site Location: Fort Edward, NY

Date Started/Finished: 2/28/06

Drilling Company: Geologic, NY

Driller's Name: Dave Lyons

Geologist's Name: Jon Nickerson

Geologist's Signature: Jon Nickerson

Rig Type (s): CME-45

Drilling Method (s): HSA

Bit Size (s): N/A Auger Size (s): 4 1/4"

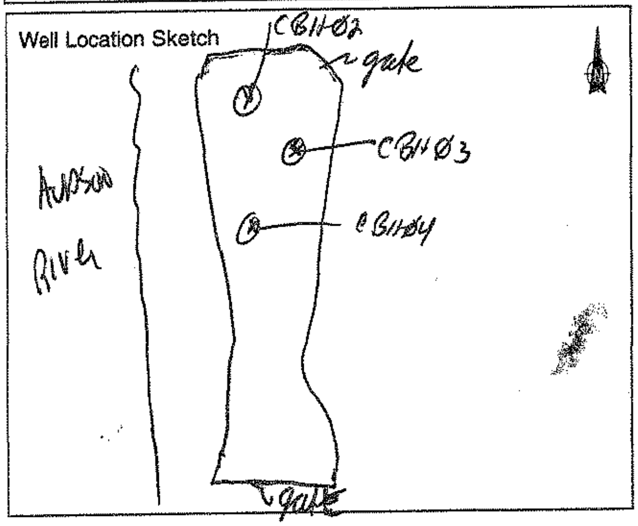
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 20

Total Depth of ~~Corehole~~ Splitspoon Is: 24'

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

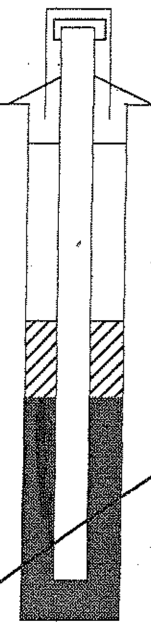


Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery 2'SS	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	1	6	5	CL			1.5'			0	
2		5	4								
3	2	3	2	S			1.7'			0	
4		3	6								
5	3	3	5	S			2.0			0	Sample 1 5-6' 11:51 for PCB, sieve PCB
6		5	7	SGR							
7	4	3	4	S/SGR			2.0			0	7-8' 11:40 Sample 2 PCB screen, dup
8		4	3								
9	5	1	3	S/GR			2.0			0	8.4-9.7' Sample 3 11:50 PCB screen
10		4	4								
11	6	3	3				2.0			0	
12		3	4								
13	7	3	4				1.7				Noon 13.5-14' Sample 4
14		2	3								
15		2	2								

CBH-03

Lock Number ________

SCREENED WELL



Stick-up ________ ft

Top of Grout ________ ft

Top of Seal at ________ ft

Top of Sand Pack ________ ft

Top of Screen at ________ ft

Bottom of Screen at ________ ft

Bottom of Hole at ________ ft

Bottom of Sandpack at ________

Inner Casing Material ________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ________

Cement ________

Borehole ________ inches Diameter

Cement/ Bentonite ________

Grout ________

Screen Slot Size ________

Screen Type ________

☐ PVC ________

☐ Stainless Steel ________

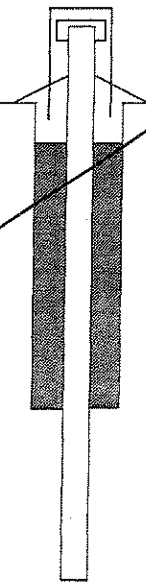
Pack Type/Size:

☐ Sand ________

☐ Gravel ________

☐ Natural ________

OPEN-HOLE WELL



Stick-up ________ ft

Inner Casing Material ________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ________ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ________

Bottom of Corehole ________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0'–3.5 Tight brown clay (cap); damp.	○	○	○
2	Vegetation @ 0"–0.1' (roots)	○	○	○
3	3.5'–4 Black f.g. sand; wood fragment 3.7'–3.8'	○	○	○
4	Sample #1 – taken as spoils	○	○	○
5		○	○	○
6		○	○	○
7	Spoils	○	○	○
8	Coarse black sand w/ f.g. gravel; ~~some~~ few large black	○	○	○
9	shale fragments (1 cm); ~~<5%~~ Sample 2 wood	○	○	○
10	fragments present → 8.0 plus air	○	○	○
11	8.4'–12 abrupt change to coarse sand, light; rounded clasts	○	○	○
12	quartz gravel to 1 cm Sample 3	○	○	○
13	12–14.2 sand quartz-rich sand; white coarse sand w/ ~10%			
14	14–14.2 sand sample (4) molasses odor	○	○	○
15	14.2: abrupt change to black damp c. sand. Red brick(?)	○	○	○

Fragments or

CBH-03

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	8	2 3					1.7'			0	
16											
17	9	2 2 / 3 4	S/GR / S/GR WOOD				1.6'			0	
18											
19	10	2 2 / 3 2					1.8			0	
20											
21	11	2 1 / 1 1	↓				1.7			0	Sample 21.8-22.2 12:18 PCB Screen
22											
23	12	3 4 / 3 2	SL / S				1.8			0	
24											
25			B.O.H. = 24'								
26											
27											
28											
29											
30											
31											
32											
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43											
44											
45											

CBH-03

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	MIXED WOOD CHIPS, SILT AND SAND, BLACK, DAMP			
17	16'-18' - SPOILS			
18	18'-20': CONTINUED WOOD CHIPS w/ BLACK SILT + SAND			
19	20-~~22~~ 21.8: SAME AS ABOVE			
20	21.8 → DARK BROWN ~~BLACK~~ SILT/SILT			
21	22-22.2 → SAND F.G. TAN SAND SATURATED			X
22	22.2 → 24 COARSE BROWN SAND. W @ 22.0'			
23				
24				
25				
26				
27	PHOTO # 3: SS SHOWING EXTENSIVE WOOD			
28	AT 18'-20'			
29				
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908-789-1549-

Borehole Record for CBH 04

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

GEOTECHNICAL INFO

REFERENCES

DRILLING LOG FOR CBH 04

Project Name: BUOY 212 DI/FS

Site Location: BUOY 212 CBH-04

Date Started/Finished: 2/27/06 - 2/28/06

Drilling Company: Geologic of NY

Driller's Name: DAVE LYONS/WAYNE GEIERT

Geologist's Name: Jen Nyman

Geologist's Signature: Jen Nyman

Rig Type (s): CME-45

Drilling Method (s): HSA

Bit Size (s): NA Auger Size (s): 4 1/4"

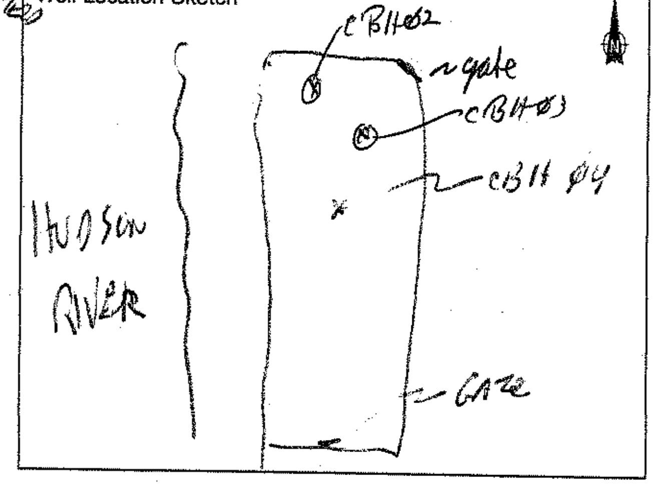
Auger/Split Spoon Refusal: NA

Total Depth of Borehole Is: 18'

Total Depth of Split Spoon Is: 20

Water Level (TOIC)		
Date	Time	Level(Feet)

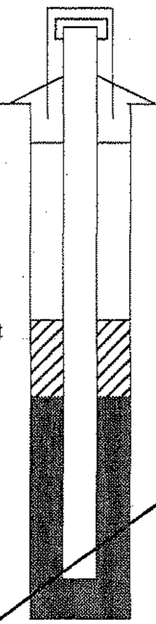
Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID/OVA (ppm)	Comments
1–2	1	4 4 / 4 3	CL			1'			0	
3–4	2	5 6 / 10 7	CL / S			1.5'		~~NS~~	0	
5–6	3	3 5 / 6 9	S / S/GL			1.4'			0	4.8-5.4 - Sample #1 17:07
7–8	4	4 7 / 6 6	S			1.6'			0	5.5-6 #02 17:19
9–10	5	2 3 / 3 3	S			1.6			0	
11–12	6	3 3 / 2 3	S/GR			1.3			0	11-12 @ 08:14 SAMPLE 3 - PID
13–14	7	3 3 / 4 3	S/GR			1.9			0.8	@
15		1 2								

CBH-04

SCREENED WELL



Stick-up ________ft

Top of Grout ________ft

Top of Seal at ________ft

Top of Sand Pack ________ft

Top of Screen at ________ft

Bottom of Screen at ________ft

Bottom of Hole at ________ft

Bottom of Sandpack at ________

Lock Number ________

Inner Casing Material ________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ________

Cement ________

Borehole Diameter ________ inches

Cement/ Bentonite ________

Grout ________

Screen Slot Size ________

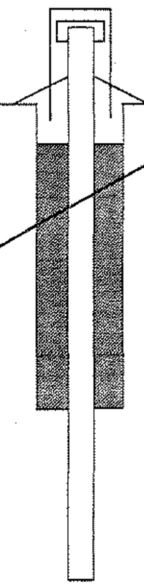
Screen Type ________

- ☐ PVC ________
- ☐ Stainless Steel ________

Pack Type/Size:

- ☐ Sand ________
- ☐ Gravel ________
- ☐ Natural ________

OPEN-HOLE WELL



Stick-up ________ft

Inner Casing Material ________

Inner Casing Inside Diameter ________inches

Outer Casing Diameter ________inches

Borehole Diameter ________ft

Bedrock ________ft

Bottom of Rock Socket/ Outer Casing ________ft

Bottom of Inner Casing ________ft

Corehole Diameter ________

Bottom of Corehole ________ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0"-~~7~~" TOPSOIL BLACK/BROWN.	✓		
2	1"→2.7, BROWN TIGHT CLAY; MINOR GRAY MOTTLING	✓		
3	2.7→4.8: BROWN LOOSE SAND; DAMP	✓		
4	4.8-6 BLACK COARSE SAND, DAMP-(SPOILS)			
5	6-8 COARSE BLACK SAND (SPOILS)			
6				
7				
8	8-10.2 SAME SAND; BLACK, ~~LARGE~~ WOOD CHUNK			
9	(ROOT?) AT 9.6'.)			
10	10.2-12.4 BLACK F. GRAVEL W/ COARSE SAND; WHITE			
11	(1cm CINDER @ 11.0') SANDGRAINS (CALCIUM?) ~~[illegible]~~ DAMP.			
12	11.4→14 COARSE BLACK SAND W/GRAVEL; WOOD CHIPS			
13	15'→16' 30%. DAMP			
14				
15				

CBH-04

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	8	2	3	~~S~~S/GR				1.1'				15.4–15.9 Sample 4 0831
16												
17	9	1	2	SL				1.8'				Sample 5
		2	2									17.5–18.0
18												0841
19	10	3	3	SL/C				2'				
		3	3									
20												
					B.O.H = 20'							
21												
22												
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45												

CBH-04

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	14-16' C. SAND w/ WOOD CHIPS (BLACK);			
17	some (10%) BLACK SHALE			
18	16-16.4 WOOD CHIPS w/ SILT, THEN ABRUPTLY			
19	CHANGES to BLACK SILT w/ CHIPS THEN			
20	17.1 → 18: BLACK F.G. SANDY SILT. MOIST			
21	18.0- 19.4: INTERMITTENT BLACK SILT + WOOD			
22	19.4 → 20.0 TIGHT DARK BROWN CLAYEY SILT. MOIST			
23	LOW-MOD COHESION.			
24				
25	NOTE: PHOTO of WOOD CHIPS W/ SILTY SAND. 0830			
26				
27				
28				
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Borehole Record for CBH Ø5

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR CBAØ5

Project Name: Buoy 212

Site Location: Ft. Edward, NY

Date Started/Finished: 2/27/06

Drilling Company: Northstar Drilling

Driller's Name: Dave Lyons / Wayne [illegible]

Geologist's Name: Jon Nickerson

Geologist's Signature: Jon Nickerson

Rig Type (s): CME-45

Drilling Method (s): HSA

Bit Size (s): ~~[illegible]~~ N/A Auger Size (s): 4 1/4"

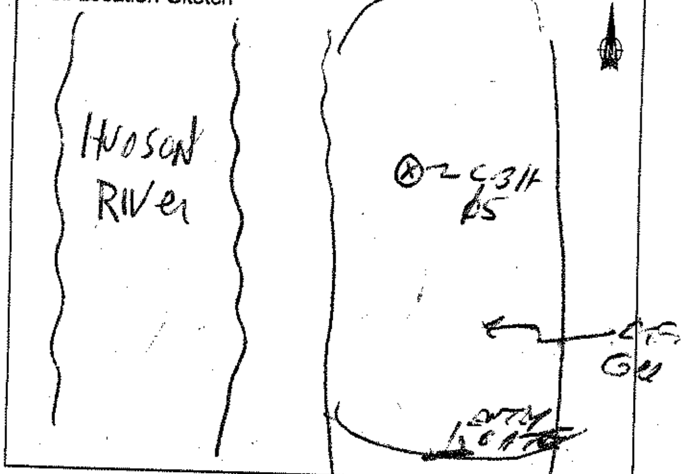
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 18.0'

Total Depth of Corehole Is: 18.0'

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

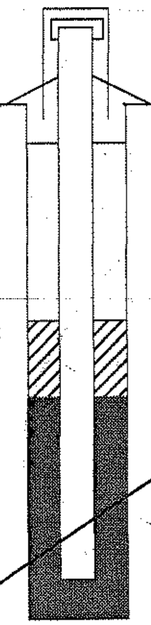


Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	1	5	4	CL			90%				
2		2	3								
3	2	3	3	CL							
4		3	10	S			1.8'			1	Sample Ø1 15:27 SAND, 3.6'-4'
5	3	3	6	S			2'			0.1	1.V samples
6		7	7	SL/S							Sample Ø2 15:33 ~~[illegible]~~ Dupe 5.5'-6"
7	4	5	5	S/Gr			1.5'				
8		5	5	SL						0 ppm	
9	5	3	2	S/GR			1.6'				
10		3	3							9	Sample Ø3 15:46 [illegible]
11	6	3	4	S/GR			0.5'			0	
12		3	4								
13	7	3	2	S/Gr							
14		3	5				1'			0	
15	8	3	3								

CBH05

Lock Number ____________

SCREENED WELL



Stick-up ___________ ft

Top of Grout ___________ ft

Top of Seal at ________ ft

Top of Sand Pack _______ ft

Top of Screen at ______ ft

Bottom of Screen at ___________ ft

Bottom of Hole at ___________ ft

Bottom of Sandpack at _________

Inner Casing Material ____________

Inner Casing Inside Diameter _____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ____________

Cement ____________

Borehole Diameter ________ inches

Cement/Bentonite ____________

Grout ____________

Screen Slot Size ________

Screen Type ________

☐ PVC ________

☐ Stainless Steel ________

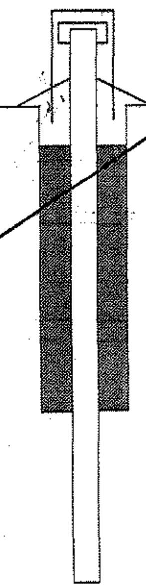
Pack Type/Size:

☐ Sand ________

☐ Gravel ________

☐ Natural ________

OPEN-HOLE WELL



Stick-up ___________ ft

Inner Casing Material ____________

Inner Casing Inside Diameter _________ inches

Outer Casing Diameter _________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ______ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ____________

Bottom of Corehole ___________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0'-2': Tight brown clay; damp. Topsoil @ 0"-2"		X	
1	2'-3.6': Same clay.			
2	3.6'→5.1 Loose tan f.g-m.g sand; damp.			
3	5.1'→8.4 Black coarse sand w/ gravel.			
4	Wood at 5.9→6.0. Gal fragments →10mm.			
5	at 7.2'.			
6	8.4-8.9: Dense black silt; PID=9ppm. Then			
7	black silty sand w/ wood fragments			
8	to 10'			
9	10'-12': Black silty sand, damp			
10	12-14' wood chips w/ dense black silt @			
11	12.8-13.2'.		X	
12				
13				
14				
15				

CBH05

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	8	2 4	~~[illegible]~~/SL				1.5'			0	Sample 04
16											16:07 - Silty clay
17	9	1 1	SL								
		1 1					2.0				
18											
19			B.O.H. = 18.0'								
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
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37											
38											
39											
40											
41											
42											
43											
44											
45											

CB#05

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	14' → 15.4 WOOD CHIPS; SOME BLACK SILT – SPOILS			
17	15.4 → 16 BLACK CLAY SILT; DAMP; MINOR WOOD		X	X
18	MOSTLY SILT.			X
19	16 – 16.4' SAMPLE #05. | BLACK F.G. SILT MOIST/WET.			X
20	NO INCLUSIONS. 16 – 18.0 16.12			
21				
22				
23				
24				
25				
26				
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Borehole Record for CBH-6

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. CBH-7

OREHOLE NO. CBH-8

DRILLING LOG FOR CBH-6

Project Name: Bury 212

Site Location: Ft Edward

Date Started/Finished: 2/21/06

Drilling Company: Northstar

Driller's Name: Dave Lyons

Geologist's Name: Stephanie Reynolds Smith

Geologist's Signature: SRSmith

Rig Type (s): CME 45B

Drilling Method (s): HSA

Bit Size (s): ______ Auger Size (s): 4 1/4"

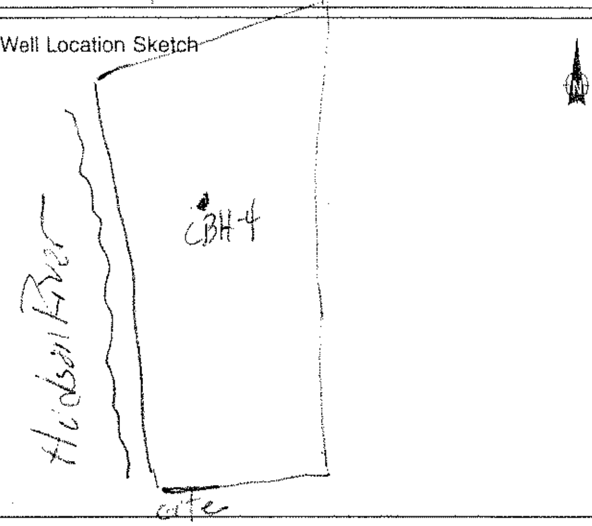
Auger/Split Spoon Refusal: NA

Total Depth of Borehole Is: 22' bgs

Total Depth of Corehole Is: NA

Water Level (TOIC)		
Date	Time	Level(Feet)

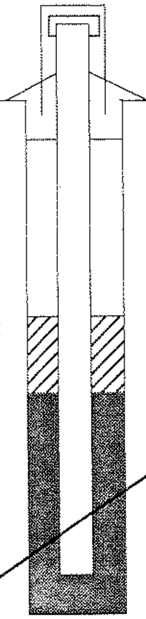
Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	~~HNu~~ PID/OVA (ppm)	Comments
1–2		4 3 / 3 3	CL	1528	1	0.8			0	Sample 0.6–0.8 (1528) PCB Screen B212-CB-06-01
3–4		3 8 / 9 9	CL Spoils	1529	2	1.7			0	
5–6		3 4 / 4 4	Spoils	1537	3	1.2			0.4	1545 Sample 4–5.2 (PCB Screen, TCL PCBs, ~~TCL PCBs~~ + dup) B212-CB-06-02
7–8		3 2 / 2 3		1550	4	1.2			0.6	
9–10		2 2 / 2 3		1600	5	0.9			0	
11–12		2 2 / 3 3		1605	6	1.2			0	1607 Sample 10.5–10.7 PCB Screening B212-CB-06-03
13–14		3 3 / 5 5		1614	7	1.9			0	
15		2 3		1618	8	1.3			0.2	

CB#06

SCREENED WELL



Stick-up ____________ft

Top of Grout ________________ft

Top of Seal at_________ft

Top of Sand Pack ________ft

Top of Screen at _______ ft

Bottom of Screen at ______________ ft

Bottom of Hole at __________________ ft

Bottom of Sandpack at __________

Lock Number ____________

Inner Casing Material ______________

Inner Casing Inside Diameter _____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets______________

Cement______________

Borehole _________ inches Diameter

Cement/ Bentonite______________

Grout______________

Screen Slot Size __________

Screen Type __________

☐ PVC__________

☐ Stainless Steel ______

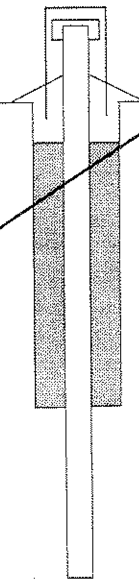
Pack Type/Size:

☐ Sand __________

☐ Gravel __________

☐ Natural __________

OPEN-HOLE WELL



Stick-up ____________ft

Inner Casing Material ______________

Inner Casing Inside Diameter __________inches

Outer Casing Diameter __________inches

Borehole Diameter _________ft

Bedrock __________ft

Bottom of Rock Socket/ Outer Casing _______ft

Bottom of Inner Casing ____________ft

Corehole Diameter______________

Bottom of Corehole ____________ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-0.8 Brown tight clay, dry, organic rich 0-0.1	○	○	○
2		○	○	○
3	2-2.5 Brown clay tight, dry	○	○	○
4	2.5-3.3 Brown fine sand/silt, dry	○	○	○
5	3.3-3.7 Black fine sand, wood (spoils) dry	○	○	○
6	4-5.2 Spoils - black to dark brown fine sand/silt, dry,	○	○	○
7	some wood	○	○	○
8	6-7.2 Dark brown to black to dark gray fine	○	○	○
9	Sand/silt large (full diameter of split spoon) wood	○	○	○
10	chunks, dry-moist (spoils)	○	○	○
11	8-9 Gray fine sand dry-moist	○	○	○
12	10-11.2 Gray grading to light gray fine sand dry-moist	○	○	○
13	12-14 Black to dark gray fine sand + silt, wood			
14	(spoils), dry-moist	○	○	○
15	14-15.3 same as above	○	○	○

BOREHOLE NO. CBH-7

OREHOLE NO. 1RU-8

CBH-06

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
		3	3									
16												
		7	7									
17						1629	9	1.3			0	
		3	3									
18												1640 sample 18.4-18.5
		1	3									
19						1639	10	1.7			0	B212-CB-06-04 PLB Screen.
		3	2									
20												
		WH	1									1646 Sample 20-20.2
21						1645	11	2				
		1	1									PLB Screen MS/MSD
22												B212-CB-06-05
23					B.O.H. = 22.0'							
24												
25												
26												
27												
28												
29												
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45												

CBH-06

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	16-17.3 Darkbrown-black fine sand/silt, dry-moist			
16	(Spoils)			
17	18.0->18.3 Black fine sand/silt (spoils) dry-moist			
18	18.3—19.2 Brown silty clay, dry-moist (natural)			
19	19.2-19.7 ~~Brownish~~ [illegible] fine sand-silt, ~~dry~~ [illegible] moist			
20	20-22 Greenish gray fine silty sand, wet			
21				
22				
23				
24				
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26				
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44				
45				

BOREHOLE NO. ~~CBH-7~~

BOREHOLE NO. CBH-8

Borehole Record for CBH-7

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

OREHOLE NO. CBH-8

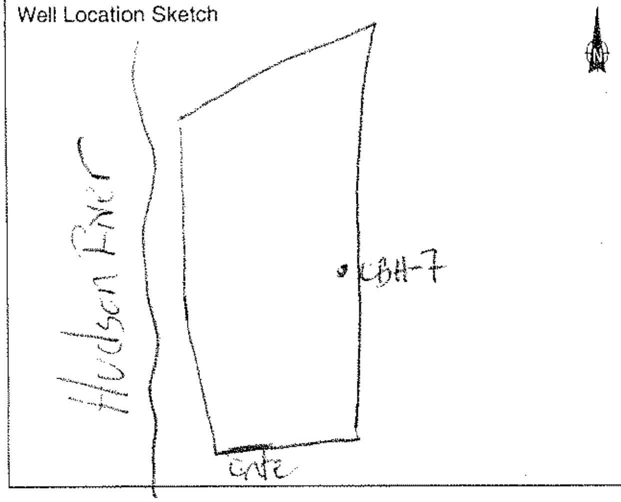
DRILLING LOG FOR CBH-7

Project Name: Bucy 212
Site Location: Ft Edward, NY

Date Started/Finished: 2/24/06
Drilling Company: North Star
Driller's Name: D. Lyons
Geologist's Name: S. Reynolds Smith
Geologist's Signature: S Reynolds Smith
Rig Type (s): CM 845B
Drilling Method (s): HSA
Bit Size (s): N/A Auger Size (s): 4 1/4"
Auger/Split Spoon Refusal: NA
Total Depth of Borehole Is: 14'
Total Depth of Corehole Is: NA

Water Level (TOIC)		
Date	Time	Level(Feet)

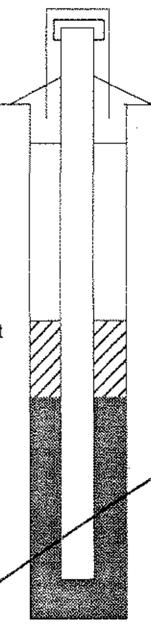
Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID/OVA (ppm)	Comments
1–2		4 3 / 3 3	CL	1300	1	1.5			0	1301 Sample 1.3-1.5 PCB Screen B212-CB-07-01
2–4		3 4 / 5 5	CL S	1302	2	1.3			0	
4–6		3 4 / 5 5	spoils	1304	3	1			0	1306 Sample 4.2-5 PCBs Screen, TCL PCBs B212-CB-07-02
6–8		3 4 / 3 4	spoils	1308	4	1.3			0.1	
8–10		1 2 / 2 2	spoils	1314	5	0.8			0	1315 Sample 8.2-8.5 PCB Screen B212-CB-07-03
10–12		2 1 / 2 1	Spoils SL	1317	6	1.5			0	1320 Sample 11.2-11.5 PCB Screen B212-CB-07-04
12–14		WH WH / 2 3	SL	1324	7	1.2			0	1325 Sample 12.4-12.6 PCB Screen B212-CB-07-05
15			B.O.H. = 14.0'							

CBH-07

SCREENED WELL



Lock Number ________

Stick-up ________ ft

Inner Casing Material ________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Top of Grout ________ ft

Quantity of Material Used:
Bentonite Pellets ________

Top of Seal at ________ ft

Cement ________

Borehole Diameter ________ inches

Top of Sand Pack ________ ft

Cement/ Bentonite ________

Top of Screen at ________ ft

Grout ________

Screen Slot Size ________

Bottom of Screen at ________ ft

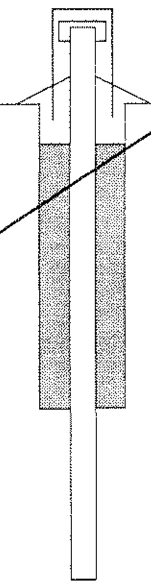
Screen Type ________
☐ PVC ________
☐ Stainless Steel ________

Bottom of Hole at ________ ft

Pack Type/Size:
☐ Sand ________
☐ Gravel ________
☐ Natural ________

Bottom of Sandpack at ________

OPEN-HOLE WELL



Stick-up ________ ft

Inner Casing Material ________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ________ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ________

Bottom of Corehole ________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-1.5 Brown tight clay, dry-moist	○	○	○
2	2-2.7 Clay as above, moist	○	○	○
3	2.7-3.3 Yellowish brown fine sand/silt	○	○	○
4	4-5 Dark gray - black fine sand/silt, wood, dry (spots)	○	○	○
5	6-8 sand/silt, as above	○	○	○
6	8-8.8 Black F-M sand, some white fine sand, trace	○	○	○
7	shale + some wood	○	○	○
8	10-11 Black-dark gray fine sand/silt, dry, trace shale	○	○	○
9	11-11.5 Greenish brown fine sandy silt w/ trace	○	○	○
10	black staining + roots, dry-moist	○	○	○
11	12-14 Greenish brown fine sandy silt, moist	○	○	○
12		○	○	○
13				
14		○	○	○
15		○	○	○

OREHOLE NO. CBH-8

Borehole Record for CBH-08

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

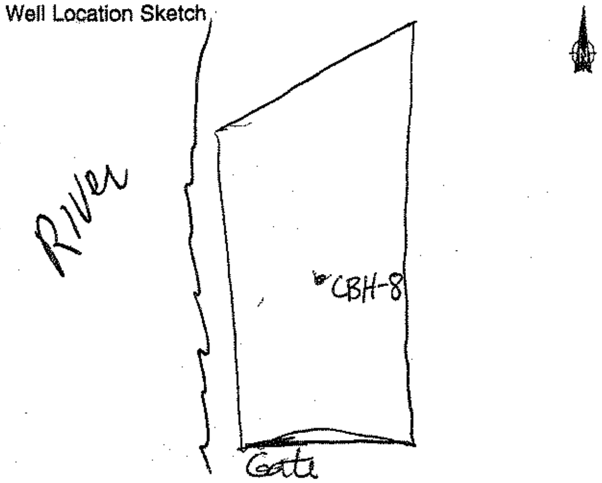
DRILLING LOG FOR CBH-08

Project Name: Budy 212
Site Location: Ft Edward, NY

Date Started/Finished: 2/24/06
Drilling Company: Northstar
Driller's Name: D. Lyons
Geologist's Name: S. Reynolds Smith
Geologist's Signature: S Reynolds Smith
Rig Type (s): CME 45B
Drilling Method (s): HSA
Bit Size (s): N/A   Auger Size (s): 4 1/4"
Auger/Split Spoon Refusal: NA
Total Depth of Borehole Is: 18'
Total Depth of Corehole Is: NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~HNu/OVA~~ (ppm)	Comments
1–2		5 4 / 4 4	CL	0918	1	1.1			0	Sample 0.5-1 @ 0920 B212-CB-08-01 PCB Screen
3–4		4 5 / 6 8	CL spoils	0922	2	1.5			0	
5–6		2 3 / 4 4	spoils	0930	3	1			0	0932 Sample 4.2-5 B212-CB-08-02 PCB Scrn, Mtals sh/bst 4 mtls dup
7–8		3 3 / 3 3	spoils	0937	4	1.4			0	
9–10		1 4 / 3 4	spoils	0946	5	0.7			0	
11–12		2 3 / 4 5	spoils	0950	6	0.9			0	
13–14		2 2 / 2 4	spoils	0959	7	1.5			0	1000 Sample 13.2-13.5 PCB Scrn B212-CB-08-03
15		2 4	spoils sand	1004	8	1.2			0	Sample 14.6-15.2 (1006) PCB Scrn + TCL PCBs

CBH08

SCREENED WELL

Stick-up ________ ft

Top of Grout ________ ft

Top of Seal at ________ ft

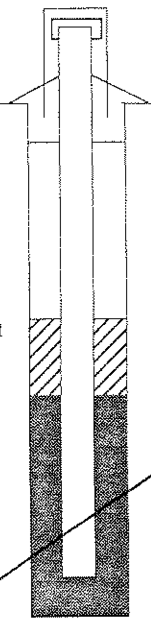
Top of Sand Pack ________ ft

Top of Screen at ________ ft

Bottom of Screen at ________ ft

Bottom of Hole at ________ ft

Bottom of Sandpack at ________



Lock Number ________

Inner Casing Material ________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ________

Cement ________

Borehole Diameter ________ inches

Cement/ Bentonite ________

Grout ________

Screen Slot Size ________

Screen Type ________

☐ PVC ________

☐ Stainless Steel ________

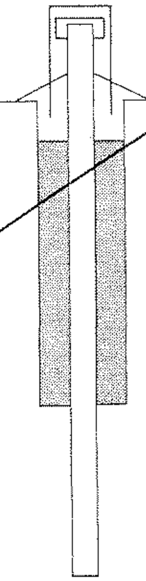
Pack Type/Size:

☐ Sand ________

☐ Gravel ________

☐ Natural ________

OPEN-HOLE WELL



Stick-up ________ ft

Inner Casing Material ________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ________ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ________

Bottom of Corehole ________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0-1.1 ~~0.7~~ ms Brown tight clay, dry-moist thin (~2mm) layer of	○	○	○
1	yellowish brown fine sand at 0.7	○	○	○
2	2-3.1 Brown tight clay occasional yellowish mottling	X	○	○
3	3.1 – 3.5 Black fine sand/silt, dry (spoils)	○	○	○
4	4-6 Black to dark gray fine sand/silt, wood, dry (spoils)	○	○	○
5	6-7.4 Black to dark gray fine sand/silt, some wood, dry (spoils)	○	○	○
6	8-8.7 Black to dark gray fine sand/silt, wood, dry (spoils)	○	○	○
7	10-10.9 Black fine sand/silt, dry some wood (spoils)	○	○	○
8	12-13.2 Black fine sand/silt with mostly wood, dry (spoils)	○	○	○
9	13.2-13.5 Dark gray to black fine sand/silt, little wood, dry (spoils)	○	○	○
10	14-14.4 Sand as above (spoils)	○	○	○
11	14.4- 15.2 Greenish brown fine sandy and silt, dry	○	○	○
12		○	○	○
13				
14		○	○	○
15		○	○	○

BOREHOLE NO. CBH-9

BOREHOLE NO. CBH-10

BOREHOLE NO. CBH-11

BOREHOLE NO. CBH-12

BOREHOLE NO. [illegible]

CBH-08

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
		8 6									
16		2 1								.04	Sample 16.5-16.5 B212-CB-05-65 PCBs only
17		1 1	S		1612	9	1.7				
18				B.O.H. = 18'							
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

CBH-08

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	16-18 Sandy silt as above, moist to wet at 17.3			
16	~~wet [illegible]~~			
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
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31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				

BOREHOLE NO. CBH-9

BOREHOLE NO. CBH-10

BOREHOLE NO. CBH-11

BOREHOLE NO. CBH-12

BOREHOLE NO. CBH-13

Borehole Record for CBH-09

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR CBH-09

Project Name: Bucy 212

Site Location: Ft Edward, NY

Date Started/Finished: 2/24/06

Drilling Company: Northstar

Driller's Name: D. Lyons

Geologist's Name: S. Reynolds Smith

Geologist's Signature: S R Smith

Rig Type (s): CME 45B

Drilling Method (s): HSA

Bit Size (s): NA   Auger Size (s): 4 1/4"

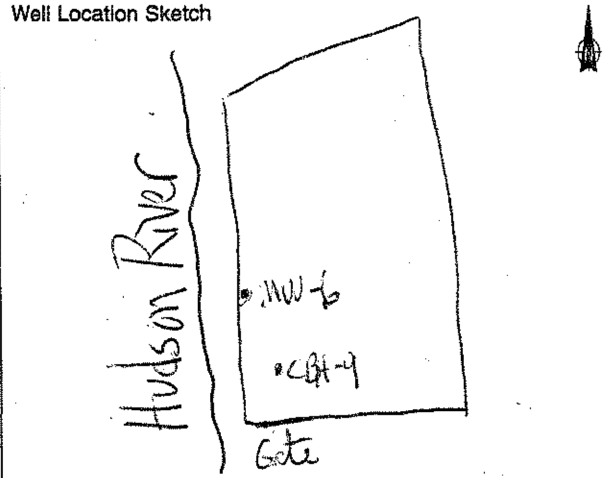
Auger/Split Spoon Refusal: NA

Total Depth of Borehole Is: 14' bgs

Total Depth of Corehole Is: NA

Water Level (TOIC)		
Date	Time	Level(Feet)

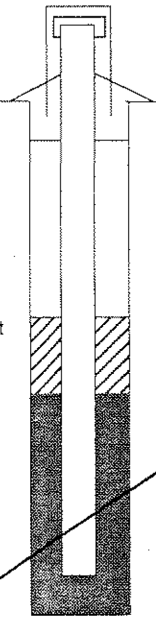
Well Location Sketch

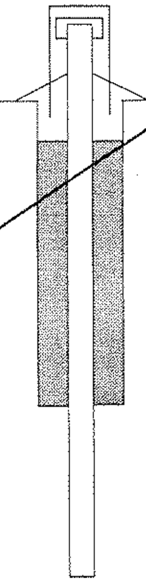


Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~FNU/OVA~~ (ppm)	Comments
										0753
1		5 4 / 4 5	C	0751	1	1.5			0	Sample 1-1.4 B212-CB-09-01 PCBScreen + TCL PCBs
2										
3		4 4 / 6 5	e S spoils	0755	2	1.6			0	
4										
5		2 4 / 4 4	spoils	0807	3	1.2			0.1	0809 Sample 4.6-4.9 PCB Screen B212-CB-09-02
6										
7		2 3 / 2 3	spoils	0814	4	1.6			0 @ 7'	0815 Sample 7-7.3 PCB Screen B212-CB-09-03
8										
9		1 3 / 4 4	spoils	0822	5	1			0.5	
10										
11		3 3 / 5 6	S	0828	6	1.3			0	0830 Sample 11-11.3 B212-CB-09-04 PCB Screen
12										
13		1 1 / 1 1	S	0837	7	1			0	0838 Sample 12.3-12.5 PCB Screen B212-CB-09-05
14										
15			B.O.H. = 14'							

CBH-09

SCREENED WELL		OPEN-HOLE WELL	
Stick-up ______ ft	Lock Number ______		Stick-up ______ ft
Top of Grout ______ ft	Inner Casing Material ______		Inner Casing Material ______
Top of Seal at ______ ft	Inner Casing Inside Diameter ____ inches		Inner Casing Inside Diameter ______ inches
Top of Sand Pack ______ ft	GROUND SURFACE		Outer Casing Diameter ______ inches
Top of Screen at ______ ft	Quantity of Material Used:		Borehole Diameter ______ ft
Bottom of Screen at ______ ft	Bentonite Pellets ______		Bedrock ______ ft
Bottom of Hole at ______ ft	Cement ______		Bottom of Rock Socket/ Outer Casing ______ ft
Bottom of Sandpack at ______	Borehole Diameter ______ inches		Bottom of Inner Casing ______ ft
	Cement/ Bentonite ______		Corehole Diameter ______
	Grout ______		Bottom of Corehole ______ ft
	Screen Slot Size ______		
	Screen Type ______ ☐ PVC ______ ☐ Stainless Steel ______		
	Pack Type/Size: ☐ Sand ______ ☐ Gravel ______ ☐ Natural ______		





NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0-1.5 Brown Clay tight, dry-moist	○	○	○
1	2-2.7 Clay as above	○	○	○
2	2.7-3.3 yellowish brown fine sand/silt dry-moist	○	○	○
3	3.3-3.6 Black fine sand/silt, dry (spoils)	○	○	○
4	4-6 Dark gray to black fine silty sand, dry	○	○	○
5	6-8 Black fine sand/silt with thin layers of gray to dark gray	○	○	○
6	silt at 6.7-6.9, some wood, dry	○	○	○
7	8-9 Black fine sand/silt trace wood dry	○	○	○
8	10-10.8 Black fine sand/silt, little wood, dry	○	○	○
9	10.8-11.3 Greenish brown fine sandy silt, dry	○	○	○
10	12-13 Greenish brown fine sandy silt, dry-moist	○	○	○
11		○	○	○
12		○	○	○
13				
14		○	○	○
15		○	○	○

BOREHOLE NO. CBH-10

BOREHOLE NO. CBH-11

BOREHOLE NO. CBH-12

BOREHOLE NO. [illegible]

Borehole Record for CBH-10

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. CBH-11

BOREHOLE NO CBH-12

BOREHOLE NO [illegible]

DRILLING LOG FOR CBH-10

Project Name: Buoy 212

Site Location: Ft Edward, NY

Date Started/Finished: 2/23/06

Drilling Company: North Star

Driller's Name: Dave Lyons

Geologist's Name: Stephanie Reynolds Smith

Geologist's Signature: S Rees Smith

Rig Type (s): CME 45B

Drilling Method (s): HSA

Bit Size (s): N/A Auger Size (s): 4 1/4"

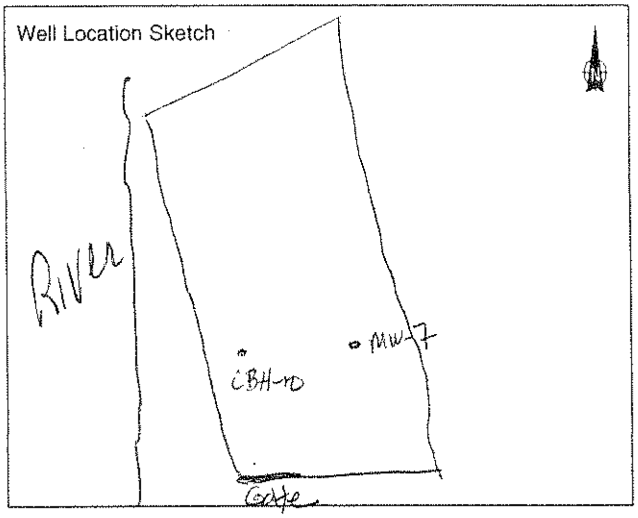
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 14' bgs

Total Depth of Corehole Is: N/A

Water Level (TOIC)		
Date	Time	Level(Feet)

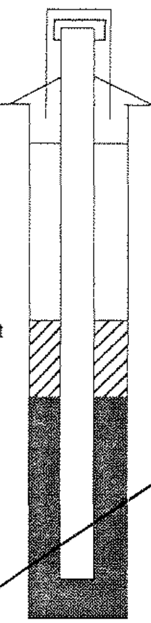
Well Location Sketch

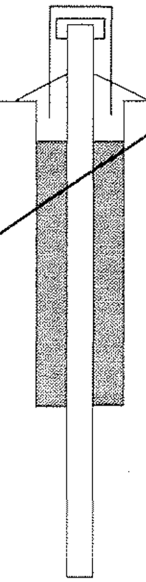


Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~HNu~~/OVA (ppm)	Comments
1		4 3 / 2 2	CL	1629	1	1.3			∅	
2										
3		3 6 / 4 5	CL, S, spoils	1632	2	1.6			0	1635 Sample 2.6 - 2.8 B212-CB-10-01 PCB Screen
4										
5		2 3 / 5 5	spoils	1640	3	1.1			0	1642 Sample 4.1-5.1 B212-CB-10-02 PCB Screen + TCL PCBs
6										
7		3 3 / 2 2	Spoils	1648	4	1.3			0	
8										
9		WH WH / 1 2	S	1657	5	0.5			0	1655 Sample 8.2-8.5 PCB Screen B212-CB-10-03
10										
11		2 1 / 1 1	S	1703	6	1			0	1705 Sample 10-11 PCB Screen, short list metals B212-CB-10-04
12										
13		WH WH / 1 1	S	1708	7	2			0	
14										
15			B.O.H. = 14'							

CB#10

SCREENED WELL	Lock Number ____	**OPEN-HOLE WELL**
Stick-up ____ ft	Inner Casing Material ____	Stick-up ____ ft
Top of Grout ____ ft	Inner Casing Inside Diameter ____ inches	Inner Casing Material ____
Top of Seal at ____ ft	GROUND SURFACE	Inner Casing Inside Diameter ____ inches
Top of Sand Pack ____ ft	Quantity of Material Used: Bentonite Pellets ____	Outer Casing Diameter ____ inches
Top of Screen at ____ ft	Cement ____	Borehole Diameter ____ ft
Bottom of Screen at ____ ft	Borehole ____ inches Diameter	Bedrock ____ ft
Bottom of Hole at ____ ft	Cement/ Bentonite ____	Bottom of Rock Socket/ Outer Casing ____ ft
Bottom of Sandpack at ____	Grout ____	Bottom of Inner Casing ____ ft
	Screen Slot Size ____	Corehole Diameter ____
	Screen Type ____ ☐ PVC ____ ☐ Stainless Steel ____	Bottom of Corehole ____ ft
	Pack Type/Size: ☐ Sand ____ ☐ Gravel ____ ☐ Natural ____	





NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-1.3 Brown tight clay, moist, organic rich (0-0.2)	○	○	○
2	2-2.3 Clay as above	○	○	○
3	2.3-3.2 yellowish brown fine silty sand, dry	○	○	○
4	3.2-3.6 Black fine sand/silt, dry (spoils)	○	○	○
5	4-5.1 Black fine sand/silt, wood (spoils)	○	○	○
6	6-7.3 Dark brown - black fine sand/silt with some wood,	○	○	○
7	dry (spoils)	○	○	○
8	8-8.1 Wood	○	○	○
9	8.1-8.5 Gray fine sand/silt dry-moist	○	○	○
10	10-~~9~~11 Gray fine sand/silt, trace black w/ roots, moist	○	○	○
11	12-14 Gray fine sand/silt, wet	○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

BOREHOLE NO. CBH-11

BOREHOLE NO. CBH-12

BOREHOLE NO.

Borehole Record for CBH-11

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BUOY 212

DRILLING LOG FOR CBH11

Project Name: BUOY 212

Site Location: FORT EDWARD, NY

Date Started/Finished: 3/1/06

Drilling Company: GEOLOGIC OF NY INC.

Driller's Name: DAVE LYONS / WAYNE CHRISTFIELD

Geologist's Name: JON [illegible]

Geologist's Signature: [illegible]

Rig Type (s): CME-45

Drilling Method (s): HSA

Bit Size (s): N/A Auger Size (s): 4 1/4"

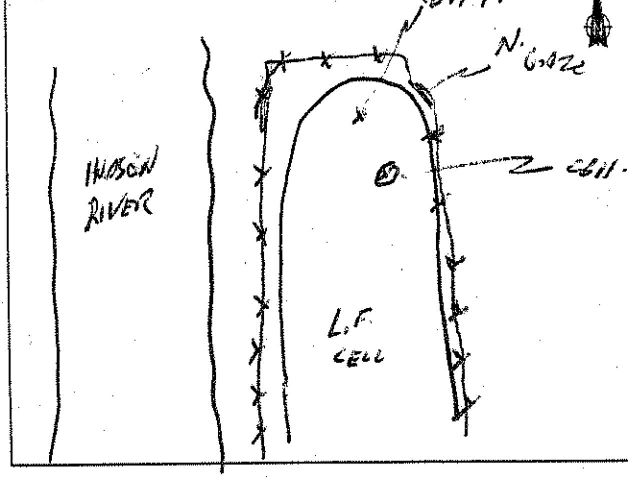
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 18'

Total Depth of Corehole Is: 20'

Water Level (TOIC)		
Date	Time	Level(Feet)

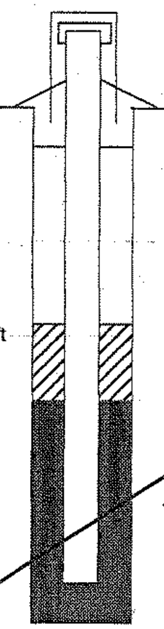
Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	2'SS Core Recovery	RQD	Fracture Sketch	PID (ppm)	Comments
1	1	6	4	CL			1.5'			0	
2		4	5								
3	2	6	5	S			1.8'			0	0315 - SAMPLE 1 2.6'-2.9' PCB Screen
4		5	6								
5	3	3	4	SL/S			1'			0	0336 SAMPLE 2 5.1-6.0 TCL PCB, SVOC
6		4	6								
7	4	6	5	S			2'			0.5	7.0-7.4 SVOC PCB Screen NW 3/2/06
8		5	5								
9	5	5	5				1.8'			0	
10		5	6								
11	6	2	2				1.9'			0	
12		3	3								
13	7	3	5				1.7			0.7	
14		5	6								
15		3	3								

CBH-17

SCREENED WELL



Stick-up __________ ft

Top of Grout __________ ft

Top of Seal at __________ ft

Top of Sand Pack __________ ft

Top of Screen at __________ ft

Bottom of Screen at __________ ft

Bottom of Hole at __________ ft

Bottom of Sandpack at __________

Lock Number __________

Inner Casing Material __________

Inner Casing Inside Diameter _____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets __________

Cement __________

Borehole Diameter _______ inches

Cement/ Bentonite __________

Grout __________

Screen Slot Size __________

Screen Type __________

☐ PVC __________

☐ Stainless Steel __________

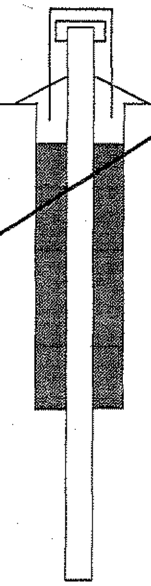
Pack Type/Size:

☐ Sand __________

☐ Gravel __________

☐ Natural __________

OPEN-HOLE WELL



Stick-up __________ ft

Inner Casing Material __________

Inner Casing Inside Diameter __________ inches

Outer Casing Diameter __________ inches

Borehole Diameter __________ ft

Bedrock __________ ft

Bottom of Rock Socket/ Outer Casing _______ ft

Bottom of Inner Casing __________ ft

Corehole Diameter __________

Bottom of Corehole __________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-2 Tight, dense brown clay. Frozen at top. Damp	○	○	○
2	mod. plasticity. Highly cohesive	○	○	○
3	2.0-3.5: Well sorted, tan sand; m.g.-f.g. (Sample 1)	○	○	○
4	3.5-6 Black ~~silty~~ sand, (spoils). Some wood chips	○	○	○
5	(bark). Damp ← trace silt (Sample 2)	○	○	○
6	6-8 F-M gray/black sand; trace silt. (Sample 3)	○	○	○
7	~~8-11~~ ?	○	○	○
8	8-10 Continues gray/black sand w/ trace silt, wood	○	○	○
9	fragments. Trace black shale fragments, to 1 cm. Damp	○	○	○
10	10'-12' Same as 8'-10' (spoils)	○	○	○
11		○	○	○
12	12'-14' Same as above; trace rounded gravel (gravel	○	○	○
13	clast) 3 mm. Trace angular/subangular	○	○	○
14	black shale	○	○	○
15		○	○	○

CBH-11

CB-11

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	8	3	4									0918 Sple 4: 17.2-17.6
16		3	3									Sample 5
17	9	6	7					1.5			0	17.6'-17.8' 0919
18		1	1									
19	10	1	1					2.0			0	
20				B.O.H = 20.0'								
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
41												
42												
43												
44												
45												

CBKW-11

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION
16	14-16': (W) AT 15.4', SAME GRAY/BLACK SILTY
17	SAND. ROUNDED CLASTS TO 10 mm (TRACE). (SPOILS)
18	16-17.6: SAME THEN ABRUPT CHANGE TO
19	TIGHT BLACK CLAY/SILT @ 17.6'. SAMPLE
20	SILT TO 18.9', THEN GRADUALLY GRADES TO TAN BROWN SILTY CLAY; DAMP
21	TO 20'.
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	

Moisture Content: Dry / Moist / Wet

Borehole Record for CBH-12

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

OREHOLE NO. CBH-12

DRILLING LOG FOR CBH-12

Project Name: Bucy 212

Site Location: Fort Edward, NY

Date Started/Finished: 2/28/06

Drilling Company: Northstar

Driller's Name: Dave Lewis

Geologist's Name: Jon Nickerson

Geologist's Signature: Jon Nickerson

Rig Type (s): CME-45

Drilling Method (s): HSA

Bit Size (s): N/A Auger Size (s): 4 1/4"

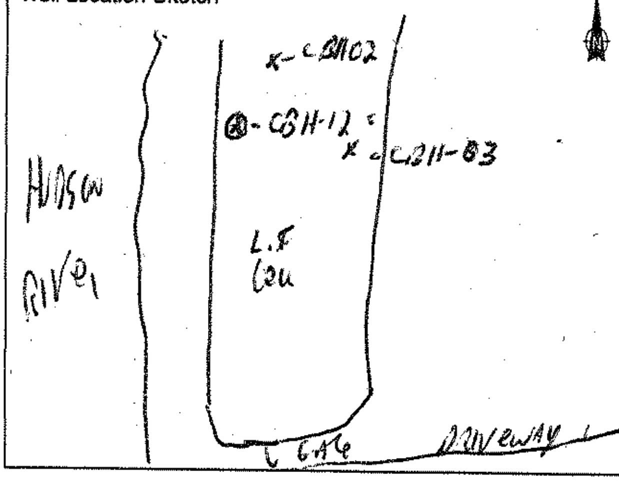
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 16'

Total Depth of Corehole Is: 18'

Water Level (TOIC)		
Date	Time	Level(Feet)

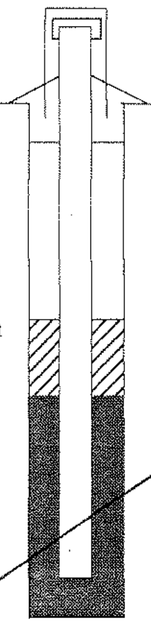
Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	SS Core Recovery St	RQD	Fracture Sketch	PID ~~HNu/OVA~~ (ppm)	Comments
1	1	4 3	CL			1.5			0	
2		3 3								
3	2	3 5	S			1.7			0.5	3.5-4 14:27 SC... Sample 1
4		6 7								
5	3	3 8	S/GR			1.7			0	5.5-6.0 14:31 Tc..., scr. Sample 2
6		7 6								
7	4	3 3				1.8			0	
8		3 3								7.5-8.0 14:41 Sample 3
9	5	1 1				1.7			0	
10		2 3								
11	6	2 2	S			2.0			0	11.5-12 14:50 Sample 4
12		3 4								
13	7	4 5				1.7				
14		4 5								
15		3 3								

CBH-12

SCREENED WELL



Lock Number ________

Stick-up ________ ft

Inner Casing Material ________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Top of Grout ________ ft

Quantity of Material Used:

Bentonite Pellets ________

Cement ________

Top of Seal at ________ ft

Borehole Diameter ________ inches

Top of Sand Pack ________ ft

Cement/ Bentonite ________

Top of Screen at ________ ft

Grout ________

Screen Slot Size ________

Bottom of Screen at ________ ft

Screen Type ________

☐ PVC ________

☐ Stainless Steel ________

Bottom of Hole at ________ ft

Pack Type/Size:

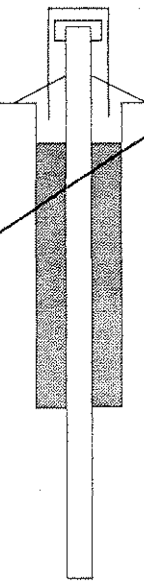
☐ Sand ________

☐ Gravel ________

☐ Natural ________

Bottom of Sandpack at ________

OPEN-HOLE WELL



Stick-up ________ ft

Inner Casing Material ________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ________ ft

Bottom of Inner Casing ________ ft

Corehole Diameter ________

Bottom of Corehole ________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-2.5 - Brown Tight Clay, Damp	○	○	○
2	2.5-4 Brown Sand well sorted F-med gr. Sample 2	○	○	○
3	4-6.2 Black coarse sand w/ gravel (F.g.). Damp Sample	○	○	○
4	6.2 — 8.8 Coarse gravel w/ coarse sand; much quartz	○	○	○
5	sand; light in color, overall. Rounded clasts	○	○	○
6	to 5 mm. Damp. Some black shale fragments <5%	○	○	○
7	to 3 mm; angular Sample 3	○	○	○
8	8.8-11 Light med sand shale <5%, angular	○	○	○
9	10-11 same sand Sample 4	○	○	○
10	12-14	○	○	○
11		○	○	○
12	Same light sand, some wood chips. Fine gravel	○	○	○
13	Trace angular black shale fragments			
14		○	○	○
15		○	○	○

OREHOLE NO. [illegible]

CBH-12 C-212

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	8	2	3					2'				15.1- [illegible] 15.7-15.9
16				S								
17	9	3	2					2'			0	
		2	2									
18				B.O.H. = 18'								
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
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39												
40												
41												
42												
43												
44												
45												

CBH-12

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	Light Brown Sandy w/ wood to 15.2, Then Brown Clay Silt		X	
16	to 18'			
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
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42				
43				
44				
45				

BOREHOLE NO. CBH-12

Borehole Record for MW-5

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. MW-6

BOREHOLE NO. MW-7

DRILLING LOG FOR MW-5

Project Name Bldg 212

Site Location Ft Edward, NY

Date Started/Finished 2/22/06

Drilling Company Northstar

Driller's Name Dave Lyons

Geologist's Name S. Reynolds Smith

Geologist's Signature S R Smith

Rig Type (s) CME 45B

Drilling Method (s) HSA

Bit Size (s) NA Auger Size (s) 4 1/4"

Auger/Split Spoon Refusal N/A

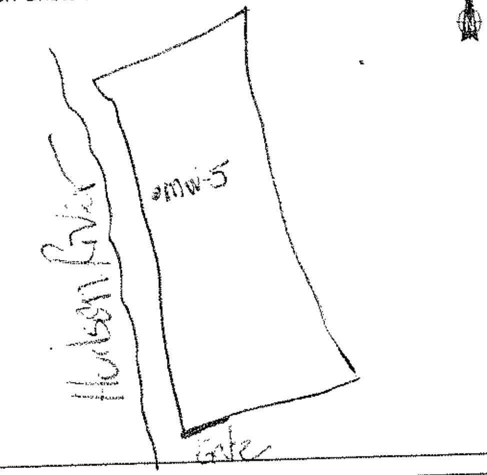
Total Depth of Borehole Is 24' bgs

Total Depth of Corehole Is 24'

Water Level (TOIC)

Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1		3	1	CL S spoils	0844	1	1.4			0	0846 Sample 0.4-0.8 B212-MW-05-01 PCB Screen
2		1	2								
3		1	2	spoils	0845	2	1.4			0	
4		2	4								
5		3	3	spoils	0856	3	1.7			0	0859 Sample 4.4-5.7 B212-MW-05-02 PCB Screen + TCL PCBs MS/MSD for TCL PCBs
6		3	4								
7		3	3	spoils S	0903	4	1.7			0	0905 Sample 6.6-6.9 PCB Screen B212-MW-05-03
8		4	5								
9		2	1	S	0917	5	1.1			0.5	
10		2	1								
11		WH	WH	S	0926	6	1.8			0	0925 Sample 10.6-10.8 B212-MW-05-04 + dup PCB Screen
12		1	2								
13		WR	WR	S	0936	7	1.2			0	
14		WH	WH								
15		WH	WH	S	0947	8	1.6			0	

B212 – MW05

Lock Number ____________

SCREENED WELL

Inner Casing Material PVC

Inner Casing Inside Diameter 2 inches

Stick-up 2.5 ft

Top of Grout 0 ft

Top of Seal at 9 ft

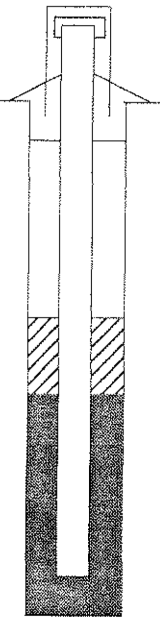
Top of Sand Pack 11 ft

Top of Screen at 13 ft

Bottom of Screen at 23 ft

Bottom of Hole at ~~24~~ 23.3 ft

Bottom of Sandpack at ~~23.5~~ 23.3



GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ____________

Cement ____________

Borehole Diameter 8 inches

Cement/ Bentonite ____________

Grout ____________

Screen Slot Size 0.010

Screen Type ____________

☒ PVC ____________

☐ Stainless Steel ____________

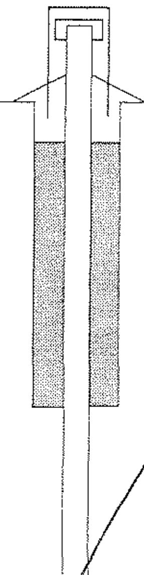
Pack Type/Size:

☒ Sand Morie #0

☐ Gravel ____________

☐ Natural ____________

OPEN-HOLE WELL



Stick-up ____________ ft

Inner Casing Material ____________

Inner Casing Inside Diameter ____________ inches

Outer Casing Diameter ____________ inches

Borehole Diameter ____________ ft

Bedrock ____________ ft

Bottom of Rock Socket/ Outer Casing ________ ft

Bottom of Inner Casing ____________ ft

Corehole Diameter ____________

Bottom of Corehole ____________ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-0.4 Brown clay tight, organic rich top 0.2, dry	○	○	○
2	0.4-0.8 Yellowish brown fine sand, dry	○	○	○
3	0.8-1.4 Black fine sand dry	○	○	○
4	2-3.4 Black fine sand/silt w/ (spoils), dry	○	○	○
5	4-5.7 Black fine sand/silt (spoils) dry	○	○	○
6	6-6.5 Black fine sand/silt (spoils), dry	○	○	○
7	6.5-7.7 Brown silty fine sand, dry trace ~~clay~~ no clay	○	○	○
8	8-9.1 Brown silty clayey fine sand, dry-moist	○	○	○
9	10-12 Brown silty clayey fine sand moist	○	○	○
10	12-13.2 Brown silty clayey fine sand, moist + becoming	○	○	○
11	moist-wet at 12.9	○	○	○
12	14-15.6 Brown silty clayey fine sand moist + becoming	○	○	○
13	wet at 14.6, decreased clay w/ depth	○	○	○
14		○	○	○
15		○	○	○

BOREHOLE NO. MW-6

BOREHOLE NO. MW-7

23.5

B212- MW05

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
		1 1									
16											
17		WH WH	S		0955	9	2			0	
		1 2									
18											
19		WR WR	S		1005	10	1.2			0	1006 Sample 18–19 B212-MW-05-05 PCBs, Metals + Metaloids
		2 1									
20											
21		1 1	S		1010	11	1.4			0	
		1 1									
22											
23		WR WR	S		1020	12	1.3			0	
		1 1									
24											
25					B.O.A. = 23.3'						
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

B212-MW6

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	16-18 Brown silty fine sand w/ trace clay grading to yellowish			
17	brown fine silty sand wet			
18	18-19.2 yellowish brown fine silty sand wet			
19	20-21.4 Gray w/ yellowish orange mottling silty fine			
20	sand, wet			
21	22.0-~~22~~.23.3 Sand, as above			
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
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36				
37				
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39				
40				
41				
42				
43				
44				
45				

BOREHOLE NO. MW-6

Borehole Record for MW-6

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. MW-7

DRILLING LOG FOR MW-6

Project Name Buoy 212

Site Location Ft Edward, NY

Date Started/Finished 2/22/06 - 2/23/06

Drilling Company NorthStar

Driller's Name Dave Lyons

Geologist's Name S. Reynolds Smith

Geologist's Signature SRSm

Rig Type (s) CME 45B

Drilling Method (s) HSA

Bit Size (s) N/A Auger Size (s) 4 1/4"

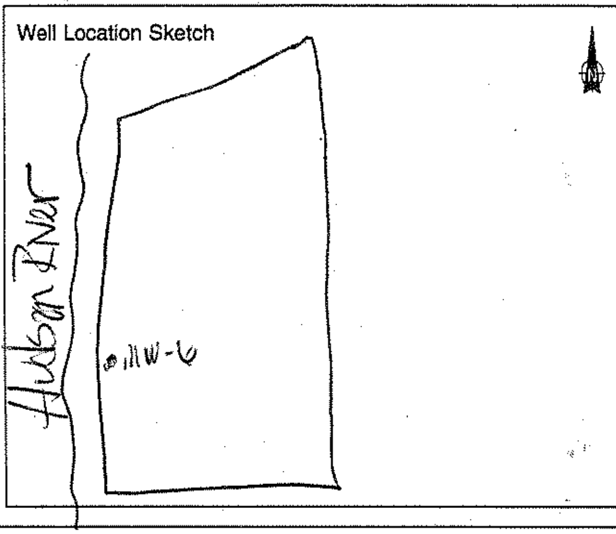
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 23

Total Depth of Corehole Is 2

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

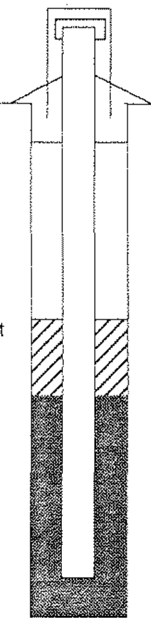


Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	~~HNu~~ PID/OVA (ppm)	Comments
1 2		2 3 3 2	CL S	1632	1	1.6			0	1635 Sample 0.3 - 0.9 B212-MW-06-01 for PCB Scr + TCL PCBs
3 4		3 4 4 3	spoils	1637	2	1.6			0	
5 6		2 2 2 4	spoils sand	1651	3	1.8			0	1652 Sample 4-4.3 B212-MW-06-02 for Scrn P... 1653 Sample 4.9-5.1
7 8		1 1 1 1	S	1659	4	1.6			0	B212-MW-06-03 for Scrn
9 10		1 1 1 1	S	1709	5	1.6			0	1659 Sample 6 - 6.3 PCB scrn B212-MW-06-04
11 12		1 1 1 1	S	1716	6	1.7			0	
13 14		WH 1 WH WH	S	1723	7	1.3			0	
15		WH WH	S	1731	8	2			0	

MW-06

Lock Number ______

SCREENED WELL



Stick-up 2.5 ft

Top of Grout 0 ft

Top of Seal at 8 ft

Top of Sand Pack 10 ft

Top of Screen at 12 ft

Bottom of Screen at 22 ft

Bottom of Hole at 23 ft

Bottom of Sandpack at 23

Inner Casing Material PVC

Inner Casing Inside Diameter 2 inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ______

Cement ______

Borehole Diameter 8 inches

Cement/ Bentonite ______

Grout ______

Screen Slot Size 0.010

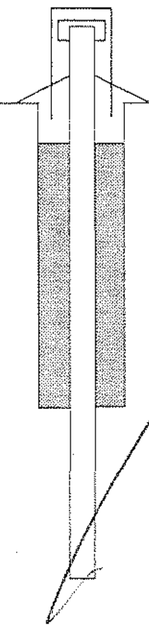
Screen Type PVC

- [x] PVC ______
- [ ] Stainless Steel ______

Pack Type/Size:

- [x] Sand Mine #0
- [ ] Gravel ______
- [ ] Natural ______

OPEN-HOLE WELL



Stick-up ______ ft

Inner Casing Material ______

Inner Casing Inside Diameter ______ inches

Outer Casing Diameter ______ inches

Borehole Diameter ______ ft

Bedrock ______ ft

Bottom of Rock Socket/ Outer Casing ______ ft

Bottom of Inner Casing ______ ft

Corehole Diameter ______

Bottom of Corehole ______ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-1 Brown tight clay, dry	○	○	○
2	1-1.4 yellowish brown fine sand dry	○	○	○
3	1.4 - 1.6 Black to dark brown fine sand, dry	○	○	○
4	(spoils)	○	○	○
5	3-3.6 Medium gray w/ some black fine sand dry, trace	○	○	○
6	shale (backed up drawing existing) (spoils)	○	○	○
7	4-4.8 Medium gray w/ some black fine sand/silt dry, trace shale (spoils)	○	○	○
8	4.8 - 5.8 Brown silty fine sand trace clay dry	○	○	○
9	6 - 7.6 yellowish brown fine silty sand, trace clay,	○	○	○
10	dry	○	○	○
11	8-9.6 sand, as above	○	○	○
12	10-11.1 sand as above	○	○	○
13	11.1 - 11.7 Grayish brown fine sand/silt w/ trace clay moist	○	○	○
14	12-13.3 Grayish greenish brown silt/fine sand, moist	○	○	○
15	becoming moist - wet at 12.7	○	○	○

BOREHOLE NO. MW-7

MW-06

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
		WH 1				8					
16											
17		WH WH 1 2	S	1739		9	2			0	
18											
19		WH WH 1 1	S	1741		10	1.8			1745 Sample A-20 B212-MW-06-05 PCBs SVOCs + metals + Metals (MS/MSD)	
20											
21			BOH = 20' BGS								
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

MW-06

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	14-16 Grayish brown fine silty sand, trace clay, wet	○	○	○
17	16 - 17.5 Sand as above	○	○	○
18	17.5 - 18 yellowish brown mottling in gray silt,	○	○	○
19	trace clay, wet	○	○	○
20	18 - 18.8 silt as above	○	○	○
21	18.8 - 20 Gray fine sand/silt, trace clay, wet	○	○	○
22		○	○	○
23		○	○	○
24		○	○	○
25		○	○	○
26		○	○	○
27		○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45		○	○	○

BOREHOLE NO. MW-7

Borehole Record for MW-7

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

BOREHOLE NO. CBH-1

BOREHOLE NO. CBH-2

BOREHOLE NO. CBH-3

BOREHOLE NO. CBH-4

DRILLING LOG FOR MW-7

Project Name: Bldg 212

Site Location: Ft Edward, NY

Date Started/Finished: 2/23/06

Drilling Company: Northstar

Driller's Name: Dave and Lyons

Geologist's Name: S. Reynolds Smith

Geologist's Signature: [illegible]

Rig Type (s): CME 45B

Drilling Method (s): HSA

Bit Size (s): N/A Auger Size (s): 4 1/4"

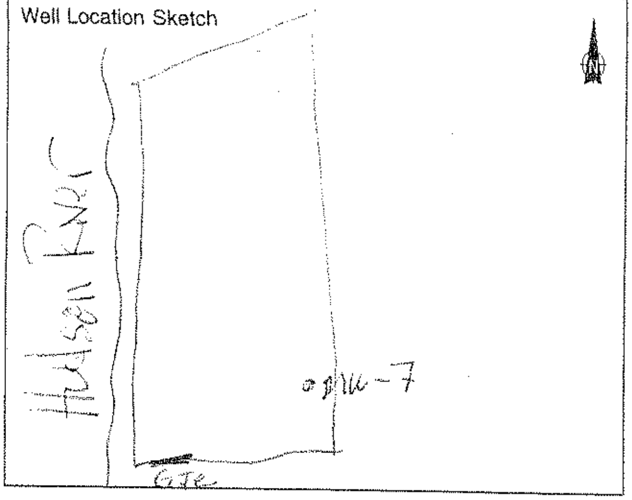
Auger/Split Spoon Refusal: N/A

Total Depth of Borehole Is: 17' bgs

Total Depth of Corehole Is: N/A

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



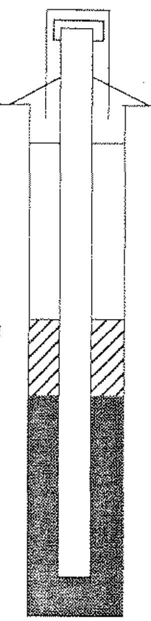
Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID (ppm)	Comments
1–2		4 3 / 3 3	CL	1058	1	1.8			0	1100 Sample ~~0.4 Cig~~ 1.4-1.6 B212-MW-07-01 (PCB Screen)
3–4		2 3 / 3 4	CL / S	1102	2	1.5			0	
5–6		1 1 / 1 WH	Spoils S	1113	3	1.6			0.8	1115 Sample 4-4.4 B212-MW-07-02 PCB Scrn; 1116 Sample 4.8-5.2 B212-MW-07-03 PCB Scrn (MS/MSD)
7–8		WH 1 / WH 1	S	1120	4	1.6			0	
9–10		WH WH / WH 1	S	1131	5	1.5			0	
11–12		1 WH / 1 WH	S	1134	6	2			0	1140 Sample ~~10~~ 11.6-12 B212-MW-07-04 (PCB Scrn + TCL [illegible])
13–14		1 1 / 1 1	S	1141	7	1.1			0	
15		2 3 / 3 4	S	1145	8	1.6				

MW-07

6

BOREHOLE NO. CBH-1

SCREENED WELL



Lock Number ______

Inner Casing Material PVC

Inner Casing Inside Diameter 2 inches

GROUND SURFACE

Stick-up 2.5 ft

Top of Grout 0 ft

Top of Seal at 3 ft

Top of Sand Pack 5 ft

Top of Screen at 6 ft

Bottom of Screen at 16 ft

Bottom of Hole at 17 ft

Bottom of Sandpack at 17

Quantity of Material Used:

Bentonite Pellets ______

Cement ______

Borehole Diameter 8 inches

Cement/ Bentonite ______

Grout ______

Screen Slot Size 0.010

Screen Type ______

☒ PVC ______

☐ Stainless Steel ______

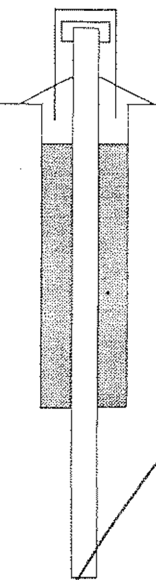
Pack Type/Size:

☒ Sand More #2

☐ Gravel ______

☐ Natural ______

OPEN-HOLE WELL



Stick-up ______ ft

Inner Casing Material ______

Inner Casing Inside Diameter ______ inches

Outer Casing Diameter ______ inches

Borehole Diameter ______ ft

Bedrock ______ ft

Bottom of Rock Socket/ Outer Casing ______ ft

Bottom of Inner Casing ______ ft

Corehole Diameter ______

Bottom of Corehole ______ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Dry	Moist	Wet
	0-1.8 Brown tight clay dry - Moist			
1	2 - 3.2 Clay as above	○	○	○
2	3.2 - 3.5 yellowish brown fine sand, dry - moist	○	○	○
3	4-4.4 Black fine sand, wet (spoils)	○	○	○
4	4.4-4.8 yellowish brown fine silty sand, moist	○	○	○
5	4.8 - 5.6 Greenish gray fine sand, moist - wet,	○	○	○
6	trace clay	○	○	○
7	~~6-6~~ 6-6.6 sand as above	○	○	○
8	6.6 - 7.6 Yellowish brown [illegible] - [illegible]	○	○	○
9	silty sand trace clay, moist - wet	○	○	○
10	8 - 9.5 Greenish gray w/ orange mottling	○	○	○
11	moist - wet, silty fine sand trace clay	○	○	○
12	10 - 12 sand as above grading to gray	○	○	○
13	silty fine sand trace clay wet			
14	12 - 12.5 Sand as above	○	○	○
15		○	○	○

12.5 - 13.1 Dark gray F-M sand, wet
medium to

MW-07

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
										0	1252 Sample 14.6 - 14.8 for PCBs screen +TAL Metals B212-MW07-05
16											
17			BOH = 16' BGS								
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
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36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

MW-07

BOREHOLE NO. CBH-1

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moisture Content: Moist	Moisture Content: Wet
16	14 – 14.7 sand, as above			
17	14.7 – 15.7' Dark gray to black fine to coarse			
18	sand w/ little fine gravel, wet			
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				

D

Geotechnical Testing Results

ANALYTICAL REPORT

Job#: A06-2321

STL Project#: NY5A9393.3
Site Name: Ecology and Environment NYSDEC Standby
Task: Buoy 212 Dredge Spoils Site-000699.NV23.02

Mr. Richard Watt
Ecology and Environment
368 Pleasant View Drive
Lancaster, NY 14086

STL Buffalo

Tony Bogolin

Anthony J. Bogolin
Project Manager

03/20/2006

SDG Narrative

SAMPLE SUMMARY

			SAMPLED		RECEIVED	
LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE	TIME	DATE	TIME
A6232101	B212-GT-01	SOTHER	03/01/2006		03/02/2006	15:45
A6232102	B212-GT-02	SOTHER	03/01/2006		03/02/2006	15:45
A6232103	B212-GT-03	SOTHER	03/01/2006		03/02/2006	15:45
A6232104	B212-GT-04	SOTHER	03/01/2006		03/02/2006	15:45

METHODS SUMMARY

Job#: A06-2321

STL Project#: NY5A9393.3
Site Name: Ecology and Environment NYSDEC Standby

PARAMETER	ANALYTICAL METHOD
Hydrometer Analysis	ASTM D421,422
Organic Matter in Topsoil	ASTM 2974
Sieve Analysis % Less Than 200 Sieve	ASTM D421,422

ASTM "Annual Book of ASTM Standards", American Society for Testing and Materials, Philadelphia, PA.

NON-CONFORMANCE SUMMARY

Job#: A06-2321

STL Project#: NY5A9393.3
Site Name: Ecology and Environment NYSDEC Standby

General Comments

The enclosed data may or may not have been reported utilizing data qualifiers (Q) as defined on the Data Comment Page.

Soil, sediment and sludge sample results are reported on "dry weight" basis unless otherwise noted in this data package.

According to 40CFR Part 136.3, pH, Chlorine Residual, Dissolved Oxygen, Sulfite, and Temperature analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field (e.g. pH-Field), they were not analyzed immediately, but as soon as possible after laboratory receipt.

Sample dilutions were performed as indicated on the attached Dilution Log. The rationale for dilution is specified by the 3-digit code and definition.

Sample Receipt Comments

A06-2321
Sample Cooler(s) were received at the following temperature(s); 2 @ 2.0 °C
All samples were received in good condition.

Wet Chemistry Data

Organic Matter in Topsoil, Hydrometer Analysis and Sieve Analysis were subcontracted to STL Burlington. The complete subcontract report is included in this report as Appendix A. Comments pertaining to all parameters may be found within the comment summary of the subcontract report.

****

The results presented in this report relate only to the analytical testing and condition of the sample at receipt. This report pertains to only those samples actually tested. All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

Chain of Custody Documentation

Chain of Custody Record

STL-4124 (0901)

SEVERN TRENT **STL**
Severn Trent Laboratories, Inc.

Client	Project Manager	Date	Chain of Custody Number
ECOLOGY & ENVIRONMENT	JON NICKERSON	3/2/06	250267

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1
368 Pleasantview Dr.	716-684-8060		

City	State	Zip Code	Site Contact	Lab Contact
Lancaster	NY	14086	R. Watt	T. Bogolin

Project Name and Location (State)	Carrier/Waybill Number
BUOY 212	—

Contract/Purchase Order/Quote No.: 000699. NV23.02

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: Grainsize	Analysis: Organic content	Special Instructions/ Conditions of Receipt
B212-GT-01	3/1/06					X	1						X	X	Native sand
B212-GT-02	↓					X	1						X	X	Dredge spoils
B212-GT-03	↓					X	1						X	X	Dredge spoils
B212-GT-04	↓					X	1						X		Cap sand

Possible Hazard Identification: MAY CONTAIN PCBs
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other______

QC Requirements (Specify): None

Relinquished By	Date	Time	Received By	Date	Time
1. R. Watt	3-2-06	1545	1. D. C.	3/2/06	1545
2.			2.		
3.			3.		

Comments: Grain size by sieve, hydrometer if necessary for fines per ASTM.

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Job No: A06-2321 Client: Ecology & Environment, Inc. Project: NY5A9393.3 SDG: Case: SMO No: 161 No. Samps: 4	Radiation Check: YES Custody Seal: YES Chain of Custody: YES Sample Tags: NO Sample Tag Numbers: NO SMO Forms: NO CLSIS: NO Cooler Temperature: 2 @ 2.0°C

Sample	Receive	Client Sample ID	Lab ID	Condition	Bottles	Parameters	Lab	Pres log Code	Pres log PH
03/01/2006	03/02/2006 15:45	B212-GT-01	A6232101	Good	1-PLBAG	GEO-TECHNICAL	STLVT	0100	
03/01/2006	03/02/2006 15:45	B212-GT-02	A6232102	Good	1-PLBAG	GEO-TECHNICAL	STLVT	0100	
03/01/2006	03/02/2006 15:45	B212-GT-03	A6232103	Good	1-PLBAG	GEO-TECHNICAL	STLVT	0100	
03/01/2006	03/02/2006 15:45	B212-GT-04	A6232104	Good	1-PLBAG	GEO-TECHNICAL	STLVT	0100	

ample Custodian: ______ 03/03/2006

Analytical Services Coordinator: ______ __/__/20__

Preservation Code References:

First Digit: Sample Filtration; 1=Filtered, 0=Unfiltered
Second Digit: Sample Requires Cooling; (4°) 1=Cooled, 0=Not Cooled

Third, Fourth Digits - Preservation Types:
00=Nothing added, 01=HNO3, 02=H2SO4, 03=HCl, 04=Sodium Thiosulfate
05=NaOH, 06=NaOH+Zinc Acetate, 07=Sodium Thiosulfate+HCl, 08=MeOH
09=MCAA (Mono chloroacetic acid)

Appendix A

STL Burlington
Colchester, Vermont

Sample Data Summary Package

SDG: A62321

SEVERN TRENT STL®

March 17, 2006

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446

Tel: 802 655 1203 Fax: 802 655 1248
www.stl-inc.com

Mr. Tony Bogolin
Severn Trent Laboratories
10 Hazelwood Drive
Suite 106
Amherst, NY 14228

Re: Laboratory Project No. 26012
Case: HUDRI; SDG: A62321

Dear Mr. Bogolin:

Enclosed are the analytical results for the samples that were received by STL Burlington on March 6th, 2006. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 03/06/06 ETR No: 112956		
659851	B212-GT-01	03/01/06	Solid
659852	B212-GT-02	03/01/06	Solid
659853	B212-GT-03	03/01/06	Solid
659854	B212-GT-04	03/01/06	Solid

Documentation of the condition of the samples at the time of their receipt and any exception to the laboratory's Sample Acceptance Policy is documented in the Sample Handling section of this submittal.

The samples were analyzed for organic soils by ASTM Method D2974 and particle size by ASTM Method D422

The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 655-1203.

Sincerely,

Kristine Dusablon

Kristine A. Dusablon
Project Manager

Enclosure

[redacted]

Chain of Custody Record

SEVERN TRENT STL
Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
Ecology & Environment	Jon Nickerson	3/2/06	250267

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page
368 Pleasantview Dr.	716-684-8060		Page 1 of 1

City	State	Zip Code	Site Contact	Lab Contact
Lancaster	NY	14086	R. Watt	T. Bogolin

Project Name and Location (State): Buoy 212

Carrier/Waybill Number: —

Contract/Purchase Order/Quote No.: 000699.NV23.02

Analysis (Attach list if more space is needed)

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Grainsize	Organic content	Special Instructions/ Conditions of Receipt
B212-GT-01	3/1/06					X	1						X	X	Native sand
B212-GT-02	↓					X	1						X	X	Dredge spoils
B212-GT-03	↓					X	1						X	X	Dredge spoils
B212-GT-04	↓					X	1						X		Cap sand

Possible Hazard Identification: MAY CONTAIN PCBs

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other______

QC Requirements (Specify): None

Relinquished By	Date	Time	Received By	Date	Time
1. R. Watt	3-2-06	1545	1. [illegible]	[illegible]	1545
2.			2. [illegible]	3/6/06	1145
3.			3.		

Comments: Grain size by sieve, hydrometer if necessary for fines per ASTM.

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

STL Buffalo
Job Inorganic Test Profiles

Job No: A06-2321
Project/Task: NY5A9393.3 9

est No.	Description	Prot	Method	Mtx	TCLP	Holding Type	Holding Tclp	Holding Extr	Holding Anal	Prep Type	Unit Measure	Detect Limit Type	Detect Limit Value	Spikes Code	Spikes Amount	Spikes Conc	QC Limits	RPD
C	WET CHEMISTRY																	
TA00534	ORGANIC MATTER IN TOPSOIL - (SUBC	ASTM	2974	Soil	N	R	0	0	180	N	S.U.	CRQL	0.00000	NONE				
TA00225	HYDROMETER ANALYSIS - W	ASTM	D421,422	Soil	N	S	0	0	180	N	INVALID	EQL	0.00000	NONE				
TA00226	SIEVE ANALYSIS - W	ASTM	D421,422	Soil	N	S	0	0	180	N	INVALID	EQL	0.00000	NONE				

SEVERN TRENT STL

Geotechnical Sample
Data Summary Package

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B212-GT-01

Lab Name: STL BURLINGTON
Contract: NY5A9393.3
SDG No.: A62321

Lab Code: STLVT
Case No.: HUDRI
Lab Sample ID: 659851

Matrix: SOLID
Client: STLNYB
Date Received: 03/06/06

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2974	Organic Soils	03/10/06		%	1	0.0	1.3	

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B212-GT-02

Lab Name: STL BURLINGTON

Contract: NY5A9393.3

SDG No.: A62321

Lab Code: STLVT

Case No.: HUDRI

Lab Sample ID: 659852

Matrix: SOLID

Client: STLNYB

Date Received: 03/06/06

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2974	Organic Soils	03/10/06		%	1	0.0	3.6	

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B212-GT-03

Lab Name: STL BURLINGTON
Contract: NY5A9393.3
SDG No.: A62321

Lab Code: STLVT
Case No.: HUDRI
Lab Sample ID: 659853

Matrix: SOLID
Client: STLNYB
Date Received: 03/06/06

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2974	Organic Soils	03/10/06		%	1	0.0	3.7	

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B212-GT-04

Lab Name: STL BURLINGTON

Contract: NY5A9393.3

SDG No.: A62321

Lab Code: STLVT

Case No.: HUDRI

Lab Sample ID: 659854

Matrix: SOLID

Client: STLNYB

Date Received: 03/06/06

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2974	Organic Soils	03/10/06		%	1	0.0	1.2	

ASTM Method D2974: Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
Calculations

Client Code: STLNYB
ETR: 112956
SDG: A62321

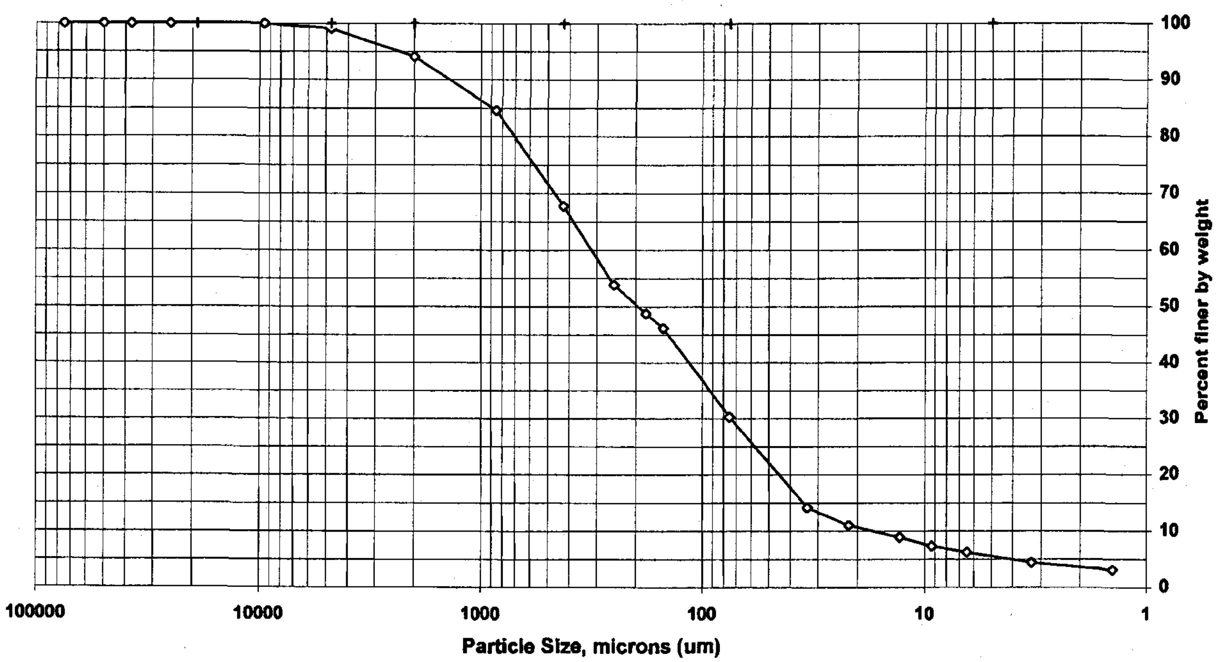
Start Date: 3/10/2006
Start Time: 2100
End Date: 3/14/2006
Analyst: MAP

Laboratory Number	Weight of Pan (g)	Pan + Wet Sample (g)	Pan +Dry Sample (g)	Pan+ Ashed Sample (g)	Wet Sample (g)	Dry Sample (g)	Organic Matter (g)	Moisture Content (%)	Organic Matter (%)	Ash Content (%)
659851	4.17	113.21	95.50	94.29	109.04	91.33	1.21	19.4	1.3	98.7
659852	4.22	102.69	94.72	91.42	98.47	90.50	3.30	8.8	3.6	96.4
659853	4.16	98.26	81.75	78.90	94.10	77.59	2.85	21.3	3.7	96.3
659854	4.24	75.44	67.20	66.45	71.20	62.96	0.75	13.1	1.2	98.8

Particle Size of Soils by ASTM D422

Client Code:	STLNYB	**SDG:**	A62321	**Date Received:**	03/06/06
Sample ID:	B212-GT-01	**ETR(s):**	112956	**Start Date:**	03/09/06
Lab ID:	659851			**End Date:**	03/15/06

Percent Solids:	85.1%		**Non-soil material:**	na
Specific Gravity:	2.650	(assumed)	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.1	0.9
#10	2000	94.2	4.9
#20	850	84.6	9.6
#40	425	67.8	16.9
#60	250	53.8	13.9
#80	180	48.8	5.1
#100	150	46.2	2.5
#200	75	30.3	15.9
Hydrometer	33.6	14.1	16.2
I	21.9	11.0	3.1
I	12.9	8.9	2.1
I	9.3	7.3	1.6
I	6.5	6.3	1.0
I	3.3	4.5	1.8
V	1.4	3.1	1.3

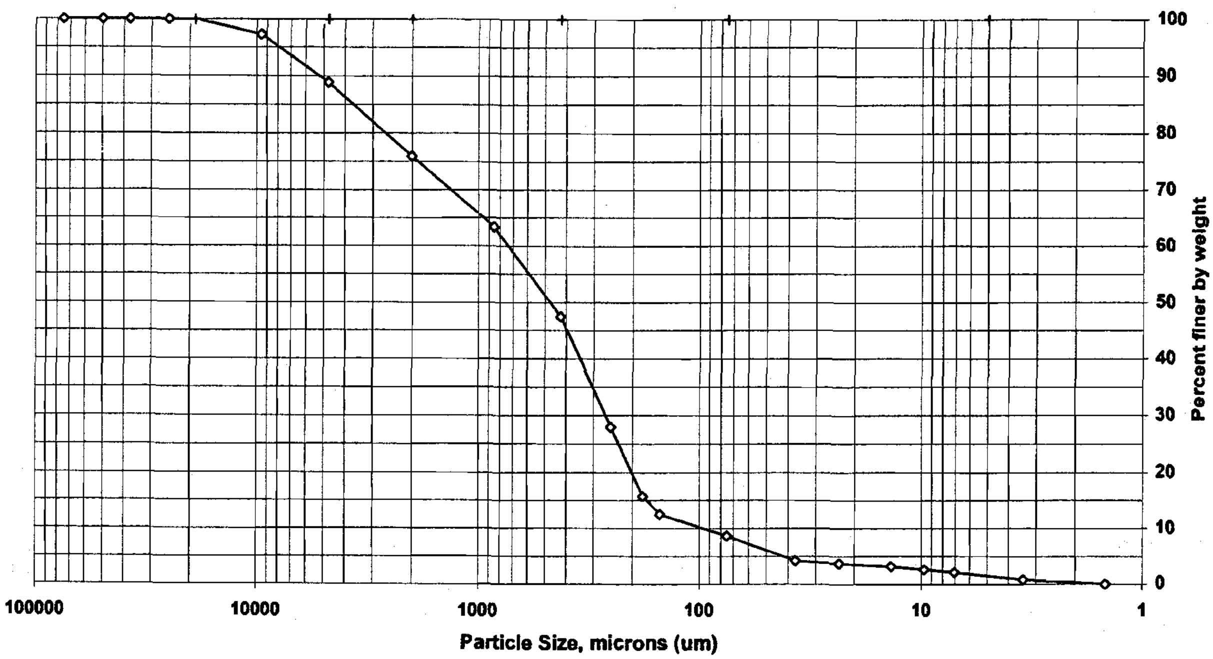
Soil Classification	Percent of Total Sample
Gravel	0.9
Sand	68.8
Coarse Sand	4.9
Medium Sand	26.4
Fine Sand	37.4
Silt	24.0
Clay	6.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	STLNYB	**SDG:**	A62321	**Date Received:**	03/06/06
Sample ID:	B212-GT-02	**ETR(s):**	112956	**Start Date:**	03/09/06
Lab ID:	659852			**End Date:**	03/15/06

Percent Solids:	91.6%		**Non-soil material:**	wood
Specific Gravity:	2.650	(assumed)	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	97.3	2.7
#4	4750	88.9	8.4
#10	2000	76.0	13.0
#20	850	63.4	12.6
#40	425	47.5	15.8
#60	250	28.0	19.5
#80	180	15.7	12.3
#100	150	12.5	3.2
#200	75	8.6	3.9
Hydrometer	37.0	4.2	4.4
I	23.5	3.7	0.5
I	13.6	3.2	0.5
I	9.7	2.6	0.5
I	7.1	2.1	0.5
I	3.4	0.8	1.3
V	1.5	0.0	0.8

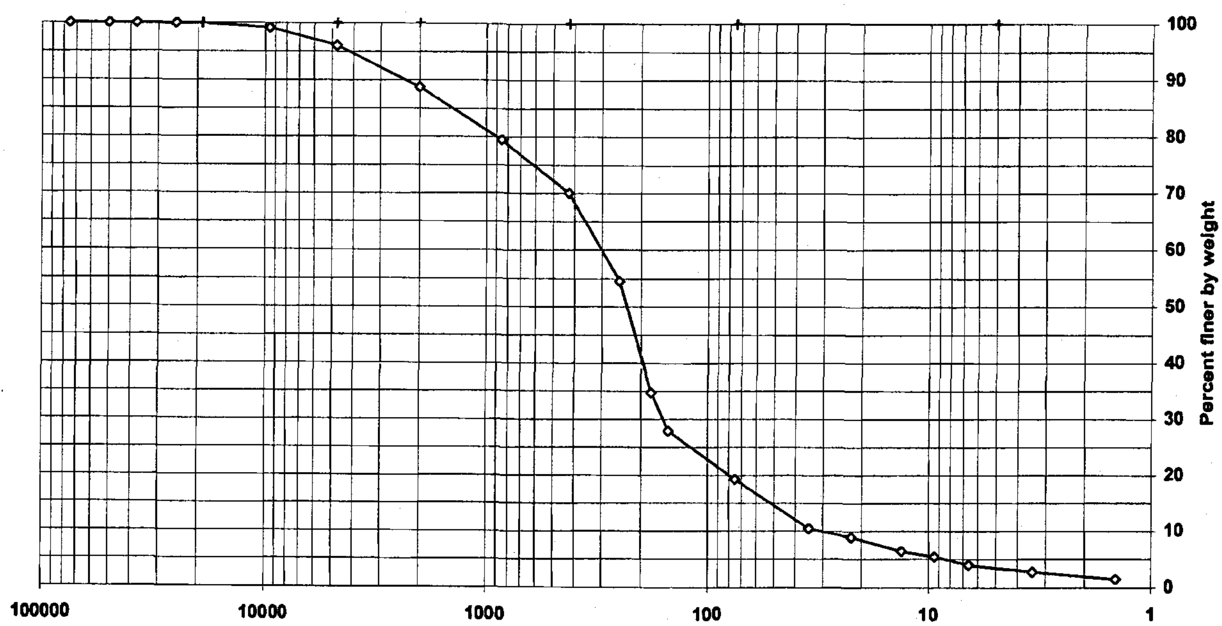
Soil Classification	Percent of Total Sample
Gravel	11.1
Sand	80.3
Coarse Sand	13.0
Medium Sand	28.4
Fine Sand	38.9
Silt	6.5
Clay	2.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	STLNYB	**SDG:**	A62321	**Date Received:**	03/06/06
Sample ID:	B212-GT-03	**ETR(s):**	112956	**Start Date:**	03/09/06
Lab ID:	659853			**End Date:**	03/15/06

Percent Solids:	84.0%		**Non-soil material:**	wood
Specific Gravity:	2.650	(assumed)	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	99.1	0.9
#4	4750	96.1	3.0
#10	2000	88.8	7.3
#20	850	79.4	9.3
#40	425	70.0	9.4
#60	250	54.6	15.5
#80	180	34.7	19.8
#100	150	27.9	6.8
#200	75	19.3	8.7
Hydrometer	34.7	10.4	8.8
I	22.3	8.9	1.5
I	13.2	6.5	2.5
I	9.4	5.5	1.0
I	6.6	4.0	1.5
I	3.4	2.7	1.2
V	1.4	1.5	1.2

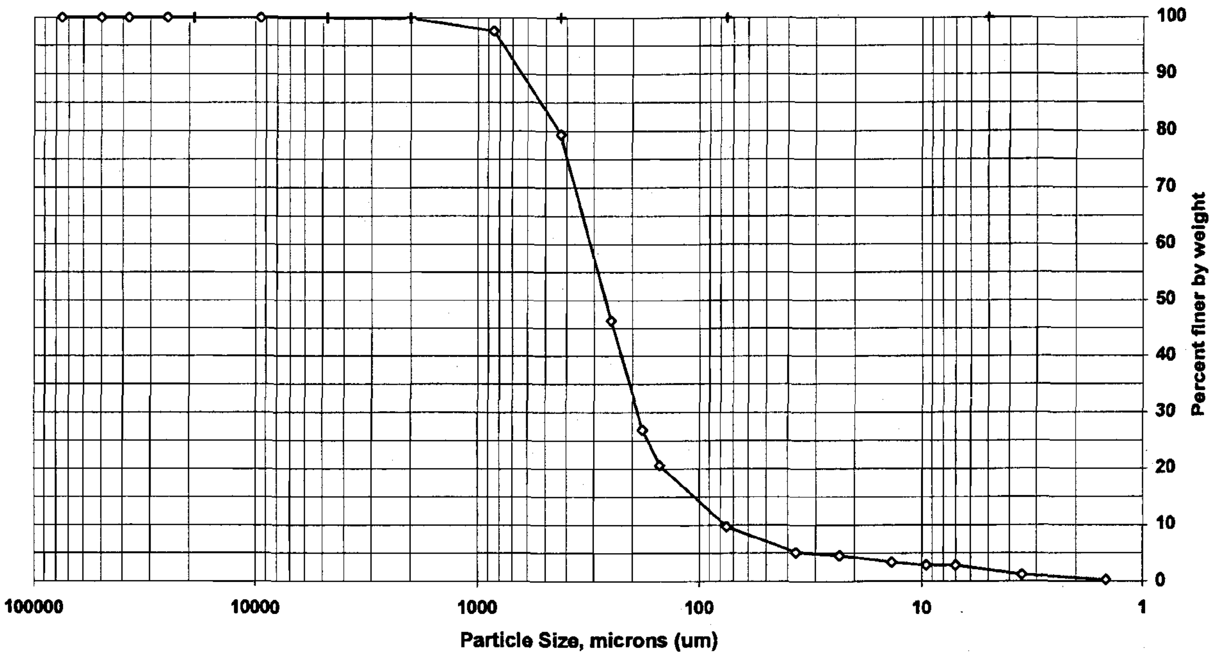
Soil Classification	Percent of Total Sample
Gravel	3.9
Sand	76.8
Coarse Sand	7.3
Medium Sand	18.7
Fine Sand	50.7
Silt	15.3
Clay	4.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	STLNYB	**SDG:**	A62321	**Date Received:**	03/06/06
Sample ID:	B212-GT-04	**ETR(s):**	112956	**Start Date:**	03/09/06
Lab ID:	659854			**End Date:**	03/15/06

Percent Solids:	88.9%		**Non-soil material:**	na
Specific Gravity:	2.650	(assumed)	**Shape (> #10):**	subangular
Maximum Particle Size:	Crs sand		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.9	0.1
#20	850	97.6	2.2
#40	425	79.4	18.2
#60	250	46.3	33.1
#80	180	26.9	19.4
#100	150	20.6	6.3
#200	75	9.7	10.9
Hydrometer	36.8	5.1	4.6
|	23.4	4.6	0.6
|	13.6	3.4	1.1
|	9.5	2.8	0.6
|	7.0	2.8	0.0
|	3.5	1.2	1.6
V	1.5	0.3	0.9

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	90.3
Coarse Sand	0.1
Medium Sand	20.4
Fine Sand	69.7
Silt	6.9
Clay	2.8

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

STL Burlington
Colchester, Vermont

Extended Data Package

SDG: A62321

SEVERN TRENT STL

NARRATIVE

SEVERN TRENT STL®

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446

Tel: 802 655 1203 Fax: 802 655 1248
www.stl-inc.com

March 17, 2006

Mr. Tony Bogolin
Severn Trent Laboratories
10 Hazelwood Drive
Suite 106
Amherst, NY 14228

Re: Laboratory Project No. 26012
Case: HUDRI; SDG: A62321

Dear Mr. Bogolin:

Enclosed are the analytical results for the samples that were received by STL Burlington on March 6th, 2006. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 03/06/06 ETR No: 112956		
659851	B212-GT-01	03/01/06	Solid
659852	B212-GT-02	03/01/06	Solid
659853	B212-GT-03	03/01/06	Solid
659854	B212-GT-04	03/01/06	Solid

Documentation of the condition of the samples at the time of their receipt and any exception to the laboratory's Sample Acceptance Policy is documented in the Sample Handling section of this submittal.

The samples were analyzed for organic soils by ASTM Method D2974 and particle size by ASTM Method D422

The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 655-1203.

Sincerely,

Kristine Dusablon

Kristine A. Dusablon
Project Manager

Enclosure

Chain of Custody Record

STL-4124 (0901)

SEVERN TRENT STL
Severn Trent Laboratories, Inc.

Client	Project Manager	Date	Chain of Custody Number
ECOLOGY & ENVIRONMENT	JON NICKERSON	3/2/06	250[illegible]67

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1
368 Pleasantview Dr.	716-684-8060		

City	State	Zip Code	Site Contact	Lab Contact
Lancaster	NY	14086	R. Watt	T. Bogolin

Project Name and Location (State): BUOY 212

Carrier/Waybill Number: —

Contract/Purchase Order/Quote No.: 000699. NV23.02

Analysis (Attach list if more space is needed)

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Grain size	Organic content	Special Instructions/ Conditions of Receipt
B212-GT-01	3/1/06					X		1							X	X	Native sand
B212-GT-02	↓					X		1							X	X	Dredge spoils
B212-GT-03	↓					X		1							X	X	Dredge spoils
B212-GT-04	↓					X		1							X		Cap sand

Possible Hazard Identification: MAY CONTAIN PCBs

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other______

QC Requirements (Specify): None

	Date	Time		Date	Time
1. Relinquished By: [signature]	3-2-06	1545	1. Received By: [signature]	3/2/06	1545
2. Relinquished By			2. Received By: [signature]	3/6/06	1145
3. Relinquished By			3. Received By		

Comments: Grain size by sieve, hydrometer if necessary for fines per ASTM.

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

2

28/47

Job No: A06-2321
Project/Task: NY5A9393.3 9

						Holding				Prep	Unit	Detect Limit		Spikes				
Test No.	Description	Prot	Method	Mtx	TCLP	Type	Tclp	Extr	Anal	Type	Measure	Type	Value	Code	Amount	Conc	QC Limits	RPD
WC	WET CHEMISTRY																	
STA00534	ORGANIC MATTER IN TOPSOIL - (SUBC	ASTM	2974	Soil	N	R	0	0	180	N	S.U.	CRQL	0.00000	NONE				
STA00225	HYDROMETER ANALYSIS - W	ASTM	D421,422	Soil	N	S	0	0	180	N	INVALID	EQL	0.00000	NONE				
STA00226	SIEVE ANALYSIS - W	ASTM	D421,422	Soil	N	S	0	0	180	N	INVALID	EQL	0.00000	NONE				

3

SEVERN TRENT STL

Geotechnical Sample Report Summary

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B212-GT-01

Lab Name: STL BURLINGTON

Contract: NY5A9393.3

SDG No.: A62321

Lab Code: STLVT

Case No.: HUDRI

Lab Sample ID: 659851

Matrix: SOLID

Client: STLNYB

Date Received: 03/06/06

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2974	Organic Soils	03/10/06		%	1	0.0	1.3	

Printed on: 03/16/06 12:12 PM

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B212-GT-02

Lab Name: STL BURLINGTON

Contract: NY5A9393.3

SDG No.: A62321

Lab Code: STLVT

Case No.: HUDRI

Lab Sample ID: 659852

Matrix: SOLID

Client: STLNYB

Date Received: 03/06/06

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2974	Organic Solis	03/10/06		%	1	0.0	3.6	

Printed on: 03/16/06 12:12 PM

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B212-GT-03

Lab Name: STL BURLINGTON

Contract: NY5A9393.3

SDG No.: A62321

Lab Code: STLVT

Case No.: HUDRI

Lab Sample ID: 659853

Matrix: SOLID

Client: STLNYB

Date Received: 03/06/06

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2974	Organic Soils	03/10/06		%	1	0.0	3.7	

Printed on: 03/16/06 12:12 PM

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

B212-GT-04

Lab Name: STL BURLINGTON
Contract: NY5A9393.3
SDG No.: A62321

Lab Code: STLVT
Case No.: HUDRI
Lab Sample ID: 659854

Matrix: SOLID
Client: STLNYB
Date Received: 03/06/06

% Solids:

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D2974	Organic Soils	03/10/06		%	1	0.0	1.2	

Printed on: 03/16/06 12:12 PM

SEVERN TRENT STL

ORGANIC CONTENT

ASTM Method D2974: Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
Calculations

Client Code: STLNYB
ETR: 112956
SDG: A62321

Start Date: 3/10/2006
Start Time: 2100
End Date: 3/14/2006
Analyst: MAP

	Weight of										
Laboratory Number	Pan (g)	Pan + Wet Sample (g)	Pan +Dry Sample (g)	Pan+ Ashed Sample (g)	Wet Sample (g)	Dry Sample (g)	Organic Matter (g)	Moisture Content (%)	Organic Matter (%)	Ash Content (%)
659851	4.17	113.21	95.50	94.29	109.04	91.33	1.21	19.4	1.3	98.7
659852	4.22	102.69	94.72	91.42	98.47	90.50	3.30	8.8	3.6	96.4
659853	4.16	98.26	81.75	78.90	94.10	77.59	2.85	21.3	3.7	96.3
659854	4.24	75.44	67.20	66.45	71.20	62.96	0.75	13.1	1.2	98.8

10

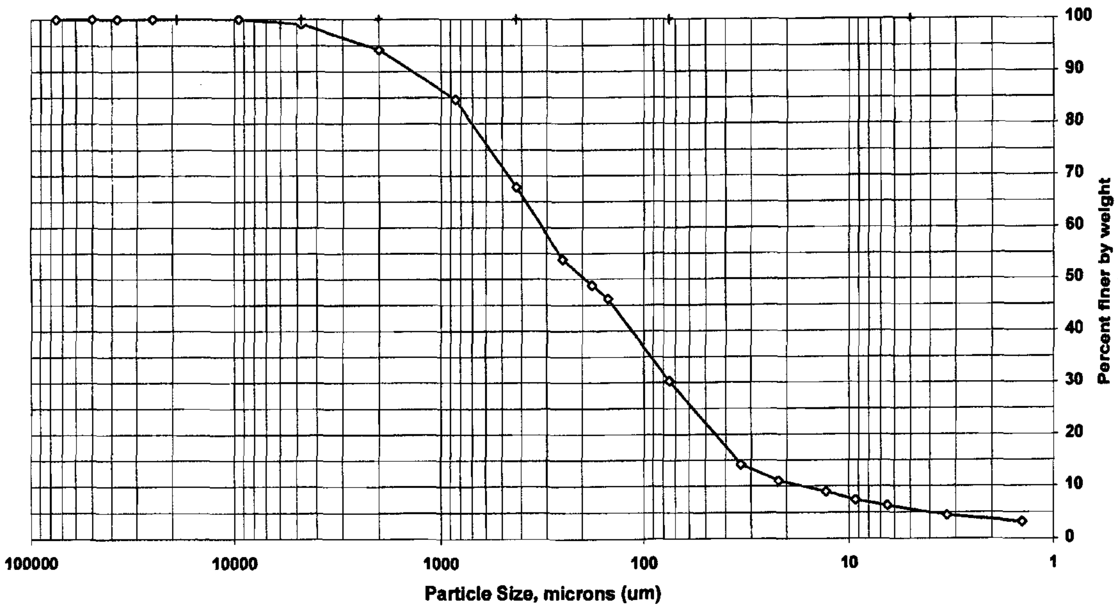
SEVERN TRENT STL

PARTICLE SIZE

Particle Size of Soils by ASTM D422

Client Code:	STLNYB	**SDG:**	A62321	**Date Received:**	03/06/06
Sample ID:	B212-GT-01	**ETR(s):**	112956	**Start Date:**	03/09/06
Lab ID:	659851			**End Date:**	03/15/06

Percent Solids:	85.1%		**Non-soil material:**	na
Specific Gravity:	2.650	(assumed)	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.1	0.9
#10	2000	94.2	4.9
#20	850	84.6	9.6
#40	425	67.8	16.9
#60	250	53.8	13.9
#80	180	48.8	5.1
#100	150	46.2	2.5
#200	75	30.3	15.9
Hydrometer	33.6	14.1	16.2
I	21.9	11.0	3.1
I	12.9	8.9	2.1
I	9.3	7.3	1.6
I	6.5	6.3	1.0
I	3.3	4.5	1.8
V	1.4	3.1	1.3

Soil Classification	Percent of Total Sample
Gravel	0.9
Sand	68.8
Coarse Sand	4.9
Medium Sand	26.4
Fine Sand	37.4
Silt	24.0
Clay	6.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

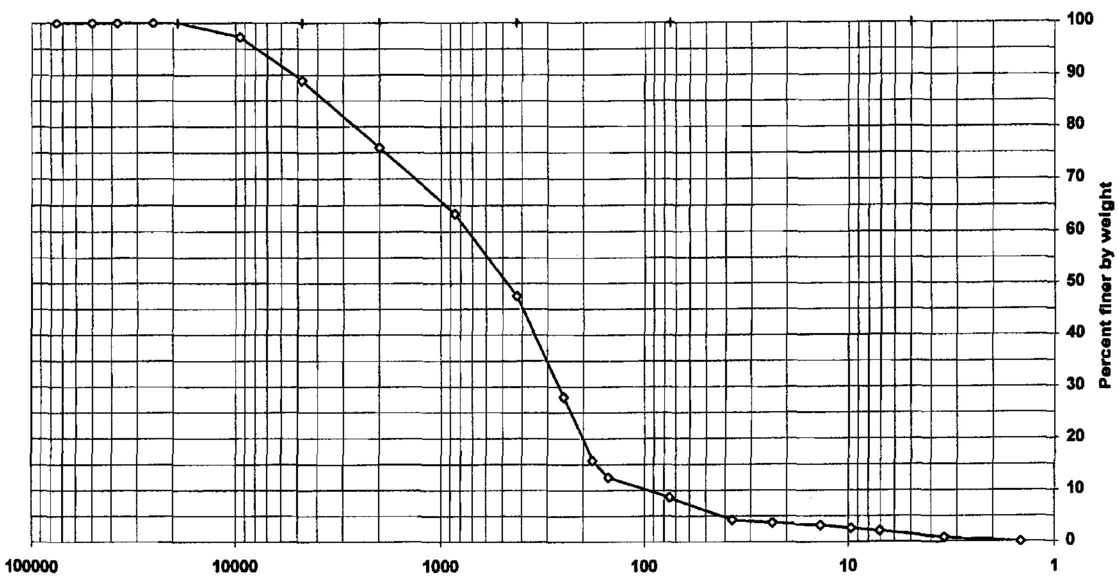
FSL024:07.29.05:0
STL Burlington

A62321PS 3/16/2006

Particle Size of Soils by ASTM D422

Client Code:	STLNYB	**SDG:**	A62321	**Date Received:**	03/06/06
Sample ID:	B212-GT-02	**ETR(s):**	112956	**Start Date:**	03/09/06
Lab ID:	659852			**End Date:**	03/15/06

Percent Solids:	91.6%		**Non-soil material:**	wood
Specific Gravity:	2.650	(assumed)	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	97.3	2.7
#4	4750	88.9	8.4
#10	2000	76.0	13.0
#20	850	63.4	12.6
#40	425	47.5	15.8
#60	250	28.0	19.5
#80	180	15.7	12.3
#100	150	12.5	3.2
#200	75	8.6	3.9
Hydrometer	37.0	4.2	4.4
|	23.5	3.7	0.5
|	13.6	3.2	0.5
|	9.7	2.6	0.5
|	7.1	2.1	0.5
|	3.4	0.8	1.3
V	1.5	0.0	0.8

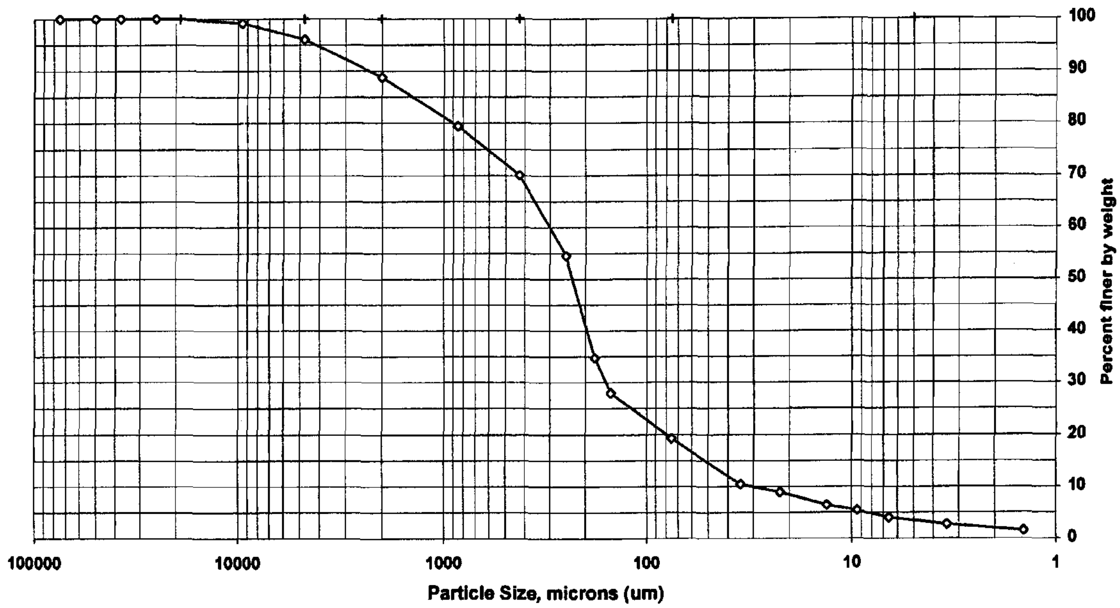
Soil Classification	Percent of Total Sample
Gravel	11.1
Sand	80.3
Coarse Sand	13.0
Medium Sand	28.4
Fine Sand	38.9
Silt	6.5
Clay	2.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with *a metal paddle.*
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	STLNYB	**SDG:**	A62321	**Date Received:**	03/06/06
Sample ID:	B212-GT-03	**ETR(s):**	112956	**Start Date:**	03/09/06
Lab ID:	659853			**End Date:**	03/15/06

Percent Solids:	84.0%		**Non-soil material:**	wood
Specific Gravity:	2.650	*(assumed)*	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	99.1	0.9
#4	4750	96.1	3.0
#10	2000	88.8	7.3
#20	850	79.4	9.3
#40	425	70.0	9.4
#60	250	54.6	15.5
#80	180	34.7	19.8
#100	150	27.9	6.8
#200	75	19.3	8.7
Hydrometer	34.7	10.4	8.8
I	22.3	8.9	1.5
I	13.2	6.5	2.5
I	9.4	5.5	1.0
I	6.6	4.0	1.5
I	3.4	2.7	1.2
V	1.4	1.5	1.2

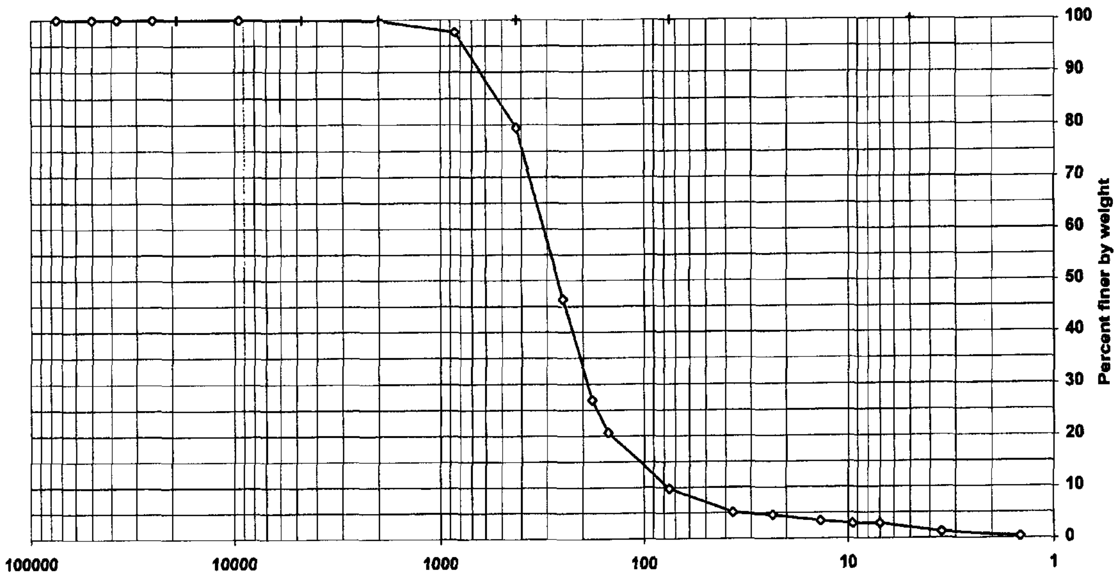
Soil Classification	Percent of Total Sample
Gravel	3.9
Sand	76.8
Coarse Sand	7.3
Medium Sand	18.7
Fine Sand	50.7
Silt	15.3
Clay	4.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

Particle Size of Soils by ASTM D422

Client Code:	STLNYB	**SDG:**	A62321	**Date Received:**	03/06/06
Sample ID:	B212-GT-04	**ETR(s):**	112956	**Start Date:**	03/09/06
Lab ID:	659854			**End Date:**	03/15/06

Percent Solids:	88.9%		**Non-soil material:**	na
Specific Gravity:	2.650	(assumed)	**Shape (> #10):**	subangular
Maximum Particle Size:	Crs sand		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.9	0.1
#20	850	97.6	2.2
#40	425	79.4	18.2
#60	250	46.3	33.1
#80	180	26.9	19.4
#100	150	20.6	6.3
#200	75	9.7	10.9
Hydrometer	36.8	5.1	4.6
I	23.4	4.6	0.6
I	13.6	3.4	1.1
I	9.5	2.8	0.6
I	7.0	2.8	0.0
I	3.5	1.2	1.6
V	1.5	0.3	0.9

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	90.3
Coarse Sand	0.1
Medium Sand	20.4
Fine Sand	69.7
Silt	6.9
Clay	2.8

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

FSL024:07.29.05:0
STL Burlington

A62321PS 3/16/2006

Particle Size Analysis of Soils
By ASTM D422
Hydrometer Data

Set Number: **A62321**

Client Code: STLNYB
SDG: A62321
ETR(s): 112956

Date Received: 6-Mar-06
Start Date: 9-Mar-06
End Date: 3-15-06

Date and Analyst

Percent Solids	Weighed	Mixed	Hydrometer	Large sieves	Small sieves
MAP 3/10/06 MAP 3/13/06	MAP 3/10/06	MAP 3/10/06	MRD 3-13-06 DJP 3-14-06	MAP 3/10/06 DJP 3-15-06	MRD 3-14-06 DJP 3-15-06

Test number	1	2	3	4	5	6	7	8	9	10	11	12
Lab number									659851	659852	659853	659854
Time, min. (2)	2	2	2	2	2	2	2	2	2	2	2	2
Reading									1.0170	1.0075	1.0140	1.0090
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (5)	5	5	5	5	5	5	5	5	5	5	5	5
Reading									1.0140	1.0070	1.0125	1.0075
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (15)	15	15	15	15	15	15	15	15	15	15	15	15
Reading									1.0120	1.0065	1.0100	1.0065
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (30)	30	30	29	29	31	31	31	32	30	30	30	31
Reading									1.0105	1.0060	1.0900	1.0060
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (60)	59	58	58	63	60	59	59	60	63	57	63	57
Reading									1.0095	1.0055	1.0075	1.0060
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (250)	256	256	250	250	240	234	265	259	253	247	241	235
Reading									1.0080	1.0045	1.0065	1.0045
Temperature, C									18.5	18.5	18.5	19.0
Time, min. (1440)	1440	1440	1434	1434	1424	1418	1412	1406	1400	1394	1388	1382
Reading									1.0070	1.0040	1.0055	1.0040
Temperature, C									18.0	18.0	18.0	18.5

Hydrometer used: 313119 **Model #:** ASTM 151H **Manufacturer:**

Calibrations:

L temp, C	L read	H Temp, C	H read
17.0		23.0	

Cal. Date:

Hydrometer start time: 1000
Hydrometer data entered: DJP 3-15-06

FSL024:07.29.05:0
STL Burlington

A62321PS 3/9/2006

Particle Size Analysis of Soils
By ASTM D422
Hydrometer Data

Set Number: A62321

Client Code: STLNYB
SDG: A62321
ETR(s): 112956

Date Received: 6-Mar-06
Start Date: 9-Mar-06
End Date: 15-Mar-06

Date and Analyst

Percent Solids	Weighed	Mixed	Hydrometer	Large sieves	Small sieves
MAP 3/10/06	MAP 3/10/06	MAP 3/10/06	MRD 3/13/06	MAP 3/10/06	MRD 3/14/06
MAP 3/13/06			DJP 3/14/06	DJP 3/15/06	DJP 3/15/06

Test number	1	2	3	4	5	6	7	8	9	10	11	12
Lab number									659851	659852	659853	659854
Time, min. (2)	2	2	2	2	2	2	2	2	2	2	2	2
Reading									1.0170	1.0075	1.0140	1.0080
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (5)	5	5	5	5	5	5	5	5	5	5	5	5
Reading									1.0140	1.0070	1.0125	1.0075
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (15)	15	15	15	15	15	15	15	15	15	15	15	15
Reading									1.0120	1.0065	1.0100	1.0065
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (30)	30	30	29	29	31	31	31	32	30	30	30	31
Reading									1.0105	1.0060	1.0090	1.0060
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (60)	59	58	58	63	60	59	59	60	63	57	63	57
Reading									1.0095	1.0055	1.0075	1.0060
Temperature, C									19.0	19.0	19.0	19.0
Time, min. (250)	256	256	250	250	240	234	265	259	253	247	241	235
Reading									1.0080	1.0045	1.0065	1.0046
Temperature, C									18.5	18.5	18.5	19.0
Time, min. (1440)	1440	1440	1434	1434	1424	1418	1412	1406	1400	1394	1388	1382
Reading									1.0070	1.0040	1.0055	1.0040
Temperature, C									18.0	18.0	18.0	18.5

Hydrometer used: 313119 **Model #:** ASTM 151H **Manufacturer:** ELE **Hydrometer start time:** 10:00

Calibrations:

L temp, C	L read	H Temp, C	H read
17.0	1.0045	23.0	1.0015

Cal. Date: 9/29/05 **Hydrometer data entered:** DJP 3/15/06

FSL024:07.29.05:0
STL Burlington

A62321PS 3/16/2006

Particle Size Analysis of Soils By ASTM D422
Sieve Data

Client Code: STLNYB | ETR(s): 112956 | SDG: A62321 | Date Rec: 6-Mar-06 | Start Date: 9-Mar-06 | End Date: 15-Mar-06

SET: A62321

Dry prep = D421
Wet prep = D2217

Standard Values	
Sieve	Opening, um
3 inch	75000
2 inch	50000
1.5 inch	37500
1 inch	25000
3/4 inch	19000
3/8 inch	9500
#4	4750
#10	2000
#20	850
#40	425
#60	250
#80	180
#100	150
#200	75

Test	1	2	3	4	5	6	7	8	9	10	11	12
Laboratory No									659851	659852	659853	659854
Sample ID									B212-GT-01	B212-GT-02	B212-GT-03	B212-GT-04
Sample Prep									D2217	D2217	D2217	D2217
Pan, g												
Pan/sample, g									180.17	165.73	192.40	158.74
Pan/dry sample, g												
Hygroscopic Moisture correction factor (HMCF) for dry prep / Percent Solids for dry and wet prep												
Pan, g									1.02	1.02	1.01	0.97
Pan/sample, g									11.57	13.22	13.07	14.43
Pan/dry sample, g									10.00	12.19	11.14	12.94
HMCF									100.0%	100.0%	100.0%	100.0%
Description of >#10 particles												
Non-soil material									na	wood	wood	na
Shape									subangular	subangular	subangular	subangular
Hardness									hard	hard	hard	hard
Sample % Solids									85.1%	91.6%	84.0%	88.9%
Dry sample wt, g									153.36	151.74	161.61	141.17

Sieve (tares)

Size	Mass, g	
3 inch		
2 inch		
1.5 inch		
1 inch		
3/4 inch		
3/8 inch	447.86	
#4	442.85	
#10	459.26	
#20	383.72	A
#40	355.47	A
#60	338.88	A
#80	326.41	A
#100	325.27	A
#200	317.28	A

Sieve + Sample Weights

Size	Mass, g	Mass, g	Mass, g	Mass, g	Mass, g	Mass, g	Mass, g	Mass, g	Mass, g	Mass, g	Mass, g	Mass, g
3 inch												
2 inch												
1.5 inch												
1 inch												
3/4 inch												
3/8 inch										451.99	449.26	
#4									444.22	455.55	447.77	
#10									466.80	478.92	471.12	459.46
#20									398.41	402.80	398.83	386.87
#40									381.32	379.49	370.64	381.16
#60									360.27	368.47	363.87	385.60
#80									334.16	345.09	358.43	353.81
#100									329.17	330.19	336.28	334.20
#200									341.67	323.14	331.28	332.65
Maximum Particle size									9.5 mm	19 mm	19 mm	Crs sand

Default SG 2.65

	1	2	3	4	5	6	7	8	9	10	11	12
Specific gravity	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650
Sample Mass Parameters												
Sample Mass >#10, g	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.91	36.49	18.18	0.20
Sample mass <#10, g	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	144.45	115.25	143.43	140.97

SEVERN TRENT STL

SAMPLE HANDLING

ORIGIN ID: DKKA (716) 691-2600
KEN KINECKI
SEVERN TRENT SERVICES
10 HAZELWOOD DR

AMHERST, NY 14228
UNITED STATES US

Ship Date: 03MAR06
Actual Wgt: 22.0 LB MAN
System#: 735603/CAFE2285
Account: S 235689596
Dimmed: 12x12x12 IN

TO SAMPLE RECEIVING (802) 655-1203
STL BURLINGTON
208 SOUTH PARK DRIVE SUITE 1

FedEx
Express

COLCHESTER, VT 05446

E

CLS091905/08/15

REF:

Delivery Address Barcode

BILL SENDER

STANDARD OVERNIGHT

MON
Deliver By:
06MAR06

TRK# 6924 5432 4644 Form 0201

BTV AA

05446 -VT-US KF BTVA

Part # 154254-354 NRIT 09/05

3-6-06

STL BURLINGTON
SAMPLE RECEIPT & LOG IN CHECKLIST

Client: STL NYR	Date Received: 3-6-06	Log In Date: 3-7-06
ETR: 112456	Time Received: 1145	By: MCC
SDG: A62321	Received By: MCC	Signature:
Project: 26012	# Coolers Received: 1	PM Signature:
Samples Delivered By: ☒ Shipping Service ☐ Courier ☐ Hand ☐ Other (specify)		Date: 3/7/06
List Air bill Number(s) or Attach a photocopy of the Air Bill:		

COOLER SCREEN	YES	NO	NA	COMMENTS
There is *no* evidence to indicate tampering	X			
Custody seals are present and intact	X			
Custody seal numbers are present	X			
If yes, list custody seal numbers: 147140				

Thermal Preservation Type: ☒ Wet Ice ☐ Blue Ice ☐ None ☐ Other (specify)

IR Gun ID: 25 | Correction Factor (CF) = -0.5 °C

Cooler 1: 1.0 °C	Cooler 6 °C	Cooler 11 °C	Cooler 16 °C
Cooler 2: °C	Cooler 7 °C	Cooler 12 °C	Cooler 17 °C
Cooler 3: °C	Cooler 8 °C	Cooler 13 °C	Cooler 18 °C
Cooler 4: °C	Cooler 9 °C	Cooler 14 °C	Cooler 19 °C
Cooler 5 °C	Cooler 10 °C	Cooler 15 °C	Cooler 20 °C

Unless otherwise documented, the recorded temperature readings are adjusted readings to account for the CF of the IR Gun

EPA Criteria: 0-6°C, except for air and geo samples which should be at ambient temperature and tissue samples, which may be frozen.

Some clients require thermal preservation criteria of 2-4°C or other such criteria. The PM must notify SM when alternate criteria is specified.

SAMPLE CONDITION	YES	NO	NA	COMMENTS
Sample containers were received intact	X			
Legible sample labels are affixed to each container	X			

CHAIN OF CUSTODY (COC)	YES	NO	NA	COMMENTS
COC is present and includes the following information for each container:				
• Sample ID / Sample Description	X			
• Date of Sample Collection	X			
• Time of Sample Collection		X		
• Identification of the Sampler		X		
• Preservation Type			X	
• Requested Tests Method(s)	X			
• Necessary Signatures	X			
Internal Chain of Custody (ICOC) Required		X		
If yes to above, ICOC Record Initiated for every Worksheet				

SAMPLE INTEGRITY / USABILITY	YES	NO	NA	COMMENTS
The sample container matches the COC	X			
Appropriate sample containers were received for the tests requested	X			
Samples were received within holding time	X			
Sufficient amount of sample is provided for requested analyses	X			
VOA vials do not have headspace or a bubble >6mm (1/4" diameter)			X	
Appropriate preservatives were used for the tests requested			X	
pH of inorganic samples checked and is within method specification			X	
If no, attach Inorganic Sample pH Adjustment Form				

ANOMALY / NCR SUMMARY

FSM002:10.26.05:2
STL Burlington

E

Well Development Logs

WELL DEVELOPMENT RECORD

SITE: Bury 312

DATE: 3/31/06

LOCATION: Fort Edward, New York

WELL NO.: B312-MW-05

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2 (0.163)$$

22.70
17.18
5.52

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).
1 well volume (v) = 0.9 gallons.

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
11/2	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
21/2	0.255	0.0341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
31/2	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
41/2	0.826	0.1104	10.260	10.260×10^{-3}
5	1.020	0.1364	12.670	12.670×10^{-3}
51/2	1.234	0.1650	15.330	15.330×10^{-3}
6	1.469	0.1963	18.240	18.240×10^{-3}
7	2.000	0.2673	24.840	24.840×10^{-3}
8	2.611	0.3491	32.430	32.430×10^{-3}
9	3.305	0.4418	41.040	41.040×10^{-3}
10	4.080	0.5454	50.670	50.670×10^{-3}
11	4.937	0.6600	61.310	61.310×10^{-3}
12	5.875	0.7854	72.960	72.960×10^{-3}
14	8.000	1.0690	99.350	99.350×10^{-3}
16	10.440	1.3960	129.650	129.650×10^{-3}
18	13.220	1.7670	164.180	164.180×10^{-3}
20	16.320	2.1820	202.680	202.680×10^{-3}
22	19.750	2.6400	245.280	245.280×10^{-3}
24	23.500	3.1420	291.850	291.850×10^{-3}
26	27.580	3.6870	342.520	342.520×10^{-3}
28	32.000	4.2760	397.410	397.410×10^{-3}
30	36.720	4.9090	456.020	456.020×10^{-3}
32	41.780	5.5850	518.870	518.870×10^{-3}
34	47.160	6.3050	585.680	585.680×10^{-3}
36	52.880	7.0690	656.720	656.720×10^{-3}

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419×10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC): 17.18'
WELL DEPTH (TD): 22.70'
COLOR: Dark Brown
ODOR: None
CLARITY: Zero

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC): 18.50'
WELL DEPTH (TD): 25.04'
COLOR: Clear
ODOR: None
CLARITY: Very good, trace suspended ... has been cleaned out.

DESCRIPTION OF DEVELOPMENT TECHNIQUE: Initially pumped from [illegible] screen, then moved pump to other positions and surging. Pumped at a rate of 1 l/min.

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

TIME	TOTAL VOL. WITHDRAWN		pH	COND. (µmhos/cm)	TEMP. (°C/°F)	TURB. (NTU)	COMMENTS
	GALS.	BORE VOL.					
0310	0	0	6.34	1337	9.7	>1,000	Highly Turbid
0319	4.5	5	6.19	428.9	9.0	>1,000	Fine Sand Suspended
0830	9.0	10	6.29	702.0	10.2	257	
0337	12.0	12.5	6.33	915	10.0	129	
0344	14.0	15	6.29	1248	9.7	80.4	
0349	15	16	6.50	1278	10.2	179	
0859	18.5		6.29	1263	10.0	1435.1	
0912	21.0		6.51	1334	8.6	>1,000	Turned pump off, water [illegible]
0922	23.0		6.34	1341	8.7	165	The turbid, [illegible]
0924	24.0		6.37	1325	9.9	109	
0930	25.0		6.37	1294	10.3	141	
0934	26		6.45	1325	10.1	70.8	
0938	27		6.40	1323	10.2	135	
0942	28		6.38	1329	10.4	112	
0945	29		6.40	1325	10.4	93.8	
0950	30		6.39	1327	10.3	102	
0957	31		6.38	1331	10.4	62.5	
10:00	32		6.40	1327		33.0	

DEVELOPED BY: Jon Wilkerson / Dan Cadzow

DATE 3/21/06

BOREHOLE NO. MW-6

BOREHOLE NO. MW-7

WELL DEVELOPMENT RECORD

SITE Buoy 212 DATE 3/21/06

LOCATION Fort Edward, NY WELL NO. MW-06

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2 (0.163)$$

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).
1 well volume (v) = 1.15 gallons.

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
11/2	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
21/2	0.255	0.0341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
31/2	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
41/2	0.826	0.1104	10.260	10.260×10^{-3}
5	1.020	0.1364	12.670	12.670×10^{-3}
51/2	1.234	0.1650	15.330	15.330×10^{-3}
6	1.469	0.1963	18.240	18.240×10^{-3}
7	2.000	0.2673	24.840	24.840×10^{-3}
8	2.611	0.3491	32.430	32.430×10^{-3}
9	3.305	0.4418	41.040	41.040×10^{-3}
10	4.080	0.5454	50.670	50.670×10^{-3}
11	4.937	0.6600	61.310	61.310×10^{-3}
12	5.875	0.7854	72.960	72.960×10^{-3}
14	8.000	1.0690	99.350	99.350×10^{-3}
16	10.440	1.3960	129.650	129.650×10^{-3}
18	13.220	1.7670	164.180	164.180×10^{-3}
20	16.320	2.1820	202.680	202.680×10^{-3}
22	19.750	2.6400	245.280	245.280×10^{-3}
24	23.500	3.1420	291.850	291.850×10^{-3}
26	27.580	3.6870	342.520	342.520×10^{-3}
28	32.000	4.2760	397.410	397.410×10^{-3}
30	36.720	4.9090	456.020	456.020×10^{-3}
32	41.780	5.5850	518.870	518.870×10^{-3}
34	47.160	6.3050	585.680	585.680×10^{-3}
36	52.880	7.0690	656.720	656.720×10^{-3}

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419×10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 15.33'
WELL DEPTH (TD) 22.42'
COLOR Dark brown
ODOR None
CLARITY Poor

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 15.43
WELL DEPTH (TD) 24.40
COLOR Clear
ODOR None; slight sulfur odor during development
CLARITY Clear

DESCRIPTION OF DEVELOPMENT TECHNIQUE Initially placed pump near bottom and pumped at a high flow rate for a minute, then lowered flow rates. Once ~~c~~ clear W was pumped, raised pump ~2', then cleared W again. Kept at ≈ 0.5 l/min

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

TIME	TOTAL VOL. WITHDRAWN GALS.	TOTAL VOL. WITHDRAWN BORE VOL.	pH	COND. (µmhos/cm)	TEMP. (°C/°F)	TURB. (NTU)	COMMENTS
10:59	0	0	6.36	1372	10.0	>1,000	
11:04	5	4.4	6.39	1488	10.1	>1,000	
11:08	10	~~8.8~~ 8.8	6.27	1471	9.9	>1,000	
11:12	14	~~9.3~~ 12	6.34	1463	10.0	184	
11:15	15	9.4 13	6.36	1432	10.5	43.4	CUT FLOW RATE DOWN TO 1 L/MIN
11:23	18.5	16	6.38	1510	10.4	87.8	MOVED PUMP TO BOTTOM OF WELL
11:26	22.0	19.1	6.37	~~1574~~ 1544	10.6	39.6	
11:28	23.0	20	6.42	1543	10.5	31.5	SLIGHT SULFUR ODOR
11:30	24.0	21	6.39	1531	10.1	30.7	
11:32	25.5	22	6.40	1560	10.1	21.8	SULFUR ODOR GONE
11:35	27.5	24	6.44	1574	10.0	36.6	
11:37	28.5	25	6.42	1567	10.1	40.3	
11:39	29.0	25.2	6.44	1565	10.1	29.8	

DEVELOPED BY: TOM NICKERSON/DAN CARZON

DATE 3/21/06

BOREHOLE NO. MW-7

WELL DEVELOPMENT RECORD

SITE: Bldg 212

DATE: 3/21/06

LOCATION: Fort Edward, NY

WELL NO.: MW07

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.

- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.

- The static volume will be calculated using the formula:

$$V = Tr^2(0.163)$$

8.89'

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).

1 well volume (v) = 1.45 gallons.

Will use 1.5 gal/volume

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
1 1/2	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
2 1/2	0.255	0.0341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
3 1/2	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
4 1/2	0.826	0.1104	10.260	10.260×10^{-3}
5	1.020	0.1364	12.670	12.670×10^{-3}
5 1/2	1.234	0.1650	15.330	15.330×10^{-3}
6	1.469	0.1963	18.240	18.240×10^{-3}
7	2.000	0.2673	24.840	24.840×10^{-3}
8	2.611	0.3491	32.430	32.430×10^{-3}
9	3.305	0.4418	41.040	41.040×10^{-3}
10	4.080	0.5454	50.670	50.670×10^{-3}
11	4.937	0.6600	61.310	61.310×10^{-3}
12	5.875	0.7854	72.960	72.960×10^{-3}
14	8.000	1.0690	99.350	99.350×10^{-3}
16	10.440	1.3960	129.650	129.650×10^{-3}
18	13.220	1.7670	164.180	164.180×10^{-3}
20	16.320	2.1820	202.680	202.680×10^{-3}
22	19.750	2.6400	245.280	245.280×10^{-3}
24	23.500	3.1420	291.850	291.850×10^{-3}
26	27.580	3.6870	342.520	342.520×10^{-3}
28	32.000	4.2760	397.410	397.410×10^{-3}
30	36.720	4.9090	456.020	456.020×10^{-3}
32	41.780	5.5850	518.870	518.870×10^{-3}
34	47.160	6.3050	585.680	585.680×10^{-3}
36	52.880	7.0690	656.720	656.720×10^{-3}

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419×10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC): 7.11
WELL DEPTH (TD): 16.0
COLOR: Black
ODOR: Slight sulfur odor
CLARITY: Poor

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC): 7.11' @ 7.45
WELL DEPTH (TD): ~~16.0'~~ @ 18.13
COLOR: Clear
ODOR: None
CLARITY: Clear

DESCRIPTION OF DEVELOPMENT TECHNIQUE: Purged at full speed w/ Whaley, then cut back to 1 l/min. ~~moved~~ Water purge @ became clearer. Moved pump to bottom of well bore to remove heavier suspended solids. Lastly moved pump to top of well to determine if additional development was needed. None needed.

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

TIME	TOTAL VOL. WITHDRAWN GALS.	TOTAL VOL. WITHDRAWN BORE VOL.	pH	COND. (µmhos/cm)	TEMP. (°C/°F)	TURB. (NTU)	COMMENTS
1335	0	0	6.72	484	10.2	>1,000	Extremely muddy
1338	5	3.5	6.65	503	7.3	>1,000	
1340	10	7	6.65	508	6.5	>1,000	
1345	12	8.3	6.63	629	6.4	337	
1348	15	10.3	6.62	~~6.62~~ 505.1	6.5	374	
1353	17	11.7	6.64	513.2	6.7	130	
1357	18	12.4	6.65	517	6.2	43.9	
1400	19.5	12.76	6.61	512.9	6.6	181	Moved pump down to bottom
1405	21.5	14.8	6.64	519.2	6.4	30	
1410	23.0	15.8	6.65	521.4	6.3	14.0	
1415	25.0	17.2	6.63	520.3	6.4	5.75	

Pumped at high volume initially to rid well of sediment collected in bottom of screen

DEVELOPED BY: Dan Crozow / Jon Nickerson

DATE 3/21/06

BOREHOLE NO. CBH-1

BOREHOLE NO. CBH-2

BOREHOLE NO. CBH-3

BOREHOLE NO. CBH-4

F

Data Usability Summary Report and Laboratory Analytical Data Reports

Data Usability Summary Reports (DUSRs) were not generated for the SDGs that contained results for PCB screening by modified EPA Method 8082 analysis. A listing of all the samples and their associated laboratory report numbers is provided on Table F-1.

Note: Original laboratory reports are provided in the electronic version of this report and are available upon request from:

> New York State Department of Environmental Conservation
> Division of Environmental Remediation
> 625 Broadway
> Albany, New York 12233-7012

Table F-1 Summary of Samples Collected and Laboratory Report Number

Client Sample ID	Sample Date	Sample Matrix	QC Type	SDG
B212-CBH-01-01	03/01/2006 10:30	SO		A62277
B212-CBH-01-02	03/01/2006 10:45	SO		A06-2348
B212-CBH-01-02	03/01/2006 10:45	SO		A62277
B212-CBH-01-02/D	03/01/2006 10:45	SO	FD	A06-2348
B212-CBH-01-02MS	03/01/2006 10:45	SO	MS	A06-2348
B212-CBH-01-02MSD	03/01/2006 10:45	SO	MSD	A06-2348
B212-CBH-01-03	03/01/2006 10:55	SO		A62277
B212-CBH-01-04	03/01/2006 11:02	SO		A62277
B212-CBH-01-05	03/01/2006 11:10	SO		A62277
B212-CBH-02-01	02/28/2006 15:47	SO		A62277
B212-CBH-02-02	02/28/2006 16:03	SO		A06-2348
B212-CBH-02-02	02/28/2006 16:03	SO		A62277
B212-CBH-02-03	02/28/2006 16:14	SO		A62277
B212-CBH-02-04	02/28/2006 16:44	SO		A62277
B212-CBH-02-05	02/28/2006 16:47	SO		A62277
B212-CBH-03-01	02/28/2006 11:31	SO		A06-2348
B212-CBH-03-01	02/28/2006 11:31	SO		A62277
B212-CBH-03-02	02/28/2006 11:40	SO		A62277
B212-CBH-03-02/D	03/01/2006 11:41	SO	FD	A62277
B212-CBH-03-03	02/28/2006 11:50	SO		A62277
B212-CBH-03-04	02/28/2006 12:00	SO		A62277
B212-CBH-03-04MS	02/28/2006 12:00	SO	MS	A62277
B212-CBH-03-04MSD	02/28/2006 12:00	SO	MSD	A62277
B212-CBH-03-05	02/28/2006 12:18	SO		A62277
B212-CBH-04-01	02/27/2006 17:07	SO		A62277
B212-CBH-04-01MS	02/27/2006 17:07	SO	MS	A62277
B212-CBH-04-01MSD	02/27/2006 17:07	SO	MSD	A62277
B212-CBH-04-02	02/27/2006 17:19	SO		A06-2348
B212-CBH-04-02	02/27/2006 17:19	SO		A62277
B212-CBH-04-03	02/28/2006 8:14	SO		A06-2348
B212-CBH-04-03	02/28/2006 8:14	SO		A62277
B212-CBH-04-04	02/28/2006 8:31	SO		A62277
B212-CBH-04-05	02/28/2006 8:41	SO		A62277
B212-CBH-04-05MS	02/28/2006 8:41	SO	MS	A62277
B212-CBH-04-05MSD	02/28/2006 8:41	SO	MSD	A62277
B212-CBH-05-01	02/27/2006 15:27	SO		A62277
B212-CBH-05-02	02/27/2006 15:33	SO		A62277
B212-CBH-05-02/D	02/27/2006 15:35	SO	FD	A62277
B212-CBH-05-03	02/27/2006 15:46	SO		A06-2348
B212-CBH-05-03	02/27/2006 15:46	SO		A62277
B212-CBH-05-04	02/27/2006 16:07	SO		A62277
B212-CBH-05-05	02/27/2006 16:12	SO		A62277
B212-CBH-06-01	02/21/2006 15:28	SO		A06-2106
B212-CBH-06-02	02/21/2006 15:45	SO		A06-2106
B212-CBH-06-02	02/21/2006 15:45	SO		A06-2114
B212-CBH-06-02/D	02/21/2006 15:45	SO	FD	A06-2106
B212-CBH-06-02/D	02/21/2006 15:45	SO	FD	A06-2114
B212-CBH-06-03	02/21/2006 16:07	SO		A06-2106
B212-CBH-06-04	02/21/2006 16:40	SO		A06-2106
B212-CBH-06-05	02/21/2006 16:46	SO		A06-2106
B212-CBH-06-05MS	02/21/2006 16:46	SO	MS	A06-2106
B212-CBH-06-05MSD	02/21/2006 16:46	SO	MSD	A06-2106

Table F-1 Summary of Samples Collected and Laboratory Report Number

Client Sample ID	Sample Date	Sample Matrix	QC Type	SDG
B212-CBH-07-01	02/24/2006 13:01	SO		A06-2106
B212-CBH-07-02	02/24/2006 13:06	SO		A06-2106
B212-CBH-07-02	02/24/2006 13:06	SO		A06-2114
B212-CBH-07-03	02/24/2006 13:15	SO		A06-2106
B212-CBH-07-04	02/24/2006 13:20	SO		A06-2106
B212-CBH-07-05	02/24/2006 13:25	SO		A06-2106
B212-CBH-08-01	02/24/2006 9:20	SO		A06-2106
B212-CBH-08-02	02/24/2006 9:32	SO		A06-2106
B212-CBH-08-02	02/24/2006 9:32	SO		A06-2114
B212-CBH-08-02/D	02/24/2006 9:32	SO	FD	A06-2114
B212-CBH-08-03	02/24/2006 10:00	SO		A06-2106
B212-CBH-08-04	02/24/2006 10:32	SO		A06-2106
B212-CBH-08-04	02/24/2006 10:32	SO		A06-2114
B212-CBH-08-05	02/24/2006 10:14	SO		A06-2106
B212-CBH-09-01	02/24/2006 7:53	SO		A06-2106
B212-CBH-09-01	02/24/2006 7:53	SO		A06-2114
B212-CBH-09-02	02/24/2006 8:09	SO		A06-2106
B212-CBH-09-03	02/24/2006 8:15	SO		A06-2106
B212-CBH-09-04	02/24/2006 8:30	SO		A06-2106
B212-CBH-09-05	02/24/2006 8:38	SO		A06-2106
B212-CBH-10-01	02/23/2006 16:35	SO		A06-2106
B212-CBH-10-02	02/23/2006 16:42	SO		A06-2106
B212-CBH-10-02	02/23/2006 16:42	SO		A06-2114
B212-CBH-10-03	02/23/2006 16:58	SO		A06-2106
B212-CBH-10-04	02/23/2006 17:05	SO		A06-2106
B212-CBH-10-04	02/23/2006 17:05	SO		A06-2114
B212-CBH-10-04MS	02/23/2006 17:05	SO	MS	A06-2114
B212-CBH-10-04MSD	02/23/2006 17:05	SO	MSD	A06-2114
B212-CBH-11-01	03/01/2006 8:25	SO		A62277
B212-CBH-11-02	03/01/2006 8:36	SO		A06-2348
B212-CBH-11-02	03/01/2006 8:36	SO		A62277
B212-CBH-11-03	03/01/2006 8:44	SO		A06-2348
B212-CBH-11-03	03/01/2006 8:44	SO		A62277
B212-CBH-11-04	03/01/2006 9:18	SO		A62277
B212-CBH-11-05	03/01/2006 9:19	SO		A62277
B212-CBH-12-01	02/28/2006 14:27	SO		A62277
B212-CBH-12-02	02/28/2006 14:31	SO		A62277
B212-CBH-12-03	02/28/2006 14:41	SO		A06-2348
B212-CBH-12-03	02/28/2006 14:41	SO		A62277
B212-CBH-12-04	02/28/2006 14:50	SO		A62277
B212-CBH-12-05	02/28/2006 15:01	SO		A62277
B212-MBH-01-01	03/01/2006 16:40	SO		A62277
B212-MBH-01-02	03/01/2006 16:50	SO		A62277
B212-MBH-02-01	03/01/2006 15:50	SO		A06-2348
B212-MBH-02-01	03/01/2006 15:50	SO		A62277
B212-MBH-02-01D	03/01/2006 15:50	SO		A06-2348
B212-MBH-02-01D	03/01/2006 15:50	SO		A62277
B212-MBH-02-02	03/01/2006 16:10	SO		A62277
B212-MBH-02-03	03/01/2006 16:15	SO		A62277
B212-MBH-03-01	02/27/2006 14:11	SO		A62277
B212-MBH-03-02	02/27/2006 14:16	SO		A62277
B212-MBH-04-01	02/27/2006 14:33	SO		A62277

Table F-1 Summary of Samples Collected and Laboratory Report Number

Client Sample ID	Sample Date	Sample Matrix	QC Type	SDG
B212-MBH-04-02	02/27/2006 14:37	SO		A62277
B212-MBH-05-01	03/01/2006 15:00	SO		A06-2348
B212-MBH-05-01	03/01/2006 15:00	SO		A62277
B212-MBH-05-02	03/01/2006 15:05	SO		A06-2348
B212-MBH-05-02	03/01/2006 15:05	SO		A62277
B212-MBH-05-02MS	03/01/2006 15:05	SO	MS	A06-2348
B212-MBH-05-02MSD	03/01/2006 15:05	SO	MSD	A06-2348
B212-MBH-06-01	03/01/2006 13:45	SO		A06-2348
B212-MBH-06-01	03/01/2006 13:45	SO		A62277
B212-MBH-07-01	02/28/2006 11:02	SO		A62277
B212-MBH-07-01/D	02/28/2006 11:03	SO	FD	A62277
B212-MBH-07-02	02/28/2006 11:09	SO		A62277
B212-MBH-07-02MS	02/28/2006 11:09	SO	MS	A62277
B212-MBH-07-02MSD	02/28/2006 11:09	SO	MSD	A62277
B212-MBH-08-01	03/01/2006 12:05	SO		A06-2348
B212-MBH-08-01	03/01/2006 12:05	SO		A62277
B212-MBH-08-01MS	03/01/2006 12:05	SO	MS	A06-2348
B212-MBH-08-01MSD	03/01/2006 12:05	SO	MSD	A06-2348
B212-MBH-08-02	03/01/2006 12:15	SO		A62277
B212-MBH-08A-01	03/01/2006 12:30	SO		A62277
B212-MW-01-GW	03/27/2006 17:33	AQ		A06-3269
B212-MW-01-GW	06/14/2006 17:04	AQ		A66835
B212-MW-01-GW	10/03/2006 15:40	AQ		A06-B512
B212-MW-01-GW	12/13/2006 10:14	AQ		A06-F043
B212-MW-02-GW	03/27/2006 14:20	AQ		A06-3269
B212-MW-02-GW	06/14/2006 11:59	AQ		A66835
B212-MW-02-GW	10/03/2006 14:45	AQ		A06-B512
B212-MW-02-GW	12/12/2006 16:41	AQ		A06-F043
B212-MW-03D-GW	03/27/2006 15:59	AQ		A06-3269
B212-MW-03D-GW	06/13/2006 5:10	AQ		A66835
B212-MW-03D-GW	10/03/2006 11:20	AQ		A06-B512
B212-MW-03D-GW	12/12/2006 16:13	AQ		A06-F043
B212-MW-03D-GWMS	06/13/2006 5:10	AQ	MS	A66835
B212-MW-03D-GWMS	10/03/2006 11:20	AQ	MS	A06-B512
B212-MW-03D-GWMS	12/12/2006 16:13	AQ	MS	A06-F043
B212-MW-03D-GWMSD	06/13/2006 5:10	AQ	MSD	A66835
B212-MW-03D-GWMSD	10/03/2006 11:20	AQ	MSD	A06-B512
B212-MW-03D-GWMSD	12/12/2006 16:13	AQ	MSD	A06-F043
B212-MW-03S-GW	03/27/2006 15:08	AQ		A06-3269
B212-MW-03S-GW	06/14/2006 9:54	AQ		A66835
B212-MW-03S-GW	10/03/2006 11:52	AQ		A06-B512
B212-MW-03S-GW	12/12/2006 14:58	AQ		A06-F043
B212-MW-04-GW	03/27/2006 16:11	AQ		A06-3269
B212-MW-04-GW	06/14/2006 10:50	AQ		A66835
B212-MW-04-GW	10/03/2006 12:32	AQ		A06-B512
B212-MW-04-GW	12/12/2006 15:35	AQ		A06-F043
B212-MW-04-GW/D	06/14/2006 10:50	AQ	FD	A66835
B212-MW-05-01	02/22/2006 8:46	SO		A06-2106
B212-MW-05-02	02/22/2006 8:59	SO		A06-2106
B212-MW-05-02	02/22/2006 8:59	SO		A06-2114
B212-MW-05-02MS	02/22/2006 8:59	SO	MS	A06-2114
B212-MW-05-02MSD	02/22/2006 8:59	SO	MSD	A06-2114

Table F-1 Summary of Samples Collected and Laboratory Report Number

Client Sample ID	Sample Date	Sample Matrix	QC Type	SDG
B212-MW-05-03	02/22/2006 9:05	SO		A06-2106
B212-MW-05-04	02/22/2006 9:25	SO		A06-2106
B212-MW-05-04/D	02/22/2006 9:25	SO	FD	A06-2106
B212-MW-05-05	02/22/2006 10:06	SO		A06-2106
B212-MW-05-05	02/22/2006 10:06	SO		A06-2114
B212-MW-05-05/D	02/22/2006 10:06	SO	FD	A06-2114
B212-MW-05-GW	03/27/2006 13:58	AQ		A06-3269
B212-MW-05-GW	06/14/2006 13:58	AQ		A66835
B212-MW-05-GW	09/29/2006 11:25	AQ		A06-B304
B212-MW-05-GW	12/13/2006 9:03	AQ		A06-F043
B212-MW-05-GWMS	03/27/2006 13:58	AQ	MS	A06-3269
B212-MW-05-GWMSD	03/27/2006 13:58	AQ	MSD	A06-3269
B212-MW-06-01	02/22/2006 16:35	SO		A06-2106
B212-MW-06-01	02/22/2006 16:35	SO		A06-2114
B212-MW-06-02	02/22/2006 16:52	SO		A06-2106
B212-MW-06-03	02/22/2006 16:53	SO		A06-2106
B212-MW-06-04	02/22/2006 16:59	SO		A06-2106
B212-MW-06-05	02/22/2006 17:45	SO		A06-2106
B212-MW-06-05	02/22/2006 17:45	SO		A06-2114
B212-MW-06-05MS	02/22/2006 17:45	SO	MS	A06-2114
B212-MW-06-05MSD	02/22/2006 17:45	SO	MSD	A06-2114
B212-MW-06-GW	03/28/2006 8:44	AQ		A06-3269
B212-MW-06-GW	06/14/2006 15:28	AQ		A66835
B212-MW-06-GW	09/29/2006 9:19	AQ		A06-B304
B212-MW-06-GW	12/13/2006 8:48	AQ		A06-F043
B212-MW-06-GW/D	09/29/2006 9:19	AQ	FD	A06-B304
B212-MW-06-GW/D	12/13/2006 8:48	AQ	FD	A06-F043
B212-MW-07-01	02/23/2006 11:00	SO		A06-2106
B212-MW-07-02	02/23/2006 11:15	SO		A06-2106
B212-MW-07-03	02/23/2006 11:16	SO		A06-2106
B212-MW-07-03MS	02/23/2006 11:16	SO	MS	A06-2106
B212-MW-07-03MSD	02/23/2006 11:16	SO	MSD	A06-2106
B212-MW-07-04	02/23/2006 11:40	SO		A06-2106
B212-MW-07-04	02/23/2006 11:40	SO		A06-2114
B212-MW-07-05	02/23/2006 12:52	SO		A06-2106
B212-MW-07-05	02/23/2006 12:52	SO		A06-2114
B212-MW-07-GW	03/28/2006 8:37	AQ		A06-3269
B212-MW-07-GW	06/14/2006 17:41	AQ		A66835
B212-MW-07-GW	09/29/2006 8:42	AQ		A06-B304
B212-MW-07-GW	12/13/2006 9:53	AQ		A06-F043
B212-MW-07-GW/D	03/28/2006 8:37	AQ	FD	A06-3269
B212-RB-01	02/23/2006 15:21	AQ	EB	A06-2114
B212-SD-01	11/29/2005 9:20	SO		242512
B212-SD-01	11/29/2005 9:20	SO		A05-D657
B212-SD-01	11/29/2005 9:20	SO		A05-D658
B212-SD-02	11/29/2005 9:35	SO		242512
B212-SD-02	11/29/2005 9:35	SO		A05-D657
B212-SD-02	11/29/2005 9:35	SO		A05-D658
B212-SD-03	11/29/2005 9:50	SO		242512
B212-SD-03	11/29/2005 9:50	SO		A05-D657
B212-SD-03	11/29/2005 9:50	SO		A05-D658
B212-SD-04	11/29/2005 10:05	SO		242512

Table F-1 Summary of Samples Collected and Laboratory Report Number

Client Sample ID	Sample Date	Sample Matrix	QC Type	SDG
B212-SD-04	11/29/2005 10:05	SO		A05-D657
B212-SD-04	11/29/2005 10:05	SO		A05-D658
B212-SD-04/D	11/29/2005 10:05	SO	FD	242512
B212-SD-04/D	11/29/2005 10:05	SO	FD	A05-D657
B212-SD-04/D	11/29/2005 10:05	SO	FD	A05-D658
B212-SD-05	11/29/2005 10:20	SO		242512
B212-SD-05	11/29/2005 10:20	SO		A05-D657
B212-SD-05	11/29/2005 10:20	SO		A05-D658
B212-SD-06	11/29/2005 10:35	SO		242512
B212-SD-06	11/29/2005 10:35	SO		A05-D657
B212-SD-06	11/29/2005 10:35	SO		A05-D658
B212-SD-07	11/29/2005 10:50	SO		242512
B212-SD-07	11/29/2005 10:50	SO		A05-D657
B212-SD-07	11/29/2005 10:50	SO		A05-D658
B212-SD-07MS	11/29/2005 10:50	SO	MS	242512
B212-SD-07MS	11/29/2005 10:50	SO	MS	A05-D657
B212-SD-07MS	11/29/2005 10:50	SO	MS	A05-D658
B212-SD-07MSD	11/29/2005 10:50	SO	MSD	242512
B212-SD-07MSD	11/29/2005 10:50	SO	MSD	A05-D657
B212-SD-07MSD	11/29/2005 10:50	SO	MSD	A05-D658
B212-SD-08	11/29/2005 11:05	SO		242512
B212-SD-08	11/29/2005 11:05	SO		A05-D657
B212-SD-08	11/29/2005 11:05	SO		A05-D658
B212-SS-01	11/29/2005 15:15	SO		A05-D657
B212-SS-02	11/29/2005 15:28	SO		A05-D657
B212-SS-02	11/29/2005 15:28	SO		A05-D658
B212-SS-02/D	11/29/2005 15:28	SO	FD	A05-D657
B212-SS-02/D	11/29/2005 15:28	SO	FD	A05-D658
B212-SS-03	11/29/2005 15:37	SO		A05-D657
B212-SS-03	11/29/2005 15:37	SO		A05-D658
B212-SS-04	11/29/2005 15:46	SO		A05-D657
B212-SS-04	11/29/2005 15:46	SO		A05-D658
B212-SS-05	11/29/2005 15:49	SO		A05-D657
B212-SS-06	11/29/2005 15:53	SO		A05-D657
B212-SS-07	11/29/2005 15:59	SO		A05-D657
B212-SS-07	11/29/2005 15:59	SO		A05-D658
B212-SS-08	11/29/2005 16:05	SO		A05-D657
B212-SS-08MS	11/29/2005 16:05	SO	MS	A05-D657
B212-SS-08MSD	11/29/2005 16:05	SO	MSD	A05-D657
B212-SS-09	11/29/2005 16:24	SO		A05-D657
B212-SS-10	11/29/2005 16:28	SO		A05-D657
B212-SS-10	11/29/2005 16:28	SO		A05-D658
B212-SS-11	11/29/2005 16:32	SO		A05-D657
B212-SS-12	11/29/2005 16:33	SO		A05-D657
B212-SS-13	11/29/2005 16:36	SO		A05-D657
B212-SS-14	11/29/2005 16:40	SO		A05-D657
B212-SS-15	11/29/2005 16:44	SO		A05-D657
B212-SS-16	11/29/2005 16:48	SO		A05-D657
B212-SS-17	11/29/2005 16:53	SO		A05-D657
B212-SS-18	11/29/2005 16:48	SO		A05-D657
B212-SS-19	11/29/2005 16:51	SO		A05-D657
B212-SS-20	11/29/2005 16:53	SO		A05-D657

Table F-1 Summary of Samples Collected and Laboratory Report Number

Client Sample ID	Sample Date	Sample Matrix	QC Type	SDG
B212-SS-20	11/29/2005 16:53	SO		A05-D658
B212-SS-21	11/29/2005 16:58	SO		A05-D657
B212-SS-22	11/29/2005 17:04	SO		A05-D657
B212-SS-22	11/29/2005 17:04	SO		A05-D658
B212-SS-22/D	11/29/2005 17:04	SO	FD	A05-D657
B212-SS-22/D	11/29/2005 17:04	SO	FD	A05-D658
B212-SS-22MS	11/29/2005 17:04	SO	MS	A05-D657
B212-SS-22MS	11/29/2005 17:04	SO	MS	A05-D658
B212-SS-22MSD	11/29/2005 17:04	SO	MSD	A05-D657
B212-SS-22MSD	11/29/2005 17:04	SO	MSD	A05-D658
B212-SS-23	11/29/2005 17:10	SO		A05-D657
B212-SS-23	11/29/2005 17:10	SO		A05-D658
B212-SS-23MS	11/29/2005 17:10	SO	MS	A05-D658
B212-SS-23MSD	11/29/2005 17:10	SO	MSD	A05-D658
B212-SS-24	11/29/2005 17:18	SO		A05-D657
B212-SW-01	11/29/2005 9:20	AQ		A05-D656
B212-SW-02	11/29/2005 9:35	AQ		A05-D656
B212-SW-03	11/29/2005 9:50	AQ		A05-D656
B212-SW-04	11/29/2005 10:05	AQ		A05-D656
B212-SW-04/D	11/29/2005 10:05	AQ	FD	A05-D656
B212-SW-05	11/29/2005 10:20	AQ		A05-D656
B212-SW-06	11/29/2005 10:35	AQ		A05-D656
B212-SW-07	11/29/2005 10:50	AQ		A05-D656
B212-SW-07MS	11/29/2005 10:50	AQ	MS	A05-D656
B212-SW-07MSD	11/29/2005 10:50	AQ	MSD	A05-D656
B212-SW-08	11/29/2005 11:05	AQ		A05-D656

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-2114**
Date Completed: 04/17/2006	**Data Validation Chemist: R. Humphrey/B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in Attachment 2 Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided in Attachment 2. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	No - COC indicates that TCL PCBs were requested on sample B212-MW05-05. Lab noted that bottle label did not list test, therefore SW8082 was not performed.
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate collected. Trip Blank not required. Rinsate blank included in SDG.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	Yes - Five samples analyzed for Method 8082 at dilutions based on high level of target compounds present.

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A06-2114
Date Completed: 04/17/2006	Data Validation Chemist: R. Humphrey/B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes - See Method Blank Outlier Report Metals- Calcium and manganese detected in rinse blank. There is not impact on data usability because the amount detected in the samples well exceeds the amount found in the rinse blank.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes - See Method Blank Outlier Report "U" flag applied to all Beryllium results based on project method blank and CCB results. There is no impact on data usability because the compounds found were reported at a reporting limit below laboratory's standard reporting limit.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	Yes
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs*. *Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No - Surrogates diluted out for several samples.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	No - See MS/MSD Outlier Report. PCB – MS/MSD diluted out – qualifiers manually removed. Metals – MS/MSD outside of criteria for Al, Ba, Sb, Fe, and Mn. Matrix interference suspected.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A06-2114
Date Completed: 04/17/2006	Data Validation Chemist: R. Humphrey/B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	Yes
Do field duplicate results show good precision for all compounds except TICs?	No – See Attachment 1 Table 4 Field Duplicate Results

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	No – Aluminum, barium, beryllium, iron, magnesium, manganese results flagged "J".
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
"U" flag applied to all Beryllium results based on project method blank and CCB results.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Table 4: Field Duplicate Summary Report

Lab SDG: A06-2114 **Lab ID:STLBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-CB-08-02	B212-CB-08-02-D	6010B Short
B212-CB-08-02	B212-CB-08-02-D	7471A
B212-MW-05-05	B212-MW-05-05-D	6010B
B212-MW-05-05	B212-MW-05-05-D	7471A

Method: 6010B

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	ALUMINUM	B212-MW-05-05	RES	6130	EN	B212-MW-05-05-D	RES	6600	EN	7.38	70	mg/Kg	Good	None
SO	ANTIMONY		RES	17.0	NU		RES	17.9	NU	5.16	70	mg/Kg	Good	None
SO	BARIUM		RES	27.1	EN		RES	32.6	EN	18.4	70	mg/Kg	Good	None
SO	BERYLLIUM		RES	0.29	E		RES	0.29	E	0	70	mg/Kg	Good	None
SO	CALCIUM		RES	2520			RES	2720		7.63	70	mg/Kg	Good	None
SO	CHROMIUM		RES	5.4			RES	8.0		38.8	70	mg/Kg	Good	None
SO	COBALT		RES	2.2			RES	2.1		4.65	70	mg/Kg	Good	None
SO	COPPER		RES	2.8			RES	3.7		27.7	70	mg/Kg	Good	None
SO	IRON		RES	11300	EN		RES	12600	EN	10.9	70	mg/Kg	Good	None
SO	LEAD		RES	1.4			RES	1.2		15.4	70	mg/Kg	Good	None
SO	MAGNESIUM		RES	1510	E		RES	1500	E	0.664	70	mg/Kg	Good	None
SO	MANGANESE		RES	134	EN		RES	153	EN	13.2	70	mg/Kg	Good	None
SO	NICKEL		RES	3.8			RES	4.2		10.0	70	mg/Kg	Good	None
SO	POTASSIUM		RES	233			RES	284		19.7	70	mg/Kg	Good	None
SO	VANADIUM		RES	15.3			RES	17.4		12.8	70	mg/Kg	Good	None
SO	ZINC		RES	26.7			RES	27.6		3.31	70	mg/Kg	Good	None

Table 4: Field Duplicate Summary Report

Method: 6010B Short

		Field Sample				Field Sample Duplicate*								
Matrix	**Analyte**	**Sample ID**	**Type**	**Result**	**(Q)**	**Field Dup ID**	**Type**	**Result**	**(Q)**	**%RPD -**	**Limits**	**Units**	**Rating**	**Qual**
SO	CADMIUM	B212-CB-08-02	RES	3.5		B212-CB-08-02-D	RES	17.6		134	70	mg/Kg	Poor	J
SO	CHROMIUM		RES	36.5			RES	45.6		22.2	70	mg/Kg	Good	None
SO	LEAD		RES	43.4			RES	50.3		14.7	70	mg/Kg	Good	None

Method: 7471A

		Field Sample				Field Sample Duplicate*								
Matrix	**Analyte**	**Sample ID**	**Type**	**Result**	**(Q)**	**Field Dup ID**	**Type**	**Result**	**(Q)**	**%RPD -**	**Limits**	**Units**	**Rating**	**Qual**
SO	MERCURY	B212-CB-08-02	RES	0.166	N	B212-CB-08-02-D	RES	0.156	N	6.21	70	mg/Kg	Good	None
SO	MERCURY	B212-MW-05-05	RES	0.020	NU	B212-MW-05-05-D	RES	0.022	NU	9.52	70	mg/Kg	Good	None

***Field Duplicate Results with one or both results ND are not included in this report**

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A6B14439 **Analysis Method :** 8082 **Analysis Date :** 03/01/2006

Preparation Batch : A6B14439 **Preparation Type :** 3550B **Preparation Date :** 02/28/2006

Lab Reporting Batch : A06-2114 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-MW-05-02MS	A6211403MS	SO	AROCLOR 1016	0		10.00	70.00	130.00	40.00
			AROCLOR 1260	0		10.00	70.00	130.00	40.00
B212-MW-05-02MSD	A6211403SD		AROCLOR 1016	0		10.00	70.00	130.00	40.00
			AROCLOR 1260	0		10.00	70.00	130.00	40.00

Associated Samples: Parent sample only

Client Sample ID	Lab Sample ID
B212-MW-05-02	A6211403

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 000699.NV23.02 - NYSDEC Site Characterization of Buoy 212

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A6B14494 **Analysis Method :** 6010B **Analysis Date :** 03/02/2006

Preparation Batch : A6B14494 **Preparation Type :** 3050B **Preparation Date :** 03/02/2006

Lab Reporting Batch : A06-2114 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-MW-06-05MS	A6211407MS	SO	ALUMINUM	48		30.00	75.00	125.00	20.00
			ANTIMONY	62		30.00	75.00	125.00	20.00
			BARIUM	67		30.00	75.00	125.00	20.00
			IRON	42		30.00	75.00	125.00	20.00
B212-MW-06-05MSD	A6211407SD		ALUMINUM	28		30.00	75.00	125.00	20.00
			ANTIMONY	66		30.00	75.00	125.00	20.00
			BARIUM	62		30.00	75.00	125.00	20.00
			IRON	32		30.00	75.00	125.00	20.00
			MANGANESE	60		30.00	75.00	125.00	20.00

Associated Samples: Parent sample only	
Client Sample ID	**Lab Sample ID**
B212-MW-06-05	A6211407

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 000699.NV23.02 - NYSDEC Site Characterization of Buoy 212

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A6B14544 **Analysis Method :** 7471A **Analysis Date :** 03/03/2006

Preparation Batch : A6B14544 **Preparation Type :** Gen Prep **Preparation Date :** 03/03/2006

Lab Reporting Batch : A06-2114 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-CB10-04MSD	A6211418SD	SO	MERCURY	73		30.00	75.00	125.00	20.00

Associated Samples: Parent sample only

Client Sample ID	Lab Sample ID
B212-CB10-04	A6211418
B212-MW-06-05	A6211407

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 000699.NV23.02 - NYSDEC Site Characterization of Buoy 212

Method Blank Outlier Report

Lab Reporting Batch :	A06-2114	**Lab ID:**	STLBUF
Analysis Method :	6010B	**Analysis Date :**	03/01/2006
Preparation Type :	3005A	**Preparation Date :**	03/01/2006
Method Blank Lab Sample ID :	A6211420	**Preparation Batch :**	A6B14458

BERYLLIUM	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**1.290**	**0.030**	**ug/L**		

BERYLLIUM was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
B212-RB-01	A6211410	1.00	0.18		ug/L

CADMIUM	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**1.100**	**1.000**	**ug/L**		

CADMIUM contamination found in the method blank did not qualify any samples.

IRON	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**64.590**	**50.000**	**ug/L**		

IRON contamination found in the method blank did not qualify any samples.

Method Blank Outlier Report

Lab Reporting Batch :	A06-2114	**Lab ID:**	STLBUF
Analysis Method :	6010B	**Analysis Date :**	03/02/2006
Preparation Type :	3050B	**Preparation Date :**	03/02/2006
Method Blank Lab Sample ID :	A6211422	**Preparation Batch :**	A6B14494

BERYLLIUM	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.004**	**0.003**	**mg/Kg**		

BERYLLIUM contamination found in the method blank did not qualify any samples.

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A06-2114
Date Completed: April 17, 2006	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	000699.NV23.02	A06-2114	02/24/2006 20:05

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-MW-05-02MS	SO	A6211403MS	02/22/2006 08:59	MS
B212-CB-06-02-D	SO	A6211402	02/21/2006 15:45	
B212-CB-07-02	SO	A6211417	02/24/2006 13:06	
B212-CB-08-02	SO	A6211414	02/24/2006 09:32	
B212-CB-08-02-D	SO	A6211416	02/24/2006 09:32	
B212-CB-08-04	SO	A6211415	02/24/2006 10:32	
B212-CB-09-01	SO	A6211413	02/24/2006 07:53	
B212-CB10-02	SO	A6211411	02/23/2006 16:42	
B212-CB10-04	SO	A6211418	02/23/2006 17:05	
B212-CB10-04MS	SO	A6211418MS	02/23/2006 17:05	MS
B212-CB-06-02	SO	A6211401	02/21/2006 15:45	
B212-MW-05-02	SO	A6211403	02/22/2006 08:59	
B212-RB-01	AQ	A6211410	02/23/2006 15:21	
B212-MW-05-02MSD	SO	A6211403SD	02/22/2006 08:59	MSD
B212-MW-05-05	SO	A6211404	02/22/2006 10:06	
B212-MW-05-05-D	SO	A6211405	02/22/2006 10:06	
B212-MW-06-01	SO	A6211406	02/22/2006 16:35	
B212-MW-06-05	SO	A6211407	02/22/2006 17:45	
B212-MW-06-05MS	SO	A6211407MS	02/22/2006 17:45	MS
B212-MW-06-05MSD	SO	A6211407SD	02/22/2006 17:45	MSD
B212-MW-07-04	SO	A6211408	02/23/2006 11:40	
B212-MW-07-05	SO	A6211409	02/23/2006 12:52	
B212-CB10-04MSD	SO	A6211418SD	02/23/2006 17:05	MSD

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	1
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	1
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	1

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A06-2114
Date Completed: April 17, 2006	Data Validation Chemist: BKrajewski

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	4
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	3
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	7
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	9

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-CB-08-02	7471A	RES	MERCURY	0.166	mg/Kg	N	0.166		
B212-CB-08-02-D	7471A	RES	MERCURY	0.156	mg/Kg	N	0.156		
B212-CB10-04	7471A	RES	MERCURY	0.022	mg/Kg	NU	0.022	UJ	8L,12
B212-MW-05-05	6010B	RES	ALUMINUM	6130	mg/Kg	EN	6130	J	31
B212-MW-05-05	6010B	RES	ANTIMONY	17.0	mg/Kg	NU	17.0	U	
B212-MW-05-05	6010B	RES	BARIUM	27.1	mg/Kg	EN	27.1	J	31
B212-MW-05-05	6010B	RES	BERYLLIUM	0.29	mg/Kg	E	0.29	UJ	32,6,31
B212-MW-05-05	6010B	RES	IRON	11300	mg/Kg	EN	11300	J	31
B212-MW-05-05	6010B	RES	MAGNESIUM	1510	mg/Kg	E	1510	J	31
B212-MW-05-05	6010B	RES	MANGANESE	134	mg/Kg	EN	134	J	31
B212-MW-05-05	7471A	RES	MERCURY	0.020	mg/Kg	NU	0.020	U	
B212-MW-05-05-D	6010B	RES	ALUMINUM	6600	mg/Kg	EN	6600	J	31
B212-MW-05-05-D	6010B	RES	ANTIMONY	17.9	mg/Kg	NU	17.9	U	
B212-MW-05-05-D	6010B	RES	BARIUM	32.6	mg/Kg	EN	32.6	J	31
B212-MW-05-05-D	6010B	RES	BERYLLIUM	0.29	mg/Kg	E	0.29	UJ	32,6,31
B212-MW-05-05-D	6010B	RES	IRON	12600	mg/Kg	EN	12600	J	31
B212-MW-05-05-D	6010B	RES	MAGNESIUM	1500	mg/Kg	E	1500	J	31
B212-MW-05-05-D	6010B	RES	MANGANESE	153	mg/Kg	EN	153	J	31
B212-MW-05-05-D	7471A	RES	MERCURY	0.022	mg/Kg	NU	0.022	U	
B212-MW-06-05	6010B	RES	ALUMINUM	7160	mg/Kg	EN	7160	J	8L,31
B212-MW-06-05	6010B	RES	ANTIMONY	19.9	mg/Kg	NU	19.9	UJ	8L,12
B212-MW-06-05	6010B	RES	BARIUM	46.0	mg/Kg	EN	46.0	J	8L,31
B212-MW-06-05	6010B	RES	BERYLLIUM	0.31	mg/Kg	E	0.31	UJ	32,6,31

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A06-2114
Date Completed: April 17, 2006	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-MW-06-05	6010B	RES	IRON	6790	mg/Kg	EN	6790	J	8L,31
B212-MW-06-05	6010B	RES	MAGNESIUM	1620	mg/Kg	E	1620	J	31
B212-MW-06-05	6010B	RES	MANGANESE	102	mg/Kg	EN	102	J	8L,31
B212-MW-06-05	7471A	RES	MERCURY	0.020	mg/Kg	NU	0.020	U	
B212-MW-07-05	6010B	RES	ALUMINUM	5390	mg/Kg	EN	5390	J	31
B212-MW-07-05	6010B	RES	ANTIMONY	17.5	mg/Kg	NU	17.5	U	
B212-MW-07-05	6010B	RES	BARIUM	36.8	mg/Kg	EN	36.8	J	31
B212-MW-07-05	6010B	RES	BERYLLIUM	0.37	mg/Kg	E	0.37	UJ	32,6,31
B212-MW-07-05	6010B	RES	IRON	8710	mg/Kg	EN	8710	J	31
B212-MW-07-05	6010B	RES	MAGNESIUM	2030	mg/Kg	E	2030	J	31
B212-MW-07-05	6010B	RES	MANGANESE	111	mg/Kg	EN	111	J	31
B212-MW-07-05	7471A	RES	MERCURY	0.022	mg/Kg	NU	0.022	U	12
B212-RB-01	6010B	RES/TOT	ALUMINUM	200	ug/L	U	200	UJ	31L
B212-RB-01	6010B	RES/TOT	BARIUM	2.0	ug/L	U	2.0	UJ	31L
B212-RB-01	6010B	RES/TOT	BERYLLIUM	0.18	ug/L		0.18	UJ	32,6,31
B212-RB-01	6010B	RES/TOT	IRON	50.0	ug/L	U	50.0	UJ	31L
B212-RB-01	6010B	RES/TOT	MAGNESIUM	200	ug/L	U	200	UJ	31L
B212-RB-01	6010B	RES/TOT	MANGANESE	5.6	ug/L		5.6	J	31

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
6	Method blank contamination impacted positive result.
8L	Matrix spike recovery outside control limits. Result has a low bias.
12	Result is below project reporting limit, but above MDL.
31	Result qualified based on professional judgement.
31L	Result qualified based on professional judgement. Result has a low bias.
32	Non-detect, concentration is same as method blank

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-2348**
Date Completed: 03/30/2006	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in Attachment 2 Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided in Attachment 2. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate collected. Trip Blank not required.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	Yes – 12 samples plus MS/MSD required analysis at dilutions for Method 8082 due to the levels of target compounds present.

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-2348**
Date Completed: 03/30/2006	**Data Validation Chemist: B. Krajewski**

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	No
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes "U" flag applied to all Beryllium results based on project method blank and CCB results.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	Yes – DCBP low for method blank. TCMX recovery acceptable. No qualifier applied.
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	Yes – Surrogates diluted out of samples. .
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were $\leq$30%, then "R" flag associated non-detect values.*	No - See MS/MSD Outlier Report. Method 8082 spike compounds diluted out.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	Yes – 12 samples plus MS/MSD required analysis at dilutions for Method 8082 due to the levels of target compounds present.
Do field duplicate results show good precision for all compounds except TICs?	Yes – See Attachment 1 Table 4 Field Duplicate Results

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A06-2348
Date Completed: 03/30/2006	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	No
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes – Average %D exceeds 15% for continuing standard associated with B212-CB-04-03. AR1260%D is 25%. No qualifier applied.
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
"U" flag applied to all Beryllium results based on project method blank and CCB results.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable

LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A6B14707 **Analysis Method :** 8082 **Analysis Date :** 03/09/2006
Preparation Batch : A6B14707 **Preparation Type :** 3550B **Preparation Date :** 03/06/2006
Lab Reporting Batch : A06-2348 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-MB-08-01MS	A6234811MS	SO	AROCLOR 1016	0		10.00	70.00	130.00	40.00
			AROCLOR 1260	0		10.00	70.00	130.00	40.00
B212-MB-08-01MSD	A6234811SD		AROCLOR 1016	0		10.00	70.00	130.00	40.00
			AROCLOR 1260	0		10.00	70.00	130.00	40.00

Associated Samples: Parent sample only	
Client Sample ID	**Lab Sample ID**
B212-MB-08-01	A6234811

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 000699.NV23.02 - NYSDEC Site Characterization of Buoy 212

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A6B14747 **Analysis Method :** 6010B **Analysis Date :** 03/08/2006
Preparation Batch : A6B14747 **Preparation Type :** 3050B **Preparation Date :** 03/07/2006
Lab Reporting Batch : A06-2348 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-CB-01-02MS	A6234809MS	SO	IRON	134		30.00	75.00	125.00	20.00
B212-CB-01-02MSD	A6234809SD		IRON	136		30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
B212-CB-01-02	A6234809
B212-CB-01-02D	A6234810
B212-MB-06-01	A6234812

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 000699.NV23.02 - NYSDEC Site Characterization of Buoy 212

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A6B14747 **Analysis Method :** 6010B Short **Analysis Date :** 03/08/2006
Preparation Batch : A6B14747 **Preparation Type :** 3050B **Preparation Date :** 03/07/2006
Lab Reporting Batch : A06-2348 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-MB-05-02MS	A6234814MS	SO	CADMIUM	74		30.00	75.00	125.00	20.00
			LEAD	74		30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
B212-CB-04-02	A6234802
B212-CB-11-03	A6234808
B212-MB-05-02	A6234814

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Table 4: Field Duplicate Summary Report

Lab SDG: A06-2348 **Lab ID:STLBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-CB-01-02	B212-CB-01-02D	6010B
B212-CB-01-02	B212-CB-01-02D	7471A

Method: 6010B

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	ALUMINUM	B212-CB-01-02	RES	2480		B212-CB-01-02D	RES	2670		7.38	70	mg/Kg	Good	None
SO	ANTIMONY		RES	17.6	NU		RES	17.1	NU	2.88	70	mg/Kg	Good	None
SO	BARIUM		RES	29.2			RES	35.3		18.9	70	mg/Kg	Good	None
SO	BERYLLIUM		RES	0.14	N		RES	0.17	N	19.4	70	mg/Kg	Good	None
SO	CADMIUM		RES	1.2	N		RES	1.2	N	0	70	mg/Kg	Good	None
SO	CALCIUM		RES	1490			RES	1560		4.59	70	mg/Kg	Good	None
SO	CHROMIUM		RES	25.0			RES	22.1		12.3	70	mg/Kg	Good	None
SO	COBALT		RES	2.0			RES	2.0		0	70	mg/Kg	Good	None
SO	COPPER		RES	10.1	N		RES	11.6	N	13.8	70	mg/Kg	Good	None
SO	IRON		RES	4730	EN		RES	5130	EN	8.11	70	mg/Kg	Good	None
SO	LEAD		RES	24.3	N		RES	22.5	N	7.69	70	mg/Kg	Good	None
SO	MAGNESIUM		RES	1110			RES	1130		1.79	70	mg/Kg	Good	None
SO	MANGANESE		RES	36.1	E*		RES	39.3	E*	8.49	70	mg/Kg	Good	None
SO	NICKEL		RES	4.2	N		RES	4.4	N	4.65	70	mg/Kg	Good	None
SO	POTASSIUM		RES	404			RES	452		11.2	70	mg/Kg	Good	None
SO	SELENIUM		RES	4.7	NU		RES	4.6	NU	2.15	70	mg/Kg	Good	None

Table 4: Field Duplicate Summary Report

Method: **6010B**

Matrix	Analyte	Field Sample: Sample ID	Type	Result	(Q)	Field Sample Duplicate*: Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	VANADIUM	B212-CB-01-02	RES	7.9	N	B212-CB-01-02D	RES	6.1	N	25.7	70	mg/Kg	Good	None
SO	ZINC		RES	30.1	N		RES	30.2	N	0.332	70	mg/Kg	Good	None

Method: **7471A**

Matrix	Analyte	Field Sample: Sample ID	Type	Result	(Q)	Field Sample Duplicate*: Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	MERCURY	B212-CB-01-02	RES	0.100		B212-CB-01-02D	RES	0.114		13.1	70	mg/Kg	Good	None

***Field Duplicate Results with one or both results ND are not included in this report**

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A06-2348
Date Completed: August 17, 2006	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	000699.NV23.02	A06-2348	03/02/2006 15:45

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-CB-01-02	SO	A6234809	03/01/2006 10:45	
B212-CB-01-02D	SO	A6234810	03/01/2006 10:45	FD
B212-CB-01-02MS	SO	A6234809MS	03/01/2006 10:45	MS
B212-CB-01-02MSD	SO	A6234809SD	03/01/2006 10:45	MSD
B212-CB-02-02	SO	A6234803	02/28/2006 16:03	
B212-CB-03-01	SO	A6234804	02/28/2006 11:31	
B212-CB-04-02	SO	A6234802	02/27/2006 17:19	
B212-CB-04-03	SO	A6234806	02/28/2006 08:14	
B212-CB-05-03	SO	A6234801	02/27/2006 15:46	
B212-CB-11-02	SO	A6234807	03/01/2006 08:36	
B212-CB-11-03	SO	A6234808	03/01/2006 08:44	
B212-CB-12-03	SO	A6234805	02/28/2006 14:41	
B212-MB-02-01	SO	A6234815	03/01/2006 15:50	
B212-MB-02-01D	SO	A6234816	03/01/2006 15:50	
B212-MB-05-01	SO	A6234813	03/01/2006 15:00	
B212-MB-05-02	SO	A6234814	03/01/2006 15:05	
B212-MB-05-02MS	SO	A6234814MS	03/01/2006 15:05	MS
B212-MB-05-02MSD	SO	A6234814SD	03/01/2006 15:05	MSD
B212-MB-06-01	SO	A6234812	03/01/2006 13:45	
B212-MB-08-01	SO	A6234811	03/01/2006 12:05	
B212-MB-08-01MS	SO	A6234811MS	03/01/2006 12:05	MS
B212-MB-08-01MSD	SO	A6234811SD	03/01/2006 12:05	MSD

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	3
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	3
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	6
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	12

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A06-2348
Date Completed: August 17, 2006	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-CB-01-02	6010B	RES	ANTIMONY	17.6	mg/Kg	NU	17.6	U	12
B212-CB-01-02D	6010B	RES	ANTIMONY	17.1	mg/Kg	NU	17.1	U	
B212-MB-06-01	6010B	RES	ANTIMONY	17.6	mg/Kg	NU	17.6	U	
B212-CB-01-02	6010B	RES	BERYLLIUM	0.14	mg/Kg	N	0.14	U	28
B212-CB-01-02D	6010B	RES	BERYLLIUM	0.17	mg/Kg	N	0.17	U	28
B212-MB-06-01	6010B	RES	BERYLLIUM	0.29	mg/Kg	N	0.29	U	28
B212-CB-01-02	6010B	RES	CADMIUM	1.2	mg/Kg	N	1.2		
B212-CB-01-02D	6010B	RES	CADMIUM	1.2	mg/Kg	N	1.2		
B212-MB-06-01	6010B	RES	CADMIUM	0.33	mg/Kg	N	0.33		
B212-CB-01-02	6010B	RES	COPPER	10.1	mg/Kg	N	10.1		
B212-CB-01-02D	6010B	RES	COPPER	11.6	mg/Kg	N	11.6		
B212-MB-06-01	6010B	RES	COPPER	6.6	mg/Kg	N	6.6		
B212-CB-01-02	6010B	RES	IRON	4730	mg/Kg	EN	4730	J+	8H
B212-CB-01-02D	6010B	RES	IRON	5130	mg/Kg	EN	5130	J+	8H
B212-MB-06-01	6010B	RES	IRON	8660	mg/Kg	EN	8660	J+	8H
B212-CB-01-02	6010B	RES	LEAD	24.3	mg/Kg	N	24.3		
B212-CB-01-02D	6010B	RES	LEAD	22.5	mg/Kg	N	22.5		
B212-MB-06-01	6010B	RES	LEAD	6.9	mg/Kg	N	6.9		
B212-CB-01-02	6010B	RES	MANGANESE	36.1	mg/Kg	E*	36.1		
B212-CB-01-02D	6010B	RES	MANGANESE	39.3	mg/Kg	E*	39.3		
B212-MB-06-01	6010B	RES	MANGANESE	100	mg/Kg	E*	100		
B212-CB-01-02	6010B	RES	NICKEL	4.2	mg/Kg	N	4.2		
B212-CB-01-02D	6010B	RES	NICKEL	4.4	mg/Kg	N	4.4		
B212-MB-06-01	6010B	RES	NICKEL	6.4	mg/Kg	N	6.4		
B212-CB-01-02	6010B	RES	SELENIUM	4.7	mg/Kg	NU	4.7	U	12
B212-CB-01-02D	6010B	RES	SELENIUM	4.6	mg/Kg	NU	4.6	U	
B212-MB-06-01	6010B	RES	SELENIUM	4.7	mg/Kg	NU	4.7	U	
B212-CB-01-02	6010B	RES	VANADIUM	7.9	mg/Kg	N	7.9		
B212-CB-01-02D	6010B	RES	VANADIUM	6.1	mg/Kg	N	6.1		

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A06-2348
Date Completed: August 17, 2006	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-MB-06-01	6010B	RES	VANADIUM	12.8	mg/Kg	N	12.8		
B212-CB-01-02	6010B	RES	ZINC	30.1	mg/Kg	N	30.1		
B212-CB-01-02D	6010B	RES	ZINC	30.2	mg/Kg	N	30.2		
B212-MB-06-01	6010B	RES	ZINC	28.3	mg/Kg	N	28.3		
B212-CB-04-02	6010B Short	RES	CADMIUM	2.6	mg/Kg	N	2.6	J-	8L
B212-CB-11-03	6010B Short	RES	CADMIUM	0.57	mg/Kg	N	0.57	J-	8L
B212-MB-05-02	6010B Short	RES	CADMIUM	0.36	mg/Kg	N	0.36	J-	8L
B212-CB-04-02	6010B Short	RES	LEAD	30.6	mg/Kg	N	30.6	J-	8L
B212-CB-11-03	6010B Short	RES	LEAD	18.3	mg/Kg	N	18.3	J-	8L
B212-MB-05-02	6010B Short	RES	LEAD	4.6	mg/Kg	N	4.6	J-	8L

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
8H	Matrix spike recovery outside control limits. Result has a high bias.
8L	Matrix spike recovery outside control limits. Result has a low bias.
12	Result is below project reporting limit, but above MDL.
28	Calibration blank contamination is present.

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-3269**
Date Completed: 04/28/2006	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in Attachment 2 Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided in Attachment 2. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate collected. Trip Blank not required.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-3269**
Date Completed: 04/28/2006	**Data Validation Chemist: B. Krajewski**

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	No
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – Beryllium results qualified "U" based on project MB and CCB results.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	No – DCBP low for method blank. TCMX recovery acceptable. Both DCBP and TCMX low for LCS. LCS recoveries within limit. No qualifier applied.
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	Yes – DCBP recovery low for most samples. Recovery range is consistent between samples. TCMX recovery within limits for all samples. No data qualified. .
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	Yes Recovery of Aroclor 1260 marginally low. LCS recovery within limits. No evidence of matrix interference on sample chromatogram. No data qualified.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A06-3269
Date Completed: 04/28/2006	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Do field duplicate results show good precision for all compounds except TICs?	Yes – See Attachment 1 Table 4 Field Duplicate Results

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	No
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
None

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody

CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Surrogate Recovery Outlier Report

Lab Report Batch: A06-3269 **Lab ID:** STLBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-MW-01-GW	A6326901	8082	1.00	AQ	DECACHLOROBIPHENYL	44	70.0	130.0	10.0	All Target
B212-MW-02-GW	A6326902	8082	1.00	AQ	DECACHLOROBIPHENYL	63	70.0	130.0	10.0	All Target
B212-MW-03D-GW	A6326904	8082	1.00	AQ	DECACHLOROBIPHENYL	60	70.0	130.0	10.0	All Target
B212-MW-04-GW	A6326905	8082	1.00	AQ	DECACHLOROBIPHENYL	68	70.0	130.0	10.0	All Target
B212-MW-05-GW	A6326906	8082	1.00	AQ	DECACHLOROBIPHENYL	58	70.0	130.0	10.0	All Target
B212-MW-05-GWMS	A6326906MS	8082	1.00	AQ	DECACHLOROBIPHENYL	44	70.0	130.0	10.0	All Target
B212-MW-05-GWMSD	A6326906SD	8082	1.00	AQ	DECACHLOROBIPHENYL	46	70.0	130.0	10.0	All Target
B212-MW-06-GW	A6326907	8082	1.00	AQ	DECACHLOROBIPHENYL	36	70.0	130.0	10.0	All Target
B212-MW-07-GW/D	A6326909	8082	1.00	AQ	DECACHLOROBIPHENYL	42	70.0	130.0	10.0	All Target

Project Number and Name: ***000699.NV23.02 - NYSDEC Site Characterization of Buoy 212***

Table 4: Field Duplicate Summary Report

Lab SDG: A06-3269 **Lab ID:**STLBUF

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-MW-07-GW	B212-MW-07-GW/D	6010B
B212-MW-07-GW	B212-MW-07-GW/D	7470A
B212-MW-07-GW	B212-MW-07-GW/D	8082

Method: 6010B

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
AQ	ALUMINUM	B212-MW-07-GW	RES/TOT	1890		B212-MW-07-GW/D	RES/TOT	1970		4.15	40	ug/L	Good	None
AQ	BARIUM		RES/TOT	40.4			RES/TOT	40.7		0.740	40	ug/L	Good	None
AQ	CALCIUM		RES/TOT	63300			RES/TOT	63500		0.315	40	ug/L	Good	None
AQ	COBALT		RES/TOT	4.1			RES/TOT	4.5		9.30	40	ug/L	Good	None
AQ	IRON		RES/TOT	23600			RES/TOT	23800		0.844	40	ug/L	Good	None
AQ	MAGNESIUM		RES/TOT	13000			RES/TOT	13100		0.766	40	ug/L	Good	None
AQ	MANGANESE		RES/TOT	1340			RES/TOT	1350		0.743	40	ug/L	Good	None
AQ	POTASSIUM		RES/TOT	1330			RES/TOT	1340		0.749	40	ug/L	Good	None
AQ	SODIUM		RES/TOT	16800			RES/TOT	16500		1.80	40	ug/L	Good	None
AQ	VANADIUM		RES/TOT	5.0			RES/TOT	6.1		19.8	40	ug/L	Good	None
AQ	ZINC		RES/TOT	20.3			RES/TOT	13.7		38.8	40	ug/L	Good	None

***Field Duplicate Results with one or both results ND are not included in this report**

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A06-3269
Date Completed: April 28, 2006	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	000699.NV23.02	A06-3269	03/29/2006 15:00

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-MW-07-GW/D	AQ	A6326909	03/28/2006 08:37	
B212-MW-07-GW	AQ	A6326908	03/28/2006 08:37	
B212-MW-06-GW	AQ	A6326907	03/28/2006 08:44	
B212-MW-05-GWMSD	AQ	A6326906SD	03/27/2006 13:58	MSD
B212-MW-05-GWMS	AQ	A6326906MS	03/27/2006 13:58	MS
B212-MW-05-GW	AQ	A6326906	03/27/2006 13:58	
B212-MW-04-GW	AQ	A6326905	03/27/2006 16:11	
B212-MW-03S-GW	AQ	A6326903	03/27/2006 15:08	
B212-MW-03D-GW	AQ	A6326904	03/27/2006 15:59	
B212-MW-02-GW	AQ	A6326902	03/27/2006 14:20	
B212-MW-01-GW	AQ	A6326901	03/27/2006 17:33	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	9
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	9
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	9

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-MW-01-GW	6010B	RES/TOT	BERYLLIUM	0.26	ug/L		0.26	U	32,6
B212-MW-05-GW	6010B	RES/TOT	BERYLLIUM	0.22	ug/L		0.22	U	32,6
B212-MW-06-GW	6010B	RES/TOT	BERYLLIUM	0.45	ug/L		0.45	U	32,6

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
6	Method blank contamination impacted positive result.
32	Non-detect, concentration is same as method blank

DUSR - Attachment 1	**Project: 000699.NV23.02**
Laboratory: STLBUF	**Lab SDG ID: A06-3269**
Date Completed: April 28, 2006	**Data Validation Chemist: BKrajewski**

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-6835**
Date Completed: 07/24/2006	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in Attachment 2 Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided in Attachment 2. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate collected. Trip Blank not required.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-6835**
Date Completed: 07/24/2006	**Data Validation Chemist: B. Krajewski**

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – See Method Blank Outlier
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	No – DCBP low for both method blanks and both LCSs. TCMX also low for method blank and LCS extracted 6/16/06.
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. Results not qualified for samples with one surrogate outside of QC limits. Results for samples MW-01-GW, MW-02-GW, MW-04-GW/D, MW-06-GW and MW-0-GW qualified "UJ". .
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	Yes
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	No – See LCS Outlier Report
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A06-6835
Date Completed: 07/24/2006	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Do field duplicate results show good precision for all compounds except TICs?	No – See Attachment 1 Table 4 Field Duplicate Results Designated as Reason Code #31 on Table 3

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes. CRA analyzed at end of mercury sequence low at 60%. CRA standards at start of runs within QC limits. No data qualified.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Yes
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes – Primary column acceptable.
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
PCB surrogates low for method blank and LCS. LCS recovery low for one PCB batch. Laboratory applying in-house limits instead of those on QAPP. No corrective action taken. Affected sample results qualified "UJ". Beryllium detected in method and calibration blanks. Results "U" qualified.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Method Blank Outlier Report

Lab Reporting Batch :	A66835	**Lab ID:**	STLBUF
Analysis Method :	6010B	**Analysis Date :**	06/20/2006
Preparation Type :	3005A	**Preparation Date :**	06/20/2006
Method Blank Lab Sample ID :	A6683506	**Preparation Batch :**	A6B21324

BERYLLIUM	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.220**	**0.110**	**ug/L**		

BERYLLIUM was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
B212-MW-01-GW	A6692703	1.00	0.18		ug/L
B212-MW-03D-GW	A6683501	1.00	0.45		ug/L
B212-MW-03S-GW	A6683502	1.00	0.38		ug/L
B212-MW-04-GW	A6683503	1.00	0.31		ug/L
B212-MW-04-GW/D	A6683504	1.00	0.24		ug/L
B212-MW-05-GW	A6692701	1.00	0.83		ug/L
B212-MW-06-GW	A6692702	1.00	0.88		ug/L

Laboratory Control Sample / Laboratory Control Sample Duplicate Outlier Report

Method Batch : A6B21193 **Analysis Method :** 8082 **Analysis Date :** 06/19/2006
Preparation Batch : A6B21193 **Preparation Type :** 3510C **Preparation Date :** 06/16/2006
Lab Reporting Batch : A66835 **Lab ID:** STLBUF

			Reported Values		Project Limits (Percent)			
LCS Lab Sample ID	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point**	**Lower Limit**	**Upper Limit**	**RPD**
A6B2119301	AQ	AROCLOR 1016	54		10.00	70.00	130.00	40.00
		AROCLOR 1260	57		10.00	70.00	130.00	40.00

Associated Samples

Client Sample ID	Lab Sample ID
B212-MW-03D-GW	A6683501
B212-MW-03S-GW	A6683502
B212-MW-04-GW	A6683503
B212-MW-04-GW/D	A6683504

Scope of Data Qualification: The outlier in the LCS qualifies that analyte in all samples with the same Preparation Batch ID as the LCS

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

Surrogate Recovery Outlier Report

Lab Report Batch: A66835 **Lab ID:** STLBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-MW-01-GW	A6692703	8082	1.00	AQ	DECACHLOROBIPHENYL	32	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	44	70.0	130.0	10.0	All Target
B212-MW-02-GW	A6692705	8082	1.00	AQ	DECACHLOROBIPHENYL	50	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	60	70.0	130.0	10.0	All Target
B212-MW-03D-GWMS	A6683501MS	8082	1.00	AQ	DECACHLOROBIPHENYL	51	70.0	130.0	10.0	All Target
B212-MW-03D-GWMSD	A6683501SD	8082	1.00	AQ	DECACHLOROBIPHENYL	52	70.0	130.0	10.0	All Target
B212-MW-04-GW	A6683503	8082	1.00	AQ	DECACHLOROBIPHENYL	64	70.0	130.0	10.0	All Target
B212-MW-04-GW/D	A6683504	8082	1.00	AQ	DECACHLOROBIPHENYL	56	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	44	70.0	130.0	10.0	All Target
B212-MW-05-GW	A6692701	8082	1.00	AQ	DECACHLOROBIPHENYL	38	70.0	130.0	10.0	All Target
B212-MW-06-GW	A6692702	8082	1.00	AQ	DECACHLOROBIPHENYL	32	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	69	70.0	130.0	10.0	All Target
B212-MW-07-GW	A6692704	8082	1.00	AQ	DECACHLOROBIPHENYL	40	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	67	70.0	130.0	10.0	All Target

Project Number and Name: ***002699.ID07.01 - NYSDEC Site Characterization of Buoy 212***

Table 4: Field Duplicate Summary Report

Lab SDG: A66835 **Lab ID:STLBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-MW-04-GW	B212-MW-04-GW/D	6010B
B212-MW-04-GW	B212-MW-04-GW/D	7470A
B212-MW-04-GW	B212-MW-04-GW/D	8082

Method: 6010B

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
AQ	ALUMINUM	B212-MW-04-GW	RES/TOT	608		B212-MW-04-GW/D	RES/TOT	279		74.2	40	ug/L	Poor	J
AQ	BARIUM		RES/TOT	70.9			RES/TOT	58.2		19.7	40	ug/L	Good	None
AQ	BERYLLIUM		RES/TOT	0.31			RES/TOT	0.24		25.5	40	ug/L	Good	None
AQ	CALCIUM		RES/TOT	39200			RES/TOT	37100		5.50	40	ug/L	Good	None
AQ	IRON		RES/TOT	4540			RES/TOT	2230		68.2	40	ug/L	Poor	J
AQ	MAGNESIUM		RES/TOT	16000			RES/TOT	15100		5.79	40	ug/L	Good	None
AQ	MANGANESE		RES/TOT	61.5			RES/TOT	34.3		56.8	40	ug/L	Poor	J
AQ	POTASSIUM		RES/TOT	13000			RES/TOT	12000		8.00	40	ug/L	Good	None
AQ	SODIUM		RES/TOT	38800			RES/TOT	36800		5.29	40	ug/L	Good	None

***Field Duplicate Results with one or both results ND are not included in this report**

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: STLBUF	Lab SDG ID: A66835
Date Completed: July 24, 2006	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A66835	06/16/2006 16:45

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-MW-01-GW	AQ	A6692703	06/14/2006 17:04	
B212-MW-02-GW	AQ	A6692705	06/14/2006 11:59	
B212-MW-03D-GW	AQ	A6683501	06/13/2006 05:10	
B212-MW-03D-GWMS	AQ	A6683501MS	06/13/2006 05:10	MS
B212-MW-03D-GWMSD	AQ	A6683501SD	06/13/2006 05:10	MSD
B212-MW-03S-GW	AQ	A6683502	06/14/2006 09:54	
B212-MW-04-GW	AQ	A6683503	06/14/2006 10:50	
B212-MW-04-GW/D	AQ	A6683504	06/14/2006 10:50	FD
B212-MW-05-GW	AQ	A6692701	06/14/2006 13:58	
B212-MW-06-GW	AQ	A6692702	06/14/2006 15:28	
B212-MW-07-GW	AQ	A6692704	06/14/2006 17:41	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	9
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	9
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	9

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-MW-04-GW	6010B	RES/TOT	ALUMINUM	608	ug/L		608	J	31
B212-MW-01-GW	6010B	RES/TOT	BERYLLIUM	0.18	ug/L		0.18	U	32,6
B212-MW-03D-GW	6010B	RES/TOT	BERYLLIUM	0.45	ug/L		0.45	U	32,6
B212-MW-03S-GW	6010B	RES/TOT	BERYLLIUM	0.38	ug/L		0.38	U	32,6
B212-MW-04-GW	6010B	RES/TOT	BERYLLIUM	0.31	ug/L		0.31	U	32,6
B212-MW-04-GW/D	6010B	RES/TOT	BERYLLIUM	0.24	ug/L		0.24	U	32,6
B212-MW-05-GW	6010B	RES/TOT	BERYLLIUM	0.83	ug/L		0.83	U	32,6

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: STLBUF	Lab SDG ID: A66835
Date Completed: July 24, 2006	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-MW-06-GW	6010B	RES/TOT	BERYLLIUM	0.88	ug/L		0.88	U	32,6
B212-MW-04-GW	6010B	RES/TOT	IRON	4540	ug/L		4540	J	31
B212-MW-04-GW	6010B	RES/TOT	MANGANESE	61.5	ug/L		61.5	J	31
B212-MW-01-GW	8082	RES	AROCLOR 1016	0.47	ug/L	U	0.47	UJ	7L
B212-MW-02-GW	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	7L
B212-MW-03D-GW	8082	RES	AROCLOR 1016	0.47	ug/L	U	0.47	UJ	10L
B212-MW-03S-GW	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	10L
B212-MW-04-GW	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	10L
B212-MW-04-GW/D	8082	RES	AROCLOR 1016	0.47	ug/L	U	0.47	UJ	7L,10L
B212-MW-06-GW	8082	RES	AROCLOR 1016	0.47	ug/L	U	0.47	UJ	7L
B212-MW-07-GW	8082	RES	AROCLOR 1016	0.47	ug/L	U	0.47	UJ	7L
B212-MW-01-GW	8082	RES	AROCLOR 1221	0.47	ug/L	U	0.47	UJ	7L
B212-MW-02-GW	8082	RES	AROCLOR 1221	0.48	ug/L	U	0.48	UJ	7L
B212-MW-04-GW/D	8082	RES	AROCLOR 1221	0.47	ug/L	U	0.47	UJ	7L
B212-MW-06-GW	8082	RES	AROCLOR 1221	0.47	ug/L	U	0.47	UJ	7L
B212-MW-07-GW	8082	RES	AROCLOR 1221	0.47	ug/L	U	0.47	UJ	7L
B212-MW-01-GW	8082	RES	AROCLOR 1232	0.47	ug/L	U	0.47	UJ	7L
B212-MW-02-GW	8082	RES	AROCLOR 1232	0.48	ug/L	U	0.48	UJ	7L
B212-MW-04-GW/D	8082	RES	AROCLOR 1232	0.47	ug/L	U	0.47	UJ	7L
B212-MW-06-GW	8082	RES	AROCLOR 1232	0.47	ug/L	U	0.47	UJ	7L
B212-MW-07-GW	8082	RES	AROCLOR 1232	0.47	ug/L	U	0.47	UJ	7L
B212-MW-01-GW	8082	RES	AROCLOR 1242	0.47	ug/L	U	0.47	UJ	7L
B212-MW-02-GW	8082	RES	AROCLOR 1242	0.48	ug/L	U	0.48	UJ	7L
B212-MW-04-GW/D	8082	RES	AROCLOR 1242	0.47	ug/L	U	0.47	UJ	7L
B212-MW-06-GW	8082	RES	AROCLOR 1242	0.47	ug/L	U	0.47	UJ	7L
B212-MW-07-GW	8082	RES	AROCLOR 1242	0.47	ug/L	U	0.47	UJ	7L
B212-MW-01-GW	8082	RES	AROCLOR 1248	0.47	ug/L	U	0.47	UJ	7L
B212-MW-02-GW	8082	RES	AROCLOR 1248	0.48	ug/L	U	0.48	UJ	7L
B212-MW-04-GW/D	8082	RES	AROCLOR 1248	0.47	ug/L	U	0.47	UJ	7L

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-MW-06-GW	8082	RES	AROCLOR 1248	0.47	ug/L	U	0.47	UJ	7L
B212-MW-07-GW	8082	RES	AROCLOR 1248	0.47	ug/L	U	0.47	UJ	7L
B212-MW-01-GW	8082	RES	AROCLOR 1254	0.47	ug/L	U	0.47	UJ	7L
B212-MW-02-GW	8082	RES	AROCLOR 1254	0.48	ug/L	U	0.48	UJ	7L
B212-MW-04-GW/D	8082	RES	AROCLOR 1254	0.47	ug/L	U	0.47	UJ	7L
B212-MW-06-GW	8082	RES	AROCLOR 1254	0.47	ug/L	U	0.47	UJ	7L
B212-MW-07-GW	8082	RES	AROCLOR 1254	0.47	ug/L	U	0.47	UJ	7L
B212-MW-01-GW	8082	RES	AROCLOR 1260	0.47	ug/L	U	0.47	UJ	7L
B212-MW-02-GW	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	7L
B212-MW-03D-GW	8082	RES	AROCLOR 1260	0.47	ug/L	U	0.47	UJ	10L
B212-MW-03S-GW	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	10L
B212-MW-04-GW	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	10L
B212-MW-04-GW/D	8082	RES	AROCLOR 1260	0.47	ug/L	U	0.47	UJ	7L,10L
B212-MW-06-GW	8082	RES	AROCLOR 1260	0.47	ug/L	U	0.47	UJ	7L
B212-MW-07-GW	8082	RES	AROCLOR 1260	0.47	ug/L	U	0.47	UJ	7L

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
6	Method blank contamination impacted positive result.
7L	Surrogate recovery outside control limits. Result has a low bias.
10L	LCS recovery outside control limits. Result has a low bias.
31	Result qualified based on professional judgement.
32	Non-detect, concentration is same as method blank

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-B512**
Date Completed: 10/30/2006	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in Attachment 2 Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided in Attachment 2. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate reported in SDG A06-B304. Trip Blank not required.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-B512**
Date Completed: 10/30/2006	**Data Validation Chemist: B. Krajewski**

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – See Method Blank Outlier
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	No – DCBP low for method blank and both LCS. TCMX recovery within limits.
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs*. *Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. DCBP recovery low for all samples; TCMX recovery within limits. No results qualified.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were $\leq$30%, then "R" flag associated non-detect values.*	Yes 4x rule applied to Sodium.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No
Do field duplicate results show good precision for all compounds except TICs?	No – See Attachment 1 Table 4 Field Duplicate Results Designated as Reason Code #31 on Table 3

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A06-B512
Date Completed: 10/30/2006	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes. Selenium CRI recovery >130%. Not detected in samples. No data qualified.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Yes
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Beryllium detected in method and calibration blanks. Results “U” qualified.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample

MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Method Blank Outlier Report

Lab Reporting Batch : A06-B304 **Lab ID:** STLBUF

Analysis Method : 6010B **Analysis Date :** 10/05/2006

Preparation Type : 3005A **Preparation Date :** 10/04/2006

Method Blank Lab Sample ID : A6B30408 **Preparation Batch :** A6B27416

ALUMINUM	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	320.030	200.000	ug/L		

ALUMINUM contamination found in the method blank did not qualify any samples.

CALCIUM	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	699.810	500.000	ug/L		

CALCIUM contamination found in the method blank did not qualify any samples.

Table 4: Field Duplicate Summary Report

Lab SDG: A06-B304 **Lab ID:STLBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-MW-06-GW	B212-MW-06-GW/D	6010B
B212-MW-06-GW	B212-MW-06-GW/D	7470A
B212-MW-06-GW	B212-MW-06-GW/D	8082

Method: 6010B

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
AQ	ALUMINUM	B212-MW-06-GW	RES2	851		B212-MW-06-GW/D	RES2	1460		52.7	40	ug/L	Poor	J
AQ	BARIUM		RES	130			RES	129		0.772	40	ug/L	Good	None
AQ	BERYLLIUM		RES	0.30	B		RES	0.29	B	3.39	40	ug/L	Good	None
AQ	CALCIUM		RES	216000			RES	212000		1.87	40	ug/L	Good	None
AQ	COBALT		RES	18.9			RES	16.9		11.2	40	ug/L	Good	None
AQ	IRON		RES	179000			RES	153000		15.7	40	ug/L	Good	None
AQ	MAGNESIUM		RES	36900			RES	35700		3.31	40	ug/L	Good	None
AQ	MANGANESE		RES	9640			RES	9650		0.104	40	ug/L	Good	None
AQ	SODIUM		RES	8450			RES	8320		1.55	40	ug/L	Good	None
AQ	VANADIUM		RES	8.2			RES	9.8		17.8	40	ug/L	Good	None
AQ	ZINC		RES	12.6			RES	14.8		16.1	40	ug/L	Good	None

***Field Duplicate Results with one or both results ND are not included in this report**

Surrogate Recovery Outlier Report

Lab Report Batch: A06-B304 **Lab ID:** STLBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-MW-05-GW	A6B30401	8082	1.00	AQ	DECACHLOROBIPHENYL	25	70.0	130.0	10.0	All Target
B212-MW-06-GW	A6B30402	8082	1.00	AQ	DECACHLOROBIPHENYL	48	70.0	130.0	10.0	All Target
B212-MW-06-GW/D	A6B30403	8082	1.00	AQ	DECACHLOROBIPHENYL	36	70.0	130.0	10.0	All Target
B212-MW-07-GW	A6B30404	8082	1.00	AQ	DECACHLOROBIPHENYL	54	70.0	130.0	10.0	All Target

Project Number and Name: ***002699.ID07.01 - NYSDEC Site Characterization of Buoy 212***

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: STLBUF	Lab SDG ID: A06-B304
Date Completed: October 31, 2006	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A06-B304	09/29/2006 18:40

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-MW-05-GW	AQ	A6B30401	09/29/2006 11:25	
B212-MW-06-GW	AQ	A6B30402	09/29/2006 09:19	
B212-MW-06-GW/D	AQ	A6B30403	09/29/2006 09:19	FD
B212-MW-07-GW	AQ	A6B30404	09/29/2006 08:42	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	4
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	4
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	4

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-MW-06-GW	6010B	RES2	ALUMINUM	851	ug/L		851	J	31
B212-MW-06-GW/D	6010B	RES2	ALUMINUM	1460	ug/L		1460	J	31
B212-MW-05-GW	6010B	RES/TOT	BERYLLIUM	0.79	ug/L	B	0.79	U	28
B212-MW-06-GW	6010B	RES	BERYLLIUM	0.30	ug/L	B	0.30	U	28
B212-MW-06-GW/D	6010B	RES	BERYLLIUM	0.29	ug/L	B	0.29	U	28
B212-MW-07-GW	6010B	RES	BERYLLIUM	0.07	ug/L	B	0.07	U	28

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
28	Calibration blank contamination is present.
31	Result qualified based on professional judgement.

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-B512**
Date Completed: 10/30/2006	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in Attachment 2 Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided in Attachment 2. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate reported in SDG A06-B304. Trip Blank not required.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-B512**
Date Completed: 10/30/2006	**Data Validation Chemist: B. Krajewski**

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – See Method Blank Outlier
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	No – DCBP low for method blank and both LCS. TCMX recovery within limits.
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. DCBP recovery low for all samples; TCMX recovery within limits. No results qualified.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	Yes 4x rule applied to Sodium.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No
Do field duplicate results show good precision for all compounds except TICs?	NA

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A06-B512
Date Completed: 10/30/2006	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes. Selenium CRI recovery >130%. Not detected in samples. No data qualified.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Yes
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Beryllium detected in method and calibration blanks. Results "U" qualified.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample

MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Surrogate Recovery Outlier Report

Lab Report Batch: A06-B512 **Lab ID:** STLBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-MW-01-GW	A6B51205	8082	1.00	AQ	DECACHLOROBIPHENYL	30	70.0	130.0	10.0	All Target
B212-MW-02-GW	A6B51204	8082	1.00	AQ	DECACHLOROBIPHENYL	29	70.0	130.0	10.0	All Target
B212-MW-03D-GW	A6B51201	8082	1.00	AQ	DECACHLOROBIPHENYL	46	70.0	130.0	10.0	All Target
B212-MW-03D-GWMS	A6B51201MS	8082	1.00	AQ	DECACHLOROBIPHENYL	45	70.0	130.0	10.0	All Target
B212-MW-03D-GWMSD	A6B51201SD	8082	1.00	AQ	DECACHLOROBIPHENYL	50	70.0	130.0	10.0	All Target
B212-MW-03S-GW	A6B51202	8082	1.00	AQ	DECACHLOROBIPHENYL	56	70.0	130.0	10.0	All Target
B212-MW-04-GW	A6B51203	8082	1.00	AQ	DECACHLOROBIPHENYL	49	70.0	130.0	10.0	All Target

Project Number and Name: ***002699.ID07.01 - NYSDEC Site Characterization of Buoy 212***

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A6B27533 **Analysis Method :** 6010B **Analysis Date :** 10/05/2006
Preparation Batch : A6B27533 **Preparation Type :** 3005A **Preparation Date :** 10/05/2006
Lab Reporting Batch : A06-B512 **Lab ID:** STLBUF

Client Sample ID	Lab Sample ID	Matrix	Analyte Name	Reported *		Project Limits (Percent)			
				Percent Recovery	RPD	Rejection Point**	Lower Limit	Upper Limit	RPD
B212-MW-03D-GWMSD	A6B51201SD	AQ	SODIUM	131		30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
B212-MW-01-GW	A6B51205
B212-MW-02-GW	A6B51204
B212-MW-03D-GW	A6B51201
B212-MW-03S-GW	A6B51202
B212-MW-04-GW	A6B51203

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

Method Blank Outlier Report

Lab Reporting Batch : A06-B512
Lab ID: STLBUF
Analysis Method : 6010B
Analysis Date : 10/05/2006
Preparation Type : 3005A
Preparation Date : 10/05/2006
Method Blank Lab Sample ID : A6B51207
Preparation Batch : A6B27533

BERYLLIUM	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	**0.430**	**0.190**	**ug/L**	**B**	

BERYLLIUM was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
B212-MW-03S-GW	A6B51202	1.00	0.25	B	ug/L

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: STLBUF	Lab SDG ID: A06-B512
Date Completed: October 30, 2006	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A06-B512	10/04/2006 18:16

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-MW-01-GW	AQ	A6B51205	10/03/2006 15:40	
B212-MW-02-GW	AQ	A6B51204	10/03/2006 14:45	
B212-MW-03D-GW	AQ	A6B51201	10/03/2006 11:20	
B212-MW-03D-GWMS	AQ	A6B51201MS	10/03/2006 11:20	MS
B212-MW-03D-GWMSD	AQ	A6B51201SD	10/03/2006 11:20	MSD
B212-MW-03S-GW	AQ	A6B51202	10/03/2006 11:52	
B212-MW-04-GW	AQ	A6B51203	10/03/2006 12:32	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	5
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	5
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	5

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-MW-03S-GW	6010B	RES/TOT	BERYLLIUM	0.25	ug/L	B	0.25	U	32,6

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
6	Method blank contamination impacted positive result.
32	Non-detect, concentration is same as method blank

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A06-F043**
Date Completed: 01/15/2007	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in the Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate included. Trip Blank not required.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A06-F043
Date Completed: 01/15/2007	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier Beryllium also detected in ICB and CCBs.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – See Method Blank Outlier
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	No – DCBP low for method blank and LCS. TCMX recovery within limits.
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. DCBP recovery low for samples B212-MW-05-GW, B212-MW-06-GW and B212-MW-06-GW/D. TCMX recovery within limits. No results qualified.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	Yes
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A06-F043
Date Completed: 01/15/2007	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Do field duplicate results show good precision for all compounds except TICs?	Yes - – See Attachment 1 Table 4 Field Duplicate Results

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Yes
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Beryllium detected in method and calibration blanks. Results “U” qualified.

Key:

- ADR = Automated Data Review
- AP = Acid Phenol
- BN = Base Neutral
- CCV = Continuing calibration verification
- COC = Chain-of-custody

CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Table 4: Field Duplicate Summary Report

Lab SDG: A06-F043 **Lab ID:STLBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-MW-06-GW	B212-MW-06-GW/D	6010B
B212-MW-06-GW	B212-MW-06-GW/D	7470A
B212-MW-06-GW	B212-MW-06-GW/D	8082

Method: 6010B

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
AQ	ALUMINUM	B212-MW-06-GW	RES/TOT	348		B212-MW-06-GW/D	RES/TOT	434		22.0	40	ug/L	Good	None
AQ	BARIUM		RES/TOT	161			RES/TOT	166		3.06	40	ug/L	Good	None
AQ	BERYLLIUM		RES/TOT	0.15			RES/TOT	0.15		0	40	ug/L	Good	None
AQ	CADMIUM		RES/TOT	2.0			RES/TOT	1.9		5.13	40	ug/L	Good	None
AQ	CALCIUM		RES/TOT	180000			RES/TOT	185000		2.74	40	ug/L	Good	None
AQ	COBALT		RES/TOT	20.8			RES/TOT	21.7		4.24	40	ug/L	Good	None
AQ	IRON		RES/TOT	211000			RES/TOT	217000		2.80	40	ug/L	Good	None
AQ	MAGNESIUM		RES/TOT	31200			RES/TOT	32200		3.15	40	ug/L	Good	None
AQ	MANGANESE		RES/TOT	7890			RES/TOT	8120		2.87	40	ug/L	Good	None
AQ	SODIUM		RES/TOT	7120			RES/TOT	7360		3.31	40	ug/L	Good	None
AQ	VANADIUM		RES/TOT	8.3			RES/TOT	8.6		3.55	40	ug/L	Good	None
AQ	ZINC		RES/TOT	12.0			RES/TOT	12.7		5.67	40	ug/L	Good	None

***Field Duplicate Results with one or both results ND are not included in this report**

Surrogate Recovery Outlier Report

Lab Report Batch: A06-F043 **Lab ID:** STLBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-MW-05-GW	A6F04306	8082	1.00	AQ	DECACHLOROBIPHENYL	34	70.0	130.0	10.0	All Target
B212-MW-06-GW	A6F04307	8082	1.00	AQ	DECACHLOROBIPHENYL	52	70.0	130.0	10.0	All Target
B212-MW-06-GW/D	A6F04308	8082	1.00	AQ	DECACHLOROBIPHENYL	46	70.0	130.0	10.0	All Target

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

Method Blank Outlier Report

Lab Reporting Batch : A06-F043 **Lab ID:** STLBUF

Analysis Method : 6010B **Analysis Date :** 12/20/2006

Preparation Type : 3005A **Preparation Date :** 12/20/2006

Method Blank Lab Sample ID : A6F04311 **Preparation Batch :** A6B32331

BERYLLIUM	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	**0.120**	**0.040**	**ug/L**		

BERYLLIUM was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
B212-MW-01-GW	A6F04301	1.00	0.04		ug/L
B212-MW-05-GW	A6F04306	1.00	0.14		ug/L
B212-MW-06-GW	A6F04307	1.00	0.15		ug/L
B212-MW-06-GW/D	A6F04308	1.00	0.15		ug/L

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: STLBUF	Lab SDG ID: A06-F043
Date Completed: January 15, 2007	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A06-F043	12/14/2006 10:40

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-MW-01-GW	AQ	A6F04301	12/13/2006 10:14	
B212-MW-02-GW	AQ	A6F04302	12/12/2006 16:41	
B212-MW-03D-GW	AQ	A6F04304	12/12/2006 16:13	
B212-MW-03D-GWMS	AQ	A6F04304MS	12/12/2006 16:13	MS
B212-MW-03D-GWMSD	AQ	A6F04304SD	12/12/2006 16:13	MSD
B212-MW-03S-GW	AQ	A6F04303	12/12/2006 14:58	
B212-MW-04-GW	AQ	A6F04305	12/12/2006 15:35	
B212-MW-05-GW	AQ	A6F04306	12/13/2006 09:03	
B212-MW-06-GW	AQ	A6F04307	12/13/2006 08:48	
B212-MW-06-GW/D	AQ	A6F04308	12/13/2006 08:48	FD
B212-MW-07-GW	AQ	A6F04309	12/13/2006 09:53	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	9
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	9
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	9

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-MW-01-GW	6010B	RES/TOT	BERYLLIUM	0.04	ug/L		0.04	U	32,6
B212-MW-05-GW	6010B	RES/TOT	BERYLLIUM	0.14	ug/L		0.14	U	32,6
B212-MW-06-GW	6010B	RES/TOT	BERYLLIUM	0.15	ug/L		0.15	U	32,6
B212-MW-06-GW/D	6010B	RES/TOT	BERYLLIUM	0.15	ug/L		0.15	U	32,6

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
6	Method blank contamination impacted positive result.

32	Non-detect, concentration is same as method blank

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A05-D656**
Date Completed: 01/10/2006	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in Attachment 2 Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided in Attachment 2. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate collected. Trip Blank not required.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	**LAB SDG ID: A05-D656**
Date Completed: 01/10/2006	**Data Validation Chemist: B. Krajewski**

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	No Beryllium detected in CCBs and negative reading for Method Blank.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	No Beryllium not detected in samples; no additional flag applied.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	No – DCBP recovery low.
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs*. *Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No - See Surrogate Outlier Report
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	No - See MS/MSD Outlier Report.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A05-D656
Date Completed: 01/10/2006	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Do field duplicate results show good precision for all compounds except TICs?	No – See Attachment 1 Table 4 Field Duplicate Results

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Yes
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Beryllium detected in CCBs and a negative reading reported for the method blank. Beryllium not detected in samples. Recovery of the PCB surrogate DCBP low for samples (except B212-SW-07), MS/MSD, method blank and LCS. Results flagged “UJ”.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Table 4: Field Duplicate Summary Report

Lab SDG: A05-D656 **Lab ID:STLBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-SW-04	B212-SW-04/D	6010B
B212-SW-04	B212-SW-04/D	7470A
B212-SW-04	B212-SW-04/D	8082

Method: 6010B

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
AQ	ALUMINUM	B212-SW-04	RES/TOT	1090		B212-SW-04/D	RES/TOT	275		119	40	ug/L	Poor	J
AQ	BARIUM		RES/TOT	43.8			RES/TOT	35.1		22.1	40	ug/L	Good	None
AQ	CALCIUM		RES/TOT	62100	N*		RES/TOT	61700	N*	0.646	40	ug/L	Good	None
AQ	IRON		RES/TOT	1200			RES/TOT	364		107	40	ug/L	Poor	J
AQ	MAGNESIUM		RES/TOT	23300	N		RES/TOT	23700	N	1.70	40	ug/L	Good	None
AQ	MANGANESE		RES/TOT	68.0			RES/TOT	42.9		45.3	40	ug/L	Poor	J
AQ	POTASSIUM		RES/TOT	2830			RES/TOT	2660		6.19	40	ug/L	Good	None
AQ	SODIUM		RES/TOT	37700	N		RES/TOT	38800	N	2.88	40	ug/L	Good	None
AQ	ZINC		RES/TOT	42.7			RES/TOT	22.7		61.2	40	ug/L	Poor	J

***Field Duplicate Results with one or both results ND are not included in this report**

Surrogate Recovery Outlier Report

Lab Report Batch: A05-D656 **Lab ID:** STLBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-SW-01	A5D65601	8082	1.00	AQ	DECACHLOROBIPHENYL	54	70.0	130.0	10.0	All Target
B212-SW-02	A5D65602	8082	1.00	AQ	DECACHLOROBIPHENYL	56	70.0	130.0	10.0	All Target
B212-SW-03	A5D65603	8082	1.00	AQ	DECACHLOROBIPHENYL	62	70.0	130.0	10.0	All Target
B212-SW-04	A5D65604	8082	1.00	AQ	DECACHLOROBIPHENYL	60	70.0	130.0	10.0	All Target
B212-SW-04/D	A5D65605	8082	1.00	AQ	DECACHLOROBIPHENYL	54	70.0	130.0	10.0	All Target
B212-SW-05	A5D65606	8082	1.00	AQ	DECACHLOROBIPHENYL	53	70.0	130.0	10.0	All Target
B212-SW-06	A5D65607	8082	1.00	AQ	DECACHLOROBIPHENYL	52	70.0	130.0	10.0	All Target
B212-SW-07MS	A5D65608MS	8082	1.00	AQ	DECACHLOROBIPHENYL	68	70.0	130.0	10.0	All Target
B212-SW-07MSD	A5D65608SD	8082	1.00	AQ	DECACHLOROBIPHENYL	68	70.0	130.0	10.0	All Target
B212-SW-08	A5D65609	8082	1.00	AQ	DECACHLOROBIPHENYL	64	70.0	130.0	10.0	All Target

Project Number and Name: ***000699.NV23.02 - NYSDEC Site Characterization of Buoy 212***

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A5B18890 **Analysis Method :** 6010B **Analysis Date :** 12/08/2005
Preparation Batch : A5B18890 **Preparation Type :** 3005A **Preparation Date :** 12/07/2005
Lab Reporting Batch : A05-D656 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-SW-07MS	A5D65608MS	AQ	CALCIUM	36		30.00	75.00	125.00	20.00
			SODIUM	68		30.00	75.00	125.00	20.00
B212-SW-07MSD	A5D65608SD		CALCIUM	131	21	30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
B212-SW-01	A5D65601
B212-SW-02	A5D65602
B212-SW-03	A5D65603
B212-SW-04	A5D65604
B212-SW-04/D	A5D65605
B212-SW-05	A5D65606
B212-SW-06	A5D65607
B212-SW-07	A5D65608
B212-SW-08	A5D65609

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 000699.NV23.02 - NYSDEC Site Characterization of Buoy 212

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A05-D656
Date Completed: August 16, 2006	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	000699.NV23.02	A05-D656	12/01/2005 12:30

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-SW-01	AQ	A5D65601	11/29/2005 09:20	
B212-SW-02	AQ	A5D65602	11/29/2005 09:35	
B212-SW-03	AQ	A5D65603	11/29/2005 09:50	
B212-SW-04	AQ	A5D65604	11/29/2005 10:05	
B212-SW-04/D	AQ	A5D65605	11/29/2005 10:05	FD
B212-SW-05	AQ	A5D65606	11/29/2005 10:20	
B212-SW-06	AQ	A5D65607	11/29/2005 10:35	
B212-SW-07	AQ	A5D65608	11/29/2005 10:50	
B212-SW-07MS	AQ	A5D65608MS	11/29/2005 10:50	MS
B212-SW-07MSD	AQ	A5D65608SD	11/29/2005 10:50	MSD
B212-SW-08	AQ	A5D65609	11/29/2005 11:05	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	9
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	9
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	9

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-SW-01	6010B	RES/TOT	CALCIUM	53600	ug/L	N*	53600	J	9,8
B212-SW-02	6010B	RES/TOT	CALCIUM	53000	ug/L	N*	53000	J	9,8
B212-SW-03	6010B	RES/TOT	CALCIUM	20500	ug/L	N*	20500	J	9,8
B212-SW-04	6010B	RES/TOT	CALCIUM	62100	ug/L	N*	62100	J	9,8
B212-SW-04/D	6010B	RES/TOT	CALCIUM	61700	ug/L	N*	61700	J	9,8
B212-SW-05	6010B	RES/TOT	CALCIUM	54200	ug/L	N*	54200	J	9,8
B212-SW-06	6010B	RES/TOT	CALCIUM	23600	ug/L	N*	23600	J	9,8

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A05-D656
Date Completed: August 16, 2006	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-SW-07	6010B	RES/TOT	CALCIUM	37200	ug/L	N*	37200	J	9,8
B212-SW-08	6010B	RES/TOT	CALCIUM	41600	ug/L	N*	41600	J	9,8
B212-SW-01	6010B	RES/TOT	MAGNESIUM	20200	ug/L	N	20200		
B212-SW-02	6010B	RES/TOT	MAGNESIUM	20000	ug/L	N	20000		
B212-SW-03	6010B	RES/TOT	MAGNESIUM	9750	ug/L	N	9750		
B212-SW-04	6010B	RES/TOT	MAGNESIUM	23300	ug/L	N	23300		
B212-SW-04/D	6010B	RES/TOT	MAGNESIUM	23700	ug/L	N	23700		
B212-SW-05	6010B	RES/TOT	MAGNESIUM	20600	ug/L	N	20600		
B212-SW-06	6010B	RES/TOT	MAGNESIUM	8000	ug/L	N	8000		
B212-SW-07	6010B	RES/TOT	MAGNESIUM	13000	ug/L	N	13000		
B212-SW-08	6010B	RES/TOT	MAGNESIUM	14500	ug/L	N	14500		
B212-SW-01	6010B	RES/TOT	SODIUM	30800	ug/L	N	30800	J-	8L
B212-SW-02	6010B	RES/TOT	SODIUM	30400	ug/L	N	30400	J-	8L
B212-SW-03	6010B	RES/TOT	SODIUM	5410	ug/L	N	5410	J-	8L
B212-SW-04	6010B	RES/TOT	SODIUM	37700	ug/L	N	37700	J-	8L
B212-SW-04/D	6010B	RES/TOT	SODIUM	38800	ug/L	N	38800	J-	8L
B212-SW-05	6010B	RES/TOT	SODIUM	31700	ug/L	N	31700	J-	8L
B212-SW-06	6010B	RES/TOT	SODIUM	12000	ug/L	N	12000	J-	8L
B212-SW-07	6010B	RES/TOT	SODIUM	18900	ug/L	N	18900	J-	8L
B212-SW-08	6010B	RES/TOT	SODIUM	20900	ug/L	N	20900	J-	8L
B212-SW-01	8082	RES	AROCLOR 1016	0.47	ug/L	U	0.47	UJ	7L
B212-SW-02	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	7L
B212-SW-03	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04/D	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	7L
B212-SW-05	8082	RES	AROCLOR 1016	0.47	ug/L	U	0.47	UJ	7L
B212-SW-06	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	7L
B212-SW-08	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	7L
B212-SW-01	8082	RES	AROCLOR 1221	0.47	ug/L	U	0.47	UJ	7L

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-SW-02	8082	RES	AROCLOR 1221	0.48	ug/L	U	0.48	UJ	7L
B212-SW-03	8082	RES	AROCLOR 1221	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04	8082	RES	AROCLOR 1221	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04/D	8082	RES	AROCLOR 1221	0.48	ug/L	U	0.48	UJ	7L
B212-SW-05	8082	RES	AROCLOR 1221	0.47	ug/L	U	0.47	UJ	7L
B212-SW-06	8082	RES	AROCLOR 1221	0.48	ug/L	U	0.48	UJ	7L
B212-SW-08	8082	RES	AROCLOR 1221	0.48	ug/L	U	0.48	UJ	7L
B212-SW-01	8082	RES	AROCLOR 1232	0.47	ug/L	U	0.47	UJ	7L
B212-SW-02	8082	RES	AROCLOR 1232	0.48	ug/L	U	0.48	UJ	7L
B212-SW-03	8082	RES	AROCLOR 1232	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04	8082	RES	AROCLOR 1232	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04/D	8082	RES	AROCLOR 1232	0.48	ug/L	U	0.48	UJ	7L
B212-SW-05	8082	RES	AROCLOR 1232	0.47	ug/L	U	0.47	UJ	7L
B212-SW-06	8082	RES	AROCLOR 1232	0.48	ug/L	U	0.48	UJ	7L
B212-SW-08	8082	RES	AROCLOR 1232	0.48	ug/L	U	0.48	UJ	7L
B212-SW-01	8082	RES	AROCLOR 1242	0.47	ug/L	U	0.47	UJ	7L
B212-SW-02	8082	RES	AROCLOR 1242	0.48	ug/L	U	0.48	UJ	7L
B212-SW-03	8082	RES	AROCLOR 1242	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04	8082	RES	AROCLOR 1242	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04/D	8082	RES	AROCLOR 1242	0.48	ug/L	U	0.48	UJ	7L
B212-SW-05	8082	RES	AROCLOR 1242	0.47	ug/L	U	0.47	UJ	7L
B212-SW-06	8082	RES	AROCLOR 1242	0.48	ug/L	U	0.48	UJ	7L
B212-SW-08	8082	RES	AROCLOR 1242	0.48	ug/L	U	0.48	UJ	7L
B212-SW-01	8082	RES	AROCLOR 1248	0.47	ug/L	U	0.47	UJ	7L
B212-SW-02	8082	RES	AROCLOR 1248	0.48	ug/L	U	0.48	UJ	7L
B212-SW-03	8082	RES	AROCLOR 1248	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04	8082	RES	AROCLOR 1248	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04/D	8082	RES	AROCLOR 1248	0.48	ug/L	U	0.48	UJ	7L
B212-SW-05	8082	RES	AROCLOR 1248	0.47	ug/L	U	0.47	UJ	7L

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-SW-06	8082	RES	AROCLOR 1248	0.48	ug/L	U	0.48	UJ	7L
B212-SW-08	8082	RES	AROCLOR 1248	0.48	ug/L	U	0.48	UJ	7L
B212-SW-01	8082	RES	AROCLOR 1254	0.47	ug/L	U	0.47	UJ	7L
B212-SW-02	8082	RES	AROCLOR 1254	0.48	ug/L	U	0.48	UJ	7L
B212-SW-03	8082	RES	AROCLOR 1254	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04	8082	RES	AROCLOR 1254	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04/D	8082	RES	AROCLOR 1254	0.48	ug/L	U	0.48	UJ	7L
B212-SW-05	8082	RES	AROCLOR 1254	0.47	ug/L	U	0.47	UJ	7L
B212-SW-06	8082	RES	AROCLOR 1254	0.48	ug/L	U	0.48	UJ	7L
B212-SW-08	8082	RES	AROCLOR 1254	0.48	ug/L	U	0.48	UJ	7L
B212-SW-01	8082	RES	AROCLOR 1260	0.47	ug/L	U	0.47	UJ	7L
B212-SW-02	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	7L
B212-SW-03	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	7L
B212-SW-04/D	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	7L
B212-SW-05	8082	RES	AROCLOR 1260	0.47	ug/L	U	0.47	UJ	7L
B212-SW-06	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	7L
B212-SW-08	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	7L

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
7L	Surrogate recovery outside control limits. Result has a low bias.
8	Matrix spike recovery outside control limits.
8L	Matrix spike recovery outside control limits. Result has a low bias.
9	Matrix spike duplicate RPD outside control limits.

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A05-D658
Date Completed: 01/10/2006	Data Validation Chemist: B. Krajewski

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in Attachment 2 Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided in Attachment 2. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate collected. Trip Blank not required.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A05-D658
Date Completed: 01/10/2006	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	No
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes "U" flag applied to all Beryllium results based on project method blank and CCB results.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	Yes
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No - See Surrogate Outlier Report
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	No - See MS/MSD Outlier Report. 4X Spike rule applied to aluminum, calcium, iron and manganese
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No
Do field duplicate results show good precision for all compounds except TICs?	No – See Attachment 1 Table 4 Field Duplicate Results

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Buffalo	LAB SDG ID: A05-D658
Date Completed: 01/10/2006	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes. Sodium CRI recovery low at 63.5%. Results flagged "UJ"
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	No – Aluminum, barium, beryllium, calcium, iron, magnesium, manganese and potassium results flagged "J".
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
"U" flag applied to all Beryllium results based on project method blank and CCB results. Sodium CRI recovery low; results flagged "UJ".

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification

NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Table 4: Field Duplicate Summary Report

Lab SDG: A05-D658 **Lab ID:** STLBUF

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-SD-04	B212-SD-04/D	6010B
B212-SD-04	B212-SD-04/D	7471A
B212-SD-04	B212-SD-04/D	8082
B212-SS-02	B212-SS-02/D	8082
B212-SS-22	B212-SS-22/D	6010B
B212-SS-22	B212-SS-22/D	7471A

Method: 6010B

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	ALUMINUM	B212-SD-04	RES	13200	E	B212-SD-04/D	RES	14800	E	11.4	70	mg/Kg	Good	None
SO	ANTIMONY		RES	26.0	NU		RES	25.7	NU	1.16	70	mg/Kg	Good	None
SO	BARIUM		RES	86.4	EN		RES	92.9	EN	7.25	70	mg/Kg	Good	None
SO	BERYLLIUM		RES	0.73	E		RES	0.65	E	11.6	70	mg/Kg	Good	None
SO	CADMIUM		RES	1.4			RES	1.2		15.4	70	mg/Kg	Good	None
SO	CALCIUM		RES	3520	E*		RES	3620	E*	2.80	70	mg/Kg	Good	None
SO	CHROMIUM		RES	20.7			RES	21.2		2.39	70	mg/Kg	Good	None
SO	COBALT		RES	5.7			RES	5.3		7.27	70	mg/Kg	Good	None
SO	COPPER		RES	15.0			RES	16.7		10.7	70	mg/Kg	Good	None
SO	IRON		RES	19100	E		RES	13400	E	35.1	70	mg/Kg	Good	None
SO	LEAD		RES	32.7			RES	35.1		7.08	70	mg/Kg	Good	None
SO	MAGNESIUM		RES	2620	E		RES	2950	E	11.8	70	mg/Kg	Good	None
SO	MANGANESE		RES	244	E		RES	147	E	49.6	70	mg/Kg	Good	None
SO	NICKEL		RES	12.5			RES	13.7		9.16	70	mg/Kg	Good	None

Table 4: Field Duplicate Summary Report

Method: 6010B

			Field Sample			Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	POTASSIUM	B212-SD-04	RES	1170	E	B212-SD-04/D	RES	1350	E	14.3	70	mg/Kg	Good	None
SO	VANADIUM		RES	28.2			RES	25.0		12.0	70	mg/Kg	Good	None
SO	ZINC		RES	109			RES	114		4.48	70	mg/Kg	Good	None
SO	ALUMINUM	B212-SS-22	RES	10200		B212-SS-22/D	RES	10300		0.976	70	mg/Kg	Good	None
SO	ANTIMONY		RES	19.0	NU		RES	16.5	NU	14.1	70	mg/Kg	Good	None
SO	BARIUM		RES	45.4			RES	46.5		2.39	70	mg/Kg	Good	None
SO	BERYLLIUM		RES	0.43	E		RES	0.44	E	2.30	70	mg/Kg	Good	None
SO	CADMIUM		RES	0.42			RES	0.38		10.0	70	mg/Kg	Good	None
SO	CALCIUM		RES	2070			RES	2300		10.5	70	mg/Kg	Good	None
SO	CHROMIUM		RES	7.8			RES	7.8		0	70	mg/Kg	Good	None
SO	COBALT		RES	5.0			RES	5.0		0	70	mg/Kg	Good	None
SO	COPPER		RES	6.7			RES	6.0		11.0	70	mg/Kg	Good	None
SO	IRON		RES	14800	E		RES	14800	E	0	70	mg/Kg	Good	None
SO	LEAD		RES	9.7			RES	8.7		10.9	70	mg/Kg	Good	None
SO	MAGNESIUM		RES	1700	E		RES	1720	E	1.17	70	mg/Kg	Good	None
SO	MANGANESE		RES	216	E		RES	233	E	7.57	70	mg/Kg	Good	None
SO	NICKEL		RES	7.4			RES	7.1		4.14	70	mg/Kg	Good	None
SO	POTASSIUM		RES	452			RES	426		5.92	70	mg/Kg	Good	None
SO	VANADIUM		RES	19.4			RES	19.6		1.03	70	mg/Kg	Good	None
SO	ZINC		RES	40.2			RES	39.5		1.76	70	mg/Kg	Good	None

Table 4: Field Duplicate Summary Report

Method: 7471A

Matrix	Analyte	Field Sample: Sample ID	Field Sample: Type	Field Sample: Result	Field Sample: (Q)	Field Sample Duplicate*: Field Dup ID	Field Sample Duplicate*: Type	Field Sample Duplicate*: Result	Field Sample Duplicate*: (Q)	%RPD -	Limits	Units	Rating	Qual
SO	MERCURY	B212-SD-04	RES	0.191		B212-SD-04/D	RES	0.239		22.3	70	mg/Kg	Good	None
SO	MERCURY	B212-SS-22	RES	0.043		B212-SS-22/D	RES	0.049		13.0	70	mg/Kg	Good	None

Method: 8082

Matrix	Analyte	Field Sample: Sample ID	Field Sample: Type	Field Sample: Result	Field Sample: (Q)	Field Sample Duplicate*: Field Dup ID	Field Sample Duplicate*: Type	Field Sample Duplicate*: Result	Field Sample Duplicate*: (Q)	%RPD -	Limits	Units	Rating	Qual
SO	AROCLOR 1248	B212-SD-04	RES	380		B212-SD-04/D	RES	1700		127	70	ug/Kg	Poor	J
SO	AROCLOR 1248	B212-SS-02	RES	66		B212-SS-02/D	RES	53		21.8	70	ug/Kg	Good	None

***Field Duplicate Results with one or both results ND are not included in this report**

Surrogate Recovery Outlier Report

Lab Report Batch: A05-D658 **Lab ID:** STLBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-SS-23	A5D65816	8082	1.00	SO	TETRACHLORO-M-XYLENE	69	70.0	130.0	10.0	All Target
B212-SS-23MS	A5D65816MS	8082	1.00	SO	TETRACHLORO-M-XYLENE	42	70.0	130.0	10.0	All Target
B212-SS-23MSD	A5D65816SD	8082	1.00	SO	TETRACHLORO-M-XYLENE	44	70.0	130.0	10.0	All Target

Project Number and Name: ***000699.NV23.02 - NYSDEC Site Characterization of Buoy 212***

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A5B18719 **Analysis Method :** 6010B **Analysis Date :** 12/06/2005
Preparation Batch : A5B18719 **Preparation Type :** 3050B **Preparation Date :** 12/05/2005
Lab Reporting Batch : A05-D658 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-SS-22MS	A5D65815MS	SO	ANTIMONY	49		30.00	75.00	125.00	20.00
B212-SS-22MSD	A5D65815SD		ANTIMONY	49		30.00	75.00	125.00	20.00
			IRON	74		30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
B212-SS-22	A5D65815
B212-SS-22/D	A5D65815FD

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A5B18720 **Analysis Method :** 6010B **Analysis Date :** 12/07/2005
Preparation Batch : A5B18720 **Preparation Type :** 3050B **Preparation Date :** 12/02/2005
Lab Reporting Batch : A05-D658 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-SD-07MS	A5D65807MS	SO	ALUMINUM	240		30.00	75.00	125.00	20.00
			ANTIMONY	41		30.00	75.00	125.00	20.00
			BARIUM	136		30.00	75.00	125.00	20.00
			CALCIUM	13		30.00	75.00	125.00	20.00
			IRON	299		30.00	75.00	125.00	20.00
			MANGANESE	262		30.00	75.00	125.00	20.00
B212-SD-07MSD	A5D65807SD		ALUMINUM	217		30.00	75.00	125.00	20.00
			ANTIMONY	44		30.00	75.00	125.00	20.00
			BARIUM	134		30.00	75.00	125.00	20.00
			CALCIUM		21.3	30.00	75.00	125.00	20.00
			IRON	270		30.00	75.00	125.00	20.00
			MANGANESE	342		30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
B212-SD-01	A5D65801
B212-SD-02	A5D65802
B212-SD-03	A5D65803
B212-SD-04	A5D65804
B212-SD-04/D	A5D65804FD
B212-SD-05	A5D65805
B212-SD-06	A5D65806
B212-SD-07	A5D65807
B212-SD-08	A5D65808

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 000699.NV23.02 - NYSDEC Site Characterization of Buoy 212

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A5B18772 **Analysis Method :** 8082 **Analysis Date :** 12/06/2005
Preparation Batch : A5B18772 **Preparation Type :** 3550B **Preparation Date :** 12/03/2005
Lab Reporting Batch : A05-D658 **Lab ID:** STLBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-SS-23MS	A5D65816MS	SO	AROCLOR 1016	60		10.00	70.00	130.00	40.00
B212-SS-23MSD	A5D65816SD		AROCLOR 1016	59		10.00	70.00	130.00	40.00
			AROCLOR 1260	65		10.00	70.00	130.00	40.00

Associated Samples: Parent sample only

Client Sample ID	Lab Sample ID
B212-SD-07	A5D65807
B212-SS-23	A5D65816

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 000699.NV23.02 - NYSDEC Site Characterization of Buoy 212

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A05-D658
Date Completed: August 16, 2006	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	000699.NV23.02	A05-D658	12/01/2005 12:30

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-SD-01	SO	A5D65801	11/29/2005 09:20	
B212-SD-02	SO	A5D65802	11/29/2005 09:35	
B212-SD-03	SO	A5D65803	11/29/2005 09:50	
B212-SD-04	SO	A5D65804	11/29/2005 10:05	
B212-SD-04/D	SO	A5D65804FD	11/29/2005 10:05	FD
B212-SD-05	SO	A5D65805	11/29/2005 10:20	
B212-SD-06	SO	A5D65806	11/29/2005 10:35	
B212-SD-07	SO	A5D65807	11/29/2005 10:50	
B212-SD-07MS	SO	A5D65807MS	11/29/2005 10:50	MS
B212-SD-07MSD	SO	A5D65807SD	11/29/2005 10:50	MSD
B212-SD-08	SO	A5D65808	11/29/2005 11:05	
B212-SS-02	SO	A5D65809	11/29/2005 15:28	
B212-SS-02/D	SO	A5D65809FD	11/29/2005 15:28	FD
B212-SS-03	SO	A5D65810	11/29/2005 15:37	
B212-SS-04	SO	A5D65811	11/29/2005 15:46	
B212-SS-07	SO	A5D65812	11/29/2005 15:59	
B212-SS-10	SO	A5D65813	11/29/2005 16:28	
B212-SS-20	SO	A5D65814	11/29/2005 16:53	
B212-SS-22	SO	A5D65815	11/29/2005 17:04	
B212-SS-22/D	SO	A5D65815FD	11/29/2005 17:04	FD
B212-SS-22MS	SO	A5D65815MS	11/29/2005 17:04	MS
B212-SS-22MSD	SO	A5D65815SD	11/29/2005 17:04	MSD
B212-SS-23	SO	A5D65816	11/29/2005 17:10	
B212-SS-23MS	SO	A5D65816MS	11/29/2005 17:10	MS
B212-SS-23MSD	SO	A5D65816SD	11/29/2005 17:10	MSD

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	11

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A05-D658
Date Completed: August 16, 2006	Data Validation Chemist: BKrajewski

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	4
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	15
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	8

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-SD-01	6010B	RES	ALUMINUM	9480	mg/Kg	E	9480	J	31
B212-SD-02	6010B	RES	ALUMINUM	3060	mg/Kg	E	3060	J	31
B212-SD-03	6010B	RES	ALUMINUM	9330	mg/Kg	E	9330	J	31
B212-SD-04	6010B	RES	ALUMINUM	13200	mg/Kg	E	13200	J	31
B212-SD-04/D	6010B	RES	ALUMINUM	14800	mg/Kg	E	14800	J	31
B212-SD-05	6010B	RES	ALUMINUM	11400	mg/Kg	E	11400	J	31
B212-SD-06	6010B	RES	ALUMINUM	7360	mg/Kg	E	7360	J	31
B212-SD-07	6010B	RES	ALUMINUM	18500	mg/Kg	E	18500	J	31
B212-SD-08	6010B	RES	ALUMINUM	7630	mg/Kg	E	7630	J	31
B212-SD-01	6010B	RES	ANTIMONY	30.5	mg/Kg	NU	30.5	UJ	8L,12
B212-SD-02	6010B	RES	ANTIMONY	17.7	mg/Kg	NU	17.7	UJ	8L
B212-SD-03	6010B	RES	ANTIMONY	23.2	mg/Kg	NU	23.2	UJ	8L
B212-SD-04	6010B	RES	ANTIMONY	26.0	mg/Kg	NU	26.0	UJ	8L
B212-SD-04/D	6010B	RES	ANTIMONY	25.7	mg/Kg	NU	25.7	UJ	8L
B212-SD-05	6010B	RES	ANTIMONY	26.3	mg/Kg	NU	26.3	UJ	8L
B212-SD-06	6010B	RES	ANTIMONY	20.6	mg/Kg	NU	20.6	UJ	8L
B212-SD-07	6010B	RES	ANTIMONY	19.5	mg/Kg	NU	19.5	UJ	8L
B212-SD-08	6010B	RES	ANTIMONY	20.9	mg/Kg	NU	20.9	UJ	8L
B212-SS-22	6010B	RES	ANTIMONY	19.0	mg/Kg	NU	19.0	UJ	8L,12
B212-SS-22/D	6010B	RES	ANTIMONY	16.5	mg/Kg	NU	16.5	UJ	8L
B212-SD-01	6010B	RES	BARIUM	72.2	mg/Kg	EN	72.2	J	8H,31
B212-SD-02	6010B	RES	BARIUM	15.2	mg/Kg	EN	15.2	J	8H,31
B212-SD-03	6010B	RES	BARIUM	41.1	mg/Kg	EN	41.1	J	8H,31
B212-SD-04	6010B	RES	BARIUM	86.4	mg/Kg	EN	86.4	J	8H,31

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-SD-04/D	6010B	RES	BARIUM	92.9	mg/Kg	EN	92.9	J	8H,31
B212-SD-05	6010B	RES	BARIUM	67.3	mg/Kg	EN	67.3	J	8H,31
B212-SD-06	6010B	RES	BARIUM	50.3	mg/Kg	EN	50.3	J	8H,31
B212-SD-07	6010B	RES	BARIUM	140	mg/Kg	EN	140	J	8H,31
B212-SD-08	6010B	RES	BARIUM	71.3	mg/Kg	EN	71.3	J	8H,31
B212-SD-01	6010B	RES	BERYLLIUM	0.52	mg/Kg	E	0.52	UJ	28,31
B212-SD-02	6010B	RES	BERYLLIUM	0.15	mg/Kg	E	0.15	UJ	28,31
B212-SD-03	6010B	RES	BERYLLIUM	0.41	mg/Kg	E	0.41	UJ	28,31
B212-SD-04	6010B	RES	BERYLLIUM	0.73	mg/Kg	E	0.73	UJ	28,31
B212-SD-04/D	6010B	RES	BERYLLIUM	0.65	mg/Kg	E	0.65	UJ	28,31
B212-SD-05	6010B	RES	BERYLLIUM	0.51	mg/Kg	E	0.51	UJ	28,31
B212-SD-06	6010B	RES	BERYLLIUM	0.35	mg/Kg	E	0.35	UJ	28,31
B212-SD-07	6010B	RES	BERYLLIUM	0.88	mg/Kg	E	0.88	UJ	28,31
B212-SD-08	6010B	RES	BERYLLIUM	0.40	mg/Kg	E	0.40	UJ	28,31
B212-SS-22	6010B	RES	BERYLLIUM	0.43	mg/Kg	E	0.43	UJ	28,31
B212-SS-22/D	6010B	RES	BERYLLIUM	0.44	mg/Kg	E	0.44	UJ	28,31
B212-SD-01	6010B	RES	CALCIUM	5240	mg/Kg	E*	5240	J	9,31
B212-SD-02	6010B	RES	CALCIUM	1200	mg/Kg	E*	1200	J	9,31
B212-SD-03	6010B	RES	CALCIUM	2890	mg/Kg	E*	2890	J	9,8L,31
B212-SD-04	6010B	RES	CALCIUM	3520	mg/Kg	E*	3520	J	9,31
B212-SD-04/D	6010B	RES	CALCIUM	3620	mg/Kg	E*	3620	J	9,31
B212-SD-05	6010B	RES	CALCIUM	4810	mg/Kg	E*	4810	J	9,31
B212-SD-06	6010B	RES	CALCIUM	3040	mg/Kg	E*	3040	J	9,31
B212-SD-07	6010B	RES	CALCIUM	12800	mg/Kg	E*	12800	J	9,31
B212-SD-08	6010B	RES	CALCIUM	2850	mg/Kg	E*	2850	J	9,31
B212-SD-01	6010B	RES	IRON	16900	mg/Kg	E	16900	J	31
B212-SD-02	6010B	RES	IRON	9960	mg/Kg	E	9960	J	31
B212-SD-03	6010B	RES	IRON	13200	mg/Kg	E	13200	J	31
B212-SD-04	6010B	RES	IRON	19100	mg/Kg	E	19100	J	31

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A05-D658
Date Completed: August 16, 2006	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-SD-04/D	6010B	RES	IRON	13400	mg/Kg	E	13400	J	31
B212-SD-05	6010B	RES	IRON	13500	mg/Kg	E	13500	J	31
B212-SD-06	6010B	RES	IRON	11300	mg/Kg	E	11300	J	31
B212-SD-07	6010B	RES	IRON	27500	mg/Kg	E	27500	J	31
B212-SD-08	6010B	RES	IRON	14500	mg/Kg	E	14500	J	31
B212-SS-22	6010B	RES	IRON	14800	mg/Kg	E	14800	J	31
B212-SS-22/D	6010B	RES	IRON	14800	mg/Kg	E	14800	J	31
B212-SD-01	6010B	RES	MAGNESIUM	2520	mg/Kg	E	2520	J	31
B212-SD-02	6010B	RES	MAGNESIUM	975	mg/Kg	E	975	J	31
B212-SD-03	6010B	RES	MAGNESIUM	1710	mg/Kg	E	1710	J	31
B212-SD-04	6010B	RES	MAGNESIUM	2620	mg/Kg	E	2620	J	31
B212-SD-04/D	6010B	RES	MAGNESIUM	2950	mg/Kg	E	2950	J	31
B212-SD-05	6010B	RES	MAGNESIUM	2210	mg/Kg	E	2210	J	31
B212-SD-06	6010B	RES	MAGNESIUM	1670	mg/Kg	E	1670	J	31
B212-SD-07	6010B	RES	MAGNESIUM	7250	mg/Kg	E	7250	J	31
B212-SD-08	6010B	RES	MAGNESIUM	1900	mg/Kg	E	1900	J	31
B212-SS-22	6010B	RES	MAGNESIUM	1700	mg/Kg	E	1700	J	31
B212-SS-22/D	6010B	RES	MAGNESIUM	1720	mg/Kg	E	1720	J	31
B212-SD-01	6010B	RES	MANGANESE	538	mg/Kg	E	538	J	31
B212-SD-02	6010B	RES	MANGANESE	95.5	mg/Kg	E	95.5	J	31
B212-SD-03	6010B	RES	MANGANESE	214	mg/Kg	E	214	J	31
B212-SD-04	6010B	RES	MANGANESE	244	mg/Kg	E	244	J	31
B212-SD-04/D	6010B	RES	MANGANESE	147	mg/Kg	E	147	J	31
B212-SD-05	6010B	RES	MANGANESE	174	mg/Kg	E	174	J	31
B212-SD-06	6010B	RES	MANGANESE	175	mg/Kg	E	175	J	31
B212-SD-07	6010B	RES	MANGANESE	479	mg/Kg	E	479	J	31
B212-SD-08	6010B	RES	MANGANESE	288	mg/Kg	E	288	J	31
B212-SS-22	6010B	RES	MANGANESE	216	mg/Kg	E	216	J	31
B212-SS-22/D	6010B	RES	MANGANESE	233	mg/Kg	E	233	J	31

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STLBUF	Lab SDG ID: A05-D658
Date Completed: August 16, 2006	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-SD-01	6010B	RES	POTASSIUM	915	mg/Kg	E	915	J	31
B212-SD-02	6010B	RES	POTASSIUM	376	mg/Kg	E	376	J	31
B212-SD-03	6010B	RES	POTASSIUM	422	mg/Kg	E	422	J	31
B212-SD-04	6010B	RES	POTASSIUM	1170	mg/Kg	E	1170	J	31
B212-SD-04/D	6010B	RES	POTASSIUM	1350	mg/Kg	E	1350	J	31
B212-SD-05	6010B	RES	POTASSIUM	709	mg/Kg	E	709	J	31
B212-SD-06	6010B	RES	POTASSIUM	452	mg/Kg	E	452	J	31
B212-SD-07	6010B	RES	POTASSIUM	3160	mg/Kg	E	3160	J	31
B212-SD-08	6010B	RES	POTASSIUM	488	mg/Kg	E	488	J	31
B212-SD-01	6010B	RES	SODIUM	284	mg/Kg	U	284	UJ	21L,12
B212-SD-02	6010B	RES	SODIUM	165	mg/Kg	U	165	UJ	21L
B212-SD-03	6010B	RES	SODIUM	217	mg/Kg	U	217	UJ	21L
B212-SD-04	6010B	RES	SODIUM	243	mg/Kg	U	243	UJ	21L
B212-SD-04/D	6010B	RES	SODIUM	240	mg/Kg	U	240	UJ	21L
B212-SD-05	6010B	RES	SODIUM	245	mg/Kg	U	245	UJ	21L
B212-SD-06	6010B	RES	SODIUM	192	mg/Kg	U	192	UJ	21L
B212-SD-07	6010B	RES	SODIUM	182	mg/Kg	U	182	UJ	21L
B212-SD-08	6010B	RES	SODIUM	195	mg/Kg	U	195	UJ	21L
B212-SS-22	6010B	RES	SODIUM	178	mg/Kg	U	178	UJ	21L,12
B212-SS-22/D	6010B	RES	SODIUM	154	mg/Kg	U	154	UJ	21L
B212-SS-23	8082	RES	AROCLOR 1016	21	ug/Kg	U	21	UJ	7L,8L
B212-SS-23	8082	RES	AROCLOR 1221	21	ug/Kg	U	21	UJ	7L
B212-SS-23	8082	RES	AROCLOR 1232	21	ug/Kg	U	21	UJ	7L
B212-SS-23	8082	RES	AROCLOR 1242	21	ug/Kg	U	21	UJ	7L
B212-SS-23	8082	RES	AROCLOR 1248	21	ug/Kg	U	21	UJ	7L
B212-SS-23	8082	RES	AROCLOR 1254	21	ug/Kg	U	21	UJ	7L
B212-SS-23	8082	RES	AROCLOR 1260	21	ug/Kg	U	21	UJ	7L,8L

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description

7L	Surrogate recovery outside control limits. Result has a low bias.
8H	Matrix spike recovery outside control limits. Result has a high bias.
8L	Matrix spike recovery outside control limits. Result has a low bias.
9	Matrix spike duplicate RPD outside control limits.
12	Result is below project reporting limit, but above MDL.
21L	Initial calibration verification percent difference exceeded control limits. Result has a low bias.
28	Calibration blank contamination is present.
31	Result qualified based on professional judgement.

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Chicago	**LAB SDG ID: A05-D659**
Date Completed: 1/10/2006	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in Attachment 2 Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided in Attachment 2. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes. Field duplicate collected. Trip blank not required.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	No – Method required quadruplicate analysis not performed.
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No. (Reduced sample size used for analysis)

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Chicago	LAB SDG ID: A05-D659
Date Completed: 1/10/2006	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No.
Any compounds present in method, trip and field blanks?	No
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	No
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	NA
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs*. *Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	NA
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were <u><</u>30%, then "R" flag associated non-detect values.*	Yes
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No. (Reduced sample size used for analysis)
Do field duplicate results show good precision for all compounds except TICs?	Yes – See Attachment 1 Table 4 Field Duplicate Results

Data Usability Summary Report	Project: Buoy 212
Laboratory: STL - Chicago	LAB SDG ID: A05-D659
Date Completed: 1/10/2006	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
Wet	Did raw data provided for wet chemistry analyses indicate any non-compliance?	No

Summary of Potential Impacts on Data Usability
Major Concerns
None
Minor Concerns
Method required quadruplicate analysis not performed but all samples analyzed in duplicate with good precision and MS/MSD results within project limits.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Table 4: Field Duplicate Summary Report

Lab SDG: 242512 **Lab ID:STL CHI**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-SD-04	SD212-SD-04/D	415.1_LK

Method: 415.1_LK

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	Total Organic Carbon	B212-SD-04	RES	35000		SD212-SD-04/D	RES	32000		8.96	70	mg/Kg	Good	None

*Field Duplicate Results with one or both results ND are not included in this report

DUSR - Attachment 1	Project: 000699.NV23.02
Laboratory: STL CHI	Lab SDG ID: 242512
Date Completed: August 16, 2006	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	000699.NV23.02	242512	12/02/2005 10:00

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-SD-01	SO	242512-001	11/29/2005 09:20	
B212-SD-02	SO	242512-002	11/29/2005 09:35	
B212-SD-03	SO	242512-003	11/29/2005 09:50	
B212-SD-04	SO	242512-004	11/29/2005 10:05	
SD212-SD-04/D	SO	242512-005	11/29/2005 10:05	FD
SD212-SD-05	SO	242512-006	11/29/2005 10:20	
SD212-SD-06	SO	242512-007	11/29/2005 10:35	
SD212-SD-07	SO	242512-008	11/29/2005 10:50	
SD212-SD-07MS	SO	242512-008MS	11/29/2005 10:50	MS
SD212-SD-07MSD	SO	242512-008MSD	11/29/2005 10:50	MSD
SD212-SD-08	SO	242512-009	11/29/2005 11:05	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	415.1_LK	Total Organic Carbon by Lloyd Kahn	9

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-5600
Date Completed: 07/22/2008	Data Validation Chemist: B. Krajewski

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in the Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Field Duplicate included. Trip Blank not required. Equipment blank included.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes - LCS/LCSD analyzed. MS/MSD not designated on COC and no additional volume provided.
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	Yes – Four samples analyzed for Method 8082 required dilution based on concentrations detected.

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-5600
Date Completed: 07/22/2008	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	No Several compounds detected in ICB/CCBs.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – Barium and manganese results in rinsate blanks qualified "U" based on ICB/CCB.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	Yes
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. No results qualified if both Method 8082 surrogates outside of acceptable limits.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	NA
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	No – Aroclor 1016 recovery below acceptance limit for LCS associated with rinsate blanks. Sample results qualified "UJ".
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	Yes - Four samples analyzed for Method 8082 required dilution based on concentrations detected.
Do field duplicate results show good precision for all compounds except TICs?	Yes – See Attachment 1 Table 4 Field Duplicate Results

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-5600
Date Completed: 07/22/2008	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist

Method	Description	Notes and Qualifiers
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes Selenium CRI recovery above acceptable limit. No selenium detected in samples; no qualifiers applied.
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Serial dilution analyzed on sample from digestion batch – not from this SDG.
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes – Met for primary column.
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Barium and manganese rinsate results qualified “U” based on calibration blanks.

Key:

ADR = Automated Data Review
AP = Acid Phenol
BN = Base Neutral
CCV = Continuing calibration verification
COC = Chain-of-custody
CVAA = Cold Vapor Automatic Absorption
GC = Gas Chromatography
GC/MS = Gas Chromatography/Mass Spectrometry
ICP = Inductively Coupled Plasma Argon Spectrometry
ICS = Interference check standard
ICV = Initial calibration verification
NA = Not Applicable
LCS = Laboratory Control Sample

MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Table 4: Field Duplicate Summary Report

Lab SDG: A85600 **Lab ID:TALBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-SBH-05-02	B212-SBH-05-02/D	8082

Method: 8082

Matrix	Analyte	Field Sample: Sample ID	Type	Result	(Q)	Field Sample Duplicate*: Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	AROCLOR 1242	B212-SBH-05-02	RES	3500		B212-SBH-05-02/D	RES	4100		15.8	70	ug/Kg	Good	None

*Field Duplicate Results with one or both results ND are not included in this report

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: A85600 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
B212-SBH-09-01	A8560010	8082	SO	AROCLOR 1248	J	5.1	20	ug/Kg
				AROCLOR 1254	J	15	20	ug/Kg

Laboratory Control Sample / Laboratory Control Sample Duplicate Outlier Report

Method Batch : A8B15477 **Analysis Method :** 8082 **Analysis Date :** 05/19/2008

Preparation Batch : A8B15477 **Preparation Type :** 3510C **Preparation Date :** 05/18/2008

Lab Reporting Batch : A85600 **Lab ID:** TALBUF

LCS Lab Sample ID	Matrix	Analyte Name	Reported Values		Project Limits (Percent)			
			Percent Recovery	RPD	Rejection Point	Lower Limit	Upper Limit	RPD
A8B1547701	AQ	AROCLOR 1016	62		10.00	70.00	130.00	40.00

Associated Samples	
Client Sample ID	**Lab Sample ID**
B212-RB-01	A8560402
NI-RB-01	A8560401

Scope of Data Qualification: The outlier in the LCS qualifies that analyte in all samples with the same Preparation Batch ID as the LCS

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

Surrogate Recovery Outlier Report

Lab Report Batch: A85600 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-PBH-03-01	A8560001	8082	1.00	SO	DECACHLOROBIPHENYL	65	70.0	130.0	10.0	All Target
B212-PBH-03-02	A8560002	8082	1.00	SO	DECACHLOROBIPHENYL	60	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	61	70.0	130.0	10.0	All Target
B212-PBH-04-01	A8560003	8082	1.00	SO	DECACHLOROBIPHENYL	50	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	67	70.0	130.0	10.0	All Target
B212-PBH-04-02	A8560004	8082	1.00	SO	DECACHLOROBIPHENYL	66	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	62	70.0	130.0	10.0	All Target
B212-RB-01	A8560402	8082	1.00	AQ	TETRACHLORO-M-XYLENE	60	70.0	130.0	10.0	All Target
B212-SBH-05-01	A8560005	8082	1.00	SO	TETRACHLORO-M-XYLENE	68	70.0	130.0	10.0	All Target
B212-SBH-09-01	A8560010	8082	1.00	SO	TETRACHLORO-M-XYLENE	69	70.0	130.0	10.0	All Target
NI-RB-01	A8560401	8082	1.00	AQ	TETRACHLORO-M-XYLENE	60	70.0	130.0	10.0	All Target

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A85600
Date Completed: July 22, 2008	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A85600	05/16/2008 19:30

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-PBH-03-01	SO	A8560001	05/16/2008 11:29	
B212-PBH-03-02	SO	A8560002	05/16/2008 11:39	
B212-PBH-04-01	SO	A8560003	05/16/2008 12:02	
B212-PBH-04-02	SO	A8560004	05/16/2008 12:15	
B212-RB-01	AQ	A8560402	05/16/2008 11:15	EB
B212-SBH-05-01	SO	A8560005	05/16/2008 12:15	
B212-SBH-05-02	SO	A8560006	05/16/2008 12:45	
B212-SBH-05-02/D	SO	A8560007	05/16/2008 12:45	FD
B212-SBH-05-03	SO	A8560008	05/16/2008 12:50	
B212-SBH-05-04	SO	A8560009	05/16/2008 12:55	
B212-SBH-09-01	SO	A8560010	05/16/2008 14:06	
NI-RB-01	AQ	A8560401	05/16/2008 07:45	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	2
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	2
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	2
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	1
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	1
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	10

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
NI-RB-01	6010B	RES	BARIUM	0.29	ug/L	B	0.29	U	28
B212-RB-01	6010B	RES	MANGANESE	2.1	ug/L	B	2.1	U	28
B212-PBH-03-02	8082	RES	AROCLOR 1016	22	ug/Kg	U	22	UJ	7L

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result	Qual	Code
B212-PBH-04-01	8082	RES	AROCLOR 1016	30	ug/Kg	U	30	UJ	7L
B212-PBH-04-02	8082	RES	AROCLOR 1016	21	ug/Kg	U	21	UJ	7L
B212-RB-01	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	10L
NI-RB-01	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	10L
B212-PBH-03-02	8082	RES	AROCLOR 1221	22	ug/Kg	U	22	UJ	7L
B212-PBH-04-01	8082	RES	AROCLOR 1221	30	ug/Kg	U	30	UJ	7L
B212-PBH-04-02	8082	RES	AROCLOR 1221	21	ug/Kg	U	21	UJ	7L
B212-PBH-03-02	8082	RES	AROCLOR 1232	22	ug/Kg	U	22	UJ	7L
B212-PBH-04-01	8082	RES	AROCLOR 1232	30	ug/Kg	U	30	UJ	7L
B212-PBH-04-02	8082	RES	AROCLOR 1232	21	ug/Kg	U	21	UJ	7L
B212-PBH-03-02	8082	RES	AROCLOR 1242	22	ug/Kg	U	22	UJ	7L
B212-PBH-04-01	8082	RES	AROCLOR 1242	30	ug/Kg	U	30	UJ	7L
B212-PBH-04-02	8082	RES	AROCLOR 1242	21	ug/Kg	U	21	UJ	7L
B212-PBH-03-02	8082	RES	AROCLOR 1248	52	ug/Kg		52	J-	7L
B212-PBH-04-01	8082	RES	AROCLOR 1248	160	ug/Kg		160	J-	7L
B212-PBH-04-02	8082	RES	AROCLOR 1248	390	ug/Kg		390	J-	7L
B212-PBH-03-02	8082	RES	AROCLOR 1254	22	ug/Kg	U	22	UJ	7L
B212-PBH-04-01	8082	RES	AROCLOR 1254	120	ug/Kg		120	J-	7L
B212-PBH-04-02	8082	RES	AROCLOR 1254	21	ug/Kg	U	21	UJ	7L
B212-PBH-03-02	8082	RES	AROCLOR 1260	22	ug/Kg	U	22	UJ	7L
B212-PBH-04-01	8082	RES	AROCLOR 1260	30	ug/Kg	U	30	UJ	7L
B212-PBH-04-02	8082	RES	AROCLOR 1260	21	ug/Kg	U	21	UJ	7L
B212-PBH-03-02	8082	RES	AROCLOR 1262	22	ug/Kg	U	22	UJ	7L
B212-PBH-04-01	8082	RES	AROCLOR 1262	30	ug/Kg	U	30	UJ	7L
B212-PBH-04-02	8082	RES	AROCLOR 1262	21	ug/Kg	U	21	UJ	7L
B212-PBH-03-02	8082	RES	AROCLOR 1268	22	ug/Kg	U	22	UJ	7L
B212-PBH-04-01	8082	RES	AROCLOR 1268	30	ug/Kg	U	30	UJ	7L
B212-PBH-04-02	8082	RES	AROCLOR 1268	21	ug/Kg	U	21	UJ	7L

DUSR - Attachment 1	**Project: 002699.ID07.01**
Laboratory: TALBUF	**Lab SDG ID: A85600**
Date Completed: July 22, 2008	**Data Validation Chemist: BKrajewski**

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
7L	Surrogate recovery outside control limits. Result has a low bias.
10L	LCS recovery outside control limits. Result has a low bias.
28	Calibration blank contamination is present.

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-5601
Date Completed: 07/23/2008	Data Validation Chemist: B. Krajewski

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in the Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Trip Blank not required. Field duplicate and equipment blank not included in this SDG.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes Metals MS/MSD not designated for any project sample; no project samples used for batch metals MS/MSD.
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	Yes – Five samples analyzed for Method 8082 required dilution based on concentrations detected. Method 8082 samples reextracted and reanalyzed based on method blank.

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-5601
Date Completed: 07/23/2008	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – Method 8082 method blank appeared to be spiked with matrix spike solution. Aroclor 1016 and 1260 detected. Samples reextracted with acceptable blank. Same Aroclors detected original and re-extractions but concentrations noticeably higher in original. Original results reported as worse case. Several compounds detected in ICB/CCBs.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – See Method Blank Outlier Report No qualification based on ICB/CCBs.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	Yes
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. No Method 8082 results qualified since recovery of one of the two surrogate compounds was within acceptable limits. Surrogate recoveries for original extracts better than reextract recoveries.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were <u><</u>30%, then "R" flag associated non-detect values.*	No – See Matrix Spike Outlier Report. Recovery low for Method 8082 matrix spike analysis associated with reextraction. Results from reextraction not reported; no results qualified. MS/MSD designated for Method 8082 analysis. Batch MS/MSD included for metals analysis.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes – Note: Recoveries appear to be outside of acceptable limits when blank subtracted.

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	Yes – Five samples analyzed for Method 8082 required dilution based on concentrations detected.
Do field duplicate results show good precision for all compounds except TICs?	NA

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Serial dilution analyzed on sample from digestion batch – not from this SDG.
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes – Met for primary column.
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Method 8082 spike solution mistakenly added to method blank. Samples reextracted and reanalyzed with acceptable method blank. Results reported from original extraction based on extraction efficiency demonstrated by surrogate and MS/MSD recoveries, and higher detected concentrations, as a worse case scenario.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Surrogate Recovery Outlier Report

Lab Report Batch: A08-5601 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-CBH-04A-01	A8560104RE	8082	1.00	SO	TETRACHLORO-M-XYLENE	67	70.0	130.0	10.0	All Target
	A8560104				TETRACHLORO-M-XYLENE	212	70.0	130.0	10.0	All Target
B212-CBH-04A-02	A8560105RE	8082	1.00	SO	TETRACHLORO-M-XYLENE	64	70.0	130.0	10.0	All Target
B212-PBH-02-01	A8560118RE	8082	1.00	SO	DECACHLOROBIPHENYL	68	70.0	130.0	10.0	All Target
	A8560118		2.00		TETRACHLORO-M-XYLENE	67	70.0	130.0	10.0	All Target
	A8560118RE		1.00		TETRACHLORO-M-XYLENE	67	70.0	130.0	10.0	All Target
B212-PBH-02-02	A8560119	8082	1.00	SO	TETRACHLORO-M-XYLENE	66	70.0	130.0	10.0	All Target
B212-SBH-01-01	A8560106RE	8082	1.00	SO	DECACHLOROBIPHENYL	59	70.0	130.0	10.0	All Target
	A8560106				TETRACHLORO-M-XYLENE	60	70.0	130.0	10.0	All Target
	A8560106RE				TETRACHLORO-M-XYLENE	53	70.0	130.0	10.0	All Target
B212-SBH-02-01	A8560110RE	8082	1.00	SO	DECACHLOROBIPHENYL	66	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	57	70.0	130.0	10.0	All Target
B212-SBH-02-02	A8560111RE	8082	1.00	SO	TETRACHLORO-M-XYLENE	66	70.0	130.0	10.0	All Target
	A8560111				TETRACHLORO-M-XYLENE	69	70.0	130.0	10.0	All Target
B212-SBH-02-02MS	A8560111C	8082	1.00	SO	TETRACHLORO-M-XYLENE	66	70.0	130.0	10.0	All Target
B212-SBH-02-02MSD	A8560111D	8082	1.00	SO	TETRACHLORO-M-XYLENE	65	70.0	130.0	10.0	All Target
B212-SBH-03-02	A8560113RE	8082	1.00	SO	TETRACHLORO-M-XYLENE	57	70.0	130.0	10.0	All Target

Project Number and Name: ***002699.ID07.01 - NYSDEC Site Characterization of Buoy 212***

Surrogate Recovery Outlier Report

Lab Report Batch: A08-5601 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-SS201	A8560101RE	8082	1.00	SO	DECACHLOROBIPHENYL	62	70.0	130.0	10.0	All Target
	A8560101				TETRACHLORO-M-XYLENE	66	70.0	130.0	10.0	All Target
	A8560101RE				TETRACHLORO-M-XYLENE	67	70.0	130.0	10.0	All Target
B212-SS202	A8560102RE	8082	1.00	SO	TETRACHLORO-M-XYLENE	66	70.0	130.0	10.0	All Target
B212-SS203	A8560103RE	8082	1.00	SO	DECACHLOROBIPHENYL	64	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	63	70.0	130.0	10.0	All Target

Project Number and Name: ***002699.ID07.01 - NYSDEC Site Characterization of Buoy 212***

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: A08-5601 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
B212-CBH-04A-01	A8560104RE	8082	SO	AROCLOR 1242	J	18	21	ug/Kg
B212-CBH-04A-02	A8560105			AROCLOR 1242	J	5.8	20	ug/Kg
B212-PBH-01-02	A8560117RE			AROCLOR 1260	J	23	25	ug/Kg
	A8560117			AROCLOR 1260	BJ	110	250	ug/Kg
B212-PBH-02-01	A8560118RE			AROCLOR 1248	J	16	23	ug/Kg
				AROCLOR 1254	J	16	23	ug/Kg
B212-PBH-02-02	A8560119RE			AROCLOR 1248	J	7.9	21	ug/Kg
	A8560119			AROCLOR 1260	BJ	21	22	ug/Kg
B212-SBH-01-01	A8560106			AROCLOR 1242	J	4.0	19	ug/Kg
B212-SBH-02-01	A8560110RE			AROCLOR 1248	J	5.6	18	ug/Kg
B212-SBH-03-01	A8560112RE			AROCLOR 1248	J	8.9	18	ug/Kg
				AROCLOR 1254	J	12	18	ug/Kg
B212-SBH-04-02	A8560115RE			AROCLOR 1248	J	8.0	20	ug/Kg
	A8560115			AROCLOR 1260	BJ	7.9	20	ug/Kg
B212-SS202	A8560102			AROCLOR 1248	J	6.2	19	ug/Kg
				AROCLOR 1254	J	11	19	ug/Kg
B212-SS203	A8560103			AROCLOR 1248	J	5.4	22	ug/Kg
				AROCLOR 1254	J	14	22	ug/Kg

Method Blank Outlier Report

Lab Reporting Batch : A08-5601 **Lab ID:** TALBUF
Analysis Method : 8082 **Analysis Date :** 05/22/2008
Preparation Type : 3550B **Preparation Date :** 05/20/2008
Method Blank Lab Sample ID : A8B1556802 **Preparation Batch :** A8B15568

AROCLOR 1016	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**160**	**16**	**ug/Kg**		

AROCLOR 1016 contamination found in the method blank did not qualify any samples.

AROCLOR 1260	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**150**	**16**	**ug/Kg**		

AROCLOR 1260 was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
B212-PBH-01-02	A8560117	10.00	110	BJ	ug/Kg
B212-PBH-02-01	A8560118	2.00	58	B	ug/Kg
B212-PBH-02-02	A8560119	1.00	21	BJ	ug/Kg
B212-SBH-04-02	A8560115	1.00	7.9	BJ	ug/Kg

Method Blank Outlier Report

Lab Reporting Batch : A08-5601 **Lab ID:** TALBUF

Analysis Method : 6010B **Analysis Date :** 05/23/2008

Preparation Type : 3050B **Preparation Date :** 05/21/2008

Method Blank Lab Sample ID : A8560121 **Preparation Batch :** A8B15619

COBALT	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	**0.050**	**-0.06100**	**mg/Kg**	**B**	

COBALT contamination found in the method blank did not qualify any samples.

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A8B15999 **Analysis Method :** 8082 **Analysis Date :** 05/30/2008
Preparation Batch : A8B15999 **Preparation Type :** 3550B **Preparation Date :** 05/28/2008
Lab Reporting Batch : A08-5601 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Matrix	Analyte Name	Reported *		Project Limits (Percent)			
				Percent Recovery	RPD	Rejection Point**	Lower Limit	Upper Limit	RPD
B212-SBH-02-02MS	A8560111C	SO	AROCLOR 1016	65		10.00	70.00	130.00	40.00
B212-SBH-02-02MSD	A8560111D		AROCLOR 1016	65		10.00	70.00	130.00	40.00

Associated Samples: Parent sample only

Client Sample ID	Lab Sample ID
B212-SBH-02-02	A8560111RE

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

Laboratory Control Sample / Laboratory Control Sample Duplicate Outlier Report

Method Batch : A8B15568 **Analysis Method :** 8082 **Analysis Date :** 05/22/2008

Preparation Batch : A8B15568 **Preparation Type :** 3550B **Preparation Date :** 05/20/2008

Lab Reporting Batch : A08-5601 **Lab ID:** TALBUF

			Reported Values		Project Limits (Percent)			
LCS Lab Sample ID	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point**	**Lower Limit**	**Upper Limit**	**RPD**
A8B1556801	SO	AROCLOR 1016	-10		10.00	70.00	130.00	40.00
		AROCLOR 1260	9		10.00	70.00	130.00	40.00

Associated Samples

Client Sample ID	Lab Sample ID
B212-CBH-04A-01	A8560104
B212-CBH-04A-02	A8560105
B212-PBH-01-01	A8560116
B212-PBH-01-02	A8560117
B212-PBH-02-01	A8560118
B212-PBH-02-02	A8560119
B212-SBH-01-01	A8560106
B212-SBH-01-02	A8560107
B212-SBH-01-03	A8560108
B212-SBH-01-04	A8560109
B212-SBH-02-01	A8560110
B212-SBH-02-02	A8560111
B212-SBH-03-01	A8560112
B212-SBH-03-02	A8560113
B212-SBH-04-01	A8560114
B212-SBH-04-02	A8560115
B212-SS201	A8560101
B212-SS202	A8560102
B212-SS203	A8560103

Scope of Data Qualification: The outlier in the LCS qualifies that analyte in all samples with the same Preparation Batch ID as the LCS

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-5601
Date Completed: July 23, 2008	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A08-5601	05/16/2008 19:30

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-CBH-04A-01	SO	A8560104	05/16/2008 09:10	
B212-CBH-04A-02	SO	A8560105	05/16/2008 09:15	
B212-PBH-01-01	SO	A8560116	05/16/2008 10:23	
B212-PBH-01-02	SO	A8560117	05/16/2008 10:41	
B212-PBH-02-01	SO	A8560118	05/16/2008 10:53	
B212-PBH-02-02	SO	A8560119	05/16/2008 10:58	
B212-SBH-01-01	SO	A8560106	05/16/2008 09:45	
B212-SBH-01-02	SO	A8560107	05/16/2008 10:05	
B212-SBH-01-03	SO	A8560108	05/16/2008 10:10	
B212-SBH-01-04	SO	A8560109	05/16/2008 10:15	
B212-SBH-02-01	SO	A8560110	05/16/2008 10:45	
B212-SBH-02-02	SO	A8560111	05/16/2008 11:00	
B212-SBH-02-02MS	SO	A8560111C	05/16/2008 11:00	MS
B212-SBH-02-02MSD	SO	A8560111D	05/16/2008 11:00	MSD
B212-SBH-03-01	SO	A8560112	05/16/2008 11:30	
B212-SBH-03-02	SO	A8560113	05/16/2008 11:40	
B212-SBH-04-01	SO	A8560114	05/16/2008 11:45	
B212-SBH-04-02	SO	A8560115	05/16/2008 12:05	
B212-SS201	SO	A8560101	05/16/2008 08:09	
B212-SS202	SO	A8560102	05/16/2008 08:15	
B212-SS203	SO	A8560103	05/16/2008 08:29	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	1
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	1
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	2
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	19

DUSR - Attachment 1	**Project: 002699.ID07.01**
Laboratory: TALBUF	**Lab SDG ID: A08-5601**
Date Completed: July 23, 2008	**Data Validation Chemist: BKrajewski**

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-CBH-04A-01	6010B	RES	SODIUM	138	mg/Kg	B	138	J	12
B212-CBH-04A-01	6010B	RES	THALLIUM	0.57	mg/Kg	B	0.57	J	12
B212-CBH-04A-01	7471A	RES	MERCURY	0.020	mg/Kg	B	0.020	J	12
B212-PBH-01-02	8082	RES	AROCLOR 1260	110	ug/Kg	BJ	250	UJ	32,12,6
B212-PBH-02-01	8082	RES	AROCLOR 1260	58	ug/Kg	B	58	U	32,6
B212-PBH-02-02	8082	RES	AROCLOR 1260	21	ug/Kg	BJ	22	UJ	32,12,6
B212-SBH-04-02	8082	RES	AROCLOR 1260	7.9	ug/Kg	BJ	20	UJ	32,12,6

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
6	Method blank contamination impacted positive result.
12	Result is below project reporting limit, but above MDL.
32	Non-detect, concentration is same as method blank

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6752
Date Completed: 07/23/2008	Data Validation Chemist: B. Krajewski

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in the Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Trip Blank not required. Field duplicate and equipment blank not included in this SDG.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes Metals MS/MSD not designated for any project sample; no project samples used for batch metals MS/MSD.
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6752
Date Completed: 07/23/2008	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier Report. Several compounds detected in ICB/CCBs.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – See Method Blank Outlier Report No qualification based on ICB/CCBs; samples bracketed by acceptable CCBs.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	Yes
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. No Method 8082 results qualified since recovery of one of the two surrogate compounds was within acceptable limits.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	NA – MS/MSD not designated on COC and no additional volume provided.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No
Do field duplicate results show good precision for all compounds except TICs?	NA

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6752
Date Completed: 07/23/2008	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes. Silver CRI recovery >140%. No qualifier applied; silver qualified based on method blank.
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Serial dilution analyzed on sample from digestion batch – not from this SDG.
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes – Met for primary column.
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Metals results qualified based on method blank concentrations.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate

QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Surrogate Recovery Outlier Report

Lab Report Batch: A08-6752 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-PBH-05-01	A8675201	8082	1.00	SO	TETRACHLORO-M-XYLENE	62	70.0	130.0	10.0	All Target
B212-PBH-10-01	A8675211	8082	1.00	SO	TETRACHLORO-M-XYLENE	48	70.0	130.0	10.0	All Target
B212-PBH-10-02	A8675212	8082	1.00	SO	TETRACHLORO-M-XYLENE	50	70.0	130.0	10.0	All Target

Project Number and Name: ***002699.ID07.01 - NYSDEC Site Characterization of Buoy 212***

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: A08-6752 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
B212-PBH-05-01	A8675201	8082	SO	AROCLOR 1248	J	12	20	ug/Kg
B212-PBH-06-01	A8675203			AROCLOR 1248	J	6.8	20	ug/Kg
B212-PBH-08-01	A8675207			AROCLOR 1248	J	7.9	21	ug/Kg
				AROCLOR 1254	J	18	21	ug/Kg
B212-PBH-09-01	A8675209			AROCLOR 1248	J	9.7	20	ug/Kg

Method Blank Outlier Report

Lab Reporting Batch :	A08-6752	**Lab ID:**	TALBUF
Analysis Method :	6010B Short	**Analysis Date :**	06/14/2008
Preparation Type :	3050B	**Preparation Date :**	06/13/2008
Method Blank Lab Sample ID :	A8675214	**Preparation Batch :**	A8B17032

LEAD	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.145**	**0.120**	**mg/Kg**	**B**	

LEAD contamination found in the method blank did not qualify any samples.

Method Blank Outlier Report

Lab Reporting Batch :	A08-6752	**Lab ID:**	TALBUF
Analysis Method :	6010B	**Analysis Date :**	06/17/2008
Preparation Type :	3050B	**Preparation Date :**	06/13/2008
Method Blank Lab Sample ID :	A8675218	**Preparation Batch :**	A8B17033

ALUMINUM	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**3.405**	**2.600**	**mg/Kg**	**B**	

ALUMINUM contamination found in the method blank did not qualify any samples.

BARIUM	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.060**	**0.050**	**mg/Kg**	**B**	

BARIUM contamination found in the method blank did not qualify any samples.

SILVER	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.145**	**0.070**	**mg/Kg**	**B**	

SILVER was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
B212-PBH-08-02	A8675208	1.00	0.14	B	mg/Kg

SODIUM	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**33.248**	**31.000**	**mg/Kg**	**B**	

SODIUM was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
B212-PBH-08-02	A8675208	1.00	152	B	mg/Kg

THALLIUM	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.433**	**0.300**	**mg/Kg**	**B**	

THALLIUM contamination found in the method blank did not qualify any samples.

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6752
Date Completed: July 23, 2008	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A08-6752	06/12/2008 09:15

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-PBH-05-01	SO	A8675201	06/10/2008 10:43	
B212-PBH-05-02	SO	A8675202	06/10/2008 10:45	
B212-PBH-06-01	SO	A8675203	06/10/2008 11:11	
B212-PBH-06-02	SO	A8675204	06/10/2008 11:15	
B212-PBH-07-01	SO	A8675205	06/10/2008 11:20	
B212-PBH-07-02	SO	A8675206	06/10/2008 11:25	
B212-PBH-08-01	SO	A8675207	06/10/2008 11:32	
B212-PBH-08-02	SO	A8675208	06/10/2008 11:35	
B212-PBH-09-01	SO	A8675209	06/10/2008 11:41	
B212-PBH-09-02	SO	A8675210	06/10/2008 11:45	
B212-PBH-10-01	SO	A8675211	06/10/2008 11:56	
B212-PBH-10-02	SO	A8675212	06/10/2008 11:59	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	1
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	3
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	4
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	12

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-PBH-08-02	6010B	RES	ARSENIC	2.3	mg/Kg	B	2.3	J	12
B212-PBH-08-02	6010B	RES	CADMIUM	0.24	mg/Kg	B	0.24	J	12
B212-PBH-08-02	6010B	RES	SILVER	0.14	mg/Kg	B	0.14	U	32,6
B212-PBH-08-02	6010B	RES	SODIUM	152	mg/Kg	B	152	U	32,6
B212-PBH-05-02	6010B Short	RES	CADMIUM	0.26	mg/Kg	B	0.26	J	12

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6752
Date Completed: July 23, 2008	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-PBH-09-02	6010B Short	RES	CADMIUM	0.19	mg/Kg	B	0.19	J	12

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
6	Method blank contamination impacted positive result.
12	Result is below project reporting limit, but above MDL.
32	Non-detect, concentration is same as method blank

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6753
Date Completed: 07/23/2008	Data Validation Chemist: B. Krajewski

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in the Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Trip Blank not required. Field duplicate and equipment blanks included.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes Metals MS/MSD not designated for any project sample; no project samples used for batch metals MS/MSD.
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	Yes – Eight samples required dilution for Method 8082 analysis due to Aroclor concentrations present.

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6753
Date Completed: 07/23/2008	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier Report. Several compounds detected in ICB/CCBs.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – See Method Blank Outlier Report Antimony and copper detections in rinsate blanks qualified “U” based on ICB/CCBs.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	Yes
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. Results for sample B212-PBH-11-02 qualified “UJ” based on low recovery of both surrogates. Qualifiers not applied to samples with one surrogate within limits.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were <u><</u>30%, then “R” flag associated non-detect values.*	NA – Spike diluted out of Method 8082 sample. No qualifier applied. Metals MS/MSD included in batch, not on sample from SDG.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are “J” flagged and non-detects are “J” flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	Yes – Eight samples required dilution for Method 8082 analysis due to Aroclor concentrations present.
Do field duplicate results show good precision for all compounds except TICs?	NA

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6753
Date Completed: 07/23/2008	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes. Cadmium CRI recovery 58% for B212-PBH-16-02. Result qualified "J".
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Serial dilution analyzed on sample from digestion batch – not from this SDG.
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes – Met for primary column.
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Results qualified based on method blank, surrogate recovery and CRI recovery.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate

QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Table 4: Field Duplicate Summary Report

Lab SDG: **A08-6753** **Lab ID:TALBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-PBH-14-01	B212-PBH-14-01/D	8082

Method: **8082**

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	AROCLOR 1248	B212-PBH-14-01	RES	2800		B212-PBH-14-01/D	RES	2700		3.64	70	ug/Kg	Good	None

***Field Duplicate Results with one or both results ND are not included in this report**

Surrogate Recovery Outlier Report

Lab Report Batch: A08-6753 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-PBH-11-01	A8675301	8082	1.00	SO	TETRACHLORO-M-XYLENE	57	70.0	130.0	10.0	All Target
B212-PBH-11-02	A8675302	8082	1.00	SO	DECACHLOROBIPHENYL	67	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	49	70.0	130.0	10.0	All Target
B212-PBH-12-01	A8675303	8082	1.00	SO	TETRACHLORO-M-XYLENE	65	70.0	130.0	10.0	All Target
B212-PBH-12-02	A8675304	8082	1.00	SO	TETRACHLORO-M-XYLENE	60	70.0	130.0	10.0	All Target
B212-PBH-15-02	A8675311	8082	1.00	SO	TETRACHLORO-M-XYLENE	60	70.0	130.0	10.0	All Target
B212-PBH-16-02	A8675313	8082	1.00	SO	TETRACHLORO-M-XYLENE	68	70.0	130.0	10.0	All Target
B212-RB201-W	A8675314	8082	1.00	AQ	TETRACHLORO-M-XYLENE	66	70.0	130.0	10.0	All Target
B212-RB202-W	A8675315	8082	1.00	AQ	TETRACHLORO-M-XYLENE	61	70.0	130.0	10.0	All Target

Project Number and Name: ***002699.ID07.01 - NYSDEC Site Characterization of Buoy 212***

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: A08-6753 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
B212-PBH-11-01	A8675301	8082	SO	AROCLOR 1248	J	5.4	20	ug/Kg
				AROCLOR 1254	J	13	20	ug/Kg
B212-PBH-15-02	A8675311			AROCLOR 1248	J	5.3	21	ug/Kg
B212-PBH-16-01	A8675312			AROCLOR 1248	J	5.0	21	ug/Kg

Method Blank Outlier Report

Lab Reporting Batch : A08-6753 **Lab ID:** TALBUF

Analysis Method : 6010B **Analysis Date :** 06/13/2008

Preparation Type : 3005A **Preparation Date :** 06/13/2008

Method Blank Lab Sample ID : A8675317 **Preparation Batch :** A8B16999

ALUMINUM	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	**47.100**	**23.610**	**ug/L**	**B**	

ALUMINUM was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
B212-RB202-W	A8675315	1.00	48.1	B	ug/L

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A8B17329 **Analysis Method :** 8082 **Analysis Date :** 06/26/2008

Preparation Batch : A8B17329 **Preparation Type :** 3550B **Preparation Date :** 06/19/2008

Lab Reporting Batch : A08-6753 **Lab ID:** TALBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-PBH-15-01MS	A8675310MS	SO	AROCLOR 1016	0		10.00	70.00	130.00	40.00
			AROCLOR 1260	0		10.00	70.00	130.00	40.00
B212-PBH-15-01MSD	A8675310SD		AROCLOR 1016	0		10.00	70.00	130.00	40.00
			AROCLOR 1260	0		10.00	70.00	130.00	40.00

Associated Samples: Parent sample only

Client Sample ID	Lab Sample ID
B212-PBH-15-01	A8675310

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6753
Date Completed: July 24, 2008	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A08-6753	06/12/2008 09:15

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-PBH-11-01	SO	A8675301	06/10/2008 13:35	
B212-PBH-11-02	SO	A8675302	06/10/2008 13:39	
B212-PBH-12-01	SO	A8675303	06/10/2008 13:47	
B212-PBH-12-02	SO	A8675304	06/10/2008 13:51	
B212-PBH-13-01	SO	A8675305	06/10/2008 14:01	
B212-PBH-13-02	SO	A8675306	06/10/2008 14:05	
B212-PBH-14-01	SO	A8675307	06/10/2008 14:13	
B212-PBH-14-01/D	SO	A8675308	06/10/2008 14:13	FD
B212-PBH-14-02	SO	A8675309	06/10/2008 14:19	
B212-PBH-15-01	SO	A8675310	06/10/2008 14:27	
B212-PBH-15-01MS	SO	A8675310MS	06/10/2008 14:27	MS
B212-PBH-15-01MSD	SO	A8675310SD	06/10/2008 14:27	MSD
B212-PBH-15-02	SO	A8675311	06/10/2008 14:32	
B212-PBH-16-01	SO	A8675312	06/10/2008 14:40	
B212-PBH-16-02	SO	A8675313	06/10/2008 14:51	
B212-RB201-W	AQ	A8675314	06/10/2008 16:19	EB
B212-RB202-W	AQ	A8675315	06/10/2008 16:25	EB

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	2
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	2
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	2
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	1
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	1
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	13

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6753
Date Completed: July 24, 2008	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-RB202-W	6010B	RES/TOT	ALUMINUM	48.1	ug/L	B	48.1	U	32,6
B212-RB202-W	6010B	RES/TOT	ANTIMONY	6.0	ug/L	B	6.0	U	28
B212-RB202-W	6010B	RES/TOT	ARSENIC	4.0	ug/L	B	4.0	J	12
B212-RB202-W	6010B	RES/TOT	COPPER	1.7	ug/L	B	1.7	U	28
B212-RB201-W	6010B	RES/TOT	IRON	34.1	ug/L	B	34.1	J	12
B212-RB201-W	6010B	RES/TOT	MANGANESE	1.6	ug/L	B	1.6	J	12
B212-RB202-W	6010B	RES/TOT	NICKEL	4.0	ug/L	B	4.0	J	12
B212-RB201-W	6010B	RES/TOT	SODIUM	355	ug/L	B	355	J	12
B212-PBH-16-02	6010B Short	RES	CADMIUM	0.20	mg/Kg	B	0.20	J	12,23L
B212-PBH-11-02	8082	RES	AROCLOR 1016	20	ug/Kg	U	20	UJ	7L
B212-PBH-16-02	8082	RES	AROCLOR 1016	18	ug/Kg	U	18	UJ	7L
B212-RB201-W	8082	RES	AROCLOR 1016	0.47	ug/L	U	0.47	UJ	7L
B212-RB202-W	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	7L
B212-PBH-11-02	8082	RES	AROCLOR 1221	20	ug/Kg	U	20	UJ	7L
B212-PBH-16-02	8082	RES	AROCLOR 1221	18	ug/Kg	U	18	UJ	7L
B212-RB201-W	8082	RES	AROCLOR 1221	0.47	ug/L	U	0.47	UJ	7L
B212-RB202-W	8082	RES	AROCLOR 1221	0.48	ug/L	U	0.48	UJ	7L
B212-PBH-11-02	8082	RES	AROCLOR 1232	20	ug/Kg	U	20	UJ	7L
B212-PBH-16-02	8082	RES	AROCLOR 1232	18	ug/Kg	U	18	UJ	7L
B212-RB201-W	8082	RES	AROCLOR 1232	0.47	ug/L	U	0.47	UJ	7L
B212-RB202-W	8082	RES	AROCLOR 1232	0.48	ug/L	U	0.48	UJ	7L
B212-PBH-11-02	8082	RES	AROCLOR 1242	20	ug/Kg	U	20	UJ	7L
B212-PBH-16-02	8082	RES	AROCLOR 1242	18	ug/Kg	U	18	UJ	7L
B212-RB201-W	8082	RES	AROCLOR 1242	0.47	ug/L	U	0.47	UJ	7L
B212-RB202-W	8082	RES	AROCLOR 1242	0.48	ug/L	U	0.48	UJ	7L
B212-PBH-11-02	8082	RES	AROCLOR 1248	20	ug/Kg	U	20	UJ	7L
B212-PBH-16-02	8082	RES	AROCLOR 1248	200	ug/Kg		200	J-	7L
B212-RB201-W	8082	RES	AROCLOR 1248	0.47	ug/L	U	0.47	UJ	7L
B212-RB202-W	8082	RES	AROCLOR 1248	0.48	ug/L	U	0.48	UJ	7L

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6753
Date Completed: July 24, 2008	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-PBH-11-02	8082	RES	AROCLOR 1254	20	ug/Kg	U	20	UJ	7L
B212-PBH-16-02	8082	RES	AROCLOR 1254	18	ug/Kg	U	18	UJ	7L
B212-RB201-W	8082	RES	AROCLOR 1254	0.47	ug/L	U	0.47	UJ	7L
B212-RB202-W	8082	RES	AROCLOR 1254	0.48	ug/L	U	0.48	UJ	7L
B212-PBH-11-02	8082	RES	AROCLOR 1260	20	ug/Kg	U	20	UJ	7L
B212-PBH-16-02	8082	RES	AROCLOR 1260	18	ug/Kg	U	18	UJ	7L
B212-RB201-W	8082	RES	AROCLOR 1260	0.47	ug/L	U	0.47	UJ	7L
B212-RB202-W	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	7L
B212-PBH-11-02	8082	RES	AROCLOR 1262	20	ug/Kg	U	20	UJ	7L
B212-PBH-16-02	8082	RES	AROCLOR 1262	18	ug/Kg	U	18	UJ	7L
B212-RB201-W	8082	RES	AROCLOR 1262	0.47	ug/L	U	0.47	UJ	7L
B212-RB202-W	8082	RES	AROCLOR 1262	0.48	ug/L	U	0.48	UJ	7L
B212-PBH-11-02	8082	RES	AROCLOR 1268	20	ug/Kg	U	20	UJ	7L
B212-PBH-16-02	8082	RES	AROCLOR 1268	18	ug/Kg	U	18	UJ	7L
B212-RB201-W	8082	RES	AROCLOR 1268	0.47	ug/L	U	0.47	UJ	7L
B212-RB202-W	8082	RES	AROCLOR 1268	0.48	ug/L	U	0.48	UJ	7L

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
6	Method blank contamination impacted positive result.
7L	Surrogate recovery outside control limits. Result has a low bias.
12	Result is below project reporting limit, but above MDL.
23L	Continuing calibration verification percent difference exceeded control limits. Result has a low bias.
28	Calibration blank contamination is present.
32	Non-detect, concentration is same as method blank

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6924
Date Completed: 07/24/2008	Data Validation Chemist: B. Krajewski

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in the Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Trip Blank not required. Field duplicate included.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes Metals MS/MSD not designated for any project sample; no project samples used for batch metals MS/MSD.
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	Yes – Samples for Method 8082 analysis were rextracted and reanalyzed due to low LCS/LCSD recovery.

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6924
Date Completed: 07/24/2008	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	Yes – See Hold Time Outlier Report. Method 8082 samples reextracted after hold time expired. Results reported from original extraction.
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier Report. Al and Mg detected in ICB/CCBs.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	No – See Method Blank Outlier Report No qualifiers applied based on ICB/CCBs.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	No – TCMX recovery low for LCS/LCSD. DCB recovery within limits.
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. Both Method 8082 surrogates outside of limits for reextractions. Results not reported. From original extractions, no sample except B212-PBH-18-01/D had recovery of both surrogates outside of limits. For sample B212-PBH-18-01/D recovery of both surrogates was high. No qualifiers applied.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	NA
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	No – Aroclor 1016 recovery low for LCS/LCSD. Associated sample results qualified "UJ".
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	Yes – Samples for Method 8082 analysis were rextracted and reanalyzed due to low LCS/LCSD recovery.

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6924
Date Completed: 07/24/2008	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Do field duplicate results show good precision for all compounds except TICs?	No – Aroclor 1254 detected in sample B212-PBH-18-01 (40 ug/Kg) but not in field duplicate (22 ug/Kg). Not detected in reextraction of either. Aroclor 1254 results for B212-PBH-18-01 and B212-PBH-18-01/D qualified "J" and "UJ".

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Serial dilution analyzed on sample from digestion batch – not from this SDG.
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes – Met for primary column.
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Method 8082 results qualified based on LCS recovery and field duplicate results.

Key:

ADR = Automated Data Review

AP = Acid Phenol

BN = Base Neutral

CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification
NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Surrogate Recovery Outlier Report

Lab Report Batch: A08-6924 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-PBH-17-01	A8692401RE	8082	1.00	SO	DECACHLOROBIPHENYL	56	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	59	70.0	130.0	10.0	All Target
B212-PBH-17-02	A8692402RE	8082	1.00	SO	DECACHLOROBIPHENYL	49	70.0	130.0	10.0	All Target
	A8692402				TETRACHLORO-M-XYLENE	69	70.0	130.0	10.0	All Target
	A8692402RE				TETRACHLORO-M-XYLENE	54	70.0	130.0	10.0	All Target
B212-PBH-18-01	A8692403	8082	1.00	SO	DECACHLOROBIPHENYL	320	70.0	130.0	10.0	All Target
	A8692403RE				DECACHLOROBIPHENYL	51	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	60	70.0	130.0	10.0	All Target
B212-PBH-18-01/D	A8692407	8082	1.00	SO	DECACHLOROBIPHENYL	481	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	229	70.0	130.0	10.0	All Target
B212-PBH-18-02	A8692404RE	8082	1.00	SO	TETRACHLORO-M-XYLENE	69	70.0	130.0	10.0	All Target
B212-PBH-19-01	A8692405RE	8082	1.00	SO	DECACHLOROBIPHENYL	54	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	61	70.0	130.0	10.0	All Target
B212-PBH-20-01	A8692408RE	8082	1.00	SO	DECACHLOROBIPHENYL	60	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	64	70.0	130.0	10.0	All Target
B212-PBH-20-02	A8692409RE	8082	1.00	SO	DECACHLOROBIPHENYL	53	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	56	70.0	130.0	10.0	All Target
B212-PBH-21-01	A8692410RE	8082	1.00	SO	TETRACHLORO-M-XYLENE	66	70.0	130.0	10.0	All Target

Project Number and Name: ***002699.ID07.01 - NYSDEC Site Characterization of Buoy 212***

Surrogate Recovery Outlier Report

Lab Report Batch: A08-6924 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-PBH-21-02	A8692411	8082	1.00	SO	TETRACHLORO-M-XYLENE	46	70.0	130.0	10.0	All Target
	A8692411RE				TETRACHLORO-M-XYLENE	65	70.0	130.0	10.0	All Target
B212-PBH-22-01	A8692412RE	8082	1.00	SO	DECACHLOROBIPHENYL	59	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	62	70.0	130.0	10.0	All Target

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: A08-6924 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
B212-PBH-17-02	A8692402	8082	SO	AROCLOR 1254	J	22	24	ug/Kg
B212-PBH-19-02	A8692406RE			AROCLOR 1248	J	8.8	22	ug/Kg
B212-PBH-20-01	A8692408			AROCLOR 1248	J	7.9	24	ug/Kg
				AROCLOR 1254	J	14	24	ug/Kg
B212-PBH-21-02	A8692411			AROCLOR 1248	J	6.0	22	ug/Kg
B212-PBH-22-01	A8692412RE			AROCLOR 1248	J	14	21	ug/Kg

Method Blank Outlier Report

Lab Reporting Batch : A08-6924 **Lab ID:** TALBUF
Analysis Method : 6010B **Analysis Date :** 06/19/2008
Preparation Type : 3050B **Preparation Date :** 06/18/2008
Method Blank Lab Sample ID : A8692414 **Preparation Batch :** A8B17262

ZINC	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	0.710	0.400	mg/Kg	B	

ZINC contamination found in the method blank did not qualify any samples.

Laboratory Control Sample / Laboratory Control Sample Duplicate Outlier Report

Method Batch : A8B17330 **Analysis Method :** 8082 **Analysis Date :** 06/26/2008

Preparation Batch : A8B17330 **Preparation Type :** 3550B **Preparation Date :** 06/19/2008

Lab Reporting Batch : A08-6924 **Lab ID:** TALBUF

			Reported Values		Project Limits (Percent)			
LCS Lab Sample ID	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point**	**Lower Limit**	**Upper Limit**	**RPD**
A8B1733001	SO	AROCLOR 1016	43		10.00	70.00	130.00	40.00
A8B1733002		AROCLOR 1016	32	29	10.00	70.00	130.00	40.00

Associated Samples

Client Sample ID	Lab Sample ID
B212-PBH-17-01	A8692401
B212-PBH-17-02	A8692402
B212-PBH-18-01	A8692403
B212-PBH-18-01/D	A8692407
B212-PBH-18-02	A8692404
B212-PBH-19-01	A8692405
B212-PBH-19-02	A8692406
B212-PBH-20-01	A8692408
B212-PBH-20-02	A8692409
B212-PBH-21-01	A8692410
B212-PBH-21-02	A8692411
B212-PBH-22-01	A8692412

Scope of Data Qualification: The outlier in the LCS qualifies that analyte in all samples with the same Preparation Batch ID as the LCS

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

QC Outlier Report: Holding Times

Lab Report Batch: A08-6924 **Lab ID:** TALBUF

					Actual Holding Time			Criteria				Reported Dates (and Times)		
Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Prep Method	Coll To Prep	Prep To Ana	Coll To Ana	Coll To Prep	Prep To Ana	Coll To Ana	Unit of Meas	Collection Date	Preparation Date	Analysis Date
B212-PBH-17-01	A8692401RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-17-02	A8692402RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-18-01	A8692403RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-18-01/D	A8692407RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-18-02	A8692404RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-19-01	A8692405RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-19-02	A8692406RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-20-01	A8692408RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-20-02	A8692409RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-21-01	A8692410RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-21-02	A8692411RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008
B212-PBH-22-01	A8692412RE	8082	SO	3550B	19.0	1.0		14	40		Days	06/11/2008	06/30/2008	07/01/2008

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6924
Date Completed: July 24, 2008	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A08-6924	06/13/2008 14:30

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-PBH-17-01	SO	A8692401	06/11/2008 07:42	
B212-PBH-17-02	SO	A8692402	06/11/2008 07:50	
B212-PBH-18-01	SO	A8692403	06/11/2008 08:06	
B212-PBH-18-01/D	SO	A8692407	06/11/2008 08:09	FD
B212-PBH-18-02	SO	A8692404	06/11/2008 08:12	
B212-PBH-19-01	SO	A8692405	06/11/2008 08:34	
B212-PBH-19-02	SO	A8692406	06/11/2008 08:41	
B212-PBH-20-01	SO	A8692408	06/11/2008 11:21	
B212-PBH-20-02	SO	A8692409	06/11/2008 11:28	
B212-PBH-21-01	SO	A8692410	06/11/2008 11:38	
B212-PBH-21-02	SO	A8692411	06/11/2008 11:44	
B212-PBH-22-01	SO	A8692412	06/11/2008 12:06	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	1
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	2
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	3
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	12

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-PBH-21-02	7471A	RES	MERCURY	0.016	mg/Kg	B	0.016	J	12
B212-PBH-17-01	8082	RES	AROCLOR 1016	22	ug/Kg	U	22	UJ	10L
B212-PBH-17-02	8082	RES	AROCLOR 1016	24	ug/Kg	U	24	UJ	10L
B212-PBH-18-01	8082	RES	AROCLOR 1016	23	ug/Kg	U	23	UJ	10L
B212-PBH-18-01/D	8082	RES	AROCLOR 1016	22	ug/Kg	U	22	UJ	10L

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6924
Date Completed: July 24, 2008	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-PBH-18-02	8082	RES	AROCLOR 1016	20	ug/Kg	U	20	UJ	10L
B212-PBH-19-01	8082	RES	AROCLOR 1016	23	ug/Kg	U	23	UJ	10L
B212-PBH-19-02	8082	RES	AROCLOR 1016	22	ug/Kg	U	22	UJ	10L
B212-PBH-20-01	8082	RES	AROCLOR 1016	24	ug/Kg	U	24	UJ	10L
B212-PBH-20-02	8082	RES	AROCLOR 1016	22	ug/Kg	U	22	UJ	10L
B212-PBH-21-01	8082	RES	AROCLOR 1016	21	ug/Kg	U	21	UJ	10L
B212-PBH-21-02	8082	RES	AROCLOR 1016	22	ug/Kg	U	22	UJ	10L
B212-PBH-22-01	8082	RES	AROCLOR 1016	21	ug/Kg	U	21	UJ	10L
B212-PBH-18-01	8082	RES	AROCLOR 1254	40	ug/Kg		40	J	16
B212-PBH-18-01/D	8082	RES	AROCLOR 1254	22	ug/Kg	U	22	UJ	16

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
10L	LCS recovery outside control limits. Result has a low bias.
12	Result is below project reporting limit, but above MDL.
16	Field duplicate RPD exceeded control limits.

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	**LAB SDG ID: A08-6926**
Date Completed: 07/24/2008	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in the Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	No – Sample identified as B212-PBH-19a-01 listed on COC but identified as B212-PBH-19a-02 in report/EDD. Corrected to match COC.
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Trip Blank not required. Field duplicate and rinsates included.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes Metals MS/MSD not designated for any project sample; no project samples used for batch metals MS/MSD.
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	Yes – Eight samples analyzed for Method 8082 at dilutions based on concentrations detected.

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6926
Date Completed: 07/24/2008	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier Report. Several metals detected in ICB/CCBs.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	Yes – See Method Blank Outlier Report Cu and Zn positive results for rinsate samples qualified “U” based on ICB/CCBs.
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	No – Both surrogate recoveries low for MB/LCS associated with rinsates
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. Qualifiers applied to samples with both Method 8082 surrogates outside of limits.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were $\leq$30%, then “R” flag associated non-detect values.*	Yes Spike diluted out of Method 8082 MS/MSD for sample B212-PBH-SS20A-01.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are “J” flagged and non-detects are “J” flagged if low. Reject data with recovery <10%.*	No – Aroclor 1016 recovery low for LCS/LCSD. Associated soil sample results qualified “UJ”.
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	Yes – Eight samples analyzed for Method 8082 at dilutions based on concentrations detected.
Do field duplicate results show good precision for all compounds except TICs?	No – See Table 4 Field Duplicate Summary Report

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6926
Date Completed: 07/24/2008	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes CRI recovery low for Cd and Hg associated with soil samples. Results qualified "J-" .
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Serial dilution analyzed on sample from digestion batch – not from this SDG.
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes – Met for primary column.
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Method 8082 results qualified based on field duplicate results, LCS and surrogate recoveries. Metals results qualified based on CCB results and CRI recoveries.

Key:

ADR = Automated Data Review
AP = Acid Phenol
BN = Base Neutral
CCV = Continuing calibration verification
COC = Chain-of-custody
CVAA = Cold Vapor Automatic Absorption
GC = Gas Chromatography
GC/MS = Gas Chromatography/Mass Spectrometry
ICP = Inductively Coupled Plasma Argon Spectrometry
ICS = Interference check standard
ICV = Initial calibration verification

NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

Table 4: Field Duplicate Summary Report

Lab SDG: **A08-6926** **Lab ID:TALBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-PBH-28-01	B212-PBH-28-01/D	8082

Method: **8082**

		Field Sample				Field Sample Duplicate*								
Matrix	**Analyte**	**Sample ID**	**Type**	**Result**	**(Q)**	**Field Dup ID**	**Type**	**Result**	**(Q)**	**%RPD -**	**Limits**	**Units**	**Rating**	**Qual**
SO	AROCLOR 1248	B212-PBH-28-01	RES	2000		B212-PBH-28-01/D	RES	690		97.4	70	ug/Kg	Poor	J

***Field Duplicate Results with one or both results ND are not included in this report**

Surrogate Recovery Outlier Report

Lab Report Batch: A08-6926 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-PBH-SS208A-01MSD	A8692606SD	8082	1.00	SO	TETRACHLORO-M-XYLENE	61	70.0	130.0	10.0	All Target
B212-RB203-W	A8692615	8082	1.00	AQ	DECACHLOROBIPHENYL	58	70.0	130.0	10.0	All Target
B212-RB204-W	A8692616	8082	1.00	AQ	TETRACHLORO-M-XYLENE	69	70.0	130.0	10.0	All Target
B212-RB-205-W	A8692618	8082	1.00	AQ	DECACHLOROBIPHENYL	61	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	68	70.0	130.0	10.0	All Target
B212-RB-206-W	A8692619	8082	1.00	AQ	DECACHLOROBIPHENYL	61	70.0	130.0	10.0	All Target
					TETRACHLORO-M-XYLENE	69	70.0	130.0	10.0	All Target

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: A08-6926 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
B212-PBH-22-02	A8692601	8082	SO	AROCLOR 1248	J	13	21	ug/Kg
				AROCLOR 1254	J	13	21	ug/Kg
B212-PBH-23A-01	A8692605			AROCLOR 1248	J	12	21	ug/Kg
B212-PBH-24-01	A8692608			AROCLOR 1254	J	13	20	ug/Kg
B212-PBH-26-01	A8692610			AROCLOR 1248	J	14	18	ug/Kg
				AROCLOR 1254	J	14	18	ug/Kg
B212-PBH-27-01	A8692612			AROCLOR 1248	J	6.6	21	ug/Kg
				AROCLOR 1254	J	13	21	ug/Kg
B212-PBH-27-02	A8692613			AROCLOR 1254	J	16	22	ug/Kg
B212-PBH-SS208A-01	A8692606			AROCLOR 1242	J	5.2	20	ug/Kg

Method Blank Outlier Report

Lab Reporting Batch :	A08-6926	**Lab ID:**	TALBUF
Analysis Method :	7470A	**Analysis Date :**	06/24/2008
Preparation Type :	Gen Prep	**Preparation Date :**	06/24/2008
Method Blank Lab Sample ID :	A8692621	**Preparation Batch :**	A8B17629

MERCURY	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.137**	**0.120**	**ug/L**	**B**	

MERCURY contamination found in the method blank did not qualify any samples.

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : A8B17331 **Analysis Method :** 8082 **Analysis Date :** 06/26/2008
Preparation Batch : A8B17331 **Preparation Type :** 3550B **Preparation Date :** 06/19/2008
Lab Reporting Batch : A08-6926 **Lab ID:** TALBUF

				Reported *		Project Limits (Percent)			
Client Sample ID	**Lab Sample ID**	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point****	**Lower Limit**	**Upper Limit**	**RPD**
B212-PBH-SS20A-01MS	A8692607MS	SO	AROCLOR 1016	0		10.00	70.00	130.00	40.00
			AROCLOR 1260	0		10.00	70.00	130.00	40.00
B212-PBH-SS20A-01MS	A8692607SD		AROCLOR 1016	0		10.00	70.00	130.00	40.00
			AROCLOR 1260	0		10.00	70.00	130.00	40.00

Associated Samples: Parent sample only

Client Sample ID	Lab Sample ID
B212-PBH-SS208A-01	A8692606
B212-PBH-SS20A-01	A8692607

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

Laboratory Control Sample / Laboratory Control Sample Duplicate Outlier Report

Method Batch : A8B17331 **Analysis Method :** 8082 **Analysis Date :** 06/26/2008

Preparation Batch : A8B17331 **Preparation Type :** 3550B **Preparation Date :** 06/19/2008

Lab Reporting Batch : A08-6926 **Lab ID:** TALBUF

			Reported Values		Project Limits (Percent)			
LCS Lab Sample ID	**Matrix**	**Analyte Name**	**Percent Recovery**	**RPD**	**Rejection Point**	**Lower Limit**	**Upper Limit**	**RPD**
A8B1733101	SO	AROCLOR 1016	68		10.00	70.00	130.00	40.00

Associated Samples

Client Sample ID	Lab Sample ID
B212-PBH-19A-01	A8692604
B212-PBH-22-02	A8692601
B212-PBH-23-01	A8692602
B212-PBH-23-02	A8692603
B212-PBH-23A-01	A8692605
B212-PBH-24-01	A8692608
B212-PBH-25-01	A8692609
B212-PBH-26-01	A8692610
B212-PBH-26-02	A8692611
B212-PBH-27-01	A8692612
B212-PBH-27-02	A8692613
B212-PBH-28-01	A8692614
B212-PBH-28-01/D	A8692617
B212-PBH-SS208A-01	A8692606
B212-PBH-SS20A-01	A8692607

Scope of Data Qualification: The outlier in the LCS qualifies that analyte in all samples with the same Preparation Batch ID as the LCS

Project Number and Name: 002699.ID07.01 - NYSDEC Site Characterization of Buoy 212

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6926
Date Completed: July 24, 2008	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A08-6926	06/13/2008 14:38

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-PBH-19A-01	SO	A8692604	06/12/2008 07:02	
B212-PBH-22-02	SO	A8692601	06/11/2008 12:11	
B212-PBH-23-01	SO	A8692602	06/11/2008 12:32	
B212-PBH-23-02	SO	A8692603	06/11/2008 12:35	
B212-PBH-23A-01	SO	A8692605	06/12/2008 07:08	
B212-PBH-24-01	SO	A8692608	06/12/2008 07:39	
B212-PBH-25-01	SO	A8692609	06/12/2008 07:45	
B212-PBH-26-01	SO	A8692610	06/12/2008 08:02	
B212-PBH-26-02	SO	A8692611	06/12/2008 08:08	
B212-PBH-27-01	SO	A8692612	06/12/2008 08:18	
B212-PBH-27-02	SO	A8692613	06/12/2008 08:21	
B212-PBH-28-01	SO	A8692614	06/12/2008 08:39	
B212-PBH-28-01/D	SO	A8692617	06/12/2008 08:39	FD
B212-PBH-SS208A-01	SO	A8692606	06/12/2008 07:18	
B212-PBH-SS208A-01MS	SO	A8692606MS	06/12/2008 07:18	MS
B212-PBH-SS208A-01MSD	SO	A8692606SD	06/12/2008 07:18	MSD
B212-PBH-SS20A-01	SO	A8692607	06/12/2008 07:25	
B212-PBH-SS20A-01MS	SO	A8692607MS	06/12/2008 07:25	MS
B212-PBH-SS20A-01MSD	SO	A8692607SD	06/12/2008 07:25	MSD
B212-RB203-W	AQ	A8692615	06/11/2008 17:36	EB
B212-RB204-W	AQ	A8692616	06/11/2008 17:38	EB
B212-RB-205-W	AQ	A8692618	06/13/2008 14:34	EB
B212-RB-206-W	AQ	A8692619	06/13/2008 14:37	EB

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	4
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	4
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	4

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6926
Date Completed: July 24, 2008	Data Validation Chemist: BKrajewski

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	2
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	2
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	15

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-RB203-W	6010B	RES	ALUMINUM	187	ug/L	B	187	J	12
B212-RB-206-W	6010B	RES	ALUMINUM	61.2	ug/L	B	61.2	J	12
B212-RB203-W	6010B	RES	CHROMIUM	2.2	ug/L	B	2.2	J	12
B212-RB203-W	6010B	RES	COPPER	1.7	ug/L	B	1.7	U	28
B212-RB204-W	6010B	RES	COPPER	1.4	ug/L	B	1.4	U	28
B212-RB-205-W	6010B	RES	IRON	21.0	ug/L	B	21.0	J	12
B212-RB-206-W	6010B	RES	MANGANESE	2.8	ug/L	B	2.8	J	12
B212-RB203-W	6010B	RES	NICKEL	2.5	ug/L	B	2.5	J	12
B212-RB204-W	6010B	RES	NICKEL	2.9	ug/L	B	2.9	J	12
B212-RB-205-W	6010B	RES	NICKEL	3.4	ug/L	B	3.4	J	12
B212-RB-206-W	6010B	RES	NICKEL	3.3	ug/L	B	3.3	J	12
B212-RB-206-W	6010B	RES	ZINC	7.8	ug/L	B	7.8	U	28
B212-PBH-23A-01	6010B Short	RES	CADMIUM	0.43	mg/Kg		0.43	J-	23L
B212-PBH-24-01	6010B Short	RES	CADMIUM	0.11	mg/Kg	B	0.11	J-	23L
B212-PBH-23A-01	7471A	RES	MERCURY	0.013	mg/Kg	B	0.013	J-	23L
B212-PBH-24-01	7471A	RES	MERCURY	0.013	mg/Kg	B	0.013	J-	23L
B212-PBH-19A-01	8082	RES	AROCLOR 1016	21	ug/Kg	U	21	UJ	10L
B212-PBH-22-02	8082	RES	AROCLOR 1016	21	ug/Kg	U	21	UJ	10L
B212-PBH-23-01	8082	RES	AROCLOR 1016	20	ug/Kg	U	20	UJ	10L
B212-PBH-23-02	8082	RES	AROCLOR 1016	230	ug/Kg	U	230	UJ	10L
B212-PBH-23A-01	8082	RES	AROCLOR 1016	21	ug/Kg	U	21	UJ	10L
B212-PBH-24-01	8082	RES	AROCLOR 1016	20	ug/Kg	U	20	UJ	10L
B212-PBH-25-01	8082	RES	AROCLOR 1016	420	ug/Kg	U	420	UJ	10L
B212-PBH-26-01	8082	RES	AROCLOR 1016	18	ug/Kg	U	18	UJ	10L

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6926
Date Completed: July 24, 2008	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-PBH-26-02	8082	RES	AROCLOR 1016	98	ug/Kg	U	98	UJ	10L
B212-PBH-27-01	8082	RES	AROCLOR 1016	21	ug/Kg	U	21	UJ	10L
B212-PBH-27-02	8082	RES	AROCLOR 1016	22	ug/Kg	U	22	UJ	10L
B212-PBH-28-01	8082	RES	AROCLOR 1016	420	ug/Kg	U	420	UJ	10L
B212-PBH-28-01/D	8082	RES	AROCLOR 1016	97	ug/Kg	U	97	UJ	10L
B212-PBH-SS208A-01	8082	RES	AROCLOR 1016	20	ug/Kg	U	20	UJ	10L
B212-PBH-SS20A-01	8082	RES	AROCLOR 1016	420	ug/Kg	U	420	UJ	10L
B212-RB-205-W	8082	RES	AROCLOR 1016	0.47	ug/L	U	0.47	UJ	7L
B212-RB-206-W	8082	RES	AROCLOR 1016	0.48	ug/L	U	0.48	UJ	7L
B212-RB-205-W	8082	RES	AROCLOR 1221	0.47	ug/L	U	0.47	UJ	7L
B212-RB-206-W	8082	RES	AROCLOR 1221	0.48	ug/L	U	0.48	UJ	7L
B212-RB-205-W	8082	RES	AROCLOR 1232	0.47	ug/L	U	0.47	UJ	7L
B212-RB-206-W	8082	RES	AROCLOR 1232	0.48	ug/L	U	0.48	UJ	7L
B212-RB-205-W	8082	RES	AROCLOR 1242	0.47	ug/L	U	0.47	UJ	7L
B212-RB-206-W	8082	RES	AROCLOR 1242	0.48	ug/L	U	0.48	UJ	7L
B212-PBH-28-01	8082	RES	AROCLOR 1248	2000	ug/Kg		2000	J	16
B212-PBH-28-01/D	8082	RES	AROCLOR 1248	690	ug/Kg		690	J	16
B212-RB-205-W	8082	RES	AROCLOR 1248	0.47	ug/L	U	0.47	UJ	7L
B212-RB-206-W	8082	RES	AROCLOR 1248	0.48	ug/L	U	0.48	UJ	7L
B212-RB-205-W	8082	RES	AROCLOR 1254	0.47	ug/L	U	0.47	UJ	7L
B212-RB-206-W	8082	RES	AROCLOR 1254	0.48	ug/L	U	0.48	UJ	7L
B212-RB-205-W	8082	RES	AROCLOR 1260	0.47	ug/L	U	0.47	UJ	7L
B212-RB-206-W	8082	RES	AROCLOR 1260	0.48	ug/L	U	0.48	UJ	7L
B212-RB-205-W	8082	RES	AROCLOR 1262	0.47	ug/L	U	0.47	UJ	7L
B212-RB-206-W	8082	RES	AROCLOR 1262	0.48	ug/L	U	0.48	UJ	7L
B212-RB-205-W	8082	RES	AROCLOR 1268	0.47	ug/L	U	0.47	UJ	7L
B212-RB-206-W	8082	RES	AROCLOR 1268	0.48	ug/L	U	0.48	UJ	7L

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description

7L	Surrogate recovery outside control limits. Result has a low bias.
10L	LCS recovery outside control limits. Result has a low bias.
12	Result is below project reporting limit, but above MDL.
16	Field duplicate RPD exceeded control limits.
23L	Continuing calibration verification percent difference exceeded control limits. Result has a low bias.
28	Calibration blank contamination is present.

G Well Purge and Sample Records

ecology and environment engineering, p.c.
International Specialists in the Environment
BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 | Well ID: B212-MW-01
EEEPC Project No.: 000699.NV23.02 | Date: 3- -06

Initial Depth to Water: 10.72 feet TOIC | Start Time: 1645
Total Well Depth: 41.68 feet TOIC | End Time:
Depth to Pump: 39 feet TOIC | ☐ Bailer ☒ Pump
Initial Pump Rate: 1 Lpm/gpm | Pump Type: 12v Submersible Mini Typhoon
adjusted to: at minutes | Well Diameter: 2 inches
adjusted to: at minutes | 1x Well Volume: 5 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1645	0	6.62	9.5	—	1231	—	>1,000	10.68
1658	5	6.62	9.5	—	1186	—	61.8	11.44
1714	10	6.61	9.3	—	1191	—	44.7	11.44
1731	15	6.64	9.2	—	1192	—	44.0	11.39
Final Sample Data:								

Sample ID: B212-MW01-GW | Duplicate? ☐ | Dupe Samp ID:
Sample Time: 1733 | MS/MSD? ☐

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☒ Hg

Methods:
- ☐ CLP
- ☐ SW846
- ☐ Drink. Wtr.
- ☐
- ☐

Comments:

Sampler(s): Dan Gladzon & Jim Mays

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International Specialists in the Environment
BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212
EEEPC Project No.: 000699.NV23.02

Well ID: B212-MW-02
Date: 3-27-06

Initial Depth to Water: 7.44 feet TOIC
Total Well Depth: 38.16 feet TOIC
Depth to Pump: 36 feet TOIC
Initial Pump Rate: 1 Lpm / gpm
adjusted to: ______ at ______ minutes
adjusted to: ______ at ______ minutes

Start Time: 1331
End Time: 1421
☐ Bailer ☒ Pump
Pump Type: 12v Submersible Mini Typhoon
Well Diameter: 2 inches
1x Well Volume: 4.9 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1331	0	6.07	10.5	-	1176	-	>1,000	7.59
1345	4.9	6.53	10.4	-	1157	-	13.3	7.50
1403	9.8	6.54	10.4	-	1150	-	4.3	7.56
1418	14.7	6.57	10.5	-	1145	-	2.18	7.55
Final Sample Data:								

Sample ID: B212-MW-02-GW
Sample Time: 1420
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: ______

Analyses:
☐ VOCs
☐ SVOCs
☒ PCBs
☒ Metals
☒ Hg

Methods:
☐ CLP
☐ SW846
☐ Drink. Wtr.
☐ ______
☐ ______

Comments: ______

Sampler(s): Dan Cadzow & Jim Mays

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International Specialists in the Environment
BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212
Well ID: B212-MW-3S
EEEPC Project No.: 000699.NV23.02
Date: 3-27-06

Initial Depth to Water: 9.12 feet TOIC
Start Time: 1447
Total Well Depth: 14.94 feet TOIC
End Time: 1507
Depth to Pump: Bottom feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 0.8 Lpm / ~~gpm~~
Pump Type: Submersible - mini Typhoon
adjusted to: ______ at ______ minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: ≃ 1.0 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm or mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1447	0	7.38	10.2	–	464.7	–	49.8	9.35
1451	1	7.18	8.1	–	454.4	–	21.1	9.37
1455	2	7.08	8.1	–	453.9	–	5.84	9.37
1459	3	7.03	8.2	–	456.0	–	3.03	9.35
1503	4	7.01	8.0	–	460.1	–	1.67	9.34
1507	5	7.03	8.0	–	458.4	–	1.49	9.35
Final Sample Data:								

Sample ID: B212-MW-03S-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1508
MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☐ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐ ______
☒ Hg	☐ ______

Comments: ______

Sampler(s): Jim Mays & Bob Meyers

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International Specialists in the Environment
BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 Well ID: B212-MW-3D
EEEPC Project No.: 000699.NVZ3.02 Date: 3/27/2006

Initial Depth to Water: 13.32 feet TOIC Start Time: 1458
Total Well Depth: 49.55 feet TOIC End Time: 1600
Depth to Pump: 49.55 feet TOIC ☐ Bailer ☒ Pump
Initial Pump Rate: 1.0 Lpm / ~~gpm~~ Pump Type: Submersible - mini Typhoon
adjusted to: ____ at ____ minutes Well Diameter: 2 inches
adjusted to: ____ at ____ minutes 1x Well Volume: ≃ 5.8 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1458	0	6.64	9.9	—	1135	—	61.5	13.27
1520	5.8	6.58	9.7	—	1144	—	3.16	15.21
1539	~~11.6~~ 11.6	6.61	9.7	—	1141	—	1.51	15.45
1558	17.4	6.58	9.6	—	1143	—	1.13	15.32
Final Sample Data:								

Sample ID: B212-MW-3D-GW Duplicate? ☐ Dupe Samp ID: ____
Sample Time: ~~1659~~ 1559 DMC MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☐ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐ ____
☒ Hg	☐ ____

Comments: ____

Sampler(s): DMC (Dan Crzow) & Bob Meyers

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212
EEEPC Project No.: 000699.NV23.02

Well ID: B212-MW-04
Date: 3-27-06

Initial Depth to Water: 7.60 feet TOIC
Total Well Depth: 19.01 feet TOIC
Depth to Pump: Bottom feet TOIC
Initial Pump Rate: 0.4 Lpm / ~~gpm~~
adjusted to: 0.9 at 2 minutes
adjusted to: 0.4 at 8 minutes

Start Time: 1525
End Time: 1610
☐ Bailer ☒ Pump
Pump Type: Submersible- mini Typhoon
Well Diameter: 2 inches
1x Well Volume: ≃ 1.8 gallons

Top of Outer Casing

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1525	0	7.04	7.5	—	505.5	—	71.2	9.85
1533	1.8	7.09	7.5	—	503.2	—	15.1	14.56
1552	3.6	7.25	7.6	—	513.6	—	11.3	16.62
1610	5.4	7.15	7.5	—	509.4	—	15.0	20.2
	~~7.2~~							
Final Sample Data:								

Sample ID: B212-MW-04-GW
Sample Time: 1611
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID:

Analyses:
☐ VOCs
☐ SVOCs
☒ PCBs
☒ Metals
☒ Hg

Methods:
☐ CLP
☐ SW846
☐ Drink. Wtr.
☐
☐

Comments: Note Top of outer casing is 1.29' above TOIC.
* Pumping rate continuously drops and we increase again to ≃0.4 lpm
* Well nearly dry @ Sampling time for metals, dry after filling metals poly. Allowed well to recharge 10 min, then collected PCB portion of sample

Sampler(s): Jim Mays & Bob Meyers

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212
Well ID: B212-MW-05
EEEPC Project No.: 000699.NY23.02
Date: 3-27-06

Initial Depth to Water: 17.44 feet TOIC
Start Time: 1309
Total Well Depth: 25.05 feet TOIC
End Time:
Depth to Pump: 23 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.0 Lpm / gpm then is slowed
Pump Type: Submersible mini Typhoon
adjusted to: 1.0 at 25 minutes
Well Diameter: 2 inches
adjusted to: at minutes
1x Well Volume: ≈ 1.2 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1309	0	6.57	11.7	–	1428	–	>1000	17.69
1313	1.2	6.76	11.7	–	1423	–	650	18.20
1318	2.4	6.84	11.7	–	14.04	–	800	18.41
1322	3.6	6.85	11.7	–	14.02	–	771	18.60
1334	4.8	6.88	11.7	–	1371	–	120	19.80
1340	6.0	6.87	11.5	–	1313	–	950	19.91
1345	7.2	6.88	11.5	–	1303	–	38	20.10
1350	8.4	6.86	11.5	–	1309	–	36	20.24
1357	9.6	6.86	11.5	–	1310	–	25	20.33
Final Sample Data:								

Sample ID: B212-MW-05-GW
Duplicate? ☐
Dupe Samp ID:
Sample Time: 1358
MS/MSD? ☒

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☐ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☒ Hg
☐	☐

Comments:

Sampler(s): Jim Mays + Bob Meyers

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212
EEEPC Project No.: 000699.NY23.02
Well ID: B212-MW-06
Date: 3-28-06

Initial Depth to Water: 15.70 feet TOIC
Total Well Depth: 24.34 feet TOIC
Depth to Pump: 22 feet TOIC
Initial Pump Rate: 1.1 lpm / gpm
adjusted to: 0.9 at ~~08:08~~ 0811 ~~minutes~~
adjusted to: ______ at ______ minutes

Start Time: 0806
End Time: 0845
☐ Bailer ☒ Pump
Pump Type: Submersible
Well Diameter: 2 inches
1x Well Volume: 1.4 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
0806	0	6.22	9.2	–	569.0	–	>1,000	17.05
0809	1.4	6.15	9.3	–	1457	–	>1,003	16.68
0812	2.8	6.19	9.4	–	1559	–	>1,000	16.69
0821	4.2	6.18	9.4	–	1660	–	116	16.42
0830	5.6	6.08	9.5	–	1660	–	60.2	16.33
0841	~~6.0~~ 7.0	6.19	9.5	–	1651	–	16.4	16.31
Final Sample Data:								

Sample ID: B212-MW-06-GW
Sample Time: 0844
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: ______

Analyses:
☐ VOCs
☐ SVOCs
☒ PCBs
☒ Metals
☒ Hg

Methods:
☐ CLP
☐ SW846
☐ Drink. Wtr.
☐ ______
☐ ______

Comments: ______

Sampler(s): Dan Cadzow + Jim Mays

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212　　Well ID: B212-MW-07
EEEPC Project No.: 000699.NV23.02　　Date: 3-28-06

Initial Depth to Water: 7.79 ft TOIC　　Start Time: 0757
Total Well Depth: 18.15 ft TOIC　　End Time:
Depth to Pump: bottom ft TOIC　　☐ Bailer　☒ Pump
Initial Pump Rate: 1.0 L/min　　Pump Type: Submersible - mini Typhoon
adjusted to: ____ L/min at ____ minutes　　Well Diameter: 2 inches
adjusted to: ____ L/min at ____ minutes　　Well Volume: ≃ 1.7 gallons

Time	Purge Volume (gallons)	pH (s.u.)	Temp. (°C)	ORP (mV)	Conductivity (mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (ft)
0757	0	5.33	4.9	–	504.8	–	>1000	8.38
0803	1.7	6.20	4.3	–	508.3	–	600	8.23
0809	3.4	6.37	4.5	–	509.1	–	40	8.22
0815	5.1	6.41	4.4	–	509.2	–	23	8.22
0822	6.8	6.53	4.5	–	512.1	–	11	8.22
0828	8.5	6.55	4.6	–	512.0	–	12	8.22
0835	10.2	6.56	4.6	–	512.2	–	13	8.22
Final Sample Data:								

Sample ID: B212-MW-07-GW　　Duplicate? ☒
Sample Time: 0837　　MS/MSD? ☐

Sampler(s): Jim Mays & Bob Meyers
Comments:

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☐ SW846
☒ PCBs	☐ Drink. Water
☒ Metals	☐
☒ Hg	☐

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Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 FT. EDWARD, NY
Well ID: B212-MW01
EEEPC Project No.: 002699.ID07.01
Date: 6/14/06

Initial Depth to Water: 9.70 feet TOIC
Start Time: 1531
Total Well Depth: 41.85 feet TOIC
End Time: 1705
Depth to Pump: 40.85 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.0 Lpm / gpm
Pump Type: Submersible Mini-Typhoon 12V
adjusted to: ______ at ______ minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 5.24 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1531	0	7.21	11.6	–	857.6	–	59.2	10.88
1550	5.24	7.14	11.1	–	981.9	–	39.5	10.96
1612	10.48	7.25	11.2	–	1038	–	7.4	10.83
1628	15.72	7.33	11.6	–	1068	–	6.05	11.20
1643	20.96	7.34	11.2	–	1072	–	2.99	11.20
1700	26.20	7.37	11.0	–	1070	–	2.24	11.20
Final Sample Data:								

Sample ID: B212-MW-01-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1704
MS/MSD? ☐

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☒ Hg

Methods:
- ☐ CLP
- ☐ SW846
- ☐ Drink. Wtr.
- ☐ ______
- ☐ ______

Comments: ______

Sampler(s): Alex Humann, Larry Roell

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212

Well ID: B212-MW-02

EEEPC Project No.: 002699.ID07.01

Date: 6/14/06

Initial Depth to Water: 6.70 feet TOIC

Start Time: 11:11

Total Well Depth: 38.35 feet TOIC

End Time: 11:59

Depth to Pump: 37.35 feet TOIC

☐ Bailer ☒ Pump

Initial Pump Rate: 1.00 Lpm / gpm

Pump Type: Submersible mini typhoon 12V

adjusted to: – at – minutes

Well Diameter: 2 inches

adjusted to: – at – minutes

1x Well Volume: 5.16 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
11:13	0	6.87	11.8	–	1065	–	19.4	7.15
11:29	5	7.36	11.8	–	1072	–	2.40	7.20
11:42	10	7.40	11.7	–	1070	–	0.99	7.20
11:58	15	7.31	11.9	–	1066	–	1.35	7.14
Final Sample Data:								

Sample ID: B212-MW-02-GW

Duplicate? ☐

Dupe Samp ID:

Sample Time: 11:59

MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☐ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐
☒ Hg	☐

Comments:

Sampler(s): Eric O. Seria / Alec Heiman

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Bouy 212
Well ID: B212-MW-03S
EEEPC Project No.: 002699.ID07.01
Date: 6/14/06

Initial Depth to Water: 8.85 feet TOIC
Start Time: 9:30
Total Well Depth: 15.10 feet TOIC
End Time: 9:54
Depth to Pump: 14.10 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.20 lpm / gpm
Pump Type: submersible mini typhoon 12V
adjusted to: 0.75 L/min at 3 minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 1.02 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
9:31	0	7.84	11.2	–	466.9	–	29.1	9.42
9:35	1	6.89	11.2	–	473.3	–	8.31	9.38
9:40	2	6.71	10.6	–	473.2	–	3.65	9.26
9:44	3	6.67	10.4	–	475.3	–	2.44	9.15
9:49	4	6.68	11.3	–	479.4	–	2.29	9.38
9:53	5	6.67	11.2	–	474.5	–	1.42	9.39
Final Sample Data:								

Sample ID: B212-MW-03S-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 9:54
MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☐ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐ ______
☒ Hg	☐ ______

Comments: ______

Sampler(s): Gina Q. Seria / Alec Hermann

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Bouy 212
EEEPC Project No.: 002699.ID07.01
Initial Depth to Water: ~~14.10~~ 12.58 (GOS) feet TOIC
Total Well Depth: 49.80 feet TOIC
Depth to Pump: 48.80 feet TOIC
Initial Pump Rate: 1.0 Lpm / gpm
adjusted to: – at – minutes
adjusted to: – at – minutes

Well ID: B212-MW-03D
Date: 6/13/06
Start Time: 3:50pm
End Time: 5:10pm
☐ Bailer ☒ Pump
Pump Type: Submersible mini typhoon 12V
Well Diameter: 2 inches
1x Well Volume: 6.07 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C /°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
3:55	0	7.44	13.7	–	1052	–	48.0	14.10
4:20	6	7.40	12.1	–	1054	–	2.73	14.90
4:45	12	7.36	11.6	–	1054	–	1.02	14.71
5:10	18	7.36	11.9	–	1065	–	0.74	14.58
Final Sample Data:								

Sample ID: B212-MW-03D-GW
Sample Time: 5:11
Duplicate? ☐
MS/MSD? ☒
Dupe Samp ID:

Analyses:
☐ VOCs
☐ SVOCs
☒ PCBs
☒ Metals
☒ Hg

Methods:
☐ CLP
☐ SW846
☐ Drink. Wtr.
☐
☐

Comments:

Sampler(s): Erie O Seria / Alex Aiemann

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Bagy 212
Well ID: B212-MW-04
EEEPC Project No.: 002699.ID07.01
Date: 6/14/06

Initial Depth to Water: 7.0 feet TOIC
Start Time: 10:05
Total Well Depth: 18.70 feet TOIC
End Time: 10:50
Depth to Pump: 17.70 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 0.75 Lpm / gpm
Pump Type: Submersible mini typhoon 12V
adjusted to: – at – minutes
Well Diameter: 2 inches
adjusted to: – at – minutes
1x Well Volume: 1.91 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
10:05	0	6.73	12.1	–	476.2	–	21.9	8.74
10:15	2	6.86	11.0	–	466.3	–	17.3	16.65
10:29	4	6.78	16.8	–	488.6	–	18.1	17.70
* 10:32	(~) ~~6~~ 5	6.83	10.3	–	495.0	–	39.4	dry *
10:50	"recharged" water	6.95	11.1	–	493.2	–	21.1	
Final Sample Data:								

Sample ID: B212-MW-04-GW
Duplicate? ☒
Dupe Samp ID: B212-MW-04-GW/D
Sample Time: 10:50
MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☐ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐
☒ Hg	☐

Comments: * well dry after ~5 gallons purged
- allow well to recharge prior to sample collection

Sampler(s): Gina D. Seria / Alec Heiman

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 | Well ID: B212-MW-05
EEEPC Project No.: 002699.ID07.01 | Date: 6/14/06

Initial Depth to Water: 15.56 feet TOIC | Start Time: 12:11
Total Well Depth: 25.21 feet TOIC | End Time:
Depth to Pump: 24.21 feet TOIC | ☐ Bailer ☒ Pump
Initial Pump Rate: 1.00 Lpm / gpm | Pump Type: Submersible mini typhoon 12V
adjusted to: - at - minutes | Well Diameter: 2 inches
adjusted to: - at - minutes | 1x Well Volume: 1.57 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
12:13	0	6.77	13.1	-	1359	-	260	17.02
12:19	1.5	6.64	12.1	-	1314	-	234	17.71
12:24	3.0	6.62	12.2	-	1328	-	437	17.86
12:29	4.5	6.64	12.2	-	1329	-	88	18.30
12:34	6.0	6.70	12.1	-	1341	-	166	18.30
12:39	7.5	6.72	12.1	-	1296	-	354	18.35
12:49	(err) ~~10.0~~ 9.0	6.75	13.4	-	1304	-	411	18.11
13:04	10.5	6.74	12.4	-	1282	-	140	18.45
13:10	12.0	6.71	12.4	-	1291	-	123	18.35
13:16	13.5	6.68	11.8	-	1291	-	158	18.37
13:25	15.0	6.60	12.2	-	1274	-	328	19.32
13:33	16.5	6.61	13.0	-	1292	-	40.0	19.30
13:40	18.0	6.67	13.1	-	1291	-	47.2	19.31
13:46	19.5	6.65	12.9	-	1289	-	36.5	19.32
13:52	21.0	6.64	13.0	-	1290	-	32.1	19.30
Final Sample Data:								

Sample ID: B212-MW-05-GW | Duplicate? ☐ | Dupe Samp ID:
Sample Time: 1358 | MS/MSD? ☐

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☒ Hg

Methods:
- ☐ CLP
- ☐ SW846
- ☐ Drink. Wtr.
- ☐
- ☐

Comments:

Sampler(s): [illegible] / Alec [illegible], C. Roed[illegible]

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Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 Well ID: B212-MW06

EEEPC Project No.: 002699.I007.01 Date: 6/14/06

Initial Depth to Water: ~~15.56~~ 14.77 feet TOIC Start Time: 1446

Total Well Depth: ~~28.21~~ 24.75 feet TOIC End Time: 1528

Depth to Pump: 23.75 feet TOIC ☐ Bailer ☒ Pump

Initial Pump Rate: 1 Lpm / gpm Pump Type: ______

adjusted to: ______ at ______ minutes Well Diameter: 2 inches

adjusted to: ______ at ______ minutes 1x Well Volume: 1.63 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1446	0	6.56	13.4	–	1470	–	>1000	15.95
1450	1.63	6.65	10.9	–	1438	–	517	15.88
1457	3.2	6.62	10.7	–	1475	–	94.5	15.95
1503	4.8	6.62	10.7	–	1481	–	36.3	16.56
1510	6.4	6.59	11.3	–	1485	–	47.4	16.74
1516	8.0	6.62	10.6	–	1485	–	35.3	16.69
1522	9.6	6.58	10.3	–	1487	–	22.1	16.64
Final Sample Data:								

Sample ID: B212-MW-06-GW Duplicate? ☐ Dupe Samp ID: ______

Sample Time: 1528 MS/MSD? ☐

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☒ Hg

Methods:
- ☐ CLP
- ☐ SW846
- ☐ Drink. Wtr.
- ☐ ______
- ☐ ______

Comments: ______

Sampler(s): Alec Hufmann, Larry Rowell

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Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 Well ID: B212-MW-07
EEEPC Project No.: 002699.ID07.01 Date: 6/14/06

Initial Depth to Water: 6.50 feet TOIC Start Time: 1710
Total Well Depth: 18.05 feet TOIC End Time: 1741
Depth to Pump: 17.05 feet TOIC ☐ Bailer ☒ Pump
Initial Pump Rate: 1.2 Lpm / gpm Pump Type: Submersible mini Typhoon 12V
adjusted to: 1 Lpm at 1 minutes Well Diameter: 2 inches
adjusted to: ______ at ______ minutes 1x Well Volume: 1.88 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1710	0	7.22	10.9	—	543.3	—	>1000	7.50
1715	1.88	6.91	10.5	—	540.2	—	543	7.46
1723	3.76	6.83	10.9	—	543.3	—	63.0	7.38
1732	5.94	6.84	10.3	—	545.7	—	13.8	7.41
1736	7.82	6.80	10.3	—	546.4	—	8.69	7.40
Final Sample Data:								

Sample ID: B212-MW-07-GW Duplicate? ☐ Dupe Samp ID: ______
Sample Time: 1741 MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☐ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐ ______
☒ Hg	☐ ______

Comments: ______

Sampler(s): Alec Humann, Larry Riedl

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212, Ft. Edward, NY
Well ID: B212 - MW01
EEEPC Project No.: 002699. 1D07. 01
Date: 10/03/06

Initial Depth to Water: 11.24 feet TOIC
Start Time: 1455
Total Well Depth: 41.60 feet TOIC
End Time: 1540
Depth to Pump: 40.60 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.3 Lpm / gpm
Pump Type: Mini Typhoon 12V
adjusted to: ______ at ______ minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 5.0 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1455	0	7.49	11.4	—	1506	—	70.6	11.24
1510	5	7.48	11.0	—	1595	—	41.8	12.32
1525	10	7.50	11.1	—	1595	—	21.5	12.04
1540	15	7.51	10.9	—	1594	—	14.5	12.02
Final Sample Data:		7.51	10.9	—	1594	—	14.5	12.02

Sample ID: B212 - MW - 01 - GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1541
MS/MSD? ☐

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☐ ______

Methods:
- ☐ CLP
- ☐ SW846
- ☐ Drink. Wtr.
- ☐ ______
- ☐ ______

Comments: ______

Sampler(s): A. Humann / G. Senia

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212, Ft. Edward, NY
Well ID: B212-MW-Ø2
EEEPC Project No.: 002699.1D07.01
Date: 10/03/06

Initial Depth to Water: 7.65 feet TOIC
Start Time: 1355
Total Well Depth: 38.45 feet TOIC
End Time: 1445
Depth to Pump: 37.45 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.3 Lpm / gpm
Pump Type: Mini Typhoon 12V
adjusted to: ______ at ______ minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 5.0 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1400	0	7.09	12.9	—	1077	—	36.2	7.65
1415	5	7.46	11.7	—	1062	—	18.5	7.90
1430	10	7.52	11.5	—	1063	—	6.62	7.97
1445	15	7.60	11.2	—	1065	—	4.68	8.03
Final Sample Data:		7.60	11.2	—	1065	—	4.68	8.03

Sample ID: B212-MW-Ø2-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1446
MS/MSD? ☐

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☐ ______

Methods:
- ☐ CLP
- ☐ SW846
- ☐ Drink. Wtr.
- ☐ ______
- ☐ ______

Comments: ______

Sampler(s): G. Servia / A. Humann

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212, Ft. Edward, NY
Well ID: B212-MW-035
EEEPC Project No.: 002699.1D07.01
Date: 10/03/06

Initial Depth to Water: 10.71 feet TOIC
Start Time: 1135
Total Well Depth: 14.80 feet TOIC
End Time: 1152
Depth to Pump: 13.80 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.0 Lpm / gpm
Pump Type: Mini Typhoon 12V
adjusted to: ______ at ______ minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 1.0 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1140	0	7.53	15.5	—	559.2	—	23.0	10.71
1143	1	6.81	13.6	—	555.0	—	6.17	11.20
1146	2	6.82	13.4	—	555.1	—	3.67	11.55
1151	3	6.81	13.5	—	556.4	—	2.0	11.38
Final Sample Data:		6.81	13.5	—	556.4	—	2.0	11.38

Sample ID: B212-MW-Ø35-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1152
MS/MSD? ☐

Analyses:
☐ VOCs
☐ SVOCs
☒ PCBs
☒ Metals
☐ ______

Methods:
☐ CLP
☐ SW846
☐ Drink. Wtr.
☐ ______
☐ ______

Comments: ______

Sampler(s): A. Humann / G. Senia

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WELL PURGE & SAMPLE RECORD

Ø3D

Site Name/Location: Buoy 212 Ft. Edward, NY
EEEPC Project No.: 002699.1D07.01

Well ID: B212-MW-~~Ø5~~
Date: 10/03/06

Initial Depth to Water: 14.10 feet TOIC
Total Well Depth: 49.88 feet TOIC
Depth to Pump: 48.88 feet TOIC
Initial Pump Rate: 1.0 Lpm / gpm
adjusted to: 1.5 at 1053 minutes
adjusted to: ______ at ______ minutes

Start Time: 1015
End Time: 1120
☐ Bailer ☒ Pump
Pump Type: Mini Typhoon 12V
Well Diameter: 2 inches
1x Well Volume: 6.0 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1020	0	7.30	13.9	—	1044	—	33.7	14.10
1050	6	7.63	11.4	—	1053	—	7.78	15.47
1105	12	7.61	11.1	—	1059	—	7.78	16.74
1120	18	7.59	11.1	—	1060	—	8.22	16.79
Final Sample Data:		7.59	11.1	—	1060	—	8.22	16.79

Sample ID: B212-MW-Ø3D-GW
Sample Time: 1120
Duplicate? ☐
MS/MSD? ☒
Dupe Samp ID: ______

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☐ ______

Methods:
- ☐ CLP
- ☐ SW846
- ☐ Drink. Wtr.
- ☐ ______
- ☐ ______

Comments: ______

Sampler(s): G. Senia / A. Humann

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212, Ft. Edward NY
Well ID: B212-MW-04
EEEPC Project No.: 002699.1D07.01
Date: 10/03/06

Initial Depth to Water: 9.32 feet TOIC
Start Time: 1200
Total Well Depth: 19.30 feet TOIC
End Time: 1232
Depth to Pump: 18.30 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 0.8 Lpm / gpm
Pump Type: Mini Typhoon 12V
adjusted to: ______ at ______ minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 1.3 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1200	0	6.94	15.9	—	540.1	—	26.7	9.32
1212	1.5	7.04	14.7	—	540.3	—	29.0	14.1
1220	3.0	6.96	14.0	—	544.7	—	15.9	16.28
1230	4.5	6.97	13.9	—	544.1	—	24.8	NR
Final Sample Data:		6.97	13.9	—	544.1	—	24.8	NR

Sample ID: B212-MW-Ø4-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1232
MS/MSD? ☐

Analyses:
☐ VOCs
☐ SVOCs
☒ PCBs
☒ Metals
☐ ______

Methods:
☐ CLP
☐ SW846
☐ Drink. Wtr.
☐ ______
☐ ______

Comments: No water level reading due to low water level in well - indicator / sensor was hitting top of pump

Sampler(s): G. Senior / A. Humann

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Bldg 212 Well ID: B212-MW5
EEEPC Project No.: 002699 1007.01 Date: 9/29/06

Initial Depth to Water: 18.85 feet TOIC Start Time: 0938
Total Well Depth: 25.17 feet TOIC End Time: 1132
Depth to Pump: 22.17 feet TOIC ☐ Bailer ☒ Pump
Initial Pump Rate: ______ Lpm / gpm Pump Type: ______
adjusted to: ______ at ______ minutes Well Diameter: 2 inches
adjusted to: ______ at ______ minutes 1x Well Volume: 1.0 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (uS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)	TDS (ppm)
0938	0	6.47	12.6		1196		105		862
0945	1	6.48	11.7		1194		390		861
1009	3	6.47	12.2		1164		>1000		838
1025	4	6.50	12.0		1152		248		830
1115	resumed purge	6.43	12.4		1150		122		827
1132 Final Sample Data:		6.51	12.3		1146		420		825

Sample ID: B212-MW-05-GW Duplicate? ☐ Dupe Samp ID: ______
Sample Time: 1125 MS/MSD? ☐

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☒ Hg

Methods:
- ☐ CLP
- ☒ SW846
- ☐ Drink. Wtr.
- ☐
- ☐

Comments: 22.14 water level (1009)
stopped pumping at 0955 + resumed 1008
well pumping to dry & not recharging - adjusted flows + pump position
1025 - stopped purging to allow recharging

Sampler(s): B. Cole; B. Krajewski

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 2/2
EEEPC Project No.: 002699.1007.01
Well ID: B212-MW6
Date: 9/29/06

Initial Depth to Water: 17.24 feet TOIC
Total Well Depth: 24.74 feet TOIC
Depth to Pump: 21.74 feet TOIC
Initial Pump Rate: 0.33 Lpm gpm
adjusted to: ______ at ______ minutes
adjusted to: ______ at ______ minutes

Start Time: 0904
End Time: 0922
☐ Bailer ☒ Pump
Pump Type: ______
Well Diameter: 2 inches
1x Well Volume: 1.2 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)	(ppm) TDS
0904	0	6.31	11.8		1490		136		1087
0907	1	6.43	11.8		1486		271		1084
0911	2	6.41	11.5		1492		168		1090
0914	3	6.41	11.5		1492		45.1		1090
0917	4	6.42	11.5		1492		20.5		1090
0922 Final Sample Data:		6.46	11.7		1488		13.6		1075

Sample ID: B212-MW-06-GW
Sample Time: 0919
Duplicate? ☒
MS/MSD? ☐
Dupe Samp ID: B212-MW-06-GW/D
sample time: 1058

Analyses:
☐ VOCs
☐ SVOCs
☒ PCBs
☒ Metals
☒ Hg

Methods:
☐ CLP
☒ SW846
☐ Drink. Wtr.
☐ ______
☐ ______

Comments: ______

Sampler(s): B. Cole, B. Krajewski

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212
EEEPC Project No.: 002699.ID.07.01
Well ID: B212-MW-7
Date: 9/29/06

Initial Depth to Water: 9.15 feet TOIC
Total Well Depth: 18.3 feet TOIC
Depth to Pump: 15.3 feet TOIC
Initial Pump Rate: 0.125 Lpm gpm
adjusted to: ______ at ______ minutes
adjusted to: ______ at ______ minutes

Start Time: 0820
End Time: 0844
☐ Bailer ☒ Pump
Pump Type: ______
Well Diameter: 2 inches
1x Well Volume: 0.98 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)	TDS (ppm)
0820	0	5.98	14.1		521		482		360
0824	1	6.15	13.3		519		866		360
0828	2	6.24	12.7		518		288		360
0832	3	6.32	12.5		515		89.4		359
0836	4	6.36	12.4		514		54.5		358
0840	5	6.36	12.4		513		23.6		357
0844 Final Sample Data:		6.42	12.4		512		17.7		356

Sample ID: B212-MW-07-GW
Sample Time: 0842
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: ______

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☒ Hg

Methods:
- ☐ CLP
- ☒ SW846
- ☐ Drink. Wtr.
- ☐ ______
- ☐ ______

Comments: ______

Sampler(s): B. Cole; B. Krajewski

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212, FT. Edward, NY
Well ID: B212-MW01
EEEPC Project No.: 002699.ID07.01
Date: 12/13/06

Initial Depth to Water: 10.35 feet TOIC
Start Time: 0901
Total Well Depth: 41.43 feet TOIC
End Time: 1019
Depth to Pump: 39.43 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: .4 Lpm / gpm
Pump Type: Mini Typhoon 12V
adjusted to: 1 Lpm at 0907 minutes
Well Diameter: 2 inches
adjusted to: ____ at ____ minutes
1x Well Volume: 5.06 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
0905	0	7.40	8.4		1041		308	10.23
0910	2	7.38	9.0		1414		870	11.00
0915	3.25	7.38	9.3		1299		180	11.06
~~09~~0920	4.50	7.39	9.2		1280		69.3	10.89
0925	~~5~~5.75	7.43	9.3		1270		41.5	10.85
0930	~~6~~7.00	7.43	9.3		1262		29.7	10.86
0935	~~7~~8.25	7.42	9.5		1261		21.7	10.79
0940	~~8~~9.50	7.44	9.5		1261		20.9	10.82
0945	10.50	7.45	9.4		1262		24.2	10.81
0950	11.50	7.47	9.4		1260		31.6	10.80
0955	12.75	7.44	9.3		1258		11.8	10.84
1000	13.75	7.45	9.4		1262		10.2	10.83
1005	15.00	7.46	9.4		1259		10.4	10.80
1010	16.00	7.46	9.3		1261		9.6	10.83
Final Sample Data:		7.46	9.3		1261		9.6	10.83

Sample ID: B212-MW-01-GW
Duplicate? ☐
Dupe Samp ID: ____
Sample Time: 1014
MS/MSD? ☐

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☒ Hg

Methods:
- ☐ CLP
- ☒ SW846
- ☐ Drink. Wtr.
- ☐
- ☐

Comments:

Sampler(s): Alec Humann

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 Ft. Edward, NY
Well ID: B212-MW-02
EEEPC Project No.: 002699.ID07.01
Date: 12/12/06

Initial Depth to Water: 7.26 feet TOIC
Start Time: 1545
Total Well Depth: 38.47 feet TOIC
End Time: 1643
Depth to Pump: 36.47 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.4 lpm / gpm
Pump Type: Mini Typhoon 12V
adjusted to: 1.0 Lpm at 1556 minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 5.08 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp (°C/°F)	ORP (mV)	Conductivity (uS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1549	Ø	7.24	9.2		1098		550	7.17
1554	1.5 gal	7.39	9.9		1125		21	7.30
1559	3.0 gal	7.40	9.9		1122		13	7.30
1604	4.5 gal	7.42	9.8		1123		8.0	7.31
1609	6.0 gal	7.42	9.7		1117		4.3	7.31
1614	7.5 gal	7.40	9.8		1120		3.9	7.32
1619	9.0 gal	7.39	9.9		1123		3.2	7.34
1624	10.5 gal	7.40	9.8		1120		3.0	7.33
1629	12.0 gal	7.38	9.7		1119		2.6	7.33
1634	14.5 gal	7.38	9.9		1120		3.1	7.34
1639	16.0 gal	7.40	9.9		1121		2.8	7.32
Final Sample Data:								

Sample ID: B212-MW-02-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1641
MS/MSD? ☐

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☒ Hg

Methods:
- ☐ CLP
- ☒ SW846
- ☐ Drink. Wtr.
- ☐ ______
- ☐ ______

Comments: ______

Sampler(s): Jim Mays, Alec Humann

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 Ft. Edward, NY
Well ID: B212-MW-035
EEEPC Project No.: 002699. ID07.01
Date: 12/12/06

Initial Depth to Water: 9.22 feet TOIC
Start Time: 1435
Total Well Depth: 15.07 feet TOIC
End Time: 1455
Depth to Pump: 13.07 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: ______ Lpm / gpm
Pump Type: Mini Typhoon 12V
adjusted to: ______ at ______ minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 1.0 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1435	0	6.79	11.5		571.1		50	9.23
1440	1.5	6.76	11.0		582.6		7.9	9.45
1445	2.75	6.74	11.1		590.0		7.2	9.42
1450	4	6.78	11.1		586.8		1.9	9.40
1455	5.25	6.79	11.2		584.3		2.4	9.37
Final Sample Data:								

Sample ID: B212-MW-035-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1458
MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☒ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐ ______
☒ Hg	☐ ______

Comments: ______

Sampler(s): D. Milewski

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 FT. Edward NY
Well ID: B212-MW-03D
EEEPC Project No.: 002699.ID07.01
Date: 12/12/06

Initial Depth to Water: 13.04 feet TOIC
Start Time: 1510
Total Well Depth: 49.76 feet TOIC
End Time: 1610
Depth to Pump: 47.76 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: ______ Lpm / gpm
Pump Type: mini Typhoon 12V
adjusted to: ______ at ______ minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 5.98 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1510	0	7.76	8.76		1073		19	12.75
1530	6	7.68	8.72		1111		1.5	14.12
1550	12	7.74	8.66		1122		0.65	14.34
1610	18	7.78	8.62		1117		0.54	14.37
Final Sample Data:								

Sample ID: B212-MW-03D-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1613
MS/MSD? ☒

Analyses:
- ☐ VOCs
- ☐ SVOCs
- ☒ PCBs
- ☒ Metals
- ☒ Hg

Methods:
- ☐ CLP
- ☒ SW846
- ☐ Drink. Wtr.
- ☐ ______
- ☐ ______

Comments: ______

Sampler(s): D. Milewski

ecology and environment engineering, p.c.
International Specialists in the Environment
BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 FT. Edward NY
Well ID: B212-MW-04
EEEPC Project No.: 002699.ID07.01
Date: 12/12/06

Initial Depth to Water: 7.57 feet TOIC
Start Time: 1435
Total Well Depth: 19.27 feet TOIC
End Time: 1540
Depth to Pump: 17.27 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.0 Lpm/gpm
Pump Type: Mini Typhoon 12V
adjusted to: 0.5 Lpm at 1446 minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 1.90 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1438	0	6.96	9.9		457.2		18	7.24
1443	1 gal	6.93	9.7		455.8		12	11.78
1448	1.5 gal	6.88	9.9		463.3		7.1	13.00
1453	2.0 gal	6.88	10.2		468.5		5.4	13.34
1458	2.75 gal	6.89	10.3		467.2		3.3	13.34
1503	3.25 gal	6.91	10.1		477.7		2.9	13.27
1508	3.75 gal	6.90	10.2		476.9		2.4	13.30
1513	4.25 gal	6.89	10.1		477.3		2.3	13.29
1518	4.75 gal	6.88	10.1		476.8		2.0	13.33
1523	5.25 gal	6.90	10.2		476.9		2.2	13.31
1528	5.75 gal	6.89	10.1		477.3		5.3	13.35
1533	6.25 gal	6.91	10.2		476.9		5.1	13.30
Final Sample Data:		6.91	10.2		476.9		5.1	13.30

Sample ID: B212-MW-04-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 1535
MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☒ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐ ______
☒ Hg	☐ ______

Comments: ______

Sampler(s): Alec Humann, Jim Mays

ecology and environment engineering, p.c.
International Specialists in the Environment
BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 FT. Edward, NY
Well ID: B212-MW-05
EEEPC Project No.: 002699, ID07, 01
Date: 12/13/06

Initial Depth to Water: 17.00 feet TOIC
Start Time: ~~0837~~ 12/13/06 DEM 0810
Total Well Depth: 26.20 feet TOIC
End Time: 0907
Depth to Pump: 24.20 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.8 Lpm / gpm
Pump Type: Mini Typhoon 12V
adjusted to: 1.0 at 0809 minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 1.49 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
0810	0	6.61	11.5		1423		340	16.97
0815	1.5 GAL	6.85	11.6		1440		70	17.85
0820	3.0 GAL	6.84	11.5		1442		30	18.11
0825	4.5 GAL	6.85	11.7		1431		24	18.31
0830	6.0 GAL	6.83	11.7		1423		18	18.52
0835	7.5 GAL	6.83	11.1		1407		16.9	19.03
0840	9.0 GAL	6.82	11.1		1392		15.3	19.10
0845	10.5 GAL	6.78	11.4		1391		26.9	19.09
0850	12.0 GAL	6.80	11.2		1392		31.3	19.11
0855	13.5 GAL	6.82	11.3		1393		22.4	19.12
0900	15.0 GAL	6.82	11.2		1391		18.6	19.12
Final Sample Data:								

Sample ID: B212-MW-05-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 0903
MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☒ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐ ______
☒ Hg	☐ ______

Comments: ______

Sampler(s): Jim Mays DAN Milewski

ecology and environment engineering, p.c.
International Specialists in the Environment
BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 FT. Edward, NY
Well ID: B212-MW-06

EEEPC Project No.: 002699.ID07.01
Date: 12/13/06

Initial Depth to Water: 15.25 feet TOIC
Start Time: 0806

Total Well Depth: 24.72 feet TOIC
End Time: 0853

Depth to Pump: 22.72 feet TOIC
☐ Bailer ☒ Pump

Initial Pump Rate: .5 Lpm / gpm
Pump Type: Mini Typhoon 12V

adjusted to: 1.0 Lpm at 0815 minutes
Well Diameter: 2 inches

adjusted to: ______ at ______ minutes
1x Well Volume: 1.54 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
0811	Ø	6.19	10.8		1561		220	15.19
0816	1.0	6.55	11.3		1485		85.3	16.46
0821	2.0	6.57	11.4		1520		51.1	16.38
0826	3.0	6.62	11.3		1549		22.9	16.10
0831	4.0	6.60	11.4		1505		89.0	16.17
0836	5.0	6.62	11.3		1506		49.3	16.20
0841	6.0	6.60	11.4		1503		14.5	16.19
0846	7.0	6.61	11.4		1505		10.3	16.21
Final Sample Data:		6.61	11.4		1505		10.3	16.21

Sample ID: B212-MW-06-GW
Duplicate? ☒
Dupe Samp ID: B212-MW-06-GW/D

Sample Time: 0849
MS/MSD? ☐

Analyses:	Methods:
☐ VOCs	☐ CLP
☐ SVOCs	☒ SW846
☒ PCBs	☐ Drink. Wtr.
☒ Metals	☐ ______
☒ Hg	☐ ______

Comments:

Sampler(s): Alec Humann

ecology and environment engineering, p.c.
International Specialists in the Environment
BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

WELL PURGE & SAMPLE RECORD

Site Name/Location: Buoy 212 Ft. Edward, NY
Well ID: B212-MW-07
EEEPC Project No.: 002699.ID07.01
Date: 12/13/06

Initial Depth to Water: 7.34 feet TOIC
Start Time: 0920
Total Well Depth: 18.33 feet TOIC
End Time: 0956
Depth to Pump: 16.33 feet TOIC
☐ Bailer ☒ Pump
Initial Pump Rate: 1.5 Lpm gpm
Pump Type: Mini Typhoon 12V
adjusted to: ______ at ______ minutes
Well Diameter: 2 inches
adjusted to: ______ at ______ minutes
1x Well Volume: 1.79 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
0920	0	6.11	11.2		670.6		>1000	7.35
0925	1.5 gal	6.46	11.1		670.3		500	7.87
0930	3 gal	6.43	11.3		672.5		100	8.12
0935	4.5 gal	6.41	11.5		674.6		20	7.95
0940	6 gal	6.41	11.6		675.3		10	7.89
0945	7.5 gal	6.43	11.5		672.7		8.4	7.86
0950	9 gal	6.44	11.4		672.1		5.2	7.84
Final Sample Data:								

Sample ID: B212-MW-07-GW
Duplicate? ☐
Dupe Samp ID: ______
Sample Time: 0953
MS/MSD? ☐

Analyses:
☐ VOCs
☐ SVOCs
☒ PCBs
☒ Metals
☒ Hg

Methods:
☐ CLP
☒ SW846
☐ Drink. Wtr.
☐ ______
☐ ______

Comments: ______

Sampler(s): D. Milowski

H Analytical Results Summary for PCB Aroclors and Organic Compounds

Table H-1 Summary of Aroclor Concentrations in Sediment Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification (1)	Date Collected	Method	Total Organic Carbon (mg/Kg)	AROCLOR 1248 (μg/Kg)	AROCLOR 1254 (μg/Kg)
B212-SD-01	29-Nov-05	8082-Screen	29000	**2800**	**5500**
B212-SD-02	29-Nov-05	8082-Screen	5600	360 U	360 U
B212-SD-03	29-Nov-05	8082-Screen	8500	290 U	290 U
B212-SD-04	29-Nov-05	8082-Screen	35000	**2000**	**920**
B212-SD-04	*29-Nov-05*	*8082*	*35000*	**380**	*29 U*
B212-SD-04/D	29-Nov-05	8082-Screen	32000	**840**	**510**
B212-SD-04/D	*29-Nov-05*	*8082*	*32000*	**1700**	*140 U*
B212-SD-05	29-Nov-05	8082-Screen	29000	370 U	370 U
B212-SD-06	29-Nov-05	8082-Screen	14000	340 U	340 U
B212-SD-07	29-Nov-05	8082-Screen	1900	380 U	380 U
B212-SD-07	*29-Nov-05*	*8082*	*1900*	*25 U*	*25 U*
B212-SD-08	29-Nov-05	8082-Screen	13000	340 U	340 U

(1) Confirmation samples are highlighted yellow and italicized.

(2) Bold and shaded values exceed soil cleanup objective of 0.1 mg/Kg, while bold italicized screening test values may exceed the soil cleanup objective (NYSDEC Part 375.6-8 Unrestricted Use). The ND values are at reporting limits that are aboved the soil cleanup objective, however, the method detection limits (MDL) are below that level. Concentrtations between the MDL and reporting limit are flagged "J" as estimated.

Key:

bgs = below ground surface
J = Estimated value ("-" is biased low and "+" is biased high)

U = Not detected at the reporting limit shown.
μg/Kg = micrograms/kilogram

/D = Field duplicate sample

Table H-2 Summary of Aroclor Concentrations in Surface Water Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification	Date Collected	Screening Criteria (1)	Method	AROCLOR 1242 (μg/L)	AROCLOR 1248 (μg/L)	AROCLOR 1254 (μg/L)
B212-SW-01	29-Nov-05	0.00012	8082	0.47 UJ	0.47 UJ	0.47 UJ
B212-SW-02	29-Nov-05	0.00012	8082	0.48 UJ	0.48 UJ	0.48 UJ
B212-SW-03	29-Nov-05	0.00012	8082	0.48 UJ	0.48 UJ	0.48 UJ
B212-SW-04	29-Nov-05	0.00012	8082	0.48 UJ	0.48 UJ	0.48 UJ
B212-SW-04/D	29-Nov-05	0.00012	8082	0.48 UJ	0.48 UJ	0.48 UJ
B212-SW-05	29-Nov-05	0.00012	8082	0.47 UJ	0.47 UJ	0.47 UJ
B212-SW-06	29-Nov-05	0.00012	8082	0.48 UJ	0.48 UJ	0.48 UJ
B212-SW-07	29-Nov-05	0.00012	8082	0.50 U	0.50 U	0.50 U
B212-SW-08	29-Nov-05	0.00012	8082	0.48 UJ	0.48 UJ	0.48 UJ

(1) Criteria are from NYSDEC Technical and Operational Guidance #1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998, Table 1, Class A - D, Type W (fresh water) [micrograms per liter]. Bolded and shaded values exceed the screening criteria.

(2) Only commonly detected Aroclors are included unless the sample had a positive result.

Key:

U = Not detected at the reporting limit shown.

μg/L = micrograms/Liter

/D = Field duplicate sample

Table H-3 Summary of Aroclor Concentrations in Surface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification [1]	Date Collected	Method	AROCLOR 1248 (μg/Kg)	AROCLOR 1254 (μg/Kg)
B212-SS-01	29-Nov-05	8082-Screen	**1200**	**540**
B212-SS-02	29-Nov-05	8082-Screen	270 U	270 U
B212-SS-02	*29-Nov-05*	*8082*	*66*	*20 U*
B212-SS-02/D	29-Nov-05	8082-Screen	240 U	240 U
B212-SS-02/D	*29-Nov-05*	*8082*	*53*	*20 U*
B212-SS-03	29-Nov-05	8082-Screen	**1600**	**510**
B212-SS-04	29-Nov-05	8082-Screen	**500**	**230 J**
B212-SS-04	*29-Nov-05*	*8082*	**260**	*20 U*
B212-SS-05	29-Nov-05	8082-Screen	**390**	**200 J**
B212-SS-06	29-Nov-05	8082-Screen	**250**	**120 J**
B212-SS-07	29-Nov-05	8082-Screen	**1200**	**1300**
B212-SS-07	*29-Nov-05*	*8082*	**680**	**840**
B212-SS-08	29-Nov-05	8082-Screen	**980**	**630**
B212-SS-09	29-Nov-05	8082-Screen	270 U	270 U
B212-SS-10	29-Nov-05	8082-Screen	300 U	300 U
B212-SS-11	29-Nov-05	8082-Screen	260 U	260 U
B212-SS-12	29-Nov-05	8082-Screen	240 U	240 U
B212-SS-13	29-Nov-05	8082-Screen	320 U	320 U
B212-SS-14	29-Nov-05	8082-Screen	210 U	210 U
B212-SS-15	29-Nov-05	8082-Screen	270 U	270 U
B212-SS-16	29-Nov-05	8082-Screen	300 U	300 U
B212-SS-17	29-Nov-05	8082-Screen	250 U	250 U
B212-SS-18	29-Nov-05	8082-Screen	320 U	320 U
B212-SS-19	29-Nov-05	8082-Screen	250 U	250 U
B212-SS-20	29-Nov-05	8082-Screen	280 U	280 U
B212-SS-21	29-Nov-05	8082-Screen	**1400**	**570**
B212-SS-22	29-Nov-05	8082-Screen	280 U	280 U
B212-SS-22/D	29-Nov-05	8082-Screen	280 U	280 U
B212-SS-23	29-Nov-05	8082-Screen	270 U	270 U
B212-SS-23	*29-Nov-05*	*8082*	*21 UJ*	*21 UJ*
B212-SS-24	29-Nov-05	8082-Screen	**1800**	**810**

[1] Confirmation samples are highlighted yellow and italicized.

(2) Bold and shaded values exceed soil cleanup objective of 0.1 mg/Kg, while bold italicized screening test values may exceed the soil cleanup objective (NYSDEC Part 375.6-8 Unrestricted Use). The ND values are at reporting limits that are aboved the soil cleanup objective, however, the method detection limits (MDL) are below that level. Concentrtations between the MDL and reporting limit are flagged "J" as estimated.

Key:
J = Estimated value ("-" is biased low and "+" is biased high)
mg/Kg = Milligrams/Kilogram
U = Not detected at the reporting limit shown.
μg/Kg = micrograms/kilogram

/D = Field duplicate sample

Table H-4 Summary of Aroclor Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification [1]	Start Depth (ft bgs)	End Depth (ft bgs)	Description	AROCLOR 1232 (µg/Kg)	AROCLOR 1242 (µg/Kg)	AROCLOR 1248 (µg/Kg)
B212-CBH-01-01	2.50	2.80	Brown Sand - Cap	250 U	250 U	250 U
B212-CBH-01-02	6.00	8.00	Gray/Black Sand - Spoils	250 U	250 U	**7400 J+**
B212-CBH-01-02	*6.00*	*8.00*	*Gray/Black Sand - Spoils*	*190 U*	*190 U*	**6500**
B212-CBH-01-03	13.50	14.00	Gray/Black Sand- Spoils	290 U	**8500 J+**	290 U
B212-CBH-01-04	14.20	14.40	Gray/Brown Silt Clay - Native Soil	320 U	320 U	320 U
B212-CBH-01-05	16.70	17.00	Brown Sand - Native 3 ft below Spoils	300 U	300 U	300 U
B212-CBH-02-01	3.50	3.70	Tan Sand - Cap	240 U	240 U	240 U
B212-CBH-02-02	7.00	8.00	Sand/Gravel - Spoils	240 U	**11000 J+**	240 U
B212-CBH-02-02	*7.00*	*8.00*	*Sand/Gravel - Spoils*	*360 U*	**17000**	*360 U*
B212-CBH-02-03	11.50	12.00	Sand - Spoils	**47000 J+**	320 U	320 U
B212-CBH-02-04	18.00	18.20	Brown Silt - Spoils	230 U	**6000 J+**	230 U
B212-CBH-02-05	18.20	18.50	Brown/Black Sand - Native underlying Spoils	220 U	520	220 U
B212-CBH-03-01	5.00	6.00	Black Sand - Spoils	290 U	**23000 J+**	290 U
B212-CBH-03-01	*5.00*	*6.00*	*Black Sand - Spoils*	*430 U*	**21000**	*430 U*
B212-CBH-03-02	7.00	8.00	Black Spoils	280 U	**9900 J+**	280 U
B212-CBH-03-02/D	7.00	8.00	Black Spoils	240 U	**11000 J+**	240 U
B212-CBH-03-03	8.90	9.70	Sand - Spoils	240 U	**9400 J+**	240 U
B212-CBH-03-04	13.30	14.00	Sand - Spoils	290 U	**39000 J+**	290 U
B212-CBH-03-05	21.80	22.20	Brown Silt - Native	300 U	300 U	300 U
B212-CBH-04-01	4.80	5.40	Black Sand - Spoils	230 U	230 U	**3600**
B212-CBH-04-02	5.50	6.00	Black Sand - Spoils	240 U	**6700**	240 U
B212-CBH-04-03	11.00	12.00	Black Gravel Sand - Spoils	220 U	**10000 J+**	220 U
B212-CBH-04-03	*11.00*	*12.00*	*Black Gravel Sand - Spoils*	*800 U*	**26000**	*800 U*
B212-CBH-04-04	15.40	15.90	Black Sand - Spoils	690 UJ	**35000 J**	690 UJ
B212-CBH-04-05	17.50	18.00	Black Sand Silt - immediately below spoils	320 U	**14000 J+**	320 U
B212-CBH-05-01	5.50	6.00	Tan Sand - Sap	210 U	210 U	210 U
B212-CBH-05-02	8.40	8.90	Black Sand Gravel - Spoils	250 U	250 U	**6100 J+**
B212-CBH-05-02/D	5.50	6.00	Black Sand Gravel - Spoils	260 U	260 U	**4400**
B212-CBH-05-03	8.40	8.90	Black Clay Silt - Spoils	240 U	**2800**	240 U
B212-CBH-05-03	*8.40*	*8.90*	*Black Clay Silt - Spoils*	*100 U*	**3700**	*100 U*
B212-CBH-05-04	15.40	16.00	Black Silt - Native	330 R	**19000 J-**	330 R

Table H-4 Summary of Aroclor Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification [1]	Start Depth (ft bgs)	End Depth (ft bgs)	Description	AROCLOR 1232 (μg/Kg)	AROCLOR 1242 (μg/Kg)	AROCLOR 1248 (μg/Kg)
B212-CBH-05-05	16.00	16.40	Black Silt - Native	230 U	390	230 U
B212-CBH-06-01	0.60	0.80	Brown Clay - Cover	260 U	260 U	260 U
B212-CBH-06-02	4.00	5.20	Black Silt Sand Spoils	290 U	**13000 J+**	290 U
B212-CBH-06-02	*4.00*	*5.20*	*Black Silt Sand Spoils*	*1200 U*	**14000**	*1200 U*
B212-CBH-06-02/D	4.00	5.20	Black Silt Sand Spoils	210 U	**11000 J+**	210 U
B212-CBH-06-02/D	*4.00*	*5.20*	*Black Silt Sand Spoils*	*1000 U*	**11000**	*1000 U*
B212-CBH-06-03	10.50	10.70	Gray Sand - Spoils	230 U	230 U	**4300 J+**
B212-CBH-06-04	18.40	18.50	Brown Silty Clay - Native	220 U	220 U	220 U
B212-CBH-06-05	20.00	20.20	Gray Sand - Native	240 U	240 U	240 U
B212-CBH-07-01	1.30	1.50	Brown Clay - Cover	280 U	280 U	280 U
B212-CBH-07-02	4.20	5.00	Gray/Black Sand - Spoils	340 U	**19000 J+**	340 U
B212-CBH-07-02	*4.20*	*5.00*	*Gray/Black Sand - Spoils*	*1100 U*	**16000**	*1100 U*
B212-CBH-07-03	8.20	8.50	Black/White Sand Spoils	320 U	**16000 J+**	320 U
B212-CBH-07-04	11.20	11.50	Green/Brown Sand - Native	260 U	160 J	260 U
B212-CBH-07-05	12.40	12.60	Green/Brown Sand - Native	290 U	290 U	290 U
B212-CBH-08-01	0.50	1.00	Brown Clay - Cover	280 U	280 U	280 U
B212-CBH-08-02	4.20	5.00	Black Sand Spoils	410 U	**24000 J+**	410 U
B212-CBH-08-03	13.20	13.50	Black Sand Spoils	840 UJ	**33000 J**	840 UJ
B212-CBH-08-04	14.60	15.20	Green/Brown Sand - Native	220 U	220 U	220 U
B212-CBH-08-04	*14.60*	*15.20*	*Green/Brown Sand - Native*	*19 U*	*19 U*	*19 U*
B212-CBH-08-05	16.30	16.50	Green/Brown Sand - Native	220 U	220 U	220 U
B212-CBH-09-01	1.00	1.40	YellowBrown Sand - Cover	320 U	320 U	320 U
B212-CBH-09-01	*1.00*	*1.40*	*YellowBrown Sand - Cover*	*23 U*	*23 U*	*23 U*
B212-CBH-09-02	4.60	4.90	Black/Gray Sand Spoils	350 U	**26000 J+**	350 U
B212-CBH-09-03	7.00	7.30	Black Sand Spoils	210 U	**1700**	210 U
B212-CBH-09-04	11.00	11.30	Green/Brown Sand - Native	230 U	230 U	230 U
B212-CBH-09-05	12.30	12.50	Green/Brown Sand - Native	220 U	220 U	220 U
B212-CBH-10-01	2.60	2.80	Yellow/Brown Sand - Cover	200 U	200 U	200 U
B212-CBH-10-02	4.10	5.10	Black Sand Spoils	250 U	**18000 J+**	250 U
B212-CBH-10-02	*4.10*	*5.10*	*Black Sand Spoils*	*1100 U*	**21000**	*1100 U*
B212-CBH-10-03	8.20	8.50	Gray Sand - Native	270 U	270 U	270 U

Table H-4 Summary of Aroclor Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification (1)	Start Depth (ft bgs)	End Depth (ft bgs)	Description	AROCLOR 1232 (μg/Kg)	AROCLOR 1242 (μg/Kg)	AROCLOR 1248 (μg/Kg)
B212-CBH-10-04	10.00	11.00	Gray Sand - Native	230 U	230 U	230 U
B212-CBH-11-01	2.60	2.90	Tan Sand - Cap	210 U	210 U	210 U
B212-CBH-11-02	5.10	6.00	Black Sand - Spoils	260 U	**8100 J+**	260 U
B212-CBH-11-02	*5.10*	*6.00*	*Black Sand - Spoils*	*220 U*	*220 U*	**7600**
B212-CBH-11-03	7.00	7.40	Gray/Black Sand - Spoils	220 U	**8200 J+**	220 U
B212-CBH-11-04	17.20	17.60	Black Clay Silt - Native	280 U	**16000 J+**	280 U
B212-CBH-11-05	17.60	17.80	Tan Clay Brown Silt - Native	270 U	270 U	270 U
B212-CBH-12-01	3.50	4.00	Brown Sand - Cap	220 U	220 U	220 U
B212-CBH-12-02	5.50	6.00	Black Sand Gravel - Spoils	230 U	**5000**	230 U
B212-CBH-12-03	7.50	8.00	Gravel - Spoils	200 U	**6400 J+**	200 U
B212-CBH-12-03	*7.50*	*8.00*	*Gravel - Spoils*	*180 U*	**6700**	*180 U*
B212-CBH-12-04	11.50	12.00	Sand - Spoils	270 U	**6600 J+**	270 U
B212-CBH-12-05	15.20	15.40	Black Sand - Native	260 U	**1600 J+**	260 U
B212-MBH-01-01	5.50	6.00	Gray Sand - Spoils	250 U	**16000 J+**	250 U
B212-MBH-01-02	6.00	6.50	Gray Sand - Native	290 U	250 J	290 U
B212-MBH-02-01	5.00	6.00	Gray/Black Sand Silt - Spoils	220 U	**13000 J+**	220 U
B212-MBH-02-01	*5.00*	*6.00*	*Gray/Black Sand Silt - Spoils*	*1000 U*	**23000**	*1000 U*
B212-MBH-02-02	9.50	10.00	Gray/Black Sand Silt - Spoils	290 U	**14000 J+**	290 U
B212-MBH-02-03	10.50	11.00	Gray Sand - Native	260 U	260 U	260 U
B212-MBH-03-01	0.00	0.75	Brown Clay Silt - Native	180 U	180 U	180 U
B212-MBH-03-02	1.20	2.20	Dark Sand - Native	280 U	280 U	**3000**
B212-MBH-04-01	0.50	1.50	Tan Clay Silt - Native	280 U	280 U	**9800**
B212-MBH-04-02	4.10	4.80	Tan/Brown Clay Silt - Native	350 U	350 U	700

Table H-4 Summary of Aroclor Concentrations in Borehole Subsurface Soil Samples, Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification [1]	Start Depth (ft bgs)	End Depth (ft bgs)	Description	AROCLOR 1232 (µg/Kg)	AROCLOR 1242 (µg/Kg)	AROCLOR 1248 (µg/Kg)
B212-MBH-05-01	2.30	2.40	Gray Sand - Spoils	320 U	320 U	**7400**
B212-MBH-05-01	*2.30*	*2.40*	*Gray Sand - Spoils*	*410 U*	*410 U*	**9000**
B212-MBH-05-02	2.40	3.40	Brown Silt - Native	270 U	270 U	270 U
B212-MBH-06-01	4.70	5.40	Gray Sand - Native	210 U	1000	210 U
B212-MBH-06-01	*4.70*	*5.40*	*Gray Sand - Native*	*100 U*	**2900**	*100 U*
B212-MBH-07-01	2.70	3.40	Brown Silt - Native	210 U	210 U	160 J
B212-MBH-07-01/D	2.70	3.40	Brown Silt - Native	280 U	280 U	120 J
B212-MBH-07-02	3.70	4.30	Tan Sand - Native	260 U	260 U	260 U
B212-MBH-08-01	3.50	4.00	Black/Brown Sand - Native	270 U	270 U	**9200 J+**
B212-MBH-08-01	*3.50*	*4.00*	*Black/Brown Sand - Native*	*220 U*	*220 U*	**7700**
B212-MBH-08-02	4.80	5.10	Brown Silt - Native	240 U	240 U	240 U
B212-MBH-08A-01	1.50	2.00	Gray/brown silt over sand - Native	180 U	180 U	**4200**

(1) Confirmation samples are highlighted yellow and italicized.

(2) Bold and shaded values exceed soil cleanup objective of 0.1 mg/Kg, while bold italicized screening test values may exceed the soil cleanup objective (NYSDEC Part 375.6-8 Unrestricted Use). The ND values are at reporting limits that are aboved the soil cleanup objective, however, the method detection limits (MDL) are below that level. Concentrtations between the MDL and reporting limit are flagged "J" as estimated.

Key:

bgs = below ground surface
J = Estimated value ("-" is biased low and "+" is biased high)

U = Non-detect at the reported practical quantitation limit

µg/Kg = micrograms/kilogram

/D = Field duplicate sample

Table H-5 Summary of Aroclor Concentrations in Monitoring Well Subsurface Soil Samples, Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification [1]	Date Collected	Method	Start Depth (ft bgs)	End Depth (ft bgs)	Description	AROCLOR 1242 (μg/Kg)
B212-MW-05-01	22-Feb-06	8082-Screen	0.40	0.80	Yellow/Brown Sand - Cover	260 U
B212-MW-05-02	22-Feb-06	8082-Screen	4.40	5.70	Black Sand Silt - Spoils	**24000 J+**
B212-MW-05-02	*22-Feb-06*	*8082*	*4.40*	*5.70*	*Black Sand Silt - Spoils*	**16000**
B212-MW-05-03	22-Feb-06	8082-Screen	6.60	6.90	Brown Sand - Spoils	290 U
B212-MW-05-04	22-Feb-06	8082-Screen	10.20	10.60	Brown Silt - Spoils	270 U
B212-MW-05-04/D	22-Feb-06	8082-Screen	10.20	10.60	Brown Silt - Spoils	220 U
B212-MW-05-05	22-Feb-06	8082-Screen	18.00	19.00	Yellow/Brown Silt Sand - Native	260 U
B212-MW-06-01	22-Feb-06	8082-Screen	0.30	0.90	Brown Clay - Cap	270 U
B212-MW-06-01	*22-Feb-06*	*8082*	*0.30*	*0.90*	*Brown Clay - Cap*	*23 U*
B212-MW-06-02	22-Feb-06	8082-Screen	4.00	4.30	Gray/Black Sand - Spoils	**10000 J+**
B212-MW-06-03	22-Feb-06	8082-Screen	4.90	5.10	Brown Sand - Spoils	260 U
B212-MW-06-04	22-Feb-06	8082-Screen	6.00	6.30	Yellow/Brown Sand - Spoils	210 U
B212-MW-06-05	22-Feb-06	8082-Screen	19.00	20.00	Gray Sand Silt - Native	270 U
B212-MW-07-01	23-Feb-06	8082-Screen	1.40	1.60	Brown Clay - Cap	340 U
B212-MW-07-02	23-Feb-06	8082-Screen	4.00	4.40	Black Sand - Spoils	**7000**
B212-MW-07-03	23-Feb-06	8082-Screen	4.80	5.20	Green/Gray Sand - Spoils	230 U
B212-MW-07-04	23-Feb-06	8082-Screen	11.60	12.00	Sand - Native	260 U
B212-MW-07-04	*23-Feb-06*	*8082*	*11.60*	*12.00*	*Sand - Native*	*21 U*
B212-MW-07-05	23-Feb-06	8082-Screen	14.60	14.80	Sand - Native	230 U

(1) Confirmation samples are highlighted yellow and italicized.

(2) Bold and shaded values exceed soil cleanup objective of 0.1 mg/Kg, while bold italicized screening test values may exceed the soil cleanup objective (NYSDEC Part 375.6-8 Unrestricted Use). The ND values are at reporting limits that are aboved the soil cleanup objective, however, the method detection limits (MDL) are below that level. Concentrtations between the MDL and reporting limit are flagged "J" as estimated.

Key:

bgs = below ground surface

Table H-5 Summary of Aroclor Concentrations in Monitoring Well Subsurface Soil Samples, Dredge Spoil Disposal Site, Fort Edward, New York

Sample Identification [1]	Date Collected	Method	Start Depth (ft bgs)	End Depth (ft bgs)	Description	AROCLOR 1242 (µg/Kg)

J = Estimated value ("-" is biased low and "+" is biased high)

U = Non-detect at the reported practical quantitation limit

µg/Kg = micrograms/kilogram

/D = Field duplicate sample

Table H-5 Summary of Aroclor Concentrations in Monitoring Well Subsurface Soil Samples, Dredge Spoil Disposal Site, Fort Edward, New York **Buoy 212**

Sample Identification [1]	Date Collected	Method	Start Depth (ft bgs)	End Depth (ft bgs)	Description	PCBs (sum of Aroclors) (μg/Kg)
B212-MW-05-01	22-Feb-06	8082-Screen	0.40	0.80	Yellow/Brown Sand - Cover	ND
B212-MW-05-02	22-Feb-06	8082-Screen	4.40	5.70	Black Sand Silt - Spoils	**24000**
B212-MW-05-02	*22-Feb-06*	*8082*	*4.40*	*5.70*	*Black Sand Silt - Spoils*	**16000**
B212-MW-05-03	22-Feb-06	8082-Screen	6.60	6.90	Brown Sand - Spoils	ND
B212-MW-05-04	22-Feb-06	8082-Screen	10.20	10.60	Brown Silt - Spoils	ND
B212-MW-05-04/D	22-Feb-06	8082-Screen	10.20	10.60	Brown Silt - Spoils	ND
B212-MW-05-05	22-Feb-06	8082-Screen	18.00	19.00	Yellow/Brown Silt Sand - Native	ND
B212-MW-06-01	22-Feb-06	8082-Screen	0.30	0.90	Brown Clay - Cap	ND
B212-MW-06-01	*22-Feb-06*	*8082*	*0.30*	*0.90*	*Brown Clay - Cap*	*ND*
B212-MW-06-02	22-Feb-06	8082-Screen	4.00	4.30	Gray/Black Sand - Spoils	**10000**
B212-MW-06-03	22-Feb-06	8082-Screen	4.90	5.10	Brown Sand - Spoils	ND
B212-MW-06-04	22-Feb-06	8082-Screen	6.00	6.30	Yellow/Brown Sand - Spoils	ND
B212-MW-06-05	22-Feb-06	8082-Screen	19.00	20.00	Gray Sand Silt - Native	ND
B212-MW-07-01	23-Feb-06	8082-Screen	1.40	1.60	Brown Clay - Cap	ND
B212-MW-07-02	23-Feb-06	8082-Screen	4.00	4.40	Black Sand - Spoils	**7000**
B212-MW-07-03	23-Feb-06	8082-Screen	4.80	5.20	Green/Gray Sand - Spoils	ND
B212-MW-07-04	23-Feb-06	8082-Screen	11.60	12.00	Sand - Native	ND
B212-MW-07-04	*23-Feb-06*	*8082*	*11.60*	*12.00*	*Sand - Native*	*ND*
B212-MW-07-05	23-Feb-06	8082-Screen	14.60	14.80	Sand - Native	ND

[1] Confirmation samples are highlighted yellow and italicized.

[2] Bold and shaded values exceed soil cleanup objective of 0.1 mg/Kg, while bold italicized screening test values may exceed the soil cleanup objective (NYSDEC Part 375.6-8 Unrestricted Use). The ND values are at reporting limits that are aboved the soil cleanup objective, however, the method detection limits (MDL) are below that level. Concentrtations between the MDL and reporting limit are flagged "J" as estimated.

Key:

bgs = below ground surface

Table H-5 Summary of Aroclor Concentrations in Monitoring Well Subsurface Soil Samples, Dredge Spoil Disposal Site, Fort Edward, New York

Buoy 212

Sample Identification (1)	Date Collected	Method	Start Depth (ft bgs)	End Depth (ft bgs)	Description	PCBs (sum of Aroclors) (μg/Kg)
J = Estimated value ("-" is	biased low and "+"	" is biased high)				

U = Non-detect at the reported practical quantitation limit

μg/Kg = micrograms/kilogram

/D = Field duplicate sample

I Human Health Risk Assessment Tables

Table I-1 Exposure Parameters for Soils and Sediments

Parameter	Current Adult Maintenance Worker	Future Adult Industrial Worker	Future Adult Excavation Workers	Future Adult and Child Resident	Units
Exposure frequency	12	250	20	350	days/yr
Adult exposure duration	25	25	1	24	years
Child exposure duration	--	--	--	6	years
Adult soil ingestion rate	100	100	480	100	mg/day
Child soil ingestion rate	--	--	--	200	mg/day
Fraction ingested	1	1	1	1	unitless
Inhalation rate	20	20	20	20	m3/day
Adult surface area	0.33	0.33	0.33	0.53	m2/day
Adherence factor	0.2	0.2	0.3	0.2	mg/cm2
Body weight (child)	--	--	--	15	kg
Body weight (adult)	70	70	70	70	years

Table I-2 Risk and Hazard Summary for Current Adult Maintenance Workers Exposure to Surface Soil (0 to 6 inches BGS) and Sediment

Chemical	CAS Number	EPC Concentration (mg/kg)	Ingestion		Inhalation		Dermal		Total	
			Hazard (Adult)	Risk	Hazard (Adult)	Risk	Hazard (Adult)	Risk	Hazard (Adult)	Risk
Cadmium	7440439	0.96	4.50E-05			1.50E-11	3.00E-04		3.E-04	1.5E-11
Chromium	18540299	31.58	4.90E-04		7.90E-06	3.40E-09	1.60E-04		7.E-04	3.4E-09
Mercury (elemental)	7439976	0.21	3.30E-05				3.10E-06		4.E-05	
Total PCBs	11097691	3.13	7.40E-03	1.10E-07		2.50E-08	3.20E-03	4.60E-08	1.E-02	1.8E-07
Zinc (Metallic)	7440666	173.87	2.70E-05				9.00E-07		3.E-05	
		Totals:	**8.E-03**	**1.1E-07**	**8.E-06**	**2.8E-08**	**4.E-03**	**4.6E-08**	**1.E-02**	**1.8E-07**

Key:

BGS = Below ground surface.
CAS = Chemical Abstract Service number.
mg/kg = Milligrams per kilogram.
EPC = Exposure point concentration.
PCB = Polychlorinated biphenyls.

Table I-3 Risk and Hazard Summary for Future Construction Worker Exposure to Soil (0 to 10 feet BGS) and Sediment

Chemical	CAS Number	EPC Concentration (mg/kg)	Ingestion		Inhalation		Dermal		Total	
			Hazard (Adult)	Risk	Hazard (Adult)	Risk	Hazard (Adult)	Risk	Hazard (Adult)	Risk
Cadmium	7440439	1.80	6.80E-04		8.30E-08	1.90E-12	1.40E-03		2.E-03	1.9E-12
Chromium	18540299	28.94	5.40E-04		1.20E-05	2.10E-10	5.60E-05		6.E-04	2.1E-10
Mercury, Inorganic Salts	7439976	0.17	2.10E-04				6.30E-06		2.E-04	
Total PCBs	11097691	10.39	7.80E-02	1.10E-07		5.40E-09	1.10E-02	1.50E-08	9.E-02	1.3E-07
Zinc (Metallic)	7440666	146.47	1.80E-04				1.90E-06		2.E-04	
		Totals:	**8.E-02**	**1.1E-07**	**1.E-05**	**5.6E-09**	**1.E-02**	**1.5E-08**	**9.E-02**	**1.3E-07**

Key:

BGS = Below ground surface.
mg/kg = Milligrams per kilogram.
CAS = Chemical Abstract Service number.
EPC = Exposure point concentration.
PCB = Polychlorinated biphenyls.

Table I-4 Risk and Hazard Summary for Future Adult and Child Resident Exposure to Soil (0 to 10 ft BGS) and Sediment

Chemical	CAS Number	EPC Concentration (mg/kg)	Ingestion Hazard (Adult)	Ingestion Hazard (Child)	Ingestion Risk	Inhalation Hazard (Adult)	Inhalation Risk	Dermal Hazard (Adult)	Dermal Risk	Total Hazard (Adult)	Total Risk
Cadmium	7440439	1.80	2.50E-03	2.30E-02			1.00E-09	2.60E-02		3.E-02	1.0E-09
Chromium	18540299	28.94	1.30E-02	1.20E-01		2.10E-04	1.10E-07	7.00E-03		2.E-02	1.1E-07
Mercury, Inorganic Salts	7439976	0.17	7.80E-04	7.30E-03				1.20E-04		9.E-04	
Total PCBs	11097691	10.39	7.10E-01	6.60E+00	3.30E-05		2.80E-06	5.00E-01	9.E-06	1.E+00	4.4E-05
Zinc (Metallic)	7440666	146.47	6.70E-04	6.20E-03				3.50E-05		7.E-04	
		Totals:	**7.E-01**	**7.E+00**	**3.3E-05**	**2.E-04**	**3.0E-06**	**5.E-01**	**8.6E-06**	**1.E+00**	**4.4E-05**

Key:

BGS = Below ground surface.
mg/kg = Milligrams per kilogram.
CAS = Chemical Abstract Service number.
EPC = Exposure point concentration.
PCB = Polychlorinated biphenyls.

Figure I-1 Spatial Distribution of Estimated Cancer Risk from Exposure to Soils and Sediment for Future Adult Residents at the Buoy 212 Site

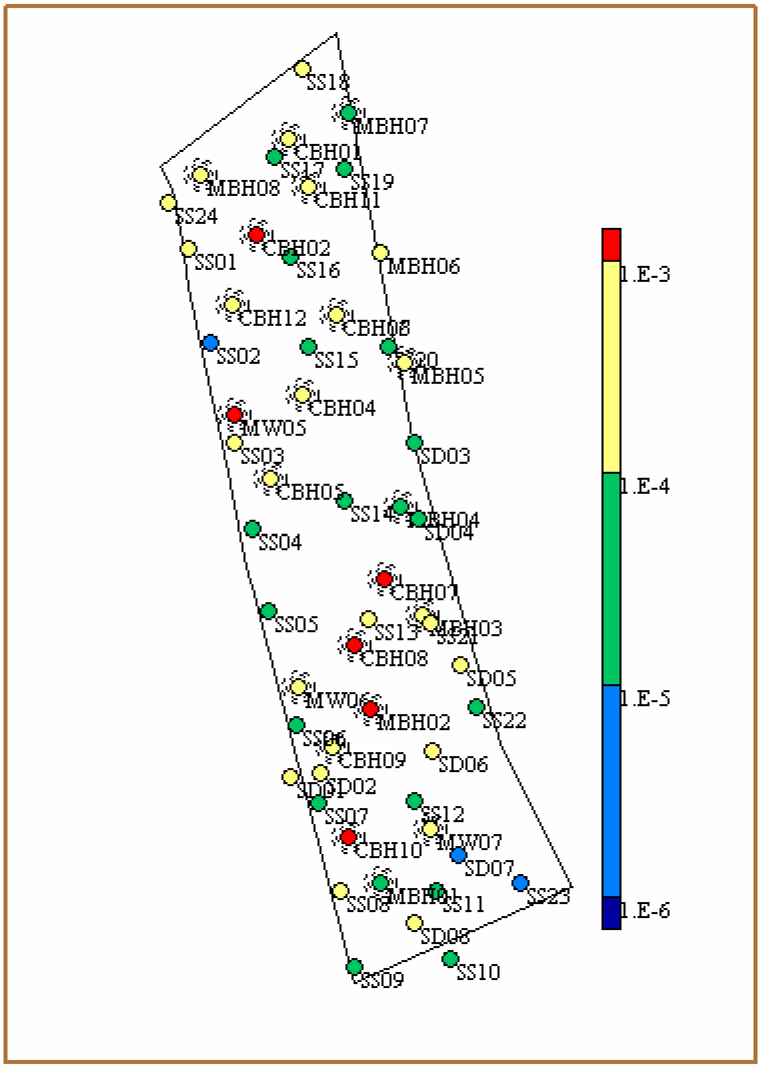
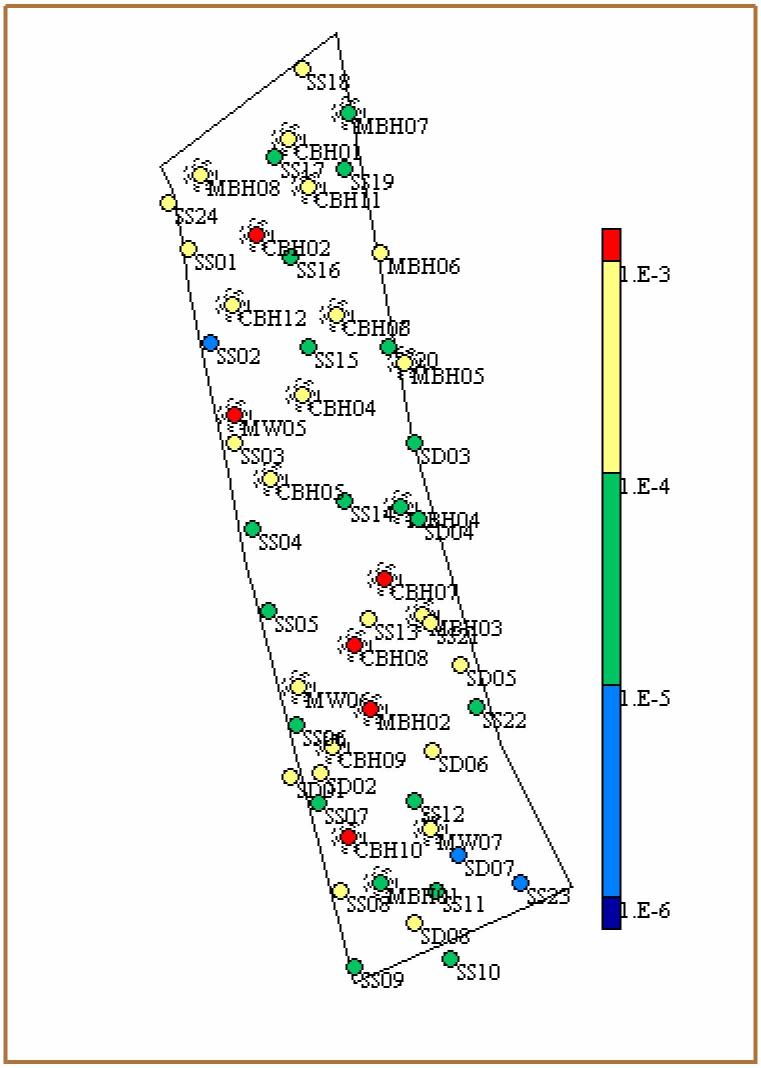


Figure I-2 Spatial Distribution of Estimated Cancer Risk from Ingestion of Milk from Cows Grazed On the Buoy 212 Site



J Rare Species and Ecological Communities

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925
Website: www.dec.state.ny.

Denise M. Sheehan
Commissioner

September 18, 2006

Carl Mach
Ecology and Environment, Inc
Buffalo Corporate Center
368 Pleasant View Drive
Lancaster, NY 14086

Dear. Mr. Mach:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the proposed NYS DEC Remedial Investigation and Feasibility Study - for Chemical Contaminants at 4 Dredge Sites along the Hudson River. Three sites - Site 518; Buoy 212; and Special Area 13; are located just south of Fort Edward; and the fourth, the Newland Island Site, is located near Stillwater; areas as indicated on the maps you provided, including a 2 mile radius.

Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and other significant habitats, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site. The information contained in this report is considered sensitive and may not be released to the public without permission from the New York Natural Heritage Program.

The presence of rare species may result in this project requiring additional permits, permit conditions, or review. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement on presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,
Tara Seoane JP
Tara Seoane, Information Services
NY Natural Heritage Program

Enc.
cc: Reg. 5, Wildlife Mgr.
Reg. 5, Fisheries Mgr.
Peter Nye, Endangered Species Unit, Albany

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor, Albany, NY
12233-4757
(518) 402-8935

This report is for the Newland Island Site.

~This report contains SENSITIVE information that may not be released to the public without permission from the NY Natural Heritage Program.
~Refer to the User's Guide for explanations of codes, ranks and fields.
~Location maps for certain species and communities may not be provided if 1) the species is vulnerable to disturbance, 2) the location and/or extent is not precisely known, and/or 3) the location and/or extent is too large to display.

Natural Heritage Report on Rare Species and Ecological Communities

VASCULAR PLANTS

Carex davisii

Davis' Sedge

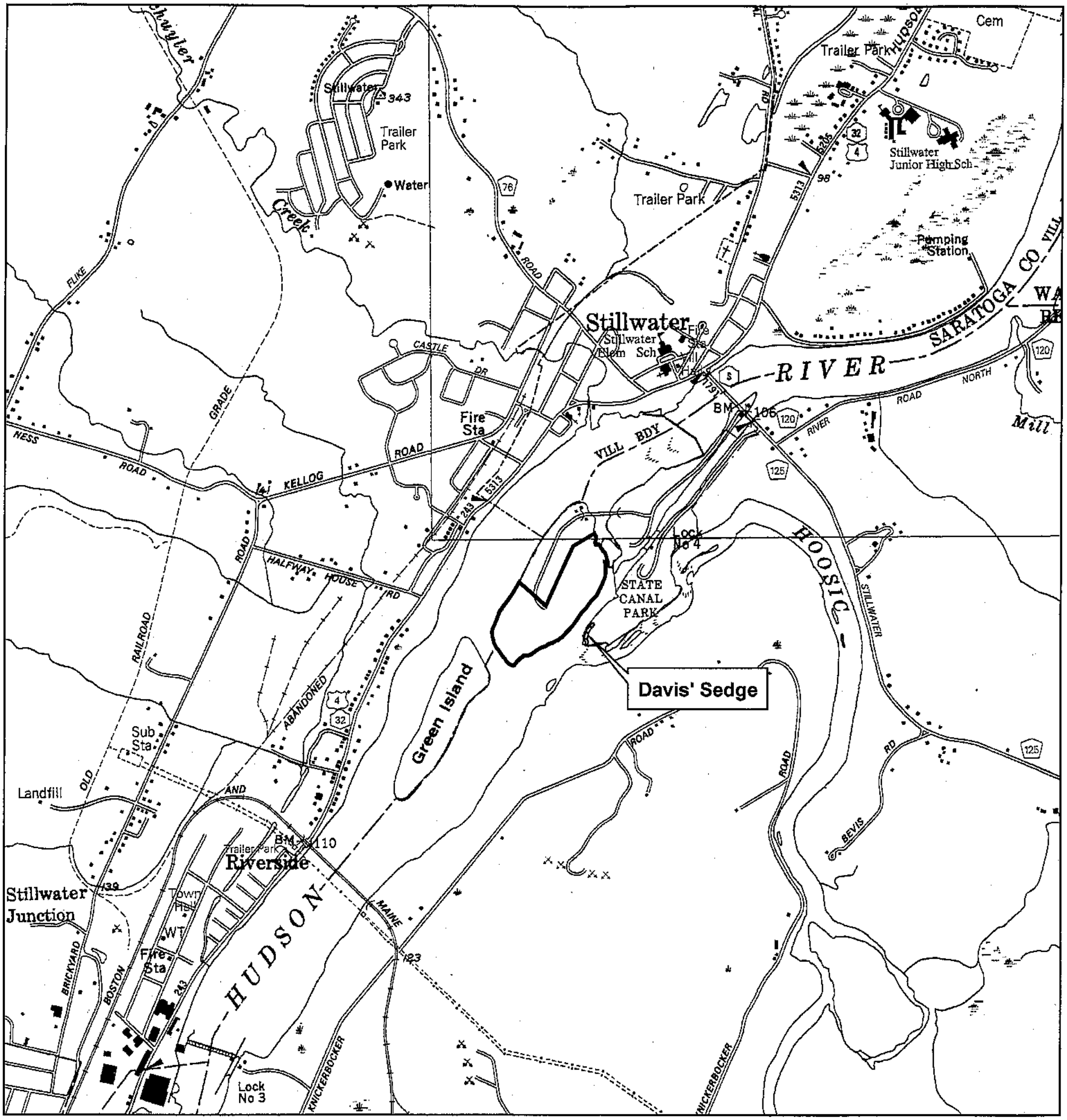
Office Use
6790

NY Legal Status: Threatened
NYS Rank: S2; Imperiled
Federal Listing:
Global Rank: G4; Apparently secure
Last Report: 2002-06-13
EO Rank: Extant
County: Rensselaer
Town: Schaghticoke
Location: Hoosic River Mouth
Directions: From Schaghticoke, follow Route 125 (Stillwater Bridge Road) west. Turn southwest on the road for Lock Number 4 before reaching the Hudson River. Walk to the canal park. Follow the trail on the southwest side of the island. The plants are west of the trail.
General Quality and Habitat: The plants are near the shore of a peninsula at the mouth of a river.

1 Records Processed

Natural Heritage Map of Rare Species and Ecological Communities

Prepared September 14, 2006 by NY Natural Heritage Program, NYS DEC, Albany, NY



This map is for the Newland Island Site.

Legend

Project Site

NY Natural Heritage Program Database Records*

Plant

1:24,000

0 0.1250.25 0.5 0.75 **Miles**

*The locations that are displayed are considered sensitive and cannot be released to the public without permission.

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor, Albany, NY
12233-4757
(518) 402-8935

This report is for Site 518, Buoy 212, and Special Area 13.

HISTORICAL RECORDS:

No recent information; Precise locations unknown; Current status unknown.

~Refer to the User's Guide for explanations of codes, ranks and fields.

Natural Heritage Report on Rare Species and Ecological Communities

VASCULAR PLANTS

Isotria medeoloides

Small Whorled Pogonia

Office Use 5432

NY Legal Status: Endangered
NYS Rank: SH; Historical
Federal Listing: Threatened
Global Rank: G2; Imperiled
Last Report: 1875-06-12
EO Rank: Historical, no recent information
County: Washington, Saratoga
Town: Fort Edward, Kingsbury, Moreau
Location: Fort Edward
Directions: Specimen label: Fort Edward.
General Quality and Habitat: Specimen label: Beneath second growth chestnut in rich and rather moist ground and well-shaded.

Platanthera hookeri

Hooker's Orchid

Office Use 1023

NY Legal Status: Endangered
NYS Rank: S1; Critically imperiled
Federal Listing:
Global Rank: G4; Apparently secure
Last Report: 1912-08-30
EO Rank: Historical, no recent information
County: Saratoga
Town: Moreau
Location: Moreau East
Directions: Town of Moreau, west of the Hudson River.
General Quality and Habitat: Swamp woods.

2 Records Processed

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor, Albany, NY
12233-4757
(518) 402-8935

This report is for Site 518, Buoy 212, and Special Area 13.

~This report contains **SENSITIVE** information that may not be released to the public without permission from the NY Natural Heritage Program.
~Refer to the User's Guide for explanations of codes, ranks and fields.
~Location maps for certain species and communities may not be provided if 1) the species is vulnerable to disturbance, 2) the location and/or extent is not precisely known, and/or 3) the location and/or extent is too large to display.

Natural Heritage Report on Rare Species and Ecological Communities

BIRDS

Asio flammeus

Short-eared Owl

NY Legal Status: Endangered
NYS Rank: S2; Imperiled
Office Use 2444
Federal Listing:
Global Rank: G5; Demonstrably secure
Last Report: **
EO Rank: **
ESU
County: Washington
Town: Kingsbury, Fort Edward, Argyle
Location: Dead Creek Valley
Directions: From Schuylerville, follow Route 4 north towards Fort Edward on the east side of the Hudson River. Turn east on Black House Road. Drive to Fitzpatrick Road. Owls have been observed on Black House Road and in a roost on Fitzpatrick Road. Continue on Black House Road and then any of the other roads in the area heading north towards Route 197. Owls have been observed in open areas. Many owls have been observed on Townline Road but are not restricted to that area.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager or NYS DEC Endangered Species Unit at 518-402-8859.

Circus cyaneus (breeding)

Northern Harrier

NY Legal Status: Threatened
NYS Rank: S3B,S3N; Vulnerable
Office Use 6447
Federal Listing:
Global Rank: G5; Demonstrably secure
Last Report: **
EO Rank: **
ESU
County: Washington
Town: Argyle, Fort Edward, Kingsbury
Location: Dead Creek Valley
Directions: From Schuylerville, follow Route 4 east going towards Fort Edward. Northern harriers were observed in areas south of Route 196 and north of Carey Road.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager or NYS DEC Endangered Species Unit at 518-402-8859.

Circus cyaneus (wintering)

Northern Harrier

NY Legal Status: Threatened
NYS Rank: S3B,S3N; Vulnerable
Office Use 7292
Federal Listing:
Global Rank: G5; Demonstrably secure
Last Report: **
EO Rank: **
ESU
County: Washington
Town: Kingsbury, Argyle, Fort Edward
Location: Dead Creek Valley
Directions: From Schuylerville, follow Route 4 north towards Fort Edward on the east side of the Hudson River. Birds have been observed in open fields soon after entering the town of Fort Edward at Carey Road and north to Route 196. The western boundary is approximately Black House Road north to Route 42. The eastern boundary is approximately Hinds Road, Durkeetown Road, and Route 46. Birds can be observed in open fields. A known roost area is on Fitzpatrick Road off of Blackhouse Road on the north side of the road and includes fields, both sides of a hedgerow fence, and a small wetland area.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager or NYS DEC Endangered Species Unit at 518-402-8859.

OTHER

Raptor Winter Concentration Area

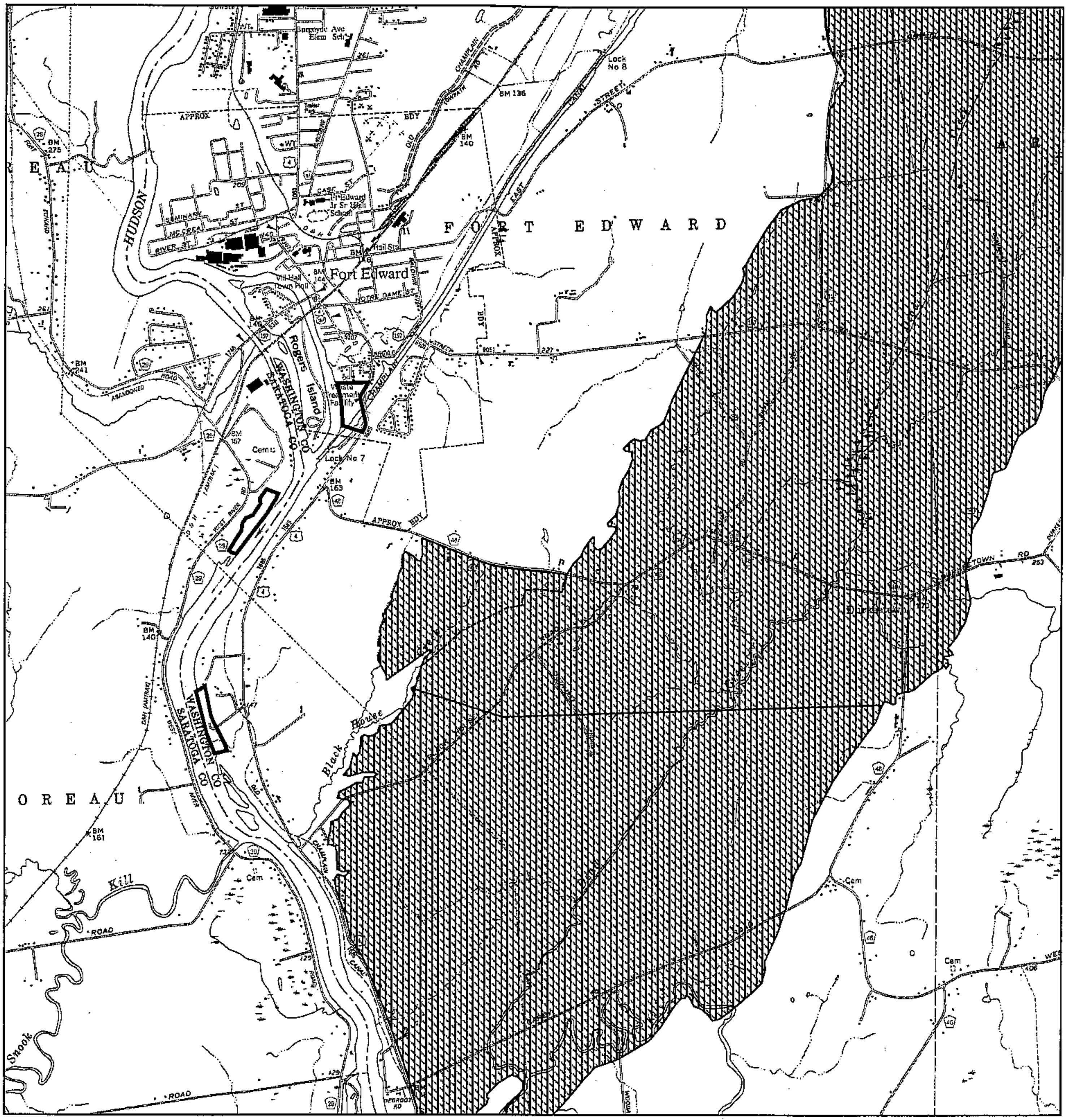
				Office Use
NY Legal Status:	Unlisted	**NYS Rank:**	SNR; Rank not assigned	1911
Federal Listing:		**Global Rank:**	GNR; Not ranked	
Last Report:	2000-03-13	**EO Rank:**	Excellent or Good	

County: Washington
Town: Kingsbury, Argyle, Fort Edward
Location: Dead Creek Valley
Directions: From Schuylerville, follow Route 4 north towards Fort Edward on the east side of the Hudson River. Birds have been observed in open fields soon after entering the town of Fort Edward at Carey Road and north to Route 196. The western boundary is approximately Black House Road north to Route 42. The eastern boundary is approximately Hinds Road, Durkeetown Road, and Route 46. Birds can be observed in open fields. A known harrier roost area is on Fitzpatrick Road off of Blackhouse Road on the north side of the road and includes fields, both sides of a hedgerow fence, and a small wetland area.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager or NYS DEC Endangered Species Unit at 518-402-8859.

4 Records Processed

Natural Heritage Map of Rare Species and Ecological Communities

Prepared September 14, 2006 by NY Natural Heritage Program, NYS DEC, Albany, NY



Legend

This map is for Site 518, Buoy 212, and Special Area 13.

1:40,000

Project Site

NY Natural Heritage Program Database Records*

Animal and Animal Concentration Area

0 0.25 0.5 1 1.5 Miles

*The locations that are displayed are considered sensitive and cannot be released to the public without permission. We do not provide map locations for all records. Please see report for details.

DIVISION OF ENVIRONMENTAL PERMITS REGIONAL OFFICES

January 2004

REGION	COUNTIES	REGIONAL PERMIT ADMINISTRATORS
1	Nassau & Suffolk	John Pavacic NYS-DEC BLDG. 40 SUNY at Stony Brook Stony Brook, NY 11790-2356 Telephone: (631) 444-0365
2	New York City (Boroughs of Manhattan, Brooklyn, Bronx, Queens, & Staten Island	John Cryan NYS-DEC One Hunters Point Plaza 47-40 21st Street Long Island City, NY 11101-5407 Telephone: (718) 482-4997
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster & Westchester	Margaret Duke NYS-DEC 21 South Putt Corners Road New Paltz, NY 12561-1696 Telephone: (845) 256-3054
4	Albany, Columbia, Greene, Montgomery, Rensselaer & Schenectady	William Clarke NYS-DEC 1150 North Wescott Road Schenectady, NY 12306-2014 Telephone: (518) 357-2069
4 (sub-office)	Delaware, Otsego & Schoharie	Kent Sanders NYS-DEC Route 10 HCR#1, Box 3A Stamford, NY 12167-9503 Telephone: (607) 652-7741
5	Clinton, Essex, Franklin & Hamilton	Thomas Hall NYS-DEC Route 86, PO Box 296 Ray Brook, NY 12977-0296 Telephone: (518) 897-1234
5 (sub-office)	Fulton, Saratoga, Warren & Washington	Thomas Hall NYS-DEC County Route 40 PO Box 220 Warrensburg, NY 12885-0220 Telephone: (518) 623-1281
6	Jefferson, Lewis & St. Lawrence	Brian Fenlon NYS-DEC State Office Building 317 Washington Street Watertown, NY 13601-3787 Telephone: (315) 785-2245
6 (sub-office)	Herkimer & Oneida	J. Joseph Homburger* NYS-DEC State Office Building 207 Genesee Street Utica, NY 13501-2885 Telephone: (315) 793-2555

7	Cayuga, Madison, Onondaga & Oswego	John Feltman NYS-DEC 615 Erie Blvd. West (Env.Permits Room 206) Syracuse, NY 13204-2400 Telephone: (315) 426-7438
7 (sub-office)	Broome, Chenango, Cortland, Tioga & Thompkins	Michael Barylski* NYS-DEC 1285 Fisher Avenue Cortland, NY 13045-1090 Telephone: (607) 753-3095
8	Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne & Yates	Peter Lent NYS-DEC 6274 East Avon Lima Road Avon, NY 14414-9519 Telephone: (585) 226-2466
9	Erie, Niagara & Wyoming	Steve Doleski NYS-DEC 270 Michigan Avenue Buffalo, NY 14203-2999 Telephone: (716) 851-7165
9 (sub-office)	Allegany, Cattaraugus, Chautauqua	Ken Taft* NYS-DEC 182 East Union, Suite 3 Allegany, NY 14706-1328 Telephone: (716) 372-0645

* Deputy Regional Permit Administrator

USERS GUIDE TO NY NATURAL HERITAGE DATA

New York Natural Heritage Program, 625 Broadway, 5th Floor, Albany, NY 12233-4757 phone: (518) 402-8935

NATURAL HERITAGE PROGRAM: The NY Natural Heritage Program is a partnership between the NYS Department of Environmental Conservation (NYS DEC) and The Nature Conservancy. Our mission is to enable and enhance conservation of rare animals, rare plants, and significant communities. We accomplish this mission by combining thorough field inventories, scientific analyses, expert interpretation, and the most comprehensive database on New York's distinctive biodiversity to deliver the highest quality information for natural resource planning, protection, and management.

DATA SENSITIVITY: The data provided in the report are ecologically sensitive and should be treated in a sensitive manner. The report is for your in-house use and should **not** be released, distributed or incorporated in a public document without prior permission from the Natural Heritage Program.

EO RANK: A letter code for the quality of the occurrence of the rare species or significant natural community, based on population size or area, condition, and landscape context.

A-E = Extant: A=Excellent, B=Good, C=Fair, D=Poor, E=Extant but with insufficient data to assign a rank of A-D.
F = Failed to find. Did not locate species during a limited search, but habitat is still there and further field work is justified.
H = Historical. Historical occurrence without any recent field information.
X = Extirpated. Field/other data indicates element/habitat is destroyed and the element no longer exists at this location.
U = Extant/Historical status uncertain.
Blank = Not assigned.

LAST REPORT: The date that the rare species or significant natural community was last observed at this location, as documented in the Natural Heritage databases. The format is most often YYYY-MM-DD.

NY LEGAL STATUS – Animals:

Categories of Endangered and Threatened species are defined in New York State Environmental Conservation Law section 11-0535. Endangered, Threatened, and Special Concern species are listed in regulation 6NYCRR 182.5.

E - **Endangered Species**: any species which meet one of the following criteria:
- Any native species in imminent danger of extirpation or extinction in New York.
- Any species listed as endangered by the United States Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

T - **Threatened Species**: any species which meet one of the following criteria:
- Any native species likely to become an endangered species within the foreseeable future in NY.
- Any species listed as threatened by the U.S. Department of the Interior, as enumerated in the Code of the Federal Regulations 50 CFR 17.11.

SC - **Special Concern Species:** those species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York. Unlike the first two categories, species of special concern receive no additional legal protection under Environmental Conservation Law section 11-0535 (Endangered and Threatened Species).

P - **Protected Wildlife** (defined in Environmental Conservation Law section 11-0103): wild game, protected wild birds, and endangered species of wildlife.

U - **Unprotected** (defined in Environmental Conservation Law section 11-0103): the species may be taken at any time without limit; however a license to take may be required.

G - **Game** (defined in Environmental Conservation Law section 11-0103): any of a variety of big game or small game species as stated in the Environmental Conservation Law; many normally have an open season for at least part of the year, and are protected at other times.

NY LEGAL STATUS – Plants:

The following categories are defined in regulation 6NYCRR part 193.3 and apply to NYS Environmental Conservation Law section 9-1503.

E - **Endangered Species:** listed species are those with:
- 5 or fewer extant sites, or
- fewer than 1,000 individuals, or
- restricted to fewer than 4 U.S.G.S. 7 ½ minute topographical maps, or
- species listed as endangered by U.S. Dept. of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.

T - **Threatened:** listed species are those with:
- 6 to fewer than 20 extant sites, or
- 1,000 to fewer than 3,000 individuals, or
- restricted to not less than 4 or more than 7 U.S.G.S. 7 and ½ minute topographical maps, or
- listed as threatened by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.

R - Rare: listed species have:

- 20 to 35 extant sites, or
- 3,000 to 5,000 individuals statewide.

V - Exploitably vulnerable: listed species are likely to become threatened in the near future throughout all or a significant portion of their range within the state if causal factors continue unchecked.

U - Unprotected; no state status.

FEDERAL STATUS (PLANTS and ANIMALS): The categories of federal status are defined by the United States Department of the Interior as part of the 1974 Endangered Species Act (see Code of Federal Regulations 50 CFR 17). The species listed under this law are enumerated in the Federal Register vol. 50, no. 188, pp. 39526 - 39527. The codes below without parentheses are those used in the Federal Register. The codes below in parentheses are created by Heritage to deal with species which have different listings in different parts of their range, and/or different listings for different subspecies or varieties.

(blank) = No Federal Endangered Species Act status.
LE = Formally listed as endangered.
LT = Formally listed as threatened.
C = Candidate for listing.
LE,LT = Formally listed as endangered in part of its range, and as threatened in the other part; or, one or more subspecies or varieties is listed as endangered, and the others are listed as threatened.
LT,PDL = Populations of the species in New York are formally listed as threatened, and proposed for delisting.

GLOBAL AND STATE RANKS (animals, plants, ecological communities and others): Each element has a global and state rank as determined by the NY Natural Heritage Program. These ranks carry no legal weight. The global rank reflects the rarity of the element throughout the world and the state rank reflects the rarity within New York State. Infraspecific taxa are also assigned a taxon rank to reflect the infraspecific taxon's rank throughout the world. ? = Indicates a question exists about the rank. Range ranks, e.g. S1S2, indicate not enough information is available to distinguish between two ranks.

GLOBAL RANK:

G1 - Critically imperiled globally because of extreme rarity (5 or fewer occurrences), or very few remaining acres, or miles of stream) or especially vulnerable to extinction because of some factor of its biology.
G2 - Imperiled globally because of rarity (6 - 20 occurrences, or few remaining acres, or miles of stream) or very vulnerable to extinction throughout its range because of other factors.
G3 – Vulnerable: Either rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some of its locations) in a restricted range (e.g. a physiographic region), or vulnerable to extinction throughout its range because of other factors.
G4 - Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5 - Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GH - Historically known, with the expectation that it might be rediscovered.
GX - Species believed to be extinct.

NYS RANK:

S1 - Critically imperiled: Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
S2 – Imperiled: Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
S3 - Vulnerable: Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
S4 - Apparently secure in New York State.
S5 - Demonstrably secure in New York State.
SH - Historically known from New York State, but not seen in the past 15 years.
SX - Apparently extirpated from New York State.

SxB and SxN, where Sx is one of the codes above, are used for migratory animals, and refer to the rarity within New York State of the breeding (B)populations and the non-breeding populations (N), respectively, of the species.

TAXON (T) RANK: The T-ranks (T1 - T5) are defined the same way as the Global ranks (G1 - G5), but the T-rank refers only to the rarity of the subspecific taxon.
T1 through T5 - See Global Rank definitions above.
Q - Indicates a question exists whether or not the taxon is a good taxonomic entity.

Revised April, 2005

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New York Field Office
3817 Luker Road, Cortland, NY 13045
Phone: (607) 753-9334
Fax: (607) 753-9699

Long Island Field Office
3 Old Barto Rd., Brookhaven, NY 11719
Phone: (631) 776-1401
Fax: (631) 776-1405

Endangered Species Act List Request Response Cover Sheet

This cover sheet is provided in response to a search of our website* for information regarding the potential presence of species under jurisdiction of the U.S. Fish and Wildlife Service (Service) within a proposed project area.

Attached is a copy of the New York State County List of Threatened, Endangered, and Candidate Species for the appropriate county(ies). The database that we use to respond to list requests was developed primarily to assist Federal agencies that are consulting with us under Section 7(a)(2) of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq*.). Our lists include all Federally-listed, proposed, and candidate species known to occur, as well as those likely to occur, in specific counties.

The attached information is designed to assist project sponsors or applicants through the process of determining whether a Federally-listed, proposed, or candidate species and/or "critical habitat" may occur within their proposed project area and when it is appropriate to contact our offices for additional coordination or consultation. You may be aware that our offices have provided much of this information in the past in project-specific letters. However, due to increasing project review workloads and decreasing staff, we are now providing as much information as possible through our website. We encourage anyone requesting species list information to print out all materials used in any analyses of effects on listed, proposed, or candidate species.

The Service routinely updates this database as species are proposed, listed, and delisted, or as we obtain new biological information or specific presence/absence information for listed species. If project proponents coordinate with the Service to address proposed and candidate species in early stages of planning, this should not be a problem if these species are eventually listed. However, we recommend that both project proponents and reviewing agencies retrieve from our online database an *updated* list every 90 days to append to this document to ensure that listed species presence/absence information for the proposed project is *current*.

Reminder: Section 9 of the ESA prohibits unauthorized taking** of listed species and applies to Federal and non-Federal activities. For projects not authorized, funded, or carried out by a Federal agency, consultation with the Service pursuant to Section 7(a)(2) of the ESA is not required. However, no person is authorized to "take**" any listed species without appropriate authorizations from the Service. Therefore, we provide technical assistance to individuals and agencies to assist with project planning to avoid the potential for "take**," or when appropriate, to provide assistance with their application for an incidental take permit pursuant to Section 10(a)(1)(B) of the ESA.

Washington County

Federally Listed Endangered and Threatened Species and Candidate Species

This list represents the best available information regarding known or likely County occurrences of Federally-listed and candidate species and is subject to change as new information becomes available.

Common Name	Scientific Name	Status
Indiana bat (S)	*Myotis sodalis*	E
Small whorled pogonia *(Historic)*	*Isotria medeoloides*	T

E=Endangered T=Threatened P=Proposed C=Candidate

W=Winter S=Summer

Information current as of: 8/6/2007

K Drainage Water Contribution to Total Chemical Exposure

Appendix K. Surface Water Contribution to Total Chemical Exposure – Buoy 212 Site

The principal routes of exposure for wildlife are from diet and incidental ingestion of soil and/or sediment. Including water intake in the wildlife exposure calculations would have a negligible influence on the estimated total exposure and, thus, on the risk estimates and overall conclusions of the wildlife risk assessment. An example calculation is provided in the table below for the raccoon for zinc.

Exposure Route	Estimated Exposure (mg/kg body weight/day)	Percent of Total Exposure
Diet	10.561	89.48
Sediment Ingestion	1.238	10.49
Drinking Water	0.004	0.03
Total	11.803	100.00

The estimated exposure from diet and sediment ingestion were taken from Table 8-14. The estimated exposure from drinking water (EE-water) was calculated from: (1) the maximum detected zinc level in surface water from the on-site ditch/stream (0.043 mg/L; see Table 8-3); (2) the water ingestion rate (WIR) of the raccoon (0.44 L/day), which was calculated from the raccoon's body weight using an allometric equation from Sample et al. (1996); (3) a site use factor (SUF) and exposure duration (ED) of 1; and (4) the raccoon's body weight (BW) (5.3 kg). The following equation was used.

EE-water = 0.043 mg/L x WIR x SUF x ED / BW = 0.004 mg/kg-day

The example shows that drinking water accounts for only 0.03% of the total zinc exposure for the raccoon. A similar result would be expected for the other receptors and chemicals that were evaluated in the wildlife risk assessment.

Reference

Sample, B.E., D.M. Opresko, and G.W. Suter. 1996. *Toxicological Benchmarks for Wildlife: 1996 Revision.* Oak Ridge National Laboratory, Oak Ridge, TN. ES/ER/TM-86/R3.

L

Technical Memorandum, Comparison of Analytical Results for PCBs

Technical Memorandum

Comparison of Analytical Results for PCBs Obtained Using Standard EPA Method 8082 and Method 8082-screen

Prepared by
Carl H. Stineman, Ph.D., Marcia Meredith Galloway, QA Officer,
and Richard M. Watt, P.G.
Ecology and Environment Engineering, PC
February 5, 2007

For the six Hudson River Upland Dredge Spoil sites under investigation by New York State Department of Environmental Conservation (NYSDEC), a large number of samples needed to be analyzed for polychlorinated biphenyls (PCBs). At the request of NYSDEC and in an effort to reduce analytical costs, all soil samples were analyzed for PCBs using a screening-level analysis based on the United States Environmental Protection Agency (EPA) Method 8082. The screening method, identified herein as Method 8082-screen, differs from EPA Method 8082 only in the procedure used to extract PCBs from the sample matrix. The screening method used a medium-level extraction for the PCBs (i.e., a smaller sample size and solvent amount with a simple shake extraction). The detection limit for PCBs using the standard EPA Method 8082 was 0.017 parts per million (ppm) and the detection limit for Method 8082-screen was 0.25 ppm. All soil samples were analyzed using Method 8082-screen and approximately 20% of the samples were analyzed using standard Method 8082 to confirm the screening method results (water samples were analyzed by standard EPA Method 8082 only). The PCB results were compared based on the potential for decision errors and similarity of numerical results. The comparison indicates the screening data are useable for making decisions related to site characterization, but that the results have a generally low bias particularly at higher concentrations relative to the standard method PCB results. A mathematical evaluation of the comparison data was used to determine adjustment factors for the PCB screening results when doing numerical data analysis. A summary of the data comparison is presented below.

Comparison of Data for Decision Errors

The two primary decisions to be made for site characterization are whether PCBs are present in the sample and whether PCB concentrations are above screening criteria. The screening criteria used were the NYSDEC *Remedial Program Soil Cleanup Objectives,* 6 NYCRR Subpart 375-6. These regulations include several categories of cleanup objectives based on the current and potential future use of a specific site. These categories include unrestricted use scenarios as well as several restricted use scenarios. The unrestricted cleanup objective of PCBs is 0.1 ppm, while the residential, restricted-residential, and restricted-commercial cleanup objectives are all 1 ppm. The investigated sites were conservatively placed into one of these categories; therefore, screening levels of 0.1 ppm and 1 ppm were used in this evaluation. Other categories of cleanup objectives are in regulation; however, the PCB cleanup objectives for these categories are also 1 ppm or higher.

The following charts show the potential for making an incorrect decision based solely on the screening data had standard method PCB data not been available for comparison.

Were PCBs present in the samples?			
Surface Soils		8082 PCB	
		ND (<0.25)	Detected
Screening PCB	ND	41	***0***
	Detected	**0**	48

Were PCBs present in the samples?			
Subsurface Soils		8082 PCB	
		ND (<0.25)	Detected
Screening PCB	ND	50	***1***
	Detected	**0**	162

Were PCBs present above Screening Criteria?			
Unrestricted Cleanup Objective		8082 PCB	
		≤0.1 ppm	>0.1 ppm
Screening PCB	≤0.1 ppm	96	***7***
	>0.1 ppm	**3**	45

Were PCBs present above Screening Criteria?			
Restricted-Commercial Cleanup Objective		8082 PCB	
		≤1 ppm	>1 ppm
Screening PCB	≤1 ppm	140	***7***
	>1 ppm	**4**	151

Notes:

7	Formatting indicates a potential for false acceptance of the decision (i.e., false positive).
4	Formatting indicates a potential for false rejection of the decision (i.e., false negative).

Of the 302 sample pairs, the standard 8082 and screening results were comparable with regard to PCB detections in surface and subsurface soil samples except for one subsurface soil sample where the standard Method 8082 result was positive and the screening result was non-detect. This shows that with greater than 99% certainty the screening results can be used to indicate if PCBs are present in a given sample at a concentration greater than the detection limit (i.e., 0.25 ppm). When comparing analytical results to the unrestricted soil cleanup objective (0.1 ppm), there were only 10 instances (<7%) when the wrong conclusion would have been made had only screening data been used. For the restricted soil cleanup objective (1.0 ppm), there were only 11 such instances (<4%). This comparison qualitatively shows that the screening data is useful for the intended purpose and can be used for comparison with soil cleanup objectives in the vast majority of cases. However, the screening test results have a slightly low bias likely related to the extraction efficiency and representativeness of the subsample taken for screening analysis. At higher concentrations, the contamination is likely to be less homogenous; therefore, the large sample used for the full extraction would tend to yield more PCB mass. Also, the small amount of solvent used for the screening extraction may not be sufficient to remove all of the PCBs in a more highly contaminated sample.

Therefore, in order to use the PCB screening data from samples where the standard method was not run for comparison to the soil cleanup objectives, it was determined that the results should be adjusted for the potential low bias. The comparison of the numerical data in the following section outlines the basis for determination of the adjustment factor. The equation was used to determine adjusted Subpart 375-6 soil cleanup objectives that could then be used for comparison with unadjusted screening test data presented in the tables and figures of the Remedial Investigation (RI)/Feasibility Study (FS) report. The final RI report shows that PCB screening test concentrations greater than 0.73 ppm should be assumed to exceed the restricted-residential/restricted-commercial soil cleanup objective of 1 ppm and that screening test concentrations of greater than 0.075 ppm should be assumed to exceed the unrestricted soil cleanup objective of 0.1 ppm.

Comparison of Numerical Data

Comparison of the results for the 302 sample pairs analyzed by both methods showed that, on average, standard Method 8082 gave results about two-thirds higher than Method 8082-screen uncorrected results (see Figure 1). In other words, on average, Method 8082-screen results underestimate standard Method 8082 results by approximately 40%. The results of the two methods are statistically different by paired t-test with a $p < 0.001$. A simple linear regression of Method 8082-screen values on standard Method 8082 values gave a regression line with a slope of approximately 0.5 (see Figure 2).

Method 8082, using the low level extraction procedure, has greater extraction efficiency for PCBs and a more representative sample size. The full extraction is considered more reliable than medium-level extraction used in the screening Method 8082. When analytical results are used in risk assessments or are compared with regulatory cleanup objectives it is assumed that the results were obtained using standard analytical methods. Therefore, the Method 8082-screen results need to be adjusted to better reflect the result that would have been obtained had the samples been analyzed using standard Method 8082. This can be done using the mathematical relationship between the two datasets.

A mathematical relationship needs an equation that estimates the standard Method 8082 value that best corresponds to a particular Method 8082-screen value. To obtain the required prediction (regression) equation, a regression analysis was performed using the screening value as the independent variable (X-axis) and the standard value as the dependent variable (Y-axis). Predicted standard values are then calculated from the screening values using the regression equations obtained.

The 6 NYCRR Subpart 375-6 soil cleanup objectives for PCBs are expressed in terms of total PCBs. Therefore, total PCB concentrations in site samples were calculated by summing all detected concentrations for individual Aroclors in the samples. Total PCB concentrations were used in the regression analyses.

Both datasets included a substantial number of non-detected results. Non-detected results reflect the detection limits provided by each method but do not provide useful information about the relationship between actual concentrations measured by the two methods; thus, only samples in which PCBs were affirmatively detected by each method were included in the regression analyses.

Four possible regression models were investigated:

Model	Equation	R^2
Linear	$y = 1.2089x + 3000.1$	0.574
Linear, 0 Intercept	$y = 1.4191x$	0.537
Log-Log (Linear regression for Ln-transformed data)	$\ln(y) = 1.0104*\ln(x) + 0.3158$	0.878
Power	$y = 1.3714*(x^{1.0104})$	0.878

The Log-Log and Power models gave substantially better R^2 values than the linear models, indicating a better fit of the equation to the data. Of the two, the Power model is simpler in that it directly relates untransformed values, and it automatically passes through the origin. Therefore, the Power model was selected to calculate estimated standard Method 8082 values from Method 8082-screen values. Figure 3 shows the original regression using the Power model. The equation for calculating the estimated standard Method 8082 value from the Method 8082-screen value is as follows:

$$y = 1.3714 * x^{1.0104} \qquad \text{Equation 1}$$

Where: y = Standard 8082 analysis
x = 8082-screen analysis

Figure 4 compares the estimated standard Method 8082 values calculated from the Method 8082-screen values using the Power equation (Y-axis) with the actual measured standard Method 8082 values. Figure 4 also shows the distribution of relative errors, calculated as (predicted value/measured value) – 1, as a function of the measured values. This is provided to assess how evenly the residual variance not accounted for by the model is distributed over the range of the data. As shown in Figure 4, the residuals appear to be fairly uniformly distributed.

To use the Method 8082-screen results quantitatively in risk assessment calculations and to identify areas exceeding cleanup criteria, it was necessary to convert all of the Method 8082-screen values to estimated standard Method 8082 values. For samples with actual standard Method 8082 results available, the actual standard Method 8082 values were used in quantitative evaluations. For samples with only Method 8082-screen values, the Method 8082-screen values were converted to estimated Method 8082 values using the mathematical relationship between the two sets of values described by Equation 1.

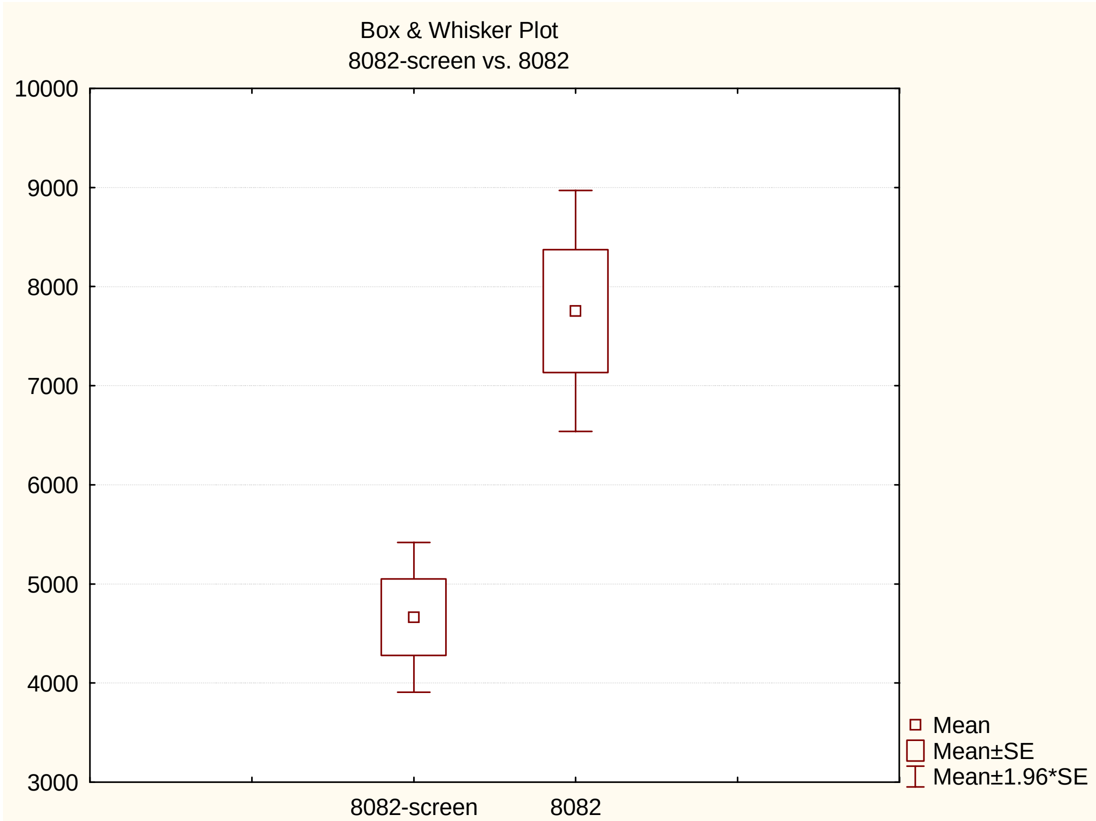


Figure 1 Box Plots Comparing the Results Obtained by the Two Analytical Methods (ppb)

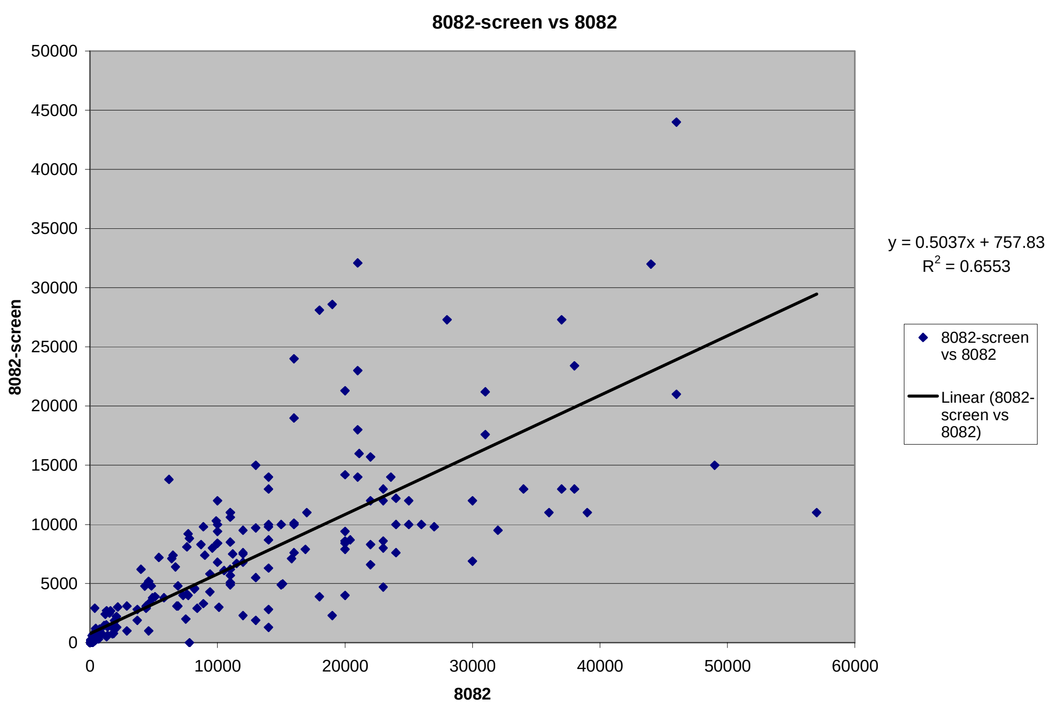


Figure 2 Linear Regression of Method 8082-screen on Standard Method 8082 Results

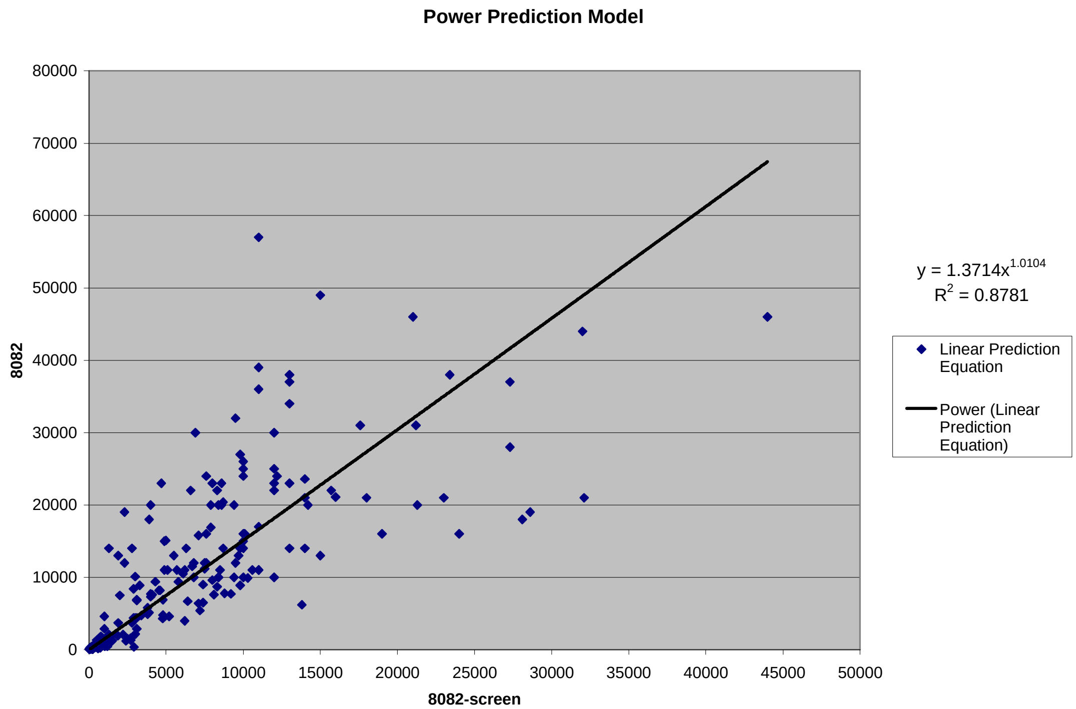


Figure 3 Power Model Regression of Standard Method 8082 on Method 8082-screen

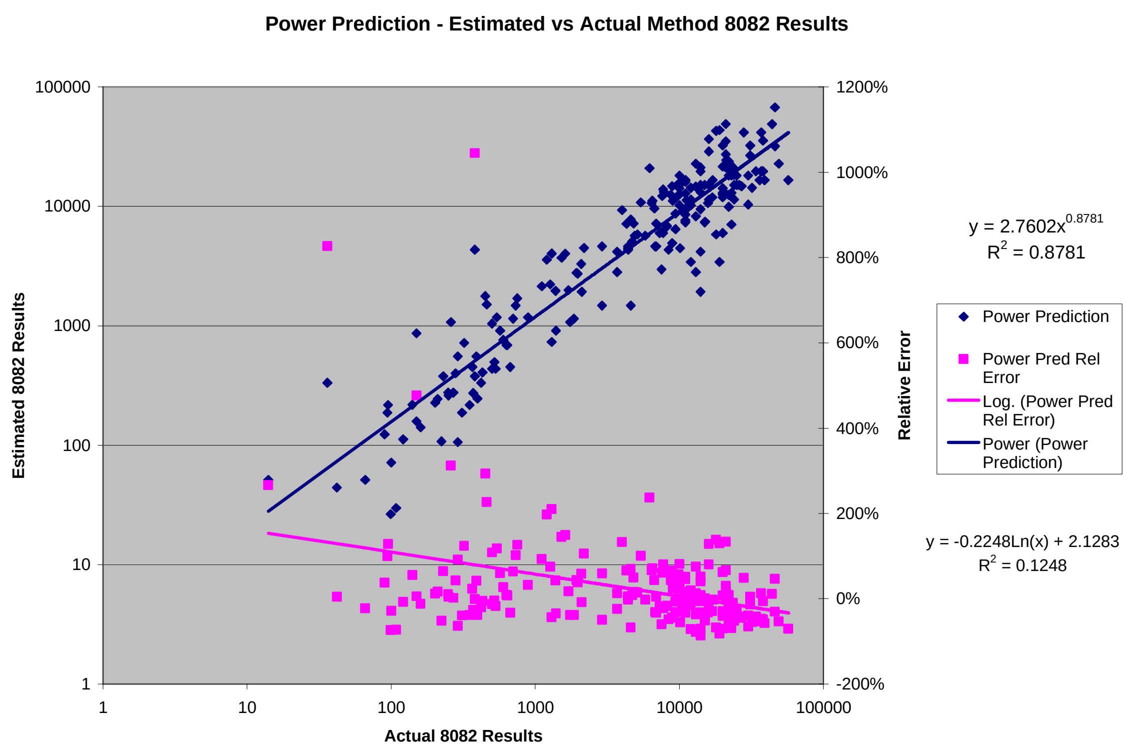


Figure 4 Predicted vs. Actual Method 8082 Results

M Supplemental Buoy 212 Dredge Spoil Disposal Area Investigation

Appendix M

Supplemental Buoy 212 Dredge Spoil Disposal Area Investigation
Property East of the Closed and Covered Dredge Spoil Disposal Structure
June 2008
Fort Edward, New York

During supplemental investigation work at the Buoy 212 Dredge Spoil Disposal Area (Buoy 212) in June 2008, the New York State Department of Environmental Conservation (NYSDEC) field representative and the field team from Ecology and Environment Engineering, P.C. (EEEPC) observed soils that could be characterized as dredge spoil material (dark gray to black sand, silt, shale fragments, and debris) in a causeway constructed on an adjoining property within a low lying area on the east side of the closed and covered dredge spoil disposal structure at the Buoy 212 site. During discussions with the property owner, it was learned that dredge spoil materials from the Buoy 212 site were used to construct the narrow causeway for access to the dredge spoil dewatering/disposal structure when it was first established in 1970 by the New York State Department of Transportation (NYSDOT). It was also learned that the NYSDOT had set up a field office and break area for workers in another area on the property while the Buoy 212 dredge spoil dewatering/disposal structure was being used. The property owner raised concerns about both areas to the NYSDEC field representative and requested that the areas be sampled.

The EEEPC field team collected a series of 19 soil samples at 10 sampling points using a hand auger to explore the subsurface on the neighboring property. Five sampling points were located along the causeway and five sampling points were located in the former field office and break area (see Figure M-1). The sampling points were each advanced to a depth of 24 inches below the ground surface at all locations except at one location in the causeway (RH-04) where bricks prevented further advance beyond a depth of about 6 inches. Based on observations made during the sampling program along the causeway, materials that could be characterized as dredge spoils were found at the surface and to a depth of 19 inches below the ground surface. No dredge spoil materials were observed at any of the five sampling points located in the former field office and break area. Considering these observations, exploration deeper than 24 inches was not necessary to evaluate conditions in these areas.

A surface soil sample was collected from the 0 to 2-inch depth interval at each of the 10 sampling points for chemical analysis. Soils deeper than 2 inches were also collected for chemical analysis at all sampling points other than RH-04 in the causeway. Selection preference for the deeper soils was given to any of the soil material that could have been characterized as dredge spoil material. The collected soil samples were submitted to the laboratory for PCB and metals analyses as identified in Table M-1. A summary of analytical data for total PCBs is provided below and are presented in Table M-2. The metals results are summarized below and are presented in Table M-3.

Results confirm PCBs in all nine of the soil samples collected from the causeway area at concentrations ranging between 4.3 and 6.8 parts per million (ppm) at the surface (covering the

0- to 2-inch depth interval) and between 1.6 and 4.1 ppm in the deeper samples. PCBs were also detected in two of samples from one of the five sampling points (RH-07) located in the former field office and break area. PCBs were detected at an estimated concentration of 0.0094 ppm in the 0- to 2-inch sampling interval and at an estimated concentration of 0.0059 ppm in the deeper sampling interval at sampling point RH-07. The values were considered estimated because the reported value was less than the sample quantitation limit (achieved detection limit - in this case 0.019 ppm and 0.020 ppm respectively), but were not non-detect. These two results are very low and no further action is warranted. All of the other sampling results from the former field office and break area were non-detect for PCBs (with achieved detection limits between 0.018 and 0.021 ppm). The PCBs detected in the soils at the causeway location prompted the soil removal action accomplished by the NYSDEC under the Interim Remedial Measure (IRM) described below.

A total of four soil samples were collected for metals analysis during this supplemental investigation including three from sampling points RH-02, RH-03, and RH-05 in the causeway area and one from a sampling point RH-08 in the former field office and break area (see Table M-3). All four samples were analyzed for cadmium, chromium, lead, and mercury (the metals that may be attributable to contaminated dredge spoil materials). One sample from the causeway (RH-05) was analyzed for the full suite of 23 Target Analyte List metals. The sample from RH-05 contained 19 different metals but none at concentrations exceeding NYSDEC Standards, Criteria, or Guidelines (SCGs). The only metal detected at a concentration exceeding the applicable SCGs was chromium in causeway sample RH-03-01. None of the metals detected in the sample from the former field office and break area (RH-08) were found at levels above SCGs. The chromium in the causeway area was addressed by the soil removal action accomplished by the NYSDEC under the IRM described below.

In addition to the soil sampling program done at these two areas, EEEPC collected a single water sample from the residential well on the property in June 2008. The well draws water from the overburden aquifer and did not show any impact attributable to the Buoy 212 site. The sample was analyzed for PCBs and metals. No PCBs were detected in this residential water sample. Seven metals (barium, calcium, copper, magnesium, potassium, sodium, and zinc) were detected in the water sample, but none were present at concentrations exceeding the applicable regulatory criteria. The metals results are presented in Table M-4.

IRM - Residential Soil Removal

As detailed above, PCB-contaminated dredge spoil materials/soils were identified within a low-lying area on the east side of the closed and covered dredge spoil disposal structure at the Buoy 212 site at concentrations above 1 ppm (the Restricted Use Residential Soil Cleanup Objective) during supplemental investigation work on this property. Dredge spoil materials/soils from the Buoy 212 site were used to construct a narrow causeway on the property for access to the dredge spoil dewatering/disposal structure when it was first established in 1970. PCBs were found in these causeway dredge spoil materials/soils at concentrations up to 6.8 ppm (see Table M-2). To address this contamination, approximately 100 cubic yards of PCB-contaminated dredge spoil materials/soils were excavated and removed to an off-site disposal facility during the IRM Soil Removal Program completed by the NYSDEC in February 2010. Subsequent soil sampling confirmed that PCBs of consequence were removed. The excavated causeway area was restored with a foot or more of clean cover material and armoring. A summary of the IRM activities and post-excavation sampling results is provided in an August 2010 reported entitled "Remedial Measures, Report of Findings, Buoy 212/Henderson Way, Fort Edward, New York, NYSDEC Site No. 558018," and prepared by Precision Environmental Services, Inc.

Considering this action, the samples and analytical results associated with this supplemental investigation were not discussed in the main Remedial Investigation Report or considered in the Feasibility Study Report because the soils where PCB contamination was identified at concentrations above 1 ppm (the residential use Soil Cleanup Objective) were removed during an IRM and were no longer part of the current site conditions being assessed by those reports.

Table M-1 **Henderson Property Soil Sample Location Summary, June 2008**
Buoy 212 Dredge Spoil Disposal Site, Fort Edward, New York

Sample ID	Collection Date / Time	Analysis: PCB by EPA Method 8082	Analysis: TAL Metals	Analysis: Short List Metals	Analysis: TOC	QA/QC: Dupe	QA/QC: MS/MSD	PID (ppm)	Sample Depth (inches BGS)	Total Investigated Depth (inches BGS)	Bottom of Spoils Depth (inches BGS)	Soil Description
B212-RH-01-01	6/12/08 10:33	X						0	0 - 2	24	19	spoils 1-6"
B212-RH-01-02	6/12/08 10:44	X						0	18 - 24			1' 7" to spoils then clay to 2'
B212-RH-02-01	6/12/08 10:55	X						0	0 - 2	24	11	0-8" spoils
B212-RH-02-02	6/12/08 10:59	X		X				0	18 - 24			11" spoils, 12" clay
B212-RH-03-01	6/12/08 11:07	X		X				0	0 - 2	24	18	0-12" spoils
B212-RH-03-02	6/12/08 11:14	X						0	18 - 24			0-18" spoils then clay to 2' (some red brick pieces in clay)
B212-RH-04-01	6/12/08 11:18	X				X		0	0 - 2	6	6	0-6" spoils then refusal due to bricks
B212-RH-05-01	6/12/08 11:35	X	X					0	0 - 2	24	14	0-6" spoils
B212-RH-05-02	6/12/08 11:42	X						0	18 - 24			14" spoils then red brick pieces
B212-RH-06-01	6/12/08 12:32	X						0	0 - 2	24	None	Silty Sand
B212-RH-06-02	6/12/08 12:34	X						0	18 - 24			Silty Sand
B212-RH-07-01	6/12/08 12:37	X						0	0 - 2	24	None	Silty Sand
B212-RH-07-02	6/12/08 12:42	X						0	18 - 24			Silty Sand trace Clay
B212-RH-08-01	6/12/08 12:45	X						0	0 - 2	24	None	Silty Sand trace Clay
B212-RH-08-02	6/12/08 12:50	X		X				0	18 - 24			Silty Sand trace Clay
B212-RH-09-01	6/12/08 12:54	X						0	0 - 2	24	None	Silty Sand
B212-RH-09-02	6/12/08 12:56	X						0	18 - 24			Silty Sand trace Clay
B212-RH-10-01	6/12/08 13:01	X						0	0 - 2	24	None	Silty Sand
B212-RH-10-02	6/12/08 13:05	X					X	0	18 - 24			Silty Sand trace Clay

Key:
BGS = Below ground surface
Dupe = Duplicate sample
EPA = (United States) Environmental Protection Agency
MS/MSD = Matrix spike/matrix spike duplicate
PCB = Polychlorinated biphenyl
PID = Photoionization detector
ppm Parts per million
QA/AC = Quality assurance/Quality Control
TAL = Target analyte list
TOC = Total organic carbon

Table M-2 **Total PCB Concentrations in Soil Samples Collected from the Property East of the Buoy 212 Dredge Spoil Disposal Area, Fort Edward, NY**

Sample ID	Collection Date	Total PCBs (mg/kg)
RH-01-01	06/12/2008	**5.4**
RH-01-02	06/12/2008	**4.1**
RH-02-01	06/12/2008	**4.3**
RH-02-02	06/12/2008	**1.6**
RH-03-01	06/12/2008	**6.8**
RH-03-02	06/12/2008	**3.5**
RH-04-01/D	06/12/2008	**4.2**
RH-04-01	06/12/2008	**5.3**
RH-05-01	06/12/2008	**5.9**
RH-05-02	06/12/2008	**3.0**
RH-06-01	06/12/2008	0.020 U
RH-06-02	06/12/2008	0.019 U
RH-07-01	06/12/2008	**0.0094 J**
RH-07-02	06/12/2008	**0.0059 J**
RH-08-01	06/12/2008	0.021 U
RH-08-02	06/12/2008	0.020 U
RH-09-01	06/12/2008	0.019 U
RH-09-02	06/12/2008	0.018 U
RH-10-01	06/12/2008	0.021 U
RH-10-02	06/12/2008	0.020 U

Note: Shaded values exceed the Unrestricted Use Soil Cleanup Objective of 0.1 mg/kg (6 NYCRR 375-6.8).

Key:

U: Not detected

J: Estimated

mg/kg: milligrams per kilogram

Table M-3 Metals Detected in Soil Samples Collected from the Property East of the Buoy 212 Dredge Spoil Disposal Area, Fort Edward, NY

Analyte	Screening Criteria [1]	RH-02-02 06/12/2008	RH-03-01 06/12/2008	RH-05-01 06/12/2008	RH-08-02 06/12/2008
Metals by Method 6010B (mg/kg)					
ALUMINUM	15800 [3]			**4680**	
ARSENIC	13 [2]			**2.6**	
BARIUM	350 [2]			**47.1**	
BERYLLIUM	7.2 [2]			**0.27**	
CADMIUM	2.5 [2]	**0.47**	**2.2**	**2.1**	**0.19 J**
CALCIUM	9190 [3]			**1720**	
CHROMIUM	30 [2]	**15.1**	**37.2**	**29.5**	**8.7**
COBALT	13.3 [3]			**4.7**	
COPPER	50 [2]			**17.8**	
IRON	25600 [3]			**9600**	
LEAD	63 [2]	**23.1**	**36.6**	**33.8**	**6.5**
MAGNESIUM	5130 [3]			**2100**	
MANGANESE	1600 [2]			**89.1**	
NICKEL	30 [2]			**8.8**	
POTASSIUM	1890 [3]			**686**	
SODIUM	211 [3]			**77.6 J**	
VANADIUM	31 [3]			**9.6**	
ZINC	109 [2]			**49.9**	
MERCURY	0.18 [2]	**0.086 J-**	**0.116 J-**	**0.107 J-**	**0.034 J-**

[1] Bold and shaded values exceed screening criteria.
[2] Part 375-6.8 Unrestricted Use Soil Cleanup Objectives.
[3] NYS background (95th percentile), Source-Distant Data Set from NYS Brownfield Cleanup Program, Technical Support
[4] Eastern United States background (95th percentile) from Shacklette and Boerngen 1984.

Key:

J = Estimated value ("-" is biased low and "+" is biased high).

mg/Kg = Milligrams/kilogram.

Blank spaces indicate metals were not analyzed.

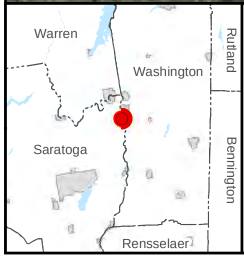
Table M-4 Analytical Summary for Well Water Sample Collected from the Property East of the Buoy 212 Dredge Spoil Disposal Area, Fort Edward, NY

Analyte	Screening Criteria (1)	RH-062508 06/25/2008
PCBs by Method 6010B (micrograms per liter)		
PCBs (total)	0.09	0.48 U
Metals by Method 6010B (micrograms per liter)		
BARIUM	1000	**2.6**
CALCIUM	NA	**26400**
COPPER	200	**4.8 J**
MAGNESIUM	35000	**16000**
POTASSIUM	NA	**452 J**
SODIUM	20000	**8500**
ZINC	2000	**9.3 J**

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance #1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998 Table 1, Class GA, Source of Drinking Water.

Key:
J: Estimated
U: Not detected

© Ecology and Environment Engineering, P.C. GIS Department   Project #
\L:\Buffalo\NYSDEC_RIFS\Maps\MXD\Buoy_212_Addendum\Henderson_Property.mxd



Existing Monitoring Well

Henderson Property Sample Locations

Fence

N W E S

0 25 50 100

Feet

Figure M-1
Henderson Property Soil Sample Locations
Fort Edward, New York

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	**LAB SDG ID: A08-6928**
Date Completed: 07/25/2008	**Data Validation Chemist: B. Krajewski**

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in the Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Trip Blank not required. Field duplicate included.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes Metals MS/MSD not designated for any project sample; no project samples used for batch metals MS/MSD.
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	Yes – Ten samples analyzed for Method 8082 at dilutions based on concentrations detected.

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	**LAB SDG ID: A08-6928**
Date Completed: 07/25/2008	**Data Validation Chemist: B. Krajewski**

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier Report. Al and Mg detected in ICB/CCBs.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	No
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	Yes
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs. Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	No – See Surrogate Outlier Report. No qualifiers applied since one of the two surrogates was within limits.
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	NA – MS/MSD not designated on COC and no additional volume provided.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	Yes – Ten samples analyzed for Method 8082 at dilutions based on concentrations detected.
Do field duplicate results show good precision for all compounds except TICs?	Yes – See Table 4 Field Duplicate Summary Report

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-6928
Date Completed: 07/25/2008	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes CRI recovery low for Hg. Results qualified “J-” .
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Serial dilution analyzed on sample from digestion batch – not from this SDG.
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes – Met for primary column.
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
Mercury results qualified based on CRI recoveries.

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification

NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6928
Date Completed: July 25, 2008	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A08-6928	06/13/2008 14:38

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-RH-01-01	SO	A8692801	06/12/2008 10:33	
B212-RH-01-02	SO	A8692802	06/12/2008 10:44	
B212-RH-02-01	SO	A8692803	06/12/2008 10:55	
B212-RH-02-02	SO	A8692804	06/12/2008 10:59	
B212-RH-03-01	SO	A8692805	06/12/2008 11:07	
B212-RH-03-02	SO	A8692806	06/12/2008 11:14	
B212-RH-04-01	SO	A8692807	06/12/2008 11:18	
B212-RH-04-01/D	SO	A8692808	06/12/2008 11:18	FD
B212-RH-05-01	SO	A8692809	06/12/2008 11:35	
B212-RH-05-02	SO	A8692810	06/12/2008 11:42	
B212-RH-06-01	SO	A8692811	06/12/2008 12:32	
B212-RH-06-02	SO	A8692812	06/12/2008 12:34	
B212-RH-07-01	SO	A8692813	06/12/2008 12:37	
B212-RH-07-02	SO	A8692814	06/12/2008 12:42	
B212-RH-08-01	SO	A8692815	06/12/2008 12:45	
B212-RH-08-02	SO	A8692816	06/12/2008 12:50	
B212-RH-09-01	SO	A8692817	06/12/2008 12:54	
B212-RH-09-02	SO	A8692818	06/12/2008 12:56	
B212-RH-10-01	SO	A8692819	06/12/2008 13:01	
B212-RH-10-02	SO	A8692820	06/12/2008 13:05	
B212-RH-10-02MS	SO	A8692820MS	06/12/2008 13:05	MS
B212-RH-10-02MSD	SO	A8692820SD	06/12/2008 13:05	MSD

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
SO	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	1
SO	6010B Short	Metals by Inductively Coupled Plasma-Atomic Emission	3
SO	7471A	Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique	4
SO	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	20

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-6928
Date Completed: July 25, 2008	Data Validation Chemist: BKrajewski

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-RH-05-01	6010B	RES	SODIUM	77.6	mg/Kg	B	77.6	J	12
B212-RH-08-02	6010B Short	RES	CADMIUM	0.19	mg/Kg	B	0.19	J	12
B212-RH-02-02	7471A	RES	MERCURY	0.086	mg/Kg		0.086	J-	23L
B212-RH-03-01	7471A	RES	MERCURY	0.116	mg/Kg		0.116	J-	23L
B212-RH-05-01	7471A	RES	MERCURY	0.107	mg/Kg		0.107	J-	23L
B212-RH-08-02	7471A	RES	MERCURY	0.034	mg/Kg		0.034	J-	23L

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
12	Result is below project reporting limit, but above MDL.
23L	Continuing calibration verification percent difference exceeded control limits. Result has a low bias.

Table 4: Field Duplicate Summary Report

Lab SDG: A08-6928 **Lab ID:TALBUF**

Field Duplicates in this SDG

Sample ID	Field DupID	Method
B212-RH-04-01	B212-RH-04-01/D	8082

Method: 8082

		Field Sample				Field Sample Duplicate*								
Matrix	Analyte	Sample ID	Type	Result	(Q)	Field Dup ID	Type	Result	(Q)	%RPD -	Limits	Units	Rating	Qual
SO	AROCLOR 1248	B212-RH-04-01	RES	5300		B212-RH-04-01/D	RES	4200		23.2	70	ug/Kg	Good	None

***Field Duplicate Results with one or both results ND are not included in this report**

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: A08-6928 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
B212-RH-07-01	A8692813	8082	SO	AROCLOR 1248	J	9.4	19	ug/Kg
B212-RH-07-02	A8692814			AROCLOR 1248	J	5.9	20	ug/Kg

Method Blank Outlier Report

Lab Reporting Batch : A08-6928 **Lab ID:** TALBUF
Analysis Method : 6010B **Analysis Date :** 06/19/2008
Preparation Type : 3050B **Preparation Date :** 06/18/2008
Method Blank Lab Sample ID : A8692822 **Preparation Batch :** A8B17262

ZINC	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	**0.710**	**0.400**	**mg/Kg**	**B**	

ZINC contamination found in the method blank did not qualify any samples.

Surrogate Recovery Outlier Report

Lab Report Batch: A08-6928 **Lab ID:** TALBUF

Client Sample ID	Lab Sample ID	Analysis Method	Dilution	Matrix	Surrogate	Percent Recovery	Criteria (percent) Lower Limit	Upper Limit	Reject Point	Associated Target Analytes
B212-RH-06-01	A8692811	8082	1.00	SO	DECACHLOROBIPHENYL	145	70.0	130.0	10.0	All Target
B212-RH-07-01	A8692813	8082	1.00	SO	DECACHLOROBIPHENYL	159	70.0	130.0	10.0	All Target
B212-RH-09-02	A8692818	8082	1.00	SO	TETRACHLORO-M-XYLENE	59	70.0	130.0	10.0	All Target

Project Number and Name: ***002699.ID07.01 - NYSDEC Site Characterization of Buoy 212***

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-7697
Date Completed: 07/25/2008	Data Validation Chemist: B. Krajewski

The samples and analytical methods included in this sample delivery group (SDG) are documented in Attachment 1 Table 1 Sample Summary and Table 2 Tests and Number of Samples. The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. The data were processed using Automated Data Review (ADR) electronic data deliverables (EDDs) for sample results and laboratory quality control (QC) samples. ADR software is programmed to verify the completeness and compliance of electronic data and automatically assign data qualifiers. Data for instrument QC files including calibration and tuning were not reviewed with ADR and data qualifiers were added manually. Data qualifiers generated during the review process are summarized in Attachment 1 Table 3 Summary of Data Validation Qualifiers. A detailed listing of the qualified data is provided in the Sample Qualification Report. All data qualification was reviewed and approved by the qualified Data Validation Chemist listed in the heading of this DUSR.

Specific criteria for reporting and QC limits were obtained from the ADR library developed for the project and documented in the project Quality Assurance Project Plan (QAPP). Compliance with the project QC criteria is documented on ADR outlier reports provided. The checklist and tables summarize the data review process and any items not reviewed by ADR. Any major or minor concerns affected data usability also are summarized listed below. The representativeness and comparability of the data are evaluated to determine how data usability may be impacted.

Completeness Review - General Sample and Batch Information - See Attachment 1	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes
Frequency of Field QC Samples Correct? *Field Duplicate - 1/20 samples.* *Trip Blank - Every cooler with VOCs waters only.* *Equipment Blank - 1/ set of samples per day*.	Yes – Trip Blank not required. Field duplicate not included in this SDG.
Laboratory QC frequency correct? *Method blank and LCS with each batch and one set of MS/MSD per 20 samples?*	Yes – LCSs analyzed. No MS/MSD designated on COC and no additional volume provided.
All forms and raw data complete?	Yes
Case narrative present and complete?	Yes
Target analyte list and reporting limits match QAPP?	Yes
Were any samples re-analyzed or diluted? For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.	No

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-7697
Date Completed: 07/25/2008	Data Validation Chemist: B. Krajewski

Compliance Review - ADR with Approval by Data Validation Chemist - See Attachment 2	
Description	**Notes and Qualifiers**
Any holding time violations?	No
Any compounds present in method, trip and field blanks?	Yes – See Method Blank Outlier Report. K detected in ICB/CCBs.
Were any analytes flagged for blank contamination? *For samples, if results are <5 times the blank or <10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs reported with GC/MS.*	No
Surrogate for method blanks and LCS within limits? *Organic Methods Only*	No
Surrogate for samples and MS/MSD within limits? *Organic Methods Only*. Were appropriate samples re-analyzed? *All samples should be re-analyzed for VOCs*. *Samples should re-analyzed if more than one BN or more than AP for SVOCs is out. Matrix effects should be established for all other methods. Only samples exceeding these criteria are listed on the Surrogate Outlier Report.*	Yes
MS/MSD within QC criteria? *If out and LCS is compliant, then J flag positive data in original sample due to matrix.* *If metal recoveries were ≤30%, then "R" flag associated non-detect values.*	NA – MS/MSD not designated on COC and no additional volume provided.
LCS within QC criteria? *If out, and the recovery high with no positive values, then no data qualification is required. Positive results are "J" flagged and non-detects are "J" flagged if low. Reject data with recovery <10%.*	Yes
Were any samples re-analyzed or diluted? *For any sample re-analysis and dilutions ensure that only one result per sample and analyte is flagged as reportable.*	No
Do field duplicate results show good precision for all compounds except TICs?	NA

Data Usability Summary Report	Project: Buoy 212
Laboratory: TA - Buffalo	LAB SDG ID: A08-7697
Date Completed: 07/25/2008	Data Validation Chemist: B. Krajewski

Compliance Review by Data Validation Chemist		
Method	**Description**	**Notes and Qualifiers**
ICP/ CVAA	ICS recoveries within 80-120%?	Yes
ICP/ CVAA	ICV recoveries within 90-110%?	Yes
ICP/ CVAA	CCV recoveries within 90-110% or 80-120% for mercury?	Yes
ICP/ CVAA	Serial dilution recoveries within 90-110% for concentrations greater than 50 times reporting limit?	Serial dilution analyzed on sample from digestion batch – not from this SDG.
GC	Does initial calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Does continuing calibration meet criteria for all positive target compounds?	Yes
	Is the minimum response factor must be met for all compounds?	Yes
GC	Did the retention time window summary form (if present) indicate any non-compliance?	No
GC	Were all positive target compounds confirmed on a second column?	Yes

Summary of Potential Impacts on Data Usability
Major Concerns
None.
Minor Concerns
None

Key:

ADR	=	Automated Data Review
AP	=	Acid Phenol
BN	=	Base Neutral
CCV	=	Continuing calibration verification
COC	=	Chain-of-custody
CVAA	=	Cold Vapor Automatic Absorption
GC	=	Gas Chromatography
GC/MS	=	Gas Chromatography/Mass Spectrometry
ICP	=	Inductively Coupled Plasma Argon Spectrometry
ICS	=	Interference check standard
ICV	=	Initial calibration verification

NA	=	Not Applicable
LCS	=	Laboratory Control Sample
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate
QAPP	=	Quality Assurance Project Plan
QC	=	Quality Control
SD	=	Serial Dilution
SVOCs	=	Semivolatile Organic Compounds
TIC	=	Tentatively Identified Compound
VOCs	=	Volatile Organic Compounds

DUSR - Attachment 1	Project: 002699.ID07.01
Laboratory: TALBUF	Lab SDG ID: A08-7697
Date Completed: July 25, 2008	Data Validation Chemist: BKrajewski

Reference

ProjectName	Project Number	Lab Report Batch	Lab Receipt Date
NYSDEC Site Characterization of Buoy 212	002699.ID07.01	A08-7697	06/27/2008 14:40

Table 1: Sample Summary Tables from Electronic Data Deliverables

Sample ID	Matrix	Lab ID	Sample Date	QC Type
B212-RH-062508	AQ	A8769701	06/25/2008 14:15	

Table 2: Tests and Number of Samples Included in this DUSR

Matrix	Test Method	Method Name	Number of Samples
AQ	6010B	Metals by Inductively Coupled Plasma-Atomic Emission	1
AQ	7470A	Mercury in Liquid Waste by Manual Cold Vapor Technique	1
AQ	8082	Polychlorinated Biphenyls (PCBs) by GC using ECD	1

Table 3: Qualified Data Summary

Client SampleID	Method	Type	AnalyteName	Result	Units	Lab Qual	Result/Qual/Code		
B212-RH-062508	6010B	RES/TOT	COPPER	4.8	ug/L	B	4.8	J	12
B212-RH-062508	6010B	RES/TOT	POTASSIUM	452	ug/L	B	452	J	12
B212-RH-062508	6010B	RES/TOT	ZINC	9.3	ug/L	B	9.3	J	12

Table 3: Data Validation Code Qualifier Key

DV Qual Code	DV Qual Code Description
12	Result is below project reporting limit, but above MDL.

Method Blank Outlier Report

Lab Reporting Batch : A08-7697 **Lab ID:** TALBUF

Analysis Method : 6010B **Analysis Date :** 07/03/2008

Preparation Type : 3005A **Preparation Date :** 07/02/2008

Method Blank Lab Sample ID : A8769703 **Preparation Batch :** A8B18090

ALUMINUM	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	24.390	23.610	ug/L	B	

ALUMINUM contamination found in the method blank did not qualify any samples.

BERYLLIUM	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	0.290	0.270	ug/L	B	

BERYLLIUM contamination found in the method blank did not qualify any samples.

CALCIUM	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	100.940	100.000	ug/L	B	

CALCIUM contamination found in the method blank did not qualify any samples.