Contract No. 68-W-98-210

RAC II

Final Remedial Investigation Report
Hiteman Leather Company Site
Remedial Investigation/Feasibility Study
West Winfield, New York
Work Assignment No.: 032-RICO-02CG

Volume I

Remedial Response, Enforcement Oversight and Non-time Critical Removal Activities at Sites of Release or Threatened Release of Hazardous Substances in EPA Region II

CDM

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Volume I

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February 8, 2005

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PROJECT:	RAC II Contract No.: 68-W-98-210 Work Assignment No.: 132-RICO-02CG
DOCUMENT NO.:	3223-132-RR-FRIR-05291
SUBJECT:	Final Remedial Investigation Report Hiteman Leather Site

Dear Mr. O'Dell:

CDM Federal Programs Corporation (CDM) is pleased to submit the Final Remedial Investigation Report for the Hiteman Leather Site, West Winfield, New York. Comments were addressed as indicated in the Response to Comments letter dated February 24, 2004 and according to additional comments provided by EPA via email.

Please contact me at (212) 785-9123 or Susan Schofield at (203) 262-6633 if you have questions regarding this issue.

Sincerely,

CDM FEDERAL PROGRAMS CORPORATION

Jeanne Litwin, REM
Technical Operations Manager

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Contents

Contents

List of Figures

Acronyms

AD	Alluvial Land
ARARs	Applicable or Relevant and Appropriate Requirements
ATV	All-Terrain-Vehicle
bgs	below ground surface
BKGD-SUR	Hiteman Backround Criteria for Inorganics - Surface Soil
BKGD-SUBSUR	Hiteman Background Criteria for Inorganics - Subsurface Soil
BOD	Biological Oxygen Demand
CDM	CDM Federal Programs Corporation
cfs	cubic feet per second
CLP	Contract Laboratory Program
COD	Chemical Oxygen Demand
COPCs	Contaminants of Potential Concern
CT	Central Tendency
Cu	Cut and Fill Land
DPW	Department of Public Works
DQOs	Data Quality Objectives
EPA	US Environmental Protection Agency
EPAPDW-MCL	National Primary Drinking Water Standards
EPASW-AFRESHCC	EPA Ambient Surface Water Criteria - Aquatic Life Chronic Freshwater
EPASW-HHORG	EPA Ambient Surface Water Criteria - Human Health for Consumption of Organisms
ERAGS	Ecological Risk Assessment Guidance for Superfund
ERT	Emergency Response Team
EVS	Environmental Visualization System
°F	Degrees Fahrenheit
FCR	Field Change Request
FID	Flame Ionization Detector
ft	feet
Fr	Fredon fine sandy loam
gpm	gallons per minute
HHRA	Human Health Risk Assessment
HRS	Hazard Ranking System
HSAs	Hollow Stem Augers
IDW	Investigation-derived waste
in/yr	inches per year
lb/d	pounds per day
MCL	Maximum Contaminant Levels
mg/kg	milligrams per kilogram
mg/L	milligrams per Liter
msl	mean sea level
NAD	North American Datum
NAVD	North American Vertical Datum
NPL	National Priorities List
NTUs	Nephelometric Turbidity Units
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDEC-RSCO	NYSDEC Recommended Soil Cleanup Objectives, adjusted for Site Total Organic Carbon average of 5.24%

NYSDEC-GW-GA	NYSDEC Standards/Guidance for Class GA Groundwater, Human Water Source
NYSED-AC-LEL	NYS Sediment Criteria for Benthic Aquatic Life low effects level Inorganics
NYSED-AC-SEL	NYS Sediment Criteria for Benthic Aquatic, Severe-Effects Level
NYSED-HFW	NYS Sediment Criteria for Human Health Bioaccumulation Freshwater
NYSDOH	New York State Department of Health
NYSDOH-DW-MCLS	NYSDOH Drinking Water Quality Standards, Maximum Contaminant Levels
NYSW-C-AC	NYS Standards and Guidance Values for Class C Surface Water, Aquatic Life
NYSW-C-HFC	NYS Standards and Guidance Values for Class C Surface Water, Human Food Chain
PAHs	Polycyclic Aromatic Hydrocarbons
PAR	Pathway Analysis Report
PCBs	Polychlorinated Biphenyls
PID	Photoionization Detector
ppm	parts per million
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAC	Remedial Action Contract
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
redox	oxidation reduction potential
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RME	Reasonable Maximum Exposure
ROD	Record of Decision
RSCO	Recommended Soil Cleanup Objectives
SI	Site Investigation
SLERA	Screening Level Ecological Risk Assessment
SVOCs	Semivolatile Organic Compounds
TAL	Target Analyte List
TBC	to be considered
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
TSS	Total Suspended Solids
μg/kg	micrograms per kilogram
μg/L	micrograms per Liter
UCL	Upper Confidence Limit
USEPA-FISH	USEPA Region 3 Risk-Based Fish Screening Criteria for Human Health
USF&WS	United States Fish and Wildlife Service
VOCs	Volatile Organic Compounds
XRF	X-ray Fluorescence

Executive Summary

Executive Summary

Introduction

This report was prepared by CDM Federal Programs Corporation (CDM) for the U.S. Environmental Protection Agency (EPA), Region II, under the Response Action Contract (RAC II) program. The Remedial Investigation (RI) was conducted in accordance with applicable work plans and Quality Assurance Project Plans (QAPPs) prepared by CDM and approved by EPA. The overall purpose of this report is to define the nature and extent of Site-related contamination in surface water, sediment, wetland sediment, surface and subsurface soil, and groundwater in on-site as well as off-site areas.

Site Description

The Hiteman Leather Site (the Site) is a former tannery and leather manufacturing facility located in the Village of West Winfield at 173 South Street (i.e., Route 51) just south of the intersection of Route 51 with State highway Route 20. The Site is bordered to the north by commercial buildings and residences, to the east by South Street, to the south by a residential property and a small tributary to the Unadilla River with a wetland beyond, and to the west by the West Winfield Cemetery. Figures 1-1 and 1-2 show the Site location and Site feature map, respectively.

The Site covers approximately 14 acres and is traversed by 800 feet of the Unadilla River, with 10 acres along the northern bank of the river and 4 acres along the southern bank (see Figure 1-2). The 10-acre area north of the river is comprised of 6 contiguous parcels of land formerly owned by the Hiteman Leather Company. This area includes the foundation remains of the former tannery buildings and macadam parking lot, which front along South Street. Behind the former buildings and to the west is a 2-acre area where the three former wastewater lagoons (each approximately 50 feet wide by 350 feet long), now leveled and backfilled, were located. To the north and west of the former lagoon area is an undeveloped area of approximately 6 to 7 acres, which includes a 1.8-acre wetland along the western side of the Site and a small backfilled area along the eastern side of the Site (in front of the adjacent Village of West Winfield Department of Public Works [DPW] garage). The northern border of the site is fenced, with the exception of the backfilled area in front of the DPW garage. Two buildings still exist at the Site, including a metal storage shed that is used and maintained by the Village of West Winfield DPW and a small concrete shed, which is unused.

The 4-acre area south of the river is comprised of a 2-acre parcel fronting on South Street (i.e., an original part of the Hiteman Leather Co. property) and a landlocked 2-acre parcel to the rear (owned by D. Castronover, NY). The southern part of the Site is not fenced, is low lying and thinly-wooded with a small open field area. It is undeveloped except for a small, inactive horse barn on the rear parcel.

Off-site areas where Hiteman Leather wastes were found include the Crumb Trailer Park (which overlies the former Village of West Winfield Dump ("Town Dump") on

Burrows Road and the Ferguson Fuels property (across from the former Hiteman Leather Railroad Depot), also on Burrows Road.

The tannery buildings were demolished in 1996 and in 1998, with the latter demolition leaving piles of loose brick and concrete debris, as well as other concrete remnants (e.g., building pillars, concrete dye tanks). Much of the loose brick and concrete debris was removed from the concrete foundation floor by EPA in May 2001 (during Field Activity 1) to facilitate sampling under the floor.

Geographically, the Site is located within the Unadilla River valley, the floor of which has relatively low topographic relief. West Winfield is located on the northern edge of the approximately one and one-half mile wide Unadilla River valley, which is oriented west southwest-east northeast and slopes slightly (approximately 0.28 percent slope) to the southwest in the vicinity of the Site. The river valley is bounded abruptly to the north and south by rolling hills with elevations between three and five hundred feet above the valley floor.

The topography of the Site is mostly flat, with a gentle southwestern slope from the northern and eastern portions of the Site toward the southwestern wetland area and the Unadilla River. The area once occupied by the former wastewater lagoons has no topographic expression other than small mounds and hummocks. The surface expression of a former channel leading from the northernmost lagoon to the wetlands, observed in historical aerial photographs, can be identified visually. Along the Unadilla River, the northern river bank drops steeply (between 6 and 8 feet) down to the river. Rip-rap has been placed along a section of this bank, as an erosion control measure. The 4-acre southern portion of the Site is level. Ground surface elevations range from approximately 1,170 to 1,180 feet above mean sea level (msl).

Site History

The West Winfield tannery was established on the northern bank of the Unadilla River in 1820 by a Mr. Adsit (Smith 1979). In 1910, after several changes in ownership, the name was changed to the Hiteman Leather Company and in 1922, the company was officially reorganized as a corporation (Hiteman Leather Company Inc.) with the name remaining unchanged until its closing in 1968. Under the Hiteman family, the tannery and tannery property experienced many changes over the years to expand business and increase production, including a major change during the early 1900s to incorporate chromium-based tanning into the process. The chrome-based process, in combination with mechanization, reduced the time to manufacture leather from years to months to weeks; however, the wastes generated were more toxic.

The inability to economically treat contaminated wastewater from the tannery forced the closing of the Hiteman Leather Company in 1968. The property and buildings were sold in 1969 to Erle Davis of Clinton, New York, who subsequently rented the buildings to various small businesses during the 1970s, including a cookie company and a tire company. The tannery buildings were no longer rented after 1982 and gradually deteriorated, resulting in their later demolition.

Several New York State investigations were conducted during the 1980s concerning the contamination at the Site. New York State Department of Environmental Conservation (NYSDEC) conducted an RI/FS from 1988 to 1992, which resulted in a 1992 Record of Decision (ROD) that referred the Site to EPA for further evaluation. In 1994, EPA performed some preliminary sampling at the Site and fenced the northern part of the Site to prevent unauthorized access, particularly to the deteriorating buildings. A Site Investigation (SI) was subsequently conducted by EPA's Emergency Response Team (ERT) in 1996. In 1999, the Site was listed on EPA's Superfund National Priorities List (NPL) and EPA contracted with CDM to complete an RI/FS to support the selection of a remedy for the Site.

CDM conducted a field investigation at the Hiteman Leather Site in 2001-2002 to acquire data for this RI. Field investigation activities included geological and hydrogeological investigations (including monitoring well installation) and environmental sampling. Environmental sampling included the collection of samples from surface water, fish tissue, sediment, wetland sediment, surface and subsurface soil, groundwater, residential wells, and public supply wells.

Associated activities included a surface features investigation (including site base map preparation), synoptic water level measurements, an ecological assessment and wetlands delineation, and a cultural resources survey.

In 2004, a variety of samples were collected to support a Baseline Ecological Risk Assessment (BERA), including biological samples, soil and sediment for toxicity tests, and additional downgradient Unadilla River surface water and sediment samples. //.

Geological and Hydrogeological Investigations

Geology

The following stratigraphy was encountered in lithologic samples collected during the geological and hydrogeological investigation.

Bedrock

During the CDM RI drilling program, bedrock was encountered at depths ranging from 30 feet below the ground surface (bgs) in the Winfield cemetery to 66.5 feet bgs east of the Site. These data indicate that the top of the bedrock's surface has a slight easterly/southeasterly dip. The bedrock was described as a dark-gray, thin- to medium-bedded, fractured fine-grained micritic limestone with abundant chert nodules and few bryozoan and brachiopod fossils. Based on available published descriptions and the core descriptions, the bedrock underlying the Hiteman property has been assigned to the Moorehouse Member of the Onondaga Formation (CDM boring logs, Oliver 1954).

Glacio-Lacustrine Deposits

Glacio-lacustrine deposits were observed in all deep and bedrock monitoring well borings. These deposits consist of gray silty-clay with abundant dark gray clay seams and light gray silt seams. Thicknesses range from just over10 feet in the vicinity of the onsite wetland to over 30 feet northeast of the Site.

Glacial Outwash Deposits
The glacial outwash deposits observed onsite are variable in composition but are commonly described as light brown, coarse- to fine-grained gravel, some coarse- to fine-grained sand, little silt and cobbles were observed underlying the recent fluvial deposits throughout the Hiteman property. In the vicinity of the former wastewater lagoons, the outwash consists of black, medium- to coarse-grained gravel with varying amounts of cobbles and lesser amounts of fine to coarse sand. Thinner outwash deposits occur at the northern edge of the Site and southwest of the Site. Thicker deposits occur to the south and east, indicating a thickening of the unit to the south and east.

Floodplain Deposits
Recent fluvial sediments were identified as thin surficial deposits across the Site. Fluvial deposits consist of light-brown silt and clayey-silt with some medium to fine sand and a trace of fine gravel. The main distinguishing feature between the fluvial deposits and the fine-grained portions of the outwash deposits is that the outwash tends to contain cobbles and the fluvial deposits do not. The fluvial deposits range in thickness from 3.5 feet at MW-5D, at the southwest corner of the former wastewater lagoons, to 10 feet at MW-1S, at the northeast corner of the former facility building (NYSDEC 1992, CDM boring logs).

Fill Material
Artificial fill extends along the western margin of the Hiteman Leather Company parking lot and the margins of the public parking area north of the property. The fill consists of concrete, wood debris, and varying amounts of glass, bricks, ashes, tile flooring and other assorted materials.

Hydrogeology
Hydrogeologic data collected during the 1992 NYSDEC RI and the CDM RI field events indicate a highly complex hydrogeologic system governed by artesian conditions, seasonal variations, and the presence of natural and man-made surface water bodies. It is likely that several factors, including historic Site activities, have altered the natural flow of groundwater underlying the Site. The hydrogeology at the Site is characterized by the existence of three hydrologic units: a shallow glacial outwash aquifer, a glacio-lacustrine semi-confining unit, and an underlying bedrock aquifer.

Bedrock Aquifer
The limestone bedrock unit underlying the Site comprises the bedrock aquifer; groundwater flow in this unit is defined by joints and bedding planes, which were observed to be wider and more numerous near the bedrock surface. The bedrock aquifer is semi-confined by the glacio-lacustrine deposits, resulting in artesian conditions in wells completed in this unit. Therefore, groundwater in the bedrock

aquifer beneath the Site has a dominant upward flow direction with a minor west/southwest component.

Glacio-Lacustrine Semi-Confining Unit

The glacio-lacustrine semi-confining unit overlies the bedrock aquifer. The fine-grained glacio-lacustrine deposits create a leaky, semi-confining unit, separating the underlying bedrock aquifer from the shallow outwash aquifer above. Despite its lower permeability, the unit is water-producing. According to water level data in deep wells, the horizontal flow in this unit is to the southwest. In addition, there is an upward vertical gradient through this unit, suggesting a hydrological connection between this unit and the bedrock aquifer.

Shallow Outwash Aquifer

The shallow outwash aquifer unit overlies the glacio-lacustrine semi-confining unit and is composed of glacial outwash and fluvial sediments, and fill material. This aquifer is unconfined, and unlike the lower units, does not exhibit artesian conditions. Water table depths vary seasonally. Groundwater flow in the shallow aquifer is to the southwest.

Study Area Investigations

CDM conducted several study area investigations during three RI field activities (FA), and a Baseline Ecological Risk Assessment Field Activity (BERA FA), including surface water and sediment, contaminant source, geological/ hydrogeological, and ecological investigations. The following field activities occurred during these investigations:

Surface Water and Sediment Investigation

- Unadilla River surface water sampling (FA 1, FA 2, BERA FA)
- Unadilla River sediment sampling (FA 1, FA 2, BERA FA)
- Onsite Wetland sediment sampling (FA 1, FA 2)

Contaminant Source Investigation

- Lagoon Boring surface and subsurface soil sampling (FA 2)
- Test Pit Excavation (FA 2)
- South Bank Front Lot surface soil sampling (FA 3)

Geological/Hydrogeological Investigation

- Hiteman Leather Site Soil Boring surface and subsurface soil sampling (FA 2)
- Building Boring subsurface soil sampling (FA 2)
- South Bank Front Lot surface and subsurface soil sampling (FA 2, FA 3)
- Off-site Soil Boring surface and subsurface soil sampling (FA 2, FA 3)
- Off-site Background Soil Boring surface and subsurface soil sampling (FA 2)
- Geotechnical Soil Boring and subsurface soil sampling (FA 2)
- Existing Monitoring Well redevelopment and sampling (FA 1, FA 2)
- Monitoring Well installation, development, and sampling (FA 2)
- Municipal Well sampling (FA 1)
- Residential Well sampling (FA 2)

- Synoptic Water Level Measurements (FA 1, FA 2, FA 3)

Ecological Investigation
- Unadilla River fish tissue sampling (FA 2)
- Ecological characterization and wetland delineation (FA 2)
- BERA Field Activities: Toxicity testing, biota tissue sampling (BERA FA)

In general, Target Compound List (TCL) organics and Target Analyte List (TAL) inorganics, including cyanide, were analyzed through EPA's Contract Laboratory Program (CLP); all other analyses were performed by CDM's subcontract laboratory. Sample analyses by matrix are listed as follows:

- Onsite soil samples (with the exception of those collected at the South Bank Front Lot) - TCL organics, TAL inorganics, hexavalent chromium, grain size, pH, and total organic carbon (TOC). Select soil samples were also analyzed for Resource Conservation and Recovery Act (RCRA) metals following Toxicity Characteristic Leaching Procedure (TCLP) extraction.

- Off-site and South Bank Front Lot soil samples - TAL inorganics, hexavalent chromium, grain size, pH, and TOC. Select soil samples were also analyzed for RCRA metals following TCLP extraction.

- Sediment samples - TCL organics, TAL inorganics, hexavalent chromium, grain size, pH, and TOC.

- Surface Water samples - TAL inorganics, hexavalent chromium, alkalinity, hardness, total dissolved solids (TDS) and total suspended solids (TSS); select samples were also analyzed for TCL organics.

- Monitoring Well, Residential Well, and Municipal Supply Well samples - TCL organics (with low detection level volatile organic compound [LDL VOC]) analysis, hexavalent chromium, alkalinity, ammonia, total kjeldahl nitrogen (TKN), biological oxygen demand (BOD), chemical oxygen demand (COD), TSS, TDS, TOC, nitrate-nitrite, sulfate, and chloride.

- Geotechnical Boring soil samples - Atterburg limits, permeability, shear strength, and visual description of soil structures.

- Fish tissue samples - TCL organics, TAL inorganics, and percent lipids.

Nature and Extent of Contamination

A three-step approach was used to evaluate the nature and extent of contamination at the Site. As a first step, EPA and New York State regulatory standards and criteria were selected to evaluate and screen detected constituents in the various sampled media. Second, results from background, or upgradient samples that were collected for each sampled media were evaluated and compared to data from environmental, or downgradient samples. The final step involved assigning compounds or analytes detected in Site media into three categories: primary contaminants of potential concern (COPCs) , secondary COPCs, and non-COPCs. Nine primary COPCs were identified: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide. The characterization of Site conditions focuses on the extent and spatial distribution of primary COPCs within each media.

Lagoon Soil Borings

All nine primary COPCs were found in lagoon surface soil samples; nine other detected compounds or analytes were identified as non-COPCs. In the subsurface soil samples, all primary COPCs except mercury were detected.

During the CDM RI, the primary contaminants with the highest concentrations and the greatest number of detections were antimony, cadmium, and chromium. In general, the highest concentrations and greatest number of exceedances within lagoon soil samples collected during the CDM RI were detected in samples located on the eastern side of the former wastewater lagoons. The lowest concentrations were detected in samples collected from the western side of the former wastewater lagoons. Contaminant levels generally tended to decrease with depth. Because effluent probably most often flowed into the lagoon(s) from east to west, the pattern of contamination generally corresponds to the most likely historical waste management practices.

Building Soil Borings

A total of 13 subsurface soil samples were collected beneath the former tannery building at 5 boring locations, BSB-01 through BSB-05. Samples were collected from each boring location at the 0-2-foot interval (directly below the concrete foundation) and the 8-10-foot interval. Additional samples were collected if observed contamination was present. All nine primary COPCs were found in building boring soil samples.

Primary COPCs with the highest concentrations and the greatest number of detections during the CDM RI were cadmium, chromium, and lead. Contaminant concentrations of COPCs generally tended to decrease with depth, with the exception of hexavalent chromium levels, which were elevated at depth. The majority of cadmium, chromium, lead, and other primary COPC contamination appears to be concentrated in soils underlying the tannery's "tan house" operations within the former tannery building. The presence of elevated levels of primary COPCs in soils below the building foundation is a clear indication that process wastewater seeped underneath the former tannery.

Onsite Soil Borings

A total of 23 surface soil samples and 52 subsurface soil samples were collected from 22 onsite soil borings. Surface soil samples were collected at each boring from the 0-2-foot depth interval. Subsurface soil samples were collected from multiple depth intervals at each boring location ranging from the 2-4-foot interval to the 8-10-foot interval. All nine primary COPCs were found in both surface and subsurface soils from onsite soil borings.

The location of the most frequent exceedances of soil criteria by the primary COPCs in both surface and subsurface soil samples is southwest of the former building footprint, between the former building location and the river where the former sluiceway and underground storage tank (UST) were located. Other areas of elevated primary COPC contamination in surface and subsurface soil include the area directly south of the east wing of the building footprint adjacent to the concrete dye tanks, the west-central portions of the Site where former wastewater lagoon overflow was directed to the onsite wetland, the south side of the river where wastes were likely disposed, and the northwestern portion of the Site where waste materials reportedly were landfilled along the eastern bank of the onsite wetland.

South Bank Front Lot Surface Soils

Surface soil samples were collected at six locations within the South Bank Front Lot. Seven primary COPCs were found in South Bank Front Lot surface soil samples: antimony, arsenic, cadmium, total chromium, cyanide, lead, and nickel. Mercury and hexavalent chromium were not detected in any samples.

The majority and highest levels of primary COPCs are located along the bank of the Unadilla River. The distribution and type of contaminants detected in the South Bank Front Lot soils is consistent with the theory that Hiteman waste material was used to fill the area.

Onsite Wetland

Sediment samples were collected from two depths (0-6 inches and 18-24 inches) at 15 locations within the onsite wetland. Eight of the primary COPCs were found in wetland sediment samples: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, and nickel.

During the CDM RI, the highest concentrations of total chromium, hexavalent chromium, lead, and mercury were generally detected in samples collected from the surface interval in the southern portion of the wetland, especially around the eastern margin by the outfall from a weir box that directed overflow water into the onsite wetland. However, concentrations were highest in the deeper sample intervals in the northern portion of the wetland, primarily at the discharge from the ditch that also collected lagoon overflow.

Unadilla River Surface Water, Sediment, and Fish Tissue

Sediment samples were collected from 10 locations in the Unadilla River. Six of the primary COPCs were found in Unadilla River sediments. Five primary COPCs were detected at levels exceeding the most stringent screening criteria, the NYSED-AC-LEL, as well as upstream (background) concentrations. Cadmium levels did not exceed the most stringent screening criteria.

Primary COPCs are present in sediments adjacent to and downstream of the Site. With the exception of one sample location, all downstream concentrations exceeded those in the upstream (background) sample. The highest concentrations of primary contaminants during the CDM RI were found at the discharge from the "tan house" concrete dye tanks, approximately 2,500 feet downstream, and approximately 1.2 miles downstream. This suggests that impacted sediments are continuing to migrate downstream from the Site, and that contaminated sediments adjacent to the Site are acting as a source that continues to impact the downstream locations.

Surface water samples were collected from 10 locations in the Unadilla River. No contaminants identified as primary COPCs were detected at levels exceeding screening criteria.

Tissue samples of sport fish and top and bottom feeder forage fish were collected at five locations in the Unadilla River. No contaminants identified as primary COPCs were detected at levels exceeding fish tissue screening criteria for human health.

Off Site Soils

CDM collected a total of 14 surface and 38 subsurface soil samples at off site soil boring locations. Surface soil samples were collected at the 0-2 foot interval. Subsurface soil samples were collected at select intervals from 2-10 feet in 13 borings located at the Crumb Trailer Park and in one boring located at the Ferguson Fuels property. All nine primary COPCs were found in surface and subsurface soil samples at off site soil borings.

The highest levels of the majority of primary and secondary COPCs are found in the northwest corner of the trailer park. In general, during the CDM RI, the highest concentrations of antimony, arsenic, total and hexavalent chromium, cyanide, and lead were found in surface soils, while the highest concentrations of cadmium, mercury, and nickel were found within the subsurface soils. With the exception of two locations, chromium and other primary COPC concentrations tended to decrease with depth.

Monitoring Wells

Two rounds of groundwater samples were collected from monitoring wells located within and outside the Site boundary. In shallow monitoring wells, two primary COPCs were detected during Field Activity 1 and only one was detected during Field Activity 2. In deep monitoring wells, three primary COPCs were found during Field Activity 1 and four were found during Field Activity 2. No contaminants were detected in bedrock monitoring wells at levels above guidance or screening criteria.

The primary COPCs detected at concentrations that exceeded screening levels, total and hexavalent chromium, arsenic, lead, and nickel are all linked to the Site's historical waste management practices and have been detected in all media sampled at the Site. During Field Activity 1, primary COPCs were detected at levels above NYSDEC guidance and screening criteria in shallow wells located on the south side of the Site just north of the Unadilla River (MW-5S and MW-6S) and on the opposite side of the river in MW-8S. MW-5S and MW-6S are located adjacent to the former wastewater lagoons; MW-8S is located directly across the river from one of the most contaminated areas of the Site (the sluiceway and former UST). These detections are consistent with theories that contaminants in shallow groundwater were able to migrate to the south side of the river during periods of low flow in the river. However, total chromium was not detected above NYSDEC guidance and screening criteria during Field Activity 2, although hexavalent chromium was (in MW-15S). Contaminants were also detected in MW-11D, located between the former wastewater lagoons and the onsite wetland, during Field Activity 1, and in MW-13D located north of the former wastewater lagoons.

Residential Wells

While some residential wells are still in use in the Village, two residential wells were located south of the Site, and although neither well is directly in the groundwater flow path from the Site (which is to the southwest), sampling these wells provided the only opportunity to evaluate groundwater nearest to, and generally downgradient (i.e., to the south) from the Site.

No primary or secondary COPCs were identified in the two residential well samples. Lead was detected in the residential well located on Mill Street, at 3 times the EPA and New York State Department of Health Maximum Contaminant Levels (NYSDOH MCLs). This well is not located hydraulically downgradient of the Site. The lead in groundwater from this well might be due to leaching from old pipes associated with plumbing from the well.

Municipal Wells

CDM collected groundwater samples from the two municipal supply wells that supply the majority of drinking water to the Village of West Winfield. Both wells are located hydraulically upgradient (east/northeast) of the Site. No primary or secondary COPCs were detected in the municipal well samples at levels exceeding screening criteria.

Ecological Characterization

Ecological communities identified on-site included old-field habitats, emergent wetlands, semi-maintained grass areas, and urban/disturbed areas. Wooded areas were limited to thin bands of trees and shrubs along the Site's boundaries, and isolated thin hedgerows within the interior of the Site.

The Site is separated from the Unadilla River and neighboring natural areas by a 10-foot high chain-link fence. The presence of the fence limits the use of the Site as a habitat resource by large mammals. The Site is utilized as a habitat resource by smaller mammals. Avifauna utilize the Site as a habitat resource. During the ecological reconnaissance, several passerine species were observed on-site. No raptors, waterfowl, or wading birds were observed on the Site. No reptiles or amphibians were observed during the Site visit. The wetlands do not support adequate surface water resources to provide year-round habitat for fish. Predators were not observed on the Site, but it is possible that hawks, owls, shrews, mink, weasels, raccoon, skunk, and fox hunt in the fields and edge communities on the Site.

There are no known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, federally-listed threatened or endangered species or habitats of special concern within a two mile radius of the Site. No known threatened and endangered species were observed on the Site.

Fate and Transport

The major contaminants at the Site, chromium and arsenic, will remain at levels above their respective criteria if no remedial action is performed. Chromium will tend to remain sorbed to oxides in the soils, and under oxidizing conditions will convert to the hexavalent and more toxic form. The transformed hexavalent chromium will be attenuated by its transport to off-site areas. Arsenic, being moderately mobile, will be slowly attenuated. Both contaminants are likely to remain at levels of concern.

Conclusions and Recommendations

The significant findings of the RI are as follows:

- The primary COPCs for Site media are: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide.
- Onsite surface and subsurface soils have been contaminated from Site waste disposal practices, primarily in the vicinity of the sluiceway, UST, concrete dye tanks, former wastewater lagoons, and overflow drainage.
- Off site surface and subsurface soils have been contaminated from Site waste disposal practices, primarily in the northwest and southwest sides of the Crumb Trailer Park.
- Sediments in the onsite wetland have been contaminated from Site waste disposal practices.
- Sediments in the Unadilla River have been contaminated from Site waste disposal practices.
- Groundwater has also been impacted from Site waste disposal practices. Although impacts are low, contaminants have been able to migrate through the semi-confining unit to the deep and bedrock monitoring wells, despite a present day upward vertical gradient.

The vertical extent of Site-related contamination has not been fully defined in onsite soils, onsite wetland sediments, and off site soils. CDM recommends that these data gaps be addressed as pre-design investigations.

1 Section One

Section 1 Introduction

CDM Federal Programs Corporation (CDM) received Work Assignment 032-RICO-02CG under the Response Action Contract (RAC) to perform a Remedial Investigation/Feasibility Study (RI/FS), a Human Health Risk Assessment (HHRA), and a Screening Level Ecological Risk Assessment (SLERA) at the Hiteman Leather Site (the Site), located in West Winfield, New York for the Environmental Protection Agency (EPA). The purpose of this work assignment is to investigate the overall nature and extent of contamination at the Site.

1.1 Purpose of Report

The purpose of the Remedial Investigation (RI) Report is to present the results of the surface water and sediment investigations, geologic and hydrogeologic investigations, contaminant source investigations, cultural resources survey, and ecological investigation for the Site. The human health and ecological risk assessments will be submitted under separate cover. The goal of these investigations was to define the current nature and extent of surface water, sediment, soil, and groundwater, and fish tissue contamination at the Site and to define the hydrogeologic framework of the Site. Samples from each matrix were collected and analyzed during three Field Activities. Results of these analyses are compared with applicable New York and federal screening criteria and/or standards to determine the extent of contamination.

1.2 Site Description

The Hiteman Leather Site is a former tannery and leather manufacturing facility located in the Village of West Winfield at 173 South Street (i.e., Route 51) just south of the intersection of Route 51 with state highway Route 20. The Site is bordered to the north by commercial buildings and residences, to the east by South Street, to the south by a residential property and a small tributary to the Unadilla River with a wetland beyond, and to the west by the West Winfield Cemetery. Figures 1-1 and 1-2 show the Site location and Site feature map, respectively.

The Site covers approximately 14 acres and is traversed by 800 feet of the Unadilla River, with 10 acres along the northern bank of the river and 4 acres along the southern bank (see Figure 1-2). The 10-acre area north of the river is comprised of 6 contiguous parcels of land formerly owned by the Hiteman Leather Company. This area includes the foundation remains of the former tannery buildings and macadam parking lot, which front along South Street. Behind the former buildings and to the west is a 2-acre area where the three former wastewater lagoons (each approximately 50 feet wide by 350 feet long), now leveled and backfilled, were located. To the north and west of the former lagoon area is an undeveloped area of approximately 6 to 7 acres, which includes a 1.8-acre wetland along the western side of the Site and a small backfilled area along the eastern side of the Site (in front of the adjacent Village of West Winfield Department of Public Works [DPW] garage). The northern border of the site is fenced, with the exception of the backfilled area in front of the DPW garage. Two buildings still exist at the Site, including a metal storage shed that is used and maintained by the Village of West Winfield DPW and a small concrete shed, which is unused.

The 4-acre area south of the river is comprised of a 2-acre parcel fronting on South Street (i.e., an original part of the Hiteman Leather Co. property) and a landlocked 2-acre parcel to the rear (owned by D. Castronover, NY). The southern part of the Site is not fenced, is low lying and thinly-wooded with a small open field area. It is undeveloped except for a small, inactive horse barn on the rear parcel.

Off-site areas where Hiteman Leather wastes were found include the Crumb Trailer Park (which overlies the former Village of West Winfield Dump ("Town Dump") on Burrows Road and the Ferguson Fuels property (across from the former Hiteman Leather Railroad Depot), also on Burrows Road.

The tannery buildings were demolished in 1996 and in 1998, with the latter demolition leaving piles of loose brick and concrete debris; as well as other concrete remnants (e.g., building pillars, concrete dye tanks). Much of the loose brick and concrete debris was removed from the concrete foundation floor by EPA in May 2001 (during Field Activity 1) to facilitate sampling under the floor.

Geographically, the Site is located within the Unadilla River valley, the floor of which has relatively low topographic relief. West Winfield is located on the northern edge of the approximately one and one-half mile wide Unadilla River valley, which is oriented west southwest-east northeast and slopes slightly (approximately 0.28 percent slope) to the southwest in the vicinity of the Site. The river valley is bounded abruptly to the north and south by rolling hills with elevations between three and five hundred feet above the valley floor.

The topography of the Site is mostly flat, with a gentle southwestern slope from the northern and eastern portions of the Site toward the southwestern wetland area and the Unadilla River. The area once occupied by the former wastewater lagoons has no topographic expression other than small mounds and hummocks. A surface expression of a former channel leading from the northernmost lagoon to the wetlands, observed in historical aerial photographs, can be identified visually. Along the Unadilla River, the northern river bank drops steeply (between 6 and 8 feet) down to the river. Rip-rap has been placed along a section of this bank, as an erosion control measure. The 4-acre southern portion of the Site is level. Ground surface elevations range from approximately 1,170 to 1,180 feet above mean sea level (msl).

1.3 Site History

The West Winfield tannery was established on the northern bank of the Unadilla River in 1820 by a Mr. Adsit (Smith 1979). The tannery was sold in 1823 to Rufus Wheeler and became known as the Wheeler Tannery, which was subsequently sold to Ezra Beckwith in 1884. Beckwith was then in partnership with Henry and John Hiteman and operated the tannery under the name of Beckwith & Hiteman Brothers. The

Hiteman brothers acquired full interest in the tannery between 1891-1910, but continued to operate and expand under the name Beckwith & Hiteman Brothers. In 1910, the name was changed to the Hiteman Leather Company and in 1922, the company was officially reorganized as a corporation (Hiteman Leather Company Inc.) with the name remaining unchanged until its closing in 1968.

Under the Hiteman family, the tannery and tannery property experienced many changes over the years to expand business and increase production, including a major change during the early 1900s to incorporate chromium-tanning into the process. The chrome-based process, in combination with mechanization, reduced the time to manufacture leather from years, to months, to weeks; however, the wastes generated were more toxic.

In addition, the tannery acquired a railroad depot lot to facilitate shipping by rail and six adjacent properties were purchased in 1908, 1931, 1942, 1946, and 1962 that increased the tannery property to its current size. Of particular significance was the purchase of a 1.2-acre lot (immediately behind the tannery, to the west) in 1931 for the installation of two wastewater lagoons. The tannery underwent a major renovation, including the construction of a modern 3-story concrete and steel building for expansion and to replace and renovate much of the prior wooden structures.

In 1959, a fish kill occurred in the Unadilla River near the Site. A subsequent investigation concluded that the fish kill was attributed to the overflow of toxic substances from the two onsite wastewater lagoons. As a result, the lagoons were dredged and a third lagoon was added to increase capacity.

The inability to economically treat the wastewater from the tannery forced the closing of the Hiteman Leather Company in 1968. Shortly thereafter, the wastewater lagoons were backfilled and leveled. The property and buildings were sold in 1969 to Erle Davis of Clinton New York, who subsequently rented out the buildings to various small businesses during the 1970s, including a cookie company and a tire company. The tannery buildings were no longer rented after 1982 and gradually deteriorated, resulting in their later demolition.

Several New York State investigations were conducted during the 1980s concerning the contamination at the Site. New York State Department of Environmental Conservation (NYSDEC) conducted an RI/FS from 1988 to 1992, which resulted in a 1992 Record of Decision (ROD) that referred the Site to EPA for further evaluation.

In 1994, EPA performed some preliminary sampling at the Site and fenced the northern part of the Site to prevent unauthorized access, particularly to the deteriorating buildings. In 1996, EPA reinforced the northern bank of the Unadilla River with 500 feet of rip-rap to prevent erosion of the river bank and to limit the potential release of contaminants from the former wastewater lagoon area along the river.

In 1996, the former tannery buildings were evaluated for structural soundness and it was concluded that, with the exception of the 1946 concrete and steel section of the building complex, all of the other attached structures, including the 97-foot tall brick stack and powerhouse, were structurally unsound. The evaluation also found asbestos pipe covering throughout the buildings and possibly in other materials (e.g., floor tiles). An asbestos removal was conducted at the Site and the structurally unsound building areas and the stack were demolished and removed by EPA. The 1946 building was left standing, however, since repair and possible reuse of the structure was possible. The building was subsequently demolished in 1998 by the estate of the deceased owner (Erle Davis), to salvage the steel. In 1999, the Site was listed on EPA's Superfund National Priorities List (NPL) and EPA subsequently contracted with CDM to complete an RI/FS to support the selection of a remedy for the Site. Table 1-1 shows the chronology of events at the Site.

1.3.1 Leather Tanning Process

Leather tanning is the process of making leather from animal hides and skins. "Leather tanning" is a general term for the numerous processing steps to make leather, with just one of the steps being the actual tanning step. The tanning process is based on the ability of animal hides and skins to absorb tannins (i.e., tannic acids from tree bark), as well as other chemical substances (e.g., chromium salts), that prevent the resulting leather from decaying, make it resistant to wetting, and keep it supple and durable. In general, the first steps in the tanning process involve trimming, soaking, fleshing, and de-hairing the hides. These steps are referred to as "beamhouse" operations (named after the use of a beam upon which the hides were scraped to remove excess flesh, fat, and any remaining hair). The next steps involved bating, pickling, tanning, wringing, splitting, coloring, and drying, with these steps being referred to as tan yard or "tan house" operations. Finishing processes included conditioning, staking, dry milling, buffing, spray finishing, and plating.

During the late 1800s, the reduced availability of tree bark and the increased need for leather production led to the development of the chromium, or "chrome-tanning" process (i.e., also called the "mineral-based" process, in contrast to the earlier tree-bark or "vegetable-based" chemical-tanning process). The chrome-tanning process, in combination with machinery-assisted procedures, reduced the time to process leather from years to months and to weeks. The use of chrome-tanning also expanded the line of leathers produced, including more-easily colored leathers - although certain types of leathers (the thicker leathers) were still produced by the tree bark-tanning process. The chrome-tanning process was introduced at the Hiteman Leather tannery as early as 1916 and by 1953, the tannery was reportedly making one third of its leather products from the tree bark-tanning process and two thirds from the chrome-tanning process.

While the change to the chromium-tanning process reduced the amount of time needed to process leather, a consequence of increased production was the creation of greater volumes of process waste. In addition, the waste tanning solutions and rinse waters became much more toxic, containing metals and acids. Trivalent chromium salts, such as chromium sulfate, are the most toxic chemicals used in the chromium tanning process. Table 1-2 lists common process chemicals used in mineral-based (i.e., chromium-based) tanning.

1.3.2 Hiteman Leather Waste Disposal Practices

To handle the increasing volumes of wastewater, two wastewater lagoons were constructed in 1931 at the rear of the tannery. The lagoons have been identified as being "settling" lagoons, however, being unlined, they apparently also served an infiltration function. They appear to have been operated variously over the years, as evidenced by historical aerial photos (Appendix A). The former wastewater lagoons reportedly discharged to the Unadilla River and to the wetland area to the northwest of the lagoons (which ultimately drains to the Unadilla River). In 1884, the tannery produced an average of 600 calf skins per week, which by 1953, had risen to 3,500 calf skins per week and by 1960, production had risen to 500-1,200 calf skins per day. Due to the increase of production at the tannery, a third lagoon was constructed on-site in 1959. In 1964, it was reported that the tannery discharged over 180,000 gallons of wastewater per day from the tannery, beam house, dye house, as well as untreated sanitary waste to the Unadilla River. Figure 1-3 illustrates the various process areas in the facility and waste disposal routes. At that time, the following process materials and volumes were used daily: salt (1,930 pounds/day (lb/d)), lime (1,260 lb/d), chrome oxide (1,000 lb/d), sodium sulfide (520 lb/d), sulfuric acid (150 lb/d), caustic soda (54 lb/d), and dyes (25 lb/d) (EPA 1998).

Wastes generated at the Site not only included wastewater from hide processing activities, but also included sludge from the wastewater lagoons, discarded hides, hide scrapings and shavings, as well as sanitary sewage. Known and suspected disposal practices for these wastes are described below:

- Wastewater from the tanning and beam houses was discharged to the wastewater lagoons via a sluiceway. Wastewater flowed through the lagoons and discharged either into the Unadilla River or to the adjacent onsite wetland. In dredging the lagoons, wastewater was reportedly lowered by pumping through a fire hose to the adjacent low-lying areas. The lagoons and the possible discharge areas are shown on the historical areal photographs presented in Appendix A.

- Wastewater from the coloring process was discharged into two 6 x 10 x 4-foot concrete dye tanks, prior to being discharged to the Unadilla River.

- Sludge from the bottom of the lagoons was periodically excavated (dredged) and reportedly deposited as berm material surrounding the lagoons. It also appears possible that dredged material from the lagoons may have been taken to other locations, however, there is no documentation to confirm this.

- Discarded hides, hide scrapings, hide shavings, and other tannery wastes are reported to have been disposed of at the former Town Dump, located on Burrows Road (underlying the current Crumb Trailer Park). Discarded hides have been found both near the former Hiteman Railroad Depot (i.e., on the current Ferguson Fuels property), on Burrows Road, as well as at the Hiteman Leather Site.

- In addition, it was recently reported that waste materials from the Hiteman tannery may have been taken to the former "Fenton dump" on Stafford Road in East Winfield, NY, as well as to the former "Ludlow dump" (a current Superfund Site) in Paris, NY. However, follow up investigations on both matters could not corroborate the initial reports, or whether the possible disposals may have involved non-hazardous commercial refuse rather than hazardous wastes.

- Untreated sewage is reported to have been discharged to the Unadilla River.

1.3.3 Historical Site Conceptual Model

Former waste disposal practices may have altered the natural vertical and horizontal flow of groundwater underlying the Site and surrounding areas. As illustrated on Figure 1-3 and in the historical conceptual model shown in Figure 1-4, water from the Unadilla River was diverted from the river into the facility through a process water intake, located up river of the Site. During periods of peak operations at the facility, the surface water flow within the river channel adjacent to the Site was significantly diminished. There are no facility records that quantify the amount of river water that was diverted into the facility to be used in the tannery process. Inside the facility, water became contaminated as it was mixed with wastes from the various steps of the tannery process. The resulting wastewater was discharged to the unlined lagoons via the unlined sluiceway on the southwest side of the building. Wastewater impounded within the lagoons was in direct hydraulic contact with the water-table aquifer. The wastewater was able to be in direct hydraulic contact due to the absence of a confining unit between the bottom of the lagoons and the water table. The contact would be even more evident during the wet periods when the water table was higher, resulting in no unsaturated zone between the bottom of the lagoon and the water table.

Due to the large volumes that were discharged into the lagoons, wastewater either overflowed onto surrounding areas or was pumped out and discharged to the north of the lagoons. In both cases, water eventually flowed into the onsite wetland, which discharged to the Unadilla River.

Within the Site, the predominant shallow groundwater flow direction is southwesterly toward the onsite wetland and Unadilla River, with water in the semi-confining unit and bedrock unit flowing in a westerly direction. The shallow aquifer receives much of its recharge from the underlying bedrock aquifer. Vertical groundwater flow within the aquifer system is generally upward, driven by the semi-confined nature of the bedrock aquifer. However, when the former wastewater lagoons were full, the resulting hydraulic load produced a mounding effect in the water-table aquifer, resulting in downward and radially-directed flow beneath and surrounding the lagoons (Figures 1-4 and 1-5). The mounded wastewater exerted downward hydraulic pressure on the aquifer system and could periodically offset the natural upward gradient, facilitating downward migration of contaminants adjacent to the lagoons. This would have most likely occurred when the former wastewater lagoons were full and when the natural upward gradient was weak due to low head conditions in the bedrock aquifer.

The presence of mounded wastewater, exerting radially-directed hydraulic pressure on the aquifer system, would have facilitated contaminant migration from the lagoons, into areas of the water table aquifer otherwise unaffected by, or exposed to contaminant-laden process water. In addition, the diminished flow of the Unadilla River channel adjacent to the Site would have interrupted the river's natural hydrologic barrier effect for shallow groundwater flow, allowing contaminants to migrate from the lagoons, southerly, beyond the river channel.

1.3.4 Previous Investigations and Regulatory Activity

Several previous investigations have been conducted at the Site. NYS Department of Health (NYSDOH) conducted inspections in 1953 and 1960; NYSDEC began investigations in 1983 and conducted an RI/FS from 1988 to 1992. In 1996, the Site was referred to EPA for evaluation. A Site Investigation (SI) was conducted by EPA's Emergency Response Team (ERT). The following sections summarize analytical results from the investigations conducted by NYSDOH, NYSDEC, and the SI conducted by EPA.

1.3.4.1 NYSDOH Inspections

On November 11, 1953, the Water Pollution Control Section of the NYSDOH completed an Industrial Waste Survey of the Hiteman Leather Company Site. Wastewater effluent samples collected from two concrete dye tanks (derived from the coloring process) and the two wastewater lagoons (derived from the tan and beam houses) were collected during the inspection. Laboratory analyses of the samples indicated chromium at 23.0 parts per million (ppm) in effluent from the coloring process and chromium at 6.0 ppm in the wastewater lagoon overflow effluent. In addition, two water samples from the adjacent Unadilla River were collected and analyzed. Chromium was not detected in the sample collected upstream of the facility but was detected at 0.3 ppm in the downstream sample.

In May 1958, the Water Pollution Control Board held a conference due to continued release of untreated wastewater and sewage into the Unadilla River, and requested that the company submit final plans by July 1959 to abate the pollution to the river. However, the company was given permission to postpone action when the Village of West Winfield was also identified as a possible contributor to the pollution problem in the river.

In August 1959, a fish kill occurred in the Unadilla River near the Site. A New York State Pollution Unit investigation conducted the following day concluded that the fish kill was attributed to the overflow of toxic substances from the two wastewater lagoons. The two lagoons were observed to be half filled with settled solids, reducing the amount of wastewater the lagoons could hold and thereby reducing the retention time and allowing direct channeling of lagoon wastes into the river. Following this incident, the lagoons were dredged and a third wastewater lagoon was added. Dredge material was placed on the banks of the lagoons.

On October 11, 1960, the NYSDOH's Syracuse Regional Office conducted an inspection of the Hiteman Leather Company facility. Wastewater from the three lagoons was observed to discharge into the Unadilla River. According to the inspection report, a whitish discoloration was observed in the Unadilla River surface water and sludge deposits were noted in the streambed. Odors were also detected when the streambed was disturbed.

In 1967, NYSDOH determined that the Village of West Winfield was not a contributor to the pollution in the river, and therefore, the Hiteman Leather Co. was wholly responsible for the cost of constructing a wastewater treatment plant (then estimated at $1 million). As a result, the company was forced to close in 1968. The facility was abandoned, the three wastewater lagoons were filled in, and the property was sold (NYSDEC 1987).

In 1996, the NYSDOH conducted an investigation at the Crumb Trailer Park in response to a report received by EPA that the tannery had disposed of tannery waste products at the former Town Dump, underlying the Crumb Trailer Park. Surface soil samples were collected during the NYSDOH's investigation of the Crumb Trailer Park.

1.3.4.2 NYSDEC Investigations

In October 1983, NYSDEC (Region 6) collected samples from the former Hiteman Leather Company plant. The results indicated that the soil samples taken from the bank of the Unadilla River directly below the former wastewater lagoon area contained elevated concentrations of chromium and nickel compared with background concentrations, as defined in Smith (1979). Soil samples taken from the "disposal area" contained arsenic, cadmium, chromium, and lead at concentrations at least 10 times greater than the background concentrations.

A Phase I investigation of the Site was conducted by Recra Research, Inc. (1985), to provide the information necessary to establish a potential risk score using the Hazard Ranking System (HRS). In 1985, the Site was added to the New York State (NYS) List of Inactive Hazardous Waste Disposal Sites.

An RI/FS was conducted from 1988 to 1992 by SAIC Engineering Inc., for the NYSDEC. The RI/FS included the installation and sampling of 24 monitoring wells, 10 piezometers, 13 soil borings, and the collection of 4 surface water, 20 surface soil, 8 wetland sediment, and 12 river sediment samples (NYSDEC 1992). Table 1-2a summarizes the activities performed as part of the NYSDEC RI/FS.

The subsurface investigation revealed that the Site is underlain by unconsolidated recent fluvial deposits and Pleistocene glacial deposits of variable thickness. Beneath the glacial deposits, thinly interbedded limestone and shale bedrock is encountered, likely part of the Middle Devonian Onondaga Formation. The glacial deposits consist of a sandy surficial outwash deposit, ranging in thickness from 1.5 feet on the northern edge of the Site to 22 feet in the former wastewater lagoon area underlain by a fine-grained glacio-lacustrine deposit, ranging in thickness from 9 feet on the southwestern side of the Site to 30 feet on the northeastern portion of the Site.

Fifteen shallow monitoring wells were installed within the surficial glacial outwash deposits and screened at the water table. Seven deep wells were screened at unknown depths in the underlying glacio-lacustrine unit and two bedrock wells were installed in the underlying Onondaga Formation to monitor the bedrock aquifer. After installation, the two bedrock wells south of the Unadilla River began flowing groundwater, indicating they were screened in an aquifer under artesian conditions. The hydrostatic head in these wells was measured at more than 11 feet above the ground surface. Based on these extreme conditions, SAIC concluded that Site contaminants could not have migrated into the bedrock aquifer and no further bedrock monitoring well installation was proposed.

Study results documented the presence of high levels of trivalent chromium in the former wastewater lagoon area soils and indicated contamination throughout the Site. Hexavalent chromium was also found in the soil at low concentrations (maximum concentration detected was 4.2 ppm). Other heavy metals, pesticides, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs) were also detected, at lower concentrations, throughout the Site in various environmental media. Based on the results of the RI/FS, NYSDEC subsequently referred the Site to EPA.

1.3.4.3 EPA ERT Site Investigation

Although the initial RI provided a general characterization of Site contaminants, a large portion of the analytical data was rejected because of quality assurance/quality control (QA/QC) protocol violations. The SI conducted by EPA's ERT in 1996 further defined the nature and extent of contamination at the Site. SI activities included the analysis of samples from soil, sediment, groundwater, and surface water (EPA 1997b). Table 1-2a summarizes the activities performed as part of the EPA ERT SI. The following sections summarize the SI results.

Summary of Soil and Sediment Sampling

During the SI, soil and sediment samples were collected from the locations shown on Figure 1-6. About 200 investigative samples were field-analyzed for chromium with an X-ray fluorescence (XRF) spectrometer and for total organic carbon (TOC). Approximately 10 percent of these samples were also submitted to a Contract

Laboratory Program (CLP) laboratory for analysis of Target Compound List (TCL) and Target Analyte List (TAL) parameters. These samples were also analyzed for total chromium, hexavalent chromium, and Resource Conservation and Recovery Act (RCRA) metals by the Toxicity Characteristic Leaching Procedure (TCLP). The analytical results are discussed below.

Chromium Results

A total of 236 soil samples (including QC samples) were collected for XRF analysis at 50 locations. Samples were collected at 2-foot intervals from depths ranging from the surface to 15 feet below ground surface (bgs); however, the majority of samples were collected from depths less than 8 feet bgs. Concentrations ranged from not detected (at a detection limit of 210 milligrams per kilogram [mg/kg]) to 75,000 mg/kg in sample Q-17-0, where "Q-17" designates the sampling location and "0" designates the depth bgs in feet. Of the 236 samples, 37 had chromium concentrations greater than 10,000 mg/kg; 115 had concentrations up to 10,000 mg/kg; and 84 had no detected chromium. Four sediment samples (including one duplicate sample) were collected from three Unadilla River locations for chromium analysis by XRF. The upstream location (UR-1) had no detectable chromium, and two had concentrations less than 10,000 mg/kg (UR-2 at 4,200 mg/kg and the duplicate of UR-3 at 270 J mg/kg). Soil and sediment samples with XRF chromium concentrations greater than 10,000 mg/kg are listed in Table 1-3; Table 1-3 shows that some sample locations had chromium concentrations greater than 10,000 mg/kg at multiple depths. Figure 1-6 presents the soil sampling locations; however, only the single sampling location is shown with no indication of the depth of the samples.

Thirty-one soil and sediment samples were collected for analysis of total chromium and 17 for analysis of hexavalent chromium by the CLP. These samples included three "reference" samples that, although not statistically suitable for use as background, can be used for semi-qualitative comparisons. The reference sampling locations are not shown on Figure 1-6. Concentrations of total chromium ranged from 7 mg/kg (sample C-14-2) to 50,000 mg/kg (sample T1-M20-C-5) with 12 samples, including 1 sediment sample, having concentrations greater than 1,000 mg/kg. Samples with total chromium concentrations greater than 1,000 mg/kg are listed in Table 1-3; sampling locations are shown on Figure 1-6. The 3 reference samples had total chromium concentrations of 16, 19, and 290 mg/kg. Of the 17 samples collected for hexavalent chromium analysis, only 1 sample (H-16-3.5) had detectable hexavalent chromium at a concentration of 4.3 mg/kg.

In general, the chromium soil results indicated three distinct areas of chromium contamination:

- In the former wastewater lagoon area, surface and subsurface samples were collected primarily around the suspected edges of the lagoons. Consistent with lagoon closure practices, which simply involved filling to grade, the highest chromium concentrations were in subsurface soil at depths from 2 to 6 feet. However, almost all surface soil samples and subsurface soil samples collected from depths between 6 feet bgs and the termination of the borehole (usually 8 feet bgs) also had XRF chromium concentrations greater than 1,000 mg/kg. Because the samples collected near the suspected edges of the former wastewater lagoons had significantly elevated chromium concentrations, the actual boundaries of the former lagoon area may be further out than previously thought.

- In the wetland area west of the former wastewater lagoons, surface and subsurface soil samples were collected from the central portion of the wetland. Surface soil samples collected from almost every sampling location had XRF chromium concentrations greater than 10,000 mg/kg. The fact that surface soil samples had significantly higher concentrations than subsurface soil samples is consistent with the former facility's reported practice of discharging wastewater to this area during periods of low flow in the Unadilla River. Chromium in subsurface soils was significantly less than surface soils, but was still elevated, ranging up to 8,000 mg/kg in sample 50N-75W-4.5. In addition, high chromium concentrations in surface soil samples do not correspond with higher concentrations at depth in the same sampling location. Because most of the sampling locations were in the central portion of the wetland, the lateral extent of chromium contamination within and potentially outside the wetland is not fully known.

- In the area north of the former wastewater lagoons, the highest concentrations of chromium were found at the surface, similar to the wetland area. Chromium in this area was likely deposited by overland flow when the former lagoons occasionally overflowed. However, subsurface soil samples also had XRF chromium concentrations greater than 1,000 mg/kg.

Other smaller areas of chromium contamination also exist on the Site, including the sluiceway area between the lagoons and the process building. XRF and CLP samples collected at locations Sluiceway-1, Sluiceway-2, G-26, and F-28 indicate chromium contamination in this area is likely the result of leaks and spillage from the sluice that transported wastewater from the process building to the former lagoons. In addition, this contamination appears to extend down to the terminal samples collected from G-26 and F-28. In addition, elevated total chromium in sediment samples UR-2 and UR-3, located adjacent and downgradient, respectively, of the Site indicate prior discharges to surface water from the facility. Finally, soil samples collected south of the Unadilla River potentially indicate a larger area contaminated with lower concentrations (not detected to 1,300 mg/kg) of chromium.

TAL Inorganic and TCLP Results

A summary of metals detected in soil and sediment samples is provided in Table 1-4. During the SI, 23 onsite and 3 reference samples (including 2 sediment samples) were collected for TAL analysis. The SI report compared samples collected on site to the reference samples collected off site and concluded that mercury and lead were found at slightly higher concentrations on site. Concentrations of mercury in the reference samples ranged from 0.08 to 0.19 mg/kg. Of the 23 samples, E-20-0 (2.1 mg/kg) and H-22-2 (1.1 mg/kg) appear elevated relative to the reference samples. Concentrations of lead in the three reference samples ranged from 22 to 43 mg/kg. The majority of onsite samples contained lead at less than 100 mg/kg; however, three samples, F-28-2 (200 mg/kg), T1-M20-C-5 (200 mg/kg), and Sluiceway-2 (280 mg/kg) equaled or exceeded 200 mg/kg. Other metals, including arsenic and cadmium, also appear to be elevated in some samples.

Seventeen samples (including QC samples) were collected for analysis of RCRA metals by TCLP. None of the samples exceeded regulatory levels. Silver and mercury were not detected in any TCLP extract. Chromium concentrations, which ranged up to 280 micrograms per liter (µg/L) in sample —22-2, were more than one order of magnitude below the regulatory limit of 5,000 µg/L. All other metal concentrations were at least two orders of magnitude lower than their respective regulatory limits.

TCL Organic Results
During the SI, 17 soil and sediment samples were collected for TCL VOC analysis; 19 samples (including 2 sediment samples) were collected for TCL SVOC and pesticide/PCB analysis. The SI results do not indicate significant, wide-spread organics contamination. However, several samples contained relatively high concentrations of VOCs or SVOCs, as detailed below.

VOCs were detected in five samples as listed in Table 1-5. In four of the samples, few VOCs were detected, concentrations were relatively low, and some of the VOCs detected are probably attributable to laboratory contamination. However, sample T1-M-20-C-5 contained 15 different VOCs with a total VOC concentration of 43 mg/kg. No unusual soil characteristics were noted at that sampling location and interval, which consisted of gravel and cobbles with intermixed sands. In addition, screening for organic vapors with a flame ionization detector (FID) yielded a maximum reading of 5 ppm at a depth of 5 feet bgs.

SVOCs were detected in eight samples as listed in Table 1-6, consisting primarily of polycyclic aromatic hydrocarbons (PAHs). Individual SVOC concentrations ranged from not detected to 25,000 micrograms per kilogram (µg/kg) (phenanthrene) which was detected in sample F-28-2. Total SVOC concentrations ranged from 1,200 µg/kg to 150,000 µg/kg in sample F-28-2. According to the SI report, sample F-28-2 contained black asphaltic material that resembled roofing shingles.

No PCBs were detected, however, pesticides were detected in five samples. The highest pesticide concentrations were found in sample —22-2, with alpha and gamma chlordane at concentrations of 35 and 31 µg/kg, respectively. Other detected pesticides were below 10 µg/kg.

Summary of Surface Water Sampling
As part of the 1996 SI, surface water samples were collected at the same three locations as the sediment samples (Figure 1-6). All three samples were analyzed for TCL

organics and TAL metals (filtered and unfiltered). Sample UR-2, adjacent to the wetlands and west of the former wastewater lagoons, had the highest concentrations of metals in the filtered and unfiltered samples, as shown in Table 1-7. Chromium was not detected in samples UR-1 and UR-3 but was detected in UR-2 at 33 μg/L (unfiltered) and 5.7 μg/L (filtered). Eight other TAL metals were detected in surface water samples, including aluminum, barium, calcium, iron, magnesium, manganese, sodium, and zinc. Except for aluminum, concentrations of metals in unfiltered and filtered samples were similar, indicating that the majority of the analytes were in the dissolved fraction. Conversely, aluminum was only detected in the unfiltered samples, indicating that this analyte is associated with suspended particles.

According to the SI report, no sample exceeded federal maximum contaminant levels (MCL) or NYS surface water criteria. However, inorganic contaminant loading to surface water from the Site appears to have been occurring when the SI samples were collected. For the majority of analytes, concentrations are higher in UR-2 than in the other two samples. The pattern of higher concentrations coupled with elevated chromium in the co-located sediment sample, suggests that contamination from the Site was potentially discharging to the Unadilla River.

No TCL VOCs, SVOCs, pesticides, or PCBs were detected in the surface water samples.

Summary of Groundwater Sampling
During the 1996 SI, groundwater samples were collected from 21 existing Site wells which are shown on Figure 1-7. All samples were analyzed for unfiltered and filtered total chromium and unfiltered hexavalent chromium; four samples were analyzed for unfiltered and filtered TAL metals; and five samples were analyzed for unfiltered TCL organics. The results are discussed below.

Chromium Results
Total chromium was detected in 71 percent (15 of the 22 wells) of the unfiltered groundwater samples and in none of the filtered groundwater samples. The unfiltered chromium concentrations in shallow monitoring wells ranged from not detected to 1,000 μg/L in monitoring well MW-3S and in deep monitoring wells ranged from not detected to 690 μg/L in monitoring well MW-11D. Hexavalent chromium was not detected in any groundwater samples. Analytical results for chromium in groundwater are listed in Table 1-8.

According to the SI, the distribution of chromium in groundwater below the Site is anomalous. The highest concentrations of chromium in shallow groundwater were detected in monitoring wells that appear to be hydrogeologically upgradient of the Site. The two highest chromium concentrations in shallow monitoring wells are 210 and 1,000 mg/L in MW-12S and MW-3S, respectively. Further, in the two deep monitoring wells with the highest concentrations of chromium, MW-4D (300 μg/L) and MW-11D (690 μg/L), the respective shallow wells have a relatively low concentration of chromium.

The SI report suggests several reasons for the anomalies, including water table mounding caused by the former wastewater lagoons, which could produce localized reversals of groundwater flow; the high density of the wastewater responsible for the contamination; an upward vertical gradient from the deeper aquifer to the shallow, water table aquifer; and opposing directions of groundwater flow in the upper and lower aquifers.

TAL Metals

Filtered and unfiltered groundwater samples for analysis of TAL metals were collected from monitoring wells MW-5S; MS-6S, MW-13D, and MW-14S. The analytical results for these samples are presented in Table 1-7. With the exception of chromium, the results do not indicate inorganic contamination of groundwater. No analytes except chromium exceed NYS groundwater standards or federal MCLs. However, the groundwater sample collected from MW-14S has consistently higher concentrations of inorganics relative to the other wells samples. Conversely, MW-14S is seemingly upgradient of the Site and should not be affected by groundwater contamination from the Site. In addition, as discussed below, MW-14S is the only monitoring well sampled that contained VOCs and SVOCs.

TCL Organics

Unfiltered groundwater samples were collected from monitoring wells MW-5S, MS-6S, MW-13D, and MW-14S for analysis of TCL organic parameters. No pesticides or PCBs were detected. Only monitoring well MW-14S contained VOCs and SVOCs, with 2 SVOCs at concentrations below 10 μg/L and 12 VOCs at concentrations up to 130 μg/L. None of the organic compounds detected exceed MCLs. The compounds detected and their concentrations are listed in Table 1-9.

Miscellaneous Results

During the SI, a structural evaluation of the facility buildings was performed. It concluded that, with the exception of the 1946 concrete and steel section of the building complex, all of the other attached structures, including the brick stack and powerhouse, were structurally unsound. The evaluation indicated that asbestos pipe covering was found throughout the buildings. Visible signs of erosion along the northern bank of the Unadilla were noted. River bank stabilization with rip-rap was recommended.

In 1996, an asbestos removal was conducted at the Site and the structurally unsound building areas and the stack were demolished. Approximately 500 feet of rip-rap was installed along the northern bank of the Unadilla River to stabilize the bank.

On May 15, 1996, NYSDOH collected five surface soil samples, including one background sample, at the Crumb Trailer Park. The samples were analyzed for metals. Chromium levels ranged from 30 to 303 μg/gram. According to the NYSDOH, these levels were higher than expected to occur naturally in soil, but not high enough to be expected to cause health effects (NYSDOH 1996).

An HRS evaluation was conducted for the Site in August 1998. Based on the 1996 SI, the Site was assigned an HRS score of 50. The Hiteman Leather Site was proposed for the NPL in September 1998 and was subsequently listed on January 19, 1999.

1.4 Report Organization

The RI report is organized in the following manner with tables and figures presented after each section.

Section 1	Introduction, presents an overview of the Hiteman Leather Site, summarizes the Site history, and presents the results of previous Site investigations.
Section 2	Study Area Investigations, describes the methodology and sampling rationale for the various investigations conducted for the RI.
Section 3	Physical Characteristics of the Study Area, describes the physical attributes of the study area, including surface topography, meteorology, surface water hydrology, geology, and hydrogeology. Sections on demography, land use, and ecology describe the area's demographic and human and ecological receptors.
Section 4	Nature and Extent of Contamination, lists the surface water, sediment, soil, groundwater, and fish tissue screening criteria and/or standards against which Site data were screened to determine the extent of contamination and describes the type and extent of contamination determined to be present in each media at the Site.
Section 5	Contaminant Fate and Transport, evaluates the persistence and mobility in the environment of the various types of contamination identified, and summarizes the applicable fate and transport mechanisms for each media, based on physical characteristics.
Section 6	Status of Risk Assessment, summarizes the contents of the Human Health Risk Assessment and the Screening Level Ecological Risk Assessment
Section 7	Summary and Conclusions, summarizes the significant determinations of the RI.
Section 8	References.

Table 1-1

Chronology of Events
Hiteman Leather Site
West Winfield, New York

Year	Event
1820	First record of tannery, owned by Mr. Adsit
1823	Rufus Wheeler purchased tannery; the tannery remained in the Wheeler family for 60 years
1884	Tannery bought by Henry and John Hiteman together with partner Ezra D. Beckwith; they expand the leather business, calling it Beckwith-Hiteman Brothers
1913	Tannery became known as Hiteman Leather Company
1922	Hiteman Leather Company was incorporated
1931	Property behind the tannery was purchased for the installation of two wastewater lagoons
1946	Modern factory building added to join the old plant along the north side at a cost of about $200,000
1953	New York State Department of Health conducted an Industrial Waste Survey. Aqueous samples were collected from the concrete dye tanks, wastewater lagoons and Unadilla River. Chromium was detected in all samples at 23.0, 6.0 and 3.0 ppm, respectively.
1958	May - Meeting with Water Pollution Control Board; Hiteman agrees to retain the services of an engineer for the purpose of upgrading waste treatment facilities July - Permission given to postpone action until Village of West Winfield could decide on actions relative to village water pollution control; joint project with village was to be undertaken
1959	Third wastewater lagoon was added i.e., as a result of a fishkill in the Unadilla River attributed to run-off from the lagoons
1964	Morell Vrooman Engineers submit preliminary report on village sewer system and sewage treatment plant
1967	State Health officers conduct sampling for pollution by property owners of village; village judged not to be a polluter of area surface waters
1968	Hiteman Leather terminated operations after receiving citation from the New York Department of Health as a contributor of pollution to the Unadilla River; economics prevent Hiteman Leather from construction of an adequate waste treatment facility
1969	Earl Davis of Clinton, New York, purchased the Hiteman Leather property
1970s - 1982	The tannery buildings were rented to various small businesses (i.e. a cookie company, a tire company, etc.). The buildings were no longer rented after 1982 and gradually deteriorated, resulting in their later demolition.
1983	New York State Department of Environmental Conservation collected water and sediment samples from the Unadilla River; analytical results indicated elevated levels of chromium, copper, lead, mercury, nickel, selenium, silver, zinc, beryllium, antimony, arsenic, and cadmium

Table 1-1

Chronology of Events
Hiteman Leather Site
West Winfield, New York

Year	Event
1984	Proposal to construct a senior citizens housing project was abandoned due to concerns regarding potential environmental and human health hazards associated with the Site
1985	Engineering investigations at inactive hazardous waste sites in the State of New York; Hiteman Leather Company, Village of West Winfield, Herkimer County, New York, site no. 622007, prepared for New York State Department of Conservation by Recra Research, Inc. The site receives a Hazard Ranking System score of 43.98
1986	New York State Department of Environmental Conservation conducted analysis of groundwater samples from the three village wells; analytical results do not indicate the presence of organics or metals except one sample that shows zinc at a concentration of 0.02 milligrams per liter
1987	The New York State Department of Environmental Conservation, Division of Solid and Hazardous Waste invited five firms to submit proposals for a remedial investigation and feasibility study for the Hiteman Leather Site
1988	GHR Engineering Associates, Inc., approved to conduct investigation
1992	Record of Decision filed by New York State Department of Environmental Conservation that referred the Hiteman Leather Site to EPA for further evaluation
1994	EPA fenced the northern area of the Hiteman Leather Site
1996	EPA reinforced the northern bank of the Unadilla River with 500 feet of rip rap to prevent erosion of the river bank and to limit the potential release of contaminants from the adjacent lagoon area along the river EPA also evaluated the former tannery buildings and discovered asbestos pipe coverings and that all structures except for the 1946 concrete and steel section of the building complex were unsound EPA performed asbestos removal and demolished all unsound structures New York State Department of Health conducted surface soil sampling at the Crumb Trailer Park in response to a report received by EPA during 1996 that tannery wastes had been disposed at the former Town Dump, now underlying the Crumb Trailer Park
1998	The 1946 concrete and steel building was demolished by the estate of the deceased owner
1999	Hiteman Leather Site listed on EPA's Superfund National Priorities List and EPA contracted with CDM to conduct RI/FS to support the selection of remedy for the site

Source: SAIC Engineering, Inc., 1992. Remedial Investigation Report, Hiteman Leather Company, prepared for the New York State Department of Environmental Conservation, February.

Table 1-2

Generic Chemicals Used in the Tannery Process
Hiteman Leather Site
West Winfield, New York

Process Chemical	Generic Tannery Process Chemicals
Diethylamine Sulfate	$(CH_3)2NH\ H_2SO_4$ (35 to 40%)
Leukanol HPS	Napthalene sulfonic acid - formaldehyde condensate
Orotan TV	--
Tamol N	Neutral naphthalene sulfonic acid - formaldehyde condensate
Tamol L concentrate	--
Indulin A	Alkaline lignin compound
Sodium citrate	$Na_3C_6H_5O_7.5/2\ H_2O$
Oxalic acid	$(COOH)_2.2H_2O$
Sodium thiosulfate	$Na_2S_2O_3$
Betasol Wetting Agent OT	Sodium dioctyl sulfo succinate (75% Aqueous)
Oropon FS	95% $(HN_4)_2SO$ + 5% enzymes
Oropon AB-SP	$(HN_4)_2SO_4$ + enzymes
Sodium sulfide	62% Na_2S
Sulfide ion	S^{2-}
Tanolin R	Basic chromic sulfate
Hydroxyacetic acid	$CH_2OHCOOH$
Sodium fulmate	HCOONa
Sodium acetate	CH_3COONa
Purex Quebracho	Tannin
Slaked lime	$Ca(OH)_2$
Calcium formate	$Ca(HCOO)_2$
D-1 Oil	Oil
Quebracho	Tannin
Lactic Acid (30%)	$CH_3CHOHCOOH$
Gambade	--
Koreon M	Chromic sulfate

Table 1-2

Generic Chemicals Used in the Tannery Process
Hiteman Leather Site
West Winfield, New York

Process Chemical	Generic Tannery Process Chemicals
Tanbark H	Tannin
Upper Tan	Tannin
Triton 770 concentrate	Alkylaryl polyether sulfate
Stoddard Solvent No. 510	Hydrocarbon
Kerosene	Hydrocarbon
Tergitol Anionic 4	--
Tergitol Nonionic 7	--
Tergitol Anionic 08	$C_4H_9CHC_2H_5CH_2SO_4Na$
Tergitol Anionic NP14	--
Tergitol Nonionic NP27	--
Tergitol Anionic P28	$(C_8H_{17})_2NaPO_4$
Tergitol Nonionic TMN	--
Tergitol Nonionic NP35	--
Tergitol Nonionic NPX	--
Methocel	Methyl cellulose
G-942	Syntan
Quilon M	Organic chrome complex in isopropanol
Emulphor EL719	Polyeoxyethylated vegetable oil
Solidigen LT13	Cationic resinous fixing agent
Tanigan DNLA	Sulfonated dihydroxy diaryl sulfone - diphenoyl propane
Blancol	Sodium nahthalene sulfonate - formaldehyde
Maraton H	--
Maraton B	--
Tanak AA	Naphthalene sytan
Tanak CNS	Naphthalene sytan
Tanak A	Naphthalene sytan

Table 1-2

Generic Chemicals Used in the Tannery Process
Hiteman Leather Site
West Winfield, New York

Process Chemical	Generic Tannery Process Chemicals
Tanak DN	Naphthalene sytan
Tanak MRX	Naphthalene sytan
Suprak 57	Phenolic syntan
Suprak 58	Phenolic syntan
Suprak 59	Phenolic syntan
Sodium chloride	--
Sterizol	--
Sulfuric Acid	--
Soda Ash	--
Ammonium chloride	--
Titanium dioxide	--
Soyarich flour	--
Semi-sol glue	--
Chromic Oxide	--

Source: Maselli, J.W., et. al., Tannery Wastes, Pollution Sources and Methods of Treatment, New England Interstate Water Pollution Control Commission, June 1958.

Table 1-2a

Summary of Previous NYSDEC and EPA Investigations
Hiteman Leather Site
West Winfield, New York

Year	Agency and Investigation	Previous Field Activities
1988-1992	NYSDEC RI/FS	• Installed and sampled 24 monitoring wells (15 shallow, 7 deep, and 2 bedrock wells) • Abandoned 2 bedrock monitoring wells • Installed piezometers • Advanced 13 soil borings • Collected and analyzed 20 surface soil samples • Collected and analyzed 4 surface water and 12 sediment samples from the Unadilla River • Collected and analyzed 8 wetland sediment samples
1996	EPA ERT SI	• Advanced 50 soil borings (including 11 in the former lagoon area suspected edges, and 11 in the onsite wetland) to approximately 15 feet below ground surface • Screened 236 surface soil, subsurface soil, and sediment samples for chromium via onsite XRF analysis • Collected and analyzed 10% of XRF samples for laboratory analysis (including 21 soil samples and 2 sediment samples) • Collected and analyzed groundwater samples from 21 existing monitoring wells (including filtered and unfiltered samples for inorganic analytes)

Table 1-3

Chromium Analytical Results - Soil and Sediment Samples
X-Ray Fluorescence Concentrations Greater than 10,000 mg/kg and Laboratory Concentrations Greater than 1,000 mg/kg
1996 EPA ERT Site Investigation
Hiteman Leather Site
West Winfield, New York

Sample Number	X-Ray Fluorescence Result (>10,000 mg/kg)	Laboratory Result (> 1,000 mg/kg)
050N-025W-0	71,000	--
050N-125W-0	21,000	--
100N-025W-0	32,000	--
100N-025W-0 (duplicate)	34,000	--
100N-075W-0	51,000	--
100N-125W-0	37,000	--
150N-025W-0	67,000	--
150N-125W-0	52,000	--
F-28-2	15,000	4,700
G-10-0	--	12,000
G-10-2	--	4,700
G-26-0	44,000	--
G-26-2	72,000	--
G-26-4	--	3,500
G-26-6	21,000	--
H-12-2	13,000	--
H-14-4	--	3,800
H-20-4	36,000	--
H-22-2	--	20,000
L-13-2	13,000	--
L-13-4	11,000	--
M-19-0	13,000	--
M-19-2	13,000	--
M-19-4	26,000	--

TABLE 1-3 (continued)

Chromium Analytical Results - Soil and Sediment Samples
X-Ray Fluorescence Concentrations Greater than 10,000 mg/kg and Laboratory Concentrations Greater than 1,000 mg/kg
1996 EPA ERT Site Investigation
Hiteman Leather Site
West Winfield, New York

Sample Number	X-Ray Fluorescence Result (>10,000 mg/kg)	Laboratory Result (> 1,000 mg/kg)
M-22-2	37,000	15,000
M-22-4	36,000	--
M-22-6	28,000	--
M-22-6 (duplicate)	24,000	--
P-20-0	33,000	--
P-20-2.5-A	46,000	--
P-20-4	13,000	--
P-20-6	26,000	--
Q-10-0	--	45,000
Q-17-0	75,000	--
Q-17-2	47,000	--
Q-17-2 (duplicate)	43,000	--
Q-17-4	15,000	--
Q-20-0	25,000	--
Q-20-0 (duplicate)	23,000	--
Q-20-2	60,000	--
R-14-0	42,000	--
S-20-0	22,000	--
T1-M20-C-5	32,000	50,000
Sluiceway-1-0	--	1,100
Sluiceway-2-0	--	2,400
UR-2	--	6,700

Notes:
-- = Not analyzed

Table 1-4

Summary of TAL Metals in Soil and Sediment Samples
1996 EPA ERT Site Investigation
Hiteman Leather Site
West Winfield, New York

Analyte (mg/kg)	E-20-0'	F-28-2'	H-14-4'	O-23-2'	U-22-2'	T1-M-20-C-5'	Sluiceway-1	Sluiceway-2	UR-2
Aluminum	5,100	990	5,400	**18,000**	13,000	4,000	3,500	4,400	7,400
Arsenic	3.8	**52**	3.3	4.8	4.6	2.6	17	41	3.4
Barium	44	240	57	85	60	47	54	**390**	130
Beryllium	ND	0.46	ND	**1.3**	0.83	ND	0.79	1	ND
Cadmium	ND	ND	**4.5**	ND	ND	ND	0.85	0.98	2.7
Calcium	58,000	4,400	130,000	2,600	1,400	200,000	13,000	19,000	77,000
Chromium	45	4,700	3,800	23	19	**50,000**	1,100	2,400	6,700
Cobalt	4.7	3.6	3.9	**16**	**16**	ND	4.4	6	4.6
Copper	10	50	17	22	23	60	**65**	34	21
Iron	12,000	**40,000**	12,000	34,000	30,000	5,500	12,000	20,000	16,000
Lead	44	200	99	19	18	200	78	**280**	93
Magnesium	2,600	140	2,700	4,500	4,000	3,200	1,200	1,300	3,300
Manganese	250	26	290	460	440	260	82	250	760
Mercury	**2.1**	0.2	0.3	0.04	0.04	0.31	0.13	0.22	0.14
Nickel	12	6.6	10	**45**	39	7.4	14	16	14
Potassium	470	390	400	1,100	980	ND	330	700	850
Selenium	ND	**2.1**	ND	ND	ND	ND	0.71	1.1	ND
Silver	ND	ND	ND	ND	ND	**1**	ND	ND	ND
Sodium	94	280	490	140	ND	**1,500**	230	160	470
Vanadium	10	22	19	28	23	**82**	16	18	30
Zinc	76	45	68	88	83	**110**	110	120	**210**

Table 1-4

Summary of TAL Metals in Soil and Sediment Samples
1996 EPA ERT Site Investigation
Hiteman Leather Site
West Winfield, New York

Analyte (mg/kg)	Building East-0'	Building East-2'	Building West-0'	Reference III-1	Reference III-2	Reference III-3
Aluminum	2,300	15,000	1,600	9,800	9,600	9,800
Arsenic	2.3	4	2.1	7.7	7.7	5.9
Barium	17	59	12	50	69	81
Beryllium	ND	0.84	ND	0.77	0.9	0.65
Cadmium	ND	ND	ND	ND	0.8	ND
Calcium	230,000	5,100	**270,000**	3,100	7,200	33,000
Chromium	13	21	12	16	19	290
Cobalt	0.89	13	1.5	9.3	9.2	7.6
Copper	9.7	19	8	13	16	70
Iron	5,700	29,000	5,900	23,000	23,000	19,000
Lead	37	20	46	22	32	43
Magnesium	**6,800**	4,300	9,200	2,400	2,600	3,800
Manganese	130	330	120	640	**1,300**	480
Mercury	ND	0.06	ND	0.08	0.13	0.19
Nickel	6.3	38	5.8	20	21	20
Potassium	ND	**1,300**	ND	110	1,200	1,100
Selenium	0.75	ND	0.71	ND	ND	0.61
Silver	ND	ND	ND	ND	ND	ND
Sodium	370	130	380	ND	ND	130
Vanadium	7.8	25	6.9	22	23	19
Zinc	39	86	46	83	100	120

Notes: ND = Not detected Shaded and bold values represent maximum concentration for that analyte

Table 1-5

Summary of Analytical Results for VOCs in Soil Samples
1996 EPA ERT Site Investigation
Hiteman Leather Site
West Winfield, New York

Compound	F-28-2'	H-14-4'	H-16-3.5'	U-22-2'	T1-M-20-C-5'
Acetone	ND	710	10	ND	340
2-Butanone	ND	100	ND	ND	81
Benzene	7	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	17
p&m - Xylene	ND	ND	ND	ND	4,300
o-Xylene	ND	ND	ND	ND	8.8
Isopropylbenzene	ND	ND	ND	ND	510
n-Propylbenzene	ND	ND	ND	ND	4,200
1,3,5 - Trimethylbenzene	ND	ND	ND	ND	5,600
1,2,4 - Trimethylbenzene	ND	3.8	ND	ND	15,000
sec-Butylbenzene	ND	ND	ND	ND	120
1,3-Dichlorobenzene	ND	ND	ND	ND	6.2
p-Isopropyltoluene	ND	ND	ND	ND	3,100
1,4 Dichlorobenzene	ND	ND	ND	ND	4.3
n-Butylbenzene	ND	ND	ND	ND	210
Naphthalene	210	3.0	ND	3.7	210

Notes: Reported in micrograms per kilogram (µg/kg), dry weight
ND = Not Detected

Table 1-6

Summary of SVOCs in Soil and Sediment Samples
1996 EPA ERT Site Investigation
Hiteman Leather Site
West Winfield, New York

Compound (ug/kg)	C-14-2	E-20-0	F-28-2	G-26-4	Sluiceway-1	Sluiceway-2	T1-M-20-C-5	UR-1
Naphthalene	ND	ND	11,000	1,200	ND	1,600 J	1,500 J	ND
4-chloro-3-methylphenol	ND	ND	ND	180 J	ND	ND	ND	ND
2-methylnaphthalene	ND	ND	2,500 J	140 J	ND	ND	ND	ND
Acenaphthylene	ND	ND	2,600 J	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	3,100 J	100 J	ND	ND	ND	ND
Phenanthrene	ND	ND	25,000	1,200	ND	ND	630 J	740J
Anthracene	ND	ND	5,300	340 J	ND	ND	ND	ND
Carbazole	ND	ND	3,600 J	140 J	ND	ND	ND	ND
Fluoranthene	220 J	610 J	21,000	1,300	ND	ND	ND	1,300J
Pyrene	150 J	480 J	17,000	840	1100 J	ND	ND	1,100J
Benzo(a)anthracene	130 J	ND	10,000	490 J	ND	ND	ND	ND
Chrysene	130 J	300 J	9,800	520	1300 J	ND	ND	660J
Benzo(b)fluoranthene	110 J	ND	8,500	550	850 J	ND	ND	ND
Benzo (k)fluoranthene	140 J	ND	9,200	610	1000 J	ND	ND	ND
Benzo(a)pyrene	150 J	290 J	8,700	580	ND	ND	ND	410J
Indeno(1,2,3-cd)pyrene	80 J	ND	6,400	240 J	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	1,700 J	65 J	ND	ND	ND	ND
Benzo(g,h,i)perylene	80 J	ND	6,000	220 J	ND	ND	ND	ND
Total SVOCs	1,200	1,700	150,000	8,700	4,300	1,600	2,100	4,200

Notes:
All units in ug/kg
ND = Not Detected
J = Estimated value

Table 1-7

Analytical Results of TAL Metals in Groundwater and Surface Water Samples
1996 EPA ERT Site Investigation
Hiteman Leather Site
West Winfield, New York

Sampling Location	Aluminum	Arsenic	Barium	Calcium	Chromium	Iron	Magnesium	Manganese	Nickel	Potassium	Sodium	Vanadium	Zinc
MW-13D	ND	ND	120	70,000	ND	ND	11,000	39	ND	ND	5,000	ND	ND
MW-13D	3,800	4.2	140	88,000	5.3	3,300	13,000	100	ND	2,800	5,100	7.5	5.8
MW-14S	ND	ND	89	110,000	ND	ND	9,900	1,100	ND	2,600	34,000	ND	ND
MW-14S	7800	7.0	130	110,000	6.9	9,400	12,000	1,200	13	4,600	35,000	16.0	34.0
MW-5S	ND	3.2	82	96,000	ND	1,300	9,400	860	ND	ND	11,000	ND	ND
MW-5S	ND	4.7	90	98,000	ND	2,300	9,400	1,000	ND	ND	11,000	ND	ND
MW-6S	ND	4.3	60	84,000	ND	1,000	9,800	220	ND	ND	9,000	ND	ND
MW-6S	110	3.2	56	80,000	ND	1,100	9,300	200	ND	ND	8,400	ND	ND
UR-1	ND	ND	31	70,000	ND	ND	6,700	8.8	ND	ND	4,600	ND	9.2
UR-1	77	ND	31	70,000	ND	160	6,700	15	ND	ND	4,400	ND	ND
UR-2	ND	ND	54	100,000	5.7	32	5,800	37	ND	ND	13,000	ND	ND
UR-2	160	ND	53	96,000	33	210	5,700	51	ND	ND	14,000	ND	ND
UR-3	ND	ND	31	71,000	ND	28	7,300	4.9	ND	ND	4,600	ND	14
UR-3	80	ND	30	69,000	ND	160	7,200	13	ND	ND	4,300	ND	ND

Notes:
Reported in micrograms per liter (μg/L)
ND = Not Detected
Shaded samples indicate unfiltered samples, unshaded samples indicate filtered samples
UR samples are from the Unadilla River

Table 1-8

Total and Hexavalent Chromium Analytical Results in Groundwater Samples
1996 EPA ERT Site Investigation
Hiteman Leather Site
West Winfield, New York

Sample Location	Chromium (Filtered)	Chromium (Unfiltered)	Hexavalent Chromium (Unfiltered)
MW-1S	ND	54	ND
MW-2S	ND	ND	ND
MW-3S	ND	1,000	ND
MW-4S	ND	ND	ND
MW-4D	ND	300	ND
MW-5S	ND	ND	ND
MW-5D	ND	6.6	ND
MW-6S	ND	17	ND
MW-6S (Duplicate)	ND	ND	ND
MW-6D	ND	20	ND
MW-7S	ND	150	ND
MW-8S	ND	ND	ND
MW-8S (Duplicate)	ND	ND	ND
MW-9S	ND	ND	ND
MW-9D	ND	76	ND
MW-10D	ND	30	ND
MW-11S	ND	32	ND
MW-11D	ND	690	ND
MW-12S	ND	210	ND
MW-13S	ND	7.3	ND
MW-13D	ND	5.3	ND
MW-14S	ND	6.9	ND
MW-15S	ND	ND	ND
MW-15S (DUP)	ND	8.9	ND
UR-1	ND	ND	NA
UR-2	5.7	33	NA
UR-3	ND	ND	NA

Notes:
Reported in micrograms per liter (µg/L)
ND = Not Detected
NA = Not Analyzed

Table 1-9

Summary of Analytical Results of VOCs and SVOCs in Groundwater
1996 EPA ERT Site Investigation
Hiteman Leather Site
West Winfield, New York

Compound	MW-14S
Acetone	39
Toluene	2.3
Ethylbenzene	39
p&m - Xylene	100
o-Xylene	3.1
Isopropylbenzene	15
n-Propylbenzene	20
1,3,5-Trimethlbenzene	43
1,2,4-Trimethylbenzene	130
sec-Butylbenzene	1.9
p-Isopropyltoluene	2.0
Naphthalene	9.1

Note:
Results reported in micrograms per liter (µg/L)

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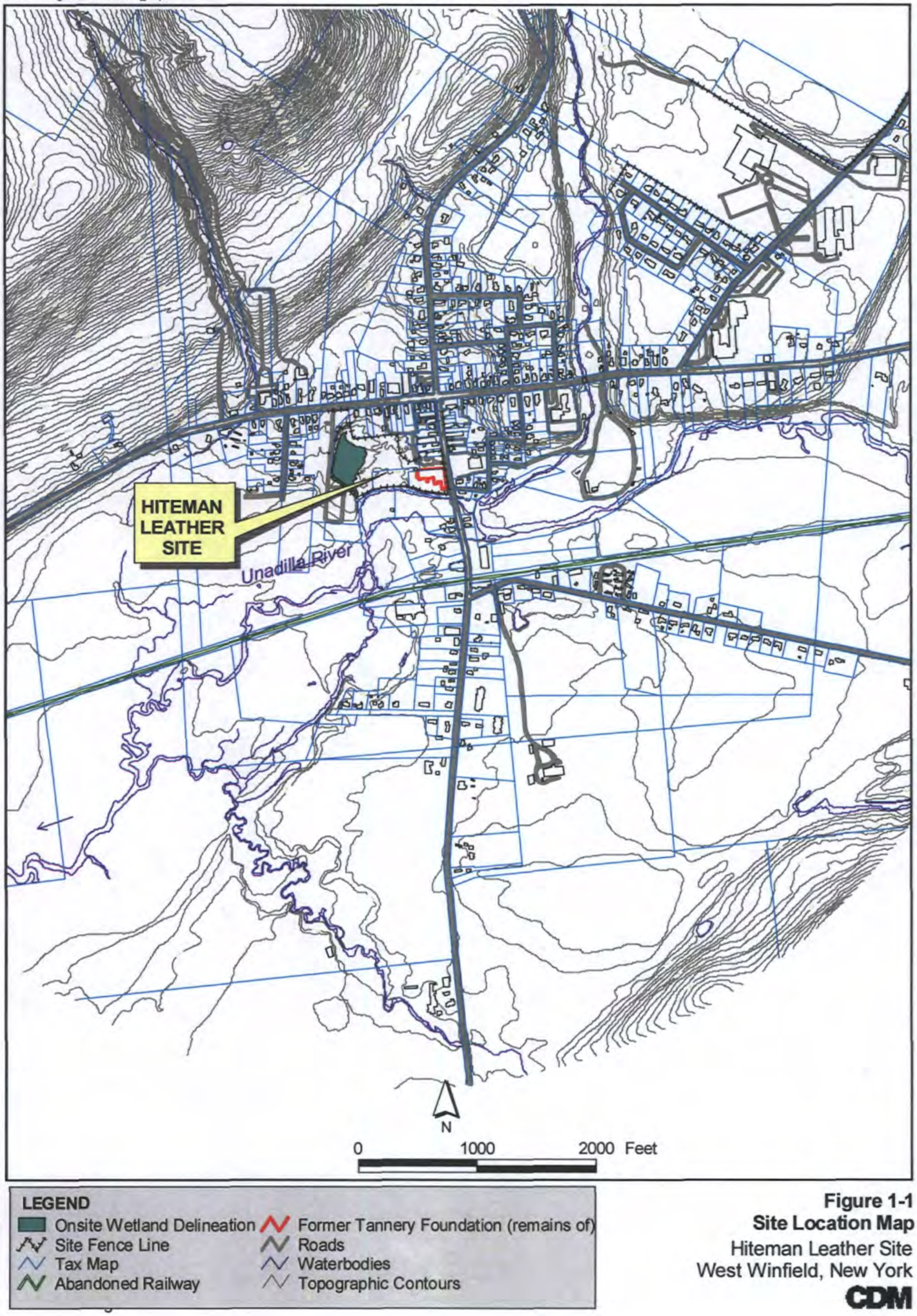

Figure 1-1
Site Location Map
Hiteman Leather Site
West Winfield, New York
CDM

File Path: c:\egis\hiteman\section_1.apr

*Aerial photograph dated April 26, 2001

Figure 1-2
Site Map
Hiteman Leather Site
West Winfield, New York
CDM

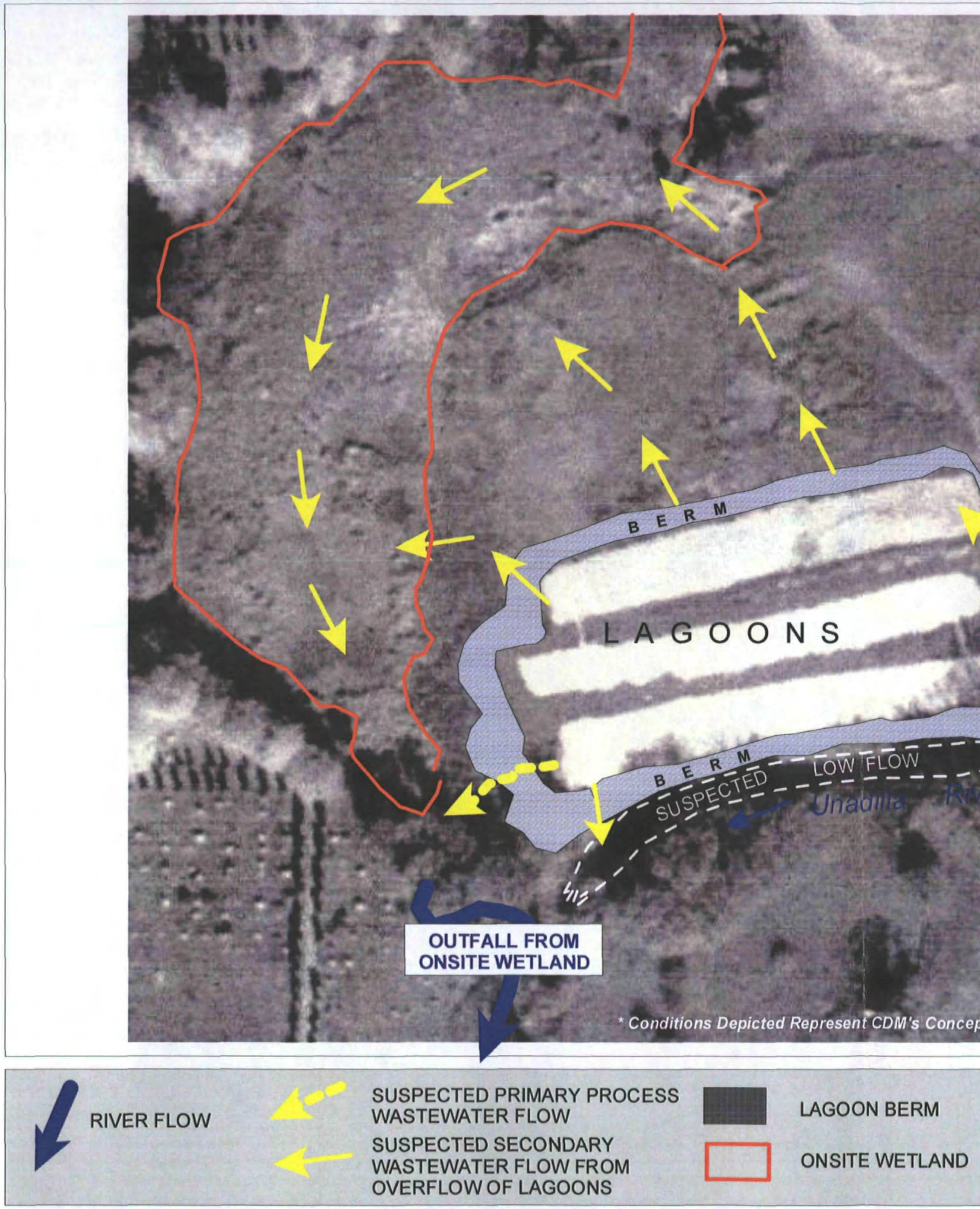

Figure 1-3
Historical Tanning Process-Wastewater Pathway
Hiteman Leather Site
West Winfield, New York
CDM

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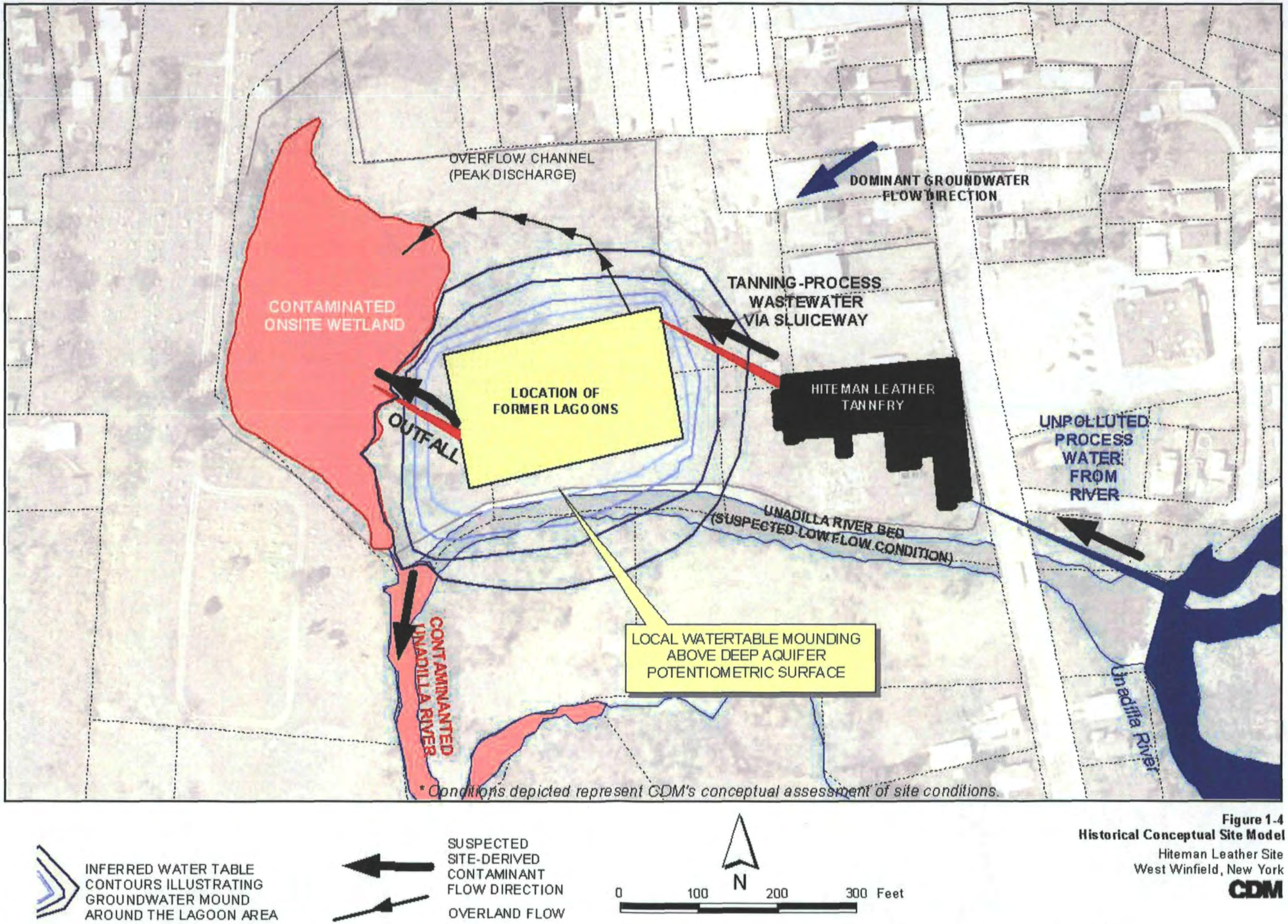


Figure 1-4
Historical Conceptual Site Model
Hiteman Leather Site
West Winfield, New York
CDM

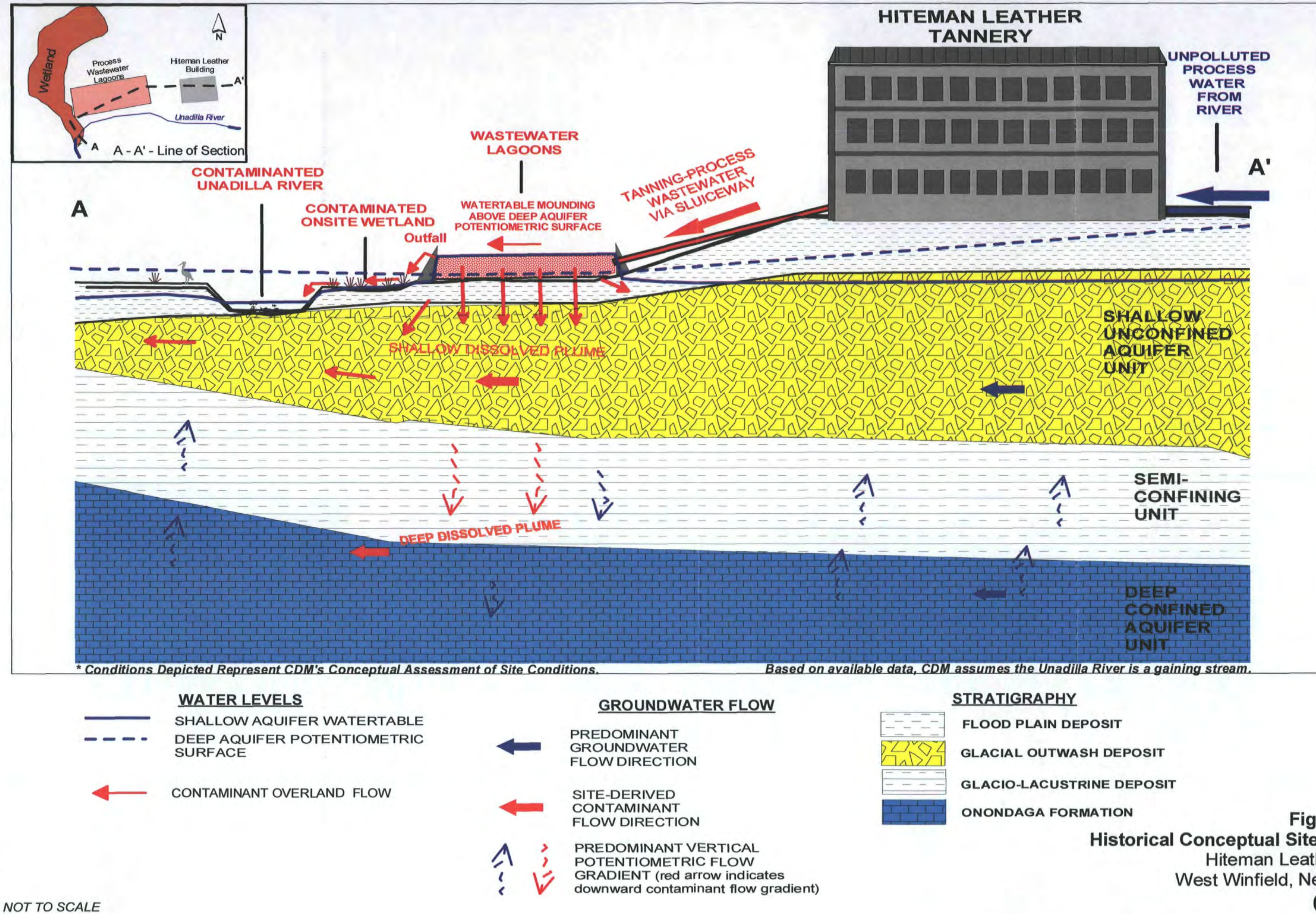


Figure 1-5
Historical Conceptual Site Model
Hiteman Leather Site
West Winfield, New York
CDM.

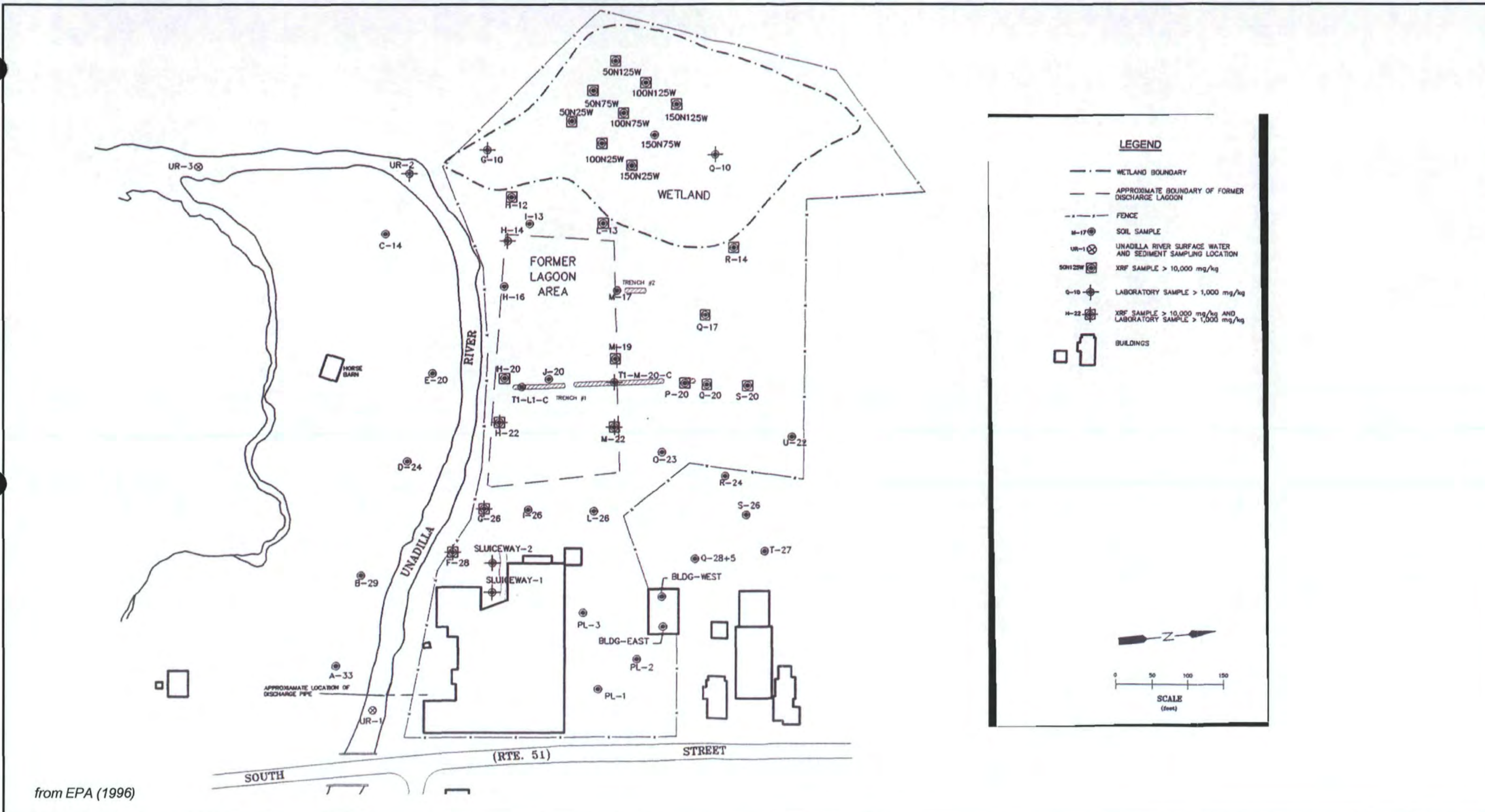
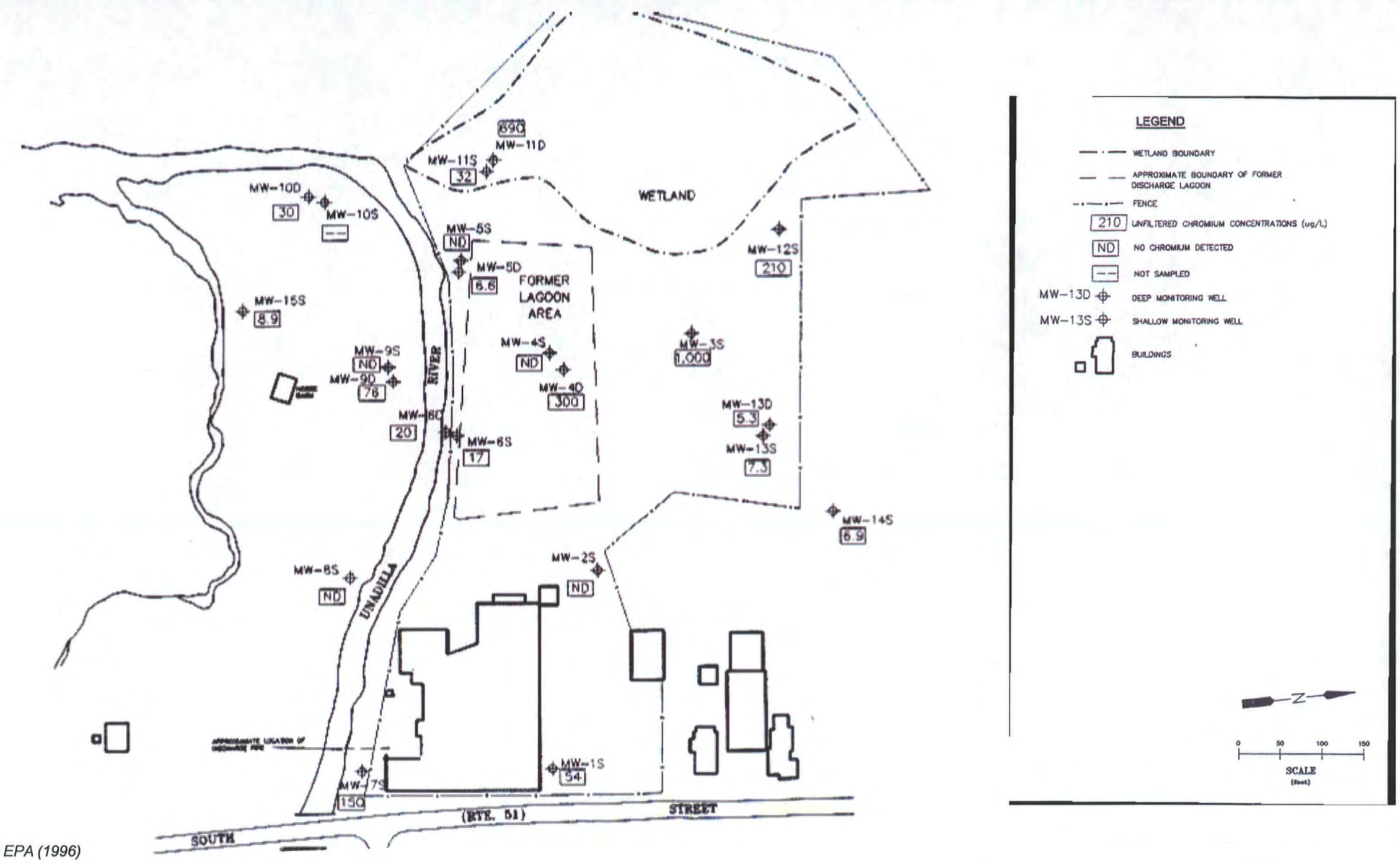


Figure 1-6
EPA ERT Soil and Sediment Sampling Locations
1996 Site Investigation
Hiteman Leather Site
West Winfield, New York
CDM



from EPA (1996)

Figure 1-7
EPA ERT Monitoring Well Sampling Locations and Chromium Results, 1996 Site Investigation
Hiteman Leather Site
West Winfield, New York
CDM

2 Section Two

Section 2
Study Area Investigations

CDM conducted field investigations at the Site during three Field Activities to acquire data for the RI. CDM's RI field activity tasks are summarized in Table 2-1. CDM's RI field investigation was designed to supplement, where appropriate, data obtained during the 1988-1992 NYSDEC RI/FS and the 1996 EPA ERT SI. Field activities conducted during these two previous investigations are summarized in Table 1-2a. The RI was conducted in accordance with the following EPA-approved project plans:

- Final RI/FS Work Plan Volume I and Volume II, dated September 11, 2000 (CDM 2000a)
- Final RI/FS Quality Assurance Project Plan (QAPP), dated December 8, 2000 (CDM 2000b)
- Draft Technical Memorandum dated October 22, 2001 (CDM 2001)
- Final QAPP Addendum pages dated March 31, 2002 (CDM 2002a)
- Letter to J. O'Dell (EPA), Regarding Additional Water Level Measurements dated July 15, 2002 (CDM 2002d)
- Letter to J. O'Dell (EPA), Regarding Additional Sampling Activities dated August 27, 2002 (CDM 2002e)

The deviations from the QAPP and QAPP Addendum during the field investigations were documented on Field Change Request (FCR) forms, which are presented in Appendix B. The forms describe the deviation to the QAPP, reason for the deviation, and the recommended modification. The deviations were discussed with the EPA remedial project manager, and were agreed upon by the CDM site manager, and the CDM field operations leader. The changes did not affect the representativeness, completeness, precision, or accuracy of the data collected in the field. With the exception of the changes documented on the FCRs, all procedures in the QAPP and QAPP Addenda were followed. The FCRs are discussed in this section, as appropriate.

All analytical data were reviewed to ensure that they met the project quality requirements for representativeness, completeness, precision, and accuracy. This review is documented in a Data Usability Report, presented in Appendix C.

2.1 Surface Water and Sediment Investigations

CDM conducted surface water and sediment investigations along the Unadilla River and a sediment investigation within the onsite wetland during Field Activities 1 and 2. Although previous investigations included analysis of surface water and sediment samples, analytical results were old, frequently failed QA/QC protocols, or were considered screening level data (e.g., XRF results). The following sections describe surface water and sediment samples that were collected to obtain a current record of contamination and for use in the risk assessments.

2.1.1 Unadilla River Surface Water Sampling

CDM collected surface water samples from 10 locations along the Unadilla River during Field Activity 1 and Field Activity 2. The samples were collected in order to determine the impact of Site contamination on the river and to define the nature and extent of contamination potentially migrating off site. Samples URSW-1 through URSW-6 were collected during Field Activity 1 in the vicinity of the Site. Sample locations are shown on Figure 2-1 and the rationale for the samples are summarized in Table 2-2. Samples URSW-7 through URSW-10 were collected during Field Activity 2, further downstream of the Site. Field Activity 2 sample locations were based on results of Field Activity 1 samples, in order to further delineate the downstream extent of Site-related contamination. To provide background data for use in the RI and HHRA, CDM collected one sample (URSW-1) from a location upstream of the Site that was anticipated to be free from Site impacts and Site-specific contamination. Results of Unadilla River surface water samples are discussed in Section 4.2.9.

During each field activity, the most downstream surface water sample was collected first, with the subsequent sampling progressing in an upstream direction to the final upstream sampling location. Surface water sample bottles were filled by immersing the entire container into the water just below the water surface with the opening in the sample container in an upstream direction. An effort was made to avoid disturbing the underlying sediments.

Surface water quality parameters such as dissolved oxygen, pH, temperature, turbidity, specific conductivity, and oxidation-reduction potential were measured at each location. In addition, water depth and flow velocity of the surface water were measured at each of the sampling locations to determine the fate and transport characteristics of Site-related contaminants. Appendix D provides surface water quality measurement data. Samples were collected in accordance with the QAPP.

A total of 12 surface water samples (including 2 duplicate samples, 1 per Field Activity) were collected and analyzed for full TCL organic parameters and for TAL metals and cyanide through the EPA CLP. All samples were also analyzed for hexavalent chromium and water quality parameters (total dissolved solids [TDS], total suspended solids [TSS], alkalinity, and hardness) by the CDM analytical laboratory subcontractor, Mitkem Corporation. All samples were analyzed using the most current EPA-approved methods.

2.1.2 Unadilla River Sediment Sampling

CDM collected sediment samples from 10 locations along the Unadilla River (co-located with surface water samples) during Field Activity 1 and Field Activity 2. Rationale for Unadilla River sediment samples are summarized in Table 2-3; locations are shown on Figure 2-1. Results of Unadilla River sediment samples are discussed in Section 4.2.9.

During each sampling event, the most downstream sediment sample was collected first, with subsequent sampling progressing in an upstream direction to the final upstream location. Unadilla River sediment samples were collected from areas of observed sedimentation at a depth of 0-6 inches using a stainless-steel spoon or trowel. At each location, the sediment sample was collected after the surface water sample. A total of 12 sediment samples (including 2 duplicate samples, 1 per Field Activity) were collected and analyzed for full TCL organic parameters and TAL metals and cyanide through the EPA CLP and for hexavalent chromium, TOC, pH, and grain size by the CDM analytical laboratory subcontractor. All samples were analyzed using the most current EPA-approved methods, in accordance with the QAPP.

2.1.3 Onsite Wetland Sediment Sampling

CDM collected surface and subsurface sediment samples during Field Activity 1 and Field Activity 2 from 15 locations within the onsite wetland and 2 locations in off site wetland areas. Wetland sediment samples were collected to determine the impact of Site contamination to the onsite wetland and to characterize the vertical and areal extent of contamination.

Sediment samples from locations WTSD-01 through WTSD-10 were collected during Field Activity 1 within the onsite wetland. Samples WTSD-11 and WTSD-12 were from off site locations that were anticipated to be free from Site impacts and Site-specific contamination, in order to provide background data for use in the RI and RA. Sediment samples from locations WTSD-13 through WTSD-17 were collected during Field Activity 2 within the onsite wetland. Field Activity 2 sample locations were based on results of Field Activity 1 samples, to further characterize the vertical and areal extent of contamination in the eastern section of the wetland. During Field Activity 2, CDM also recollected the surface sediment sample at WTSD-04 due to rejected analytical results. Rationale for wetland sediment samples are summarized in Table 2-4; sample locations are shown on Figure 2-2. Results of wetland sediment samples are discussed in Section 4.2.8.

Wetland sediment sample locations were selected in areas where discharge from Site activities was most likely to have impacted the wetland. At each location, one surface sediment sample (0-6 inches bgs) and one subsurface sediment sample (18-24 inches bgs) were collected to determine the vertical extent of contamination. Surface sediment samples were collected using a stainless-steel spoon or trowel and the subsurface sediment samples were collected using a stainless-steel hand auger. Samples were collected in accordance with the QAPP.

A total of 37 surface and subsurface sediment samples (including 3 duplicate samples) were collected and analyzed for full TCL organic parameters and TAL metals and cyanide through the EPA CLP. Samples were also analyzed for hexavalent chromium, TOC, pH, and grain size by the CDM analytical laboratory subcontractor. All samples were analyzed using the most current EPA-approved methods.

2.2 Contaminant Source Investigations

CDM conducted a soil boring investigation and a test pit investigation within the former wastewater lagoon area during Field Activity 2, and a surface soil investigation in the South Bank Front Lot during Field Activity 3. No soil samples were previously collected from the South Bank Front Lot area.

2.2.1 South Bank Front Lot Surface Soil Sampling

CDM collected surface soil samples from six locations in the South Bank Front Lot (RSS-01 through RSS-07), located in the southern part of the Site, during Field Activity 3. Surface soil samples are summarized in Table 2-5 and shown on Figure 2-3. The lot is a wetland that was partially filled in with fill material that may have originated from the Site. Surface soil sampling activities were not originally planned; however, results from soil borings advanced on the lot during Field Activity 2 detected chromium within 0-2 feet bgs. As a result, soil samples were collected to determine the areal extent of Site-related contamination within surficial soils and to provide data for the HHRA. The six sample locations were spaced within the lot. The documentation and rationale for adding the surficial soil sampling activity is presented in FCR #8. The RSS surface soil samples were collected separately from the RSB soil samples associated with the first two feet of soil borings that were advanced within the lot. Results are discussed in Section 4.2.7.

CDM collected a total of seven samples (including one duplicate) from depths of 0-6 inches using a stainless-steel spoon or trowel. All samples were analyzed for TAL metals and cyanide through the EPA CLP and for hexavalent chromium, TOC, pH, and grain size by the CDM analytical laboratory subcontractor. All samples were analyzed using the most current EPA-approved methods, in accordance with the QAPP.

2.2.2 Lagoon Borings

CDM advanced three soil borings and collected surface and subsurface soil samples within the boundaries of the former wastewater lagoons during Field Activity 2. The number of lagoon borings was limited due to the availability of data obtained during the 1996 EPA ERT SI. Lagoon boring soil samples were collected to supplement existing data, and to confirm the nature, extent, and vertical distribution of subsurface contamination within the former wastewater lagoon area. LSB-1 was located on the eastern side, LSB-2 was located in the center, and LSB-3 was located on the western side of the former wastewater lagoon area. Lagoon boring locations are shown on Figure 2-3.

Lagoon soil borings were advanced using an all-terrain-vehicle (ATV) drill rig with 4.25-inch diameter hollow stem augers (HSAs). Continuous 3-inch diameter split-spoon samples were collected for lithologic description from ground surface to the point where visual contamination was no longer observed; the boring was terminated one full split-spoon below visual contamination. Resulting depths ranged from 16 - 20 feet bgs. Former wastewater lagoon material was comprised of a dark gray to black sludge-like material within sand and gravel fill material. This material was similar to that observed in previous lagoon borings. The material was observed at approximately 5 to 7 feet bgs and was 9 to 12 feet thick. Soil boring logs for the lagoon borings are provided in Appendix E. Rationale for surface and subsurface soil samples collected from lagoon borings are summarized in Table 2-6.

At each lagoon boring location, samples for laboratory analysis were collected at four intervals: one at the surface, one at the water table, one at the bottom of visual contamination, and one at the terminal depth of the boring, below visual contamination. The sample from the terminal depth of the boring was collected to determine whether soils below lagoon materials have been impacted. A total of 13 surface and subsurface soil samples (including 1 duplicate) were collected from lagoon borings for analysis of full TCL organic parameters and TAL metals and cyanide through the EPA CLP. All samples were also analyzed for hexavalent chromium, TOC, grain size, pH, and RCRA toxicity characteristics following TCLP extraction by CDM's subcontract laboratory. All samples were analyzed using the most current EPA-approved methods, in accordance with the QAPP. Results of lagoon boring soil samples are discussed in Section 4.2.3

2.2.3 Test Pit Excavation

Seven test pits were excavated during Field Activity 2 to accurately delineate the horizontal extent of the former wastewater lagoon boundaries; two on the west side (RTP-01 and RTP-02), three on the north side (RTP-03, RTP-04, and RTP-05), and two on the east side (RTP-06 and RTP-07). Test pit locations are shown on Figure 2-3.

Excavation of each test pit commenced from the inner portion of the estimated lagoon boundary, and proceeded laterally outward to the point where waste materials were no longer observed, and to a depth of approximately 6 feet bgs. Observations regarding vertical and horizontal extent of lagoon materials were recorded in Site logbooks. At each test pit, a distinct change in materials indicated the horizontal boundary of the lagoons. This point was marked in the field and surveyed by the CDM surveying subcontractor, as illustrated on Figure 2-3. No analytical samples were collected from the test pits. Observations from test pit excavations are discussed in Section 4.2.2. The test pits were excavated according to procedures outlined in the QAPP.

2.3 Geological/Hydrogeological Investigations

CDM conducted soil boring, geotechnical boring, monitoring well installation, groundwater sampling, and synoptic water level measurement activities during Field Activities 1, 2, and 3 to support geological and hydrogeological investigations at the Site.

2.3.1 Soil Borings

CDM advanced a total of 38 shallow soil borings at 5 areas located within and outside of Site boundaries during Field Activity 2 and Field Activity 3. Borings were advanced to a depth of 10 feet bgs, in order to characterize soils above the water table. Samples of surface and subsurface soils were collected to determine the nature and extent of Site-related contamination. Soil borings were located at the following five areas: the main Hiteman Leather Site, the South Bank Front Lot, the Crumb Trailer Park, Ferguson Fuels, and the Winfield Memorial Park. Soil borings at the Winfield Memorial Park were considered background locations.

Unless otherwise noted, soil borings advanced during Field Activity 2 were advanced using either a truck-mounted or ATV drill rig equipped with 4.25-inch diameter HSAs and 3-inch diameter split spoons. Soil borings during Field Activity 3 were advanced with a geoprobe drill rig equipped with 4.25-inch diameter HSAs and 3-inch split spoons. Split spoons were collected continuously at each soil boring location, for lithologic logging by the CDM geologist. Samples for laboratory analysis were collected at a minimum of three intervals: one at the surface (0-2 feet), one just below the surface (2-4 feet), and one at the terminal depth of the boring (8-10 feet). A fourth contingency sample was collected at one of the remaining intervals if visual contamination or elevated photoionization detector (PID) readings were observed. All soil samples were collected using a stainless steel bowl and spoon. All soil borings were advanced and soil samples collected in accordance with the QAPP. Soil boring logs are provided in Appendix E. The following sections detail the rationale, locations, sampling activities, and observations for soil borings advanced at each of the five areas.

2.3.1.1 Hiteman Leather Site Soil Borings

A total of 18 soil borings (RSB-01 through RSB-17 and RSB-26) were advanced within the main Hiteman Leather property (north of the Unadilla River) during Field Activity 2. Onsite soil borings are shown on Figure 2-4. Samples were analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, and cyanide through the EPA CLP. Samples were also analyzed for hexavalent chromium, TOC, pH, and grain size by the CDM subcontract laboratory. Rationale for locations of soil borings and observations in surface and subsurface soil samples are summarized in Table 2-7. Results of Hiteman Leather Site soil boring soil samples are discussed in Section 4.2.5.

Soil borings were advanced to 10 feet bgs with the following exceptions: RSB-07 was advanced to 12 feet bgs in order to collect additional sample volume for analytical sample RSB-07-8-10 and RSB-13 was only advanced to 8 feet bgs due to auger refusal.

2.3.1.2 South Bank Front Lot Soil Borings

Four soil borings were advanced on the South Bank Front Lot (south of the Unadilla River). The lot is a wetland that was partially filled in with material that may have originated from the Site; soil borings were advanced to determine if any Site-related contamination was present within surface and subsurface soils. Two soil borings (RSB-18 and RSB-19) were advanced during Field Activity 2. Due to chromium detections in these two borings, two additional soil borings (RSB-48 and RSB-49) were advanced during Field Activity 3. All four soil borings were advanced to 10 feet bgs. South Bank Front Lot soil borings are shown on Figure 2-4.

A total of 13 surface and subsurface soil samples (including 1 duplicate sample) were collected for laboratory analysis. All samples were analyzed for TAL metals and cyanide through the EPA CLP. Samples were also analyzed for hexavalent chromium, TOC, pH, and grain size by the CDM analytical laboratory subcontractor. Rationale for soil boring locations and observations in soil samples collected from the South Bank Front Lot soil borings are summarized in Table 2-7. Results are discussed in Section 4.2.7.

2.3.1.3 Crumb Trailer Park Soil Borings

A total of 13 soil borings were advanced at the Crumb Trailer Park, located on Burrows Road during Field Activity 2 and Field Activity 3. The property was formerly the Town Dump prior to development of the trailer park, and may have received wastes from the Hiteman Leather Site. Five soil borings were advanced during Field Activity 2 (RSB-21 through RSB-25) based on results of NYSDOH surface soil sampling. Eight additional soil borings were advanced during Field Activity 3 (RSB-40 through RSB-47) in order to determine the nature and extent of contamination throughout the trailer park. Rationale for soil boring locations and observations of soil samples are summarized in Table 2-7; Figure 2-5 shows the locations of the 13 borings. The results of the soil boring samples are discussed in Section 4.2.6.

At each soil boring location, 3-inch split spoon samples were collected continuously in order to determine soil lithology. Three samples were sent for laboratory analysis, from the 0-2 foot interval, the 2-4 foot interval, and the 8-10 foot interval. A fourth sample was sent for laboratory analysis if elevated PID readings were observed or if visible contamination or staining was apparent. All samples were analyzed for TAL metals and cyanide through the EPA CLP and for hexavalent chromium, pH, TOC, and grain size by CDM's subcontract laboratory.

RSB-21 through RSB-25 were located along the northen property line where hides were believed to be buried. At these borings, fill material, coal and brick fragments, as well as glass and wood pieces were observed. An extra sample was collected at RSB-22 at the 6-8 foot interval due to a sheen on the soil. RSB-40 through RSB-47 were positioned throughout the trailer park to determine the extent of the contamination. Throughout the trailer park, fill material, pieces of glass, and gravel were observed; hides were observed in RSB-43. Additional soil samples were collected at RSB-42, RSB-45, and RSB-47 at the 4-6 foot interval due to an elevated PID reading. Crumb Trailer Park boring logs are presented in Appendix E.

2.3.1.4 Ferguson Fuels Soil Boring

One soil boring (RSB-20) was advanced at the Ferguson Fuels property, located on Burrows Road during Field Activity 2 to confirm the presence and location of buried hides discovered during the installation of a water main and to determine whether soils were contaminated. The area is adjacent to the former Hiteman Railroad Depot, which may have received wastes from the Site. Hides were observed in RSB-20. Rationale and observations are summarized in Table 2-7. Figure 2-5 shows the location of the boring; the results of the soil boring samples are discussed in Section 4.2.6.

A total of three soil samples were collected from the soil boring. The samples were analyzed for TAL metals and cyanide through the EPA CLP. The samples were also analyzed for hexavalent chromium, pH, TOC, and grain size, by CDM's subcontract laboratory, Mitkem Corporation. All the samples were analyzed using the most current EPA-approved methods. The Ferguson Fuels soil boring log is presented in Appendix E.

2.3.1.5 Background Soil Borings

Two soil borings were advanced during Field Activity 2 at the Winfield Memorial Park, located approximately 1.5 miles east of the Site on Route 20, in order to provide data to develop background soil screening criteria for inorganic analytes.

Background soil borings were advanced using 3.5-inch diameter hand augers. Samples were collected at the 0-2 foot, 2-4 foot, and 4-6 foot intervals for laboratory analysis and lithological characterization. Samples were analyzed for TAL metals and cyanide through the EPA CLP. Rationale for locations and surface and subsurface soil samples are summarized in Table 2-7; sample locations are shown on Figure 2-5. Soil boring logs are presented in Appendix E. Background soil samples are discussed in Section 4.1.2.4.

2.3.2 Building Borings

CDM advanced soil borings and collected soil samples from five locations within the footprint of the former facility building during Field Activity 2. Building boring soil samples were collected to determine the nature and extent of soil contamination underlying the former building. Rationale for locations and observations of soil samples are summarized in Table 2-8, and shown on Figure 2-4. Results are discussed in Section 4.2.4.

At each soil boring location, a coring machine cored through the concrete foundation prior to advancing the soil boring. At each boring, a minimum of two soil samples were collected for laboratory analysis; one from the 0-2 foot interval below the concrete foundation and one from the 8-10 foot interval, at the terminal depth of the boring. A contingency sample was collected from a third interval if elevated PID readings or visual contamination were observed.

A total of 13 soil samples (including 1 duplicate sample) were collected from the 5 building borings. Contingency samples were collected at two locations; a sample from the 6-8 foot interval at BSB-02 was collected due to elevated PID readings and a sample from the 2-4 foot interval was collected at BSB-04 due to black staining. All samples were analyzed for full TCL organic parameters and TAL metals and cyanide through the EPA CLP. The samples were also analyzed for hexavalent chromium, pH, TOC, and grain size, by CDM's subcontract laboratory.

Decayed wood, black staining, and a slight odor was observed in BSB-04, located in the southeast corner of the former facility. Decayed wood and concrete were observed in BSB-05. Building boring logs are presented in Appendix E.

2.3.3 Geotechnical Borings

Three geotechnical borings were drilled along the northern bank of the Unadilla River to provide information regarding the physical and mechanical engineering properties of the bank material, stratification, and thickness, in order to evaluate remedial alternatives for the FS. Subsurface soil samples from geotechnical borings are summarized in Table 2-9; geotechnical boring locations are shown on Figure 2-6. Geotechnical boring logs are presented in Appendix E. Results of geotechnical boring soil samples will be presented in the FS.

Geotechnical borings were advanced using HSA and mud rotary methods to the top of bedrock; rock cores were not obtained. In addition, 4-inch steel casing was installed into the clay layer to prevent migration of contaminants. These procedures differ from those outlined in the QAPP; FCR #6 details the changes to drilling procedures for the geotechnical borings. At each geotechnical boring location, continuous split spoon samples were collected for lithologic characterization. In addition, one Shelby Tube sample and up to four subsurface soil samples were collected per boring, for analysis by the drilling laboratory subcontractor. The Shelby Tube samples were analyzed for Atterberg limits, permeability, shear strength, and visual descriptions of soil structures. The remaining soil samples were analyzed for grain size distribution. With the exception of procedures outlined in FCR #6, all procedures in the QAPP were followed.

2.3.4 Monitoring Well Installation

CDM installed a total of 10 monitoring wells at 6 onsite and off site cluster locations. Three shallow wells were installed in glacial overburden material above a silty clay unit, and screened within the shallow unconfined water table aquifer. Four double-cased wells were installed in the bottom of the silty clay unit just above the bedrock, and screened within an area that is hydraulically connected to the confined bedrock aquifer. Three triple-cased bedrock wells were installed in the fractured limestone bedrock, and screened within the confined bedrock aquifer. Locations of new monitoring wells are shown on Figure 2-7. Well construction details and rationale for monitoring well locations are presented in Table 2-10.

In order to obtain lithologic information, continuous 2-inch diameter split spoons were collected at the deepest monitoring well at each well cluster. Lithologic information from the first well was used to determine screen intervals, and if necessary, outer casing depths for the remaining wells in the cluster. Rock cores from the limestone bedrock section of the bedrock monitoring wells were obtained to determine fracture zones (see FCR #4 regarding the modifications to bedrock coring and monitoring well depths). All split spoons and rock cores were logged by the CDM geologist. Monitoring well boring logs and well construction diagrams are presented in Appendix F.

Shallow monitoring well borings were advanced using HSA drilling techniques; monitoring wells were installed through the HSAs. Deep monitoring well borings were advanced using mud rotary drilling. Bedrock monitoring well borings were advanced using mud rotary drilling techniques to the top of bedrock; air coring was used to obtain rock cores for lithologic description and air rotary drilling techniques were used to ream the borehole prior to well installation (see FCR # 3 for an explanation that details the change in drilling techniques for deep and bedrock monitoring wells). With this exception, monitoring wells were installed in accordance with the QAPP. No soil samples were collected from monitoring well soil borings.

2.3.5 Monitoring Well Development

CDM redeveloped the existing onsite monitoring wells during Field Activity 1 and developed the newly installed monitoring wells during Field Activity 2. The purpose of well development was to improve the hydraulic connection between the well and the aquifer, to clear the well screen of solid material, and to set the sand pack around the well screen in order to obtain groundwater samples that were representative of aquifer conditions.

All existing and newly installed monitoring wells were developed using a pump and surge method. Prior to installing development equipment, the total depth of the well and the water level depth were measured using a water level meter calibrated to 0.01 foot. The volume of water in both the well and the sand pack was calculated to determine one well volume. The porosity of the sand pack was assumed to be 30 percent.

2.3.5.1 Existing Monitoring Well Redevelopment

CDM redeveloped 19 of the 22 existing monitoring wells prior to groundwater sampling during Field Activity 1. Although the wells were developed in 1992, they had not been sampled since that time. Wells were redeveloped to insure the connectivity between the well and the aquifer and to clear the well and screen of settled material. Three wells were determined to be unusable and were not developed: MW-1 was not found and is believed to be buried; MW-9S contained several feet of silt/sludge; and MW-11D had a bent inner riser casing, preventing the insertion of the submersible pump. Well Redevelopment Forms for the existing monitoring wells are presented in Appendix G.

Existing monitoring wells were redeveloped using a pump and surge technique with a 2-inch diameter submersible pump. The screens at each monitoring well were developed in two to three-foot intervals from the bottom to the top of the screen. Each interval was surged and then pumped while water quality parameters such as dissolved oxygen, oxidation-reduction potential, pH, temperature, conductivity, and turbidity were measured and recorded. Redevelopment moved to the next interval when water quality parameters stabilized to within 10 percent. This process was repeated until the entire screen was redeveloped; at least three well volumes were purged, or until the well was dry. In the cases where the well went dry (MW-9S and MW-13D), as much of the screen as possible was redeveloped.

Redevelopment was conducted in accordance with the QAPP, with the exception that the requirement that turbidity be below 50 nephelometric turbidity units (NTUs) was amended (see FCR #1). The wells historically had high turbidity levels, and as a result, this requirement was determined to be unrealistic. Final turbidity readings ranged from 14 NTUs in MW-2S to greater than 999 (the highest reading possible on the meter); 11 of the 19 wells developed had ending readings greater than 999 NTU. Table 2-11 summarizes the final parameters for all developed and redeveloped monitoring wells

2.3.5.2 New Monitoring Well Development

CDM developed the 10 new monitoring wells during Field Activity 2, prior to the second round of groundwater sampling. New Monitoring Well Development Sheets are presented in Appendix G.

New monitoring wells were developed with the same protocols for the existing wells, as described in Section 2.3.5.1. FCR #1 was also applied to the development of new wells. Final turbidity readings ranged from 10 NTUs in RMW-18S to greater than 999 (the highest reading possible on the meter) in RMW-9D and RMW-18D (Table 2-11). RMW-16D and RMW-16S went dry during development.

2.3.6 Groundwater Sampling

CDM collected two rounds of groundwater samples during the RI in order to define the current nature and extent of Site-related contamination in the underlying overburden and bedrock aquifers. The first round was collected during Field Activity 1, and included all available existing monitoring wells at the Site and two municipal town wells. The second round of groundwater samples, collected during Field Activity 2, included existing onsite monitoring wells sampled during the first round, new monitoring wells installed during Field Activity 2, and two residential wells. All monitoring wells were sampled using the low-flow purging and sampling technique for groundwater monitoring wells as described in the Site-Specific Groundwater Sampling Procedure entitled "Ground Water Sampling Procedure, Low Stress (Low Flow) Purging and Sampling", dated March 16, 1998 (CDM 2000b).

2.3.6.1 Monitoring Wells

CDM collected two rounds of groundwater samples from existing monitoring wells and one round from newly installed monitoring wells. All procedures specified in the QAPP were followed. Groundwater analytical results are discussed in Section 4.2.12.

Existing Monitoring Wells

During Field Activity 1, CDM collected the first round of groundwater samples from 19 of the 22 existing monitoring wells onsite. The three monitoring wells that were not sampled (MW-1, MW-9S, and MW-11D) are discussed in Section 2.3.5.1.. Well locations are shown on Figure 2-7. Table 2-12 summarizes the groundwater samples collected from monitoring wells.

Groundwater samples from monitoring wells were collected at least one week after well redevelopment. Groundwater quality parameters such as dissolved oxygen, oxidation-reduction potential, pH, temperature, conductivity, and turbidity were measured in the field. These measurements were recorded on Low-Flow Sampling Forms, and are presented in Appendix H. The procedures in the QAPP were followed.

Twenty-three groundwater samples (including two duplicates) were collected during Field Activity 1 and analyzed for low detection limit VOCs, TCL SVOCs, pesticides/PCBs, and TAL metals and cyanide through the EPA CLP. Groundwater samples were also analyzed by the CDM laboratory subcontractor for hexavalent chromium and water quality parameters including alkalinity, ammonia, total kjeldahl nitrogen (TKN), biological oxygen demand (BOD), chemical oxygen demand (COD), TSS, TDS, TOC, nitrate-nitrite, sulfate, and chloride.

MW-11D

At the beginning of Field Activity 2, CDM collected a sample from MW-11D in order to confirm historical sample results that indicated contamination in the deeper portion of the overburden aquifer. This well was not sampled during Field Activity 1 because the inner riser casing was bent, which prevented sampling with a submersible pump. To determine whether to install a contingency deep overburden monitoring well downgradient of MW-11D, CDM collected a sample with a 3/4-inch disposable teflon bailer, which was small enough to be inserted past the bent portion of the well.

Two groundwater samples (including a duplicate) were collected from MW-11D at the beginning of Field Activity 2, and analyzed for TAL metals and cyanide through the CLP and for hexavalent chromium by the CDM laboratory subcontractor.

Existing and Newly Installed Monitoring Wells

CDM collected a second round of groundwater samples, including 10 new and 19 existing monitoring wells. Well locations are shown on Figure 2-7. Table 2-12 provides a summary of groundwater samples collected.

Groundwater samples from the new monitoring wells were collected a minimum of two weeks after well development. Groundwater quality parameters such as dissolved oxygen, oxidation-reduction potential, pH, temperature, conductivity, and turbidity were measured in the field.

Thirty-two groundwater samples (including three duplicates) were collected during Field Activity 2 and analyzed for the same parameters as in Field Activity 1.

2.3.6.2 Municipal Wells

During Field Activity 1, CDM collected groundwater samples from two municipal wells in order to confirm the absence of Site-related contamination. The wells are located hydraulically upgradient of the Site (see Figure 2-8). Samples were collected through taps located prior to any water filter.

The municipal well samples were analyzed for the same parameters as the monitoring well samples. Groundwater quality parameters such as dissolved oxygen, oxidation-reduction potential, pH, temperature, conductivity, and turbidity were measured in the field. These measurements were recorded on Low-Flow Sampling Forms, and are presented in Appendix H. Table 2-12 summarizes the groundwater samples collected from municipal wells. Results of municipal well samples are discussed in Section 4.2.13.

2.3.6.3 Residential Wells

While some residential wells are still in use in the Village, two residential wells were located south of the Site, and although neither well is directly in the groundwater flow path from the Site (which is to the southwest), sampling these wells provided the only opportunity to evaluate groundwater nearest to, and generally downgradient (i.e., to the south) from the Site.

During Field Activity 2, CDM collected tap samples from the two residential wells south of the Unadilla River, for analysis of the same parameters as the monitoring well samples. Table 2-12 summarizes the groundwater samples collected from the two residential wells. Results of residential well samples are discussed in Section 4.2.13.

2.3.7 Synoptic Water Level Measurements

Synoptic water level measurements were collected from Site wells to develop equipotential maps for the shallow overburden and deep overburden water bearing zones. The data were used to determine horizontal and vertical flow gradients and were evaluated in combination with other surface and subsurface hydrogeologic information. Synoptic water level measurements are discussed in Section 3.6.2.

Six rounds of synoptic groundwater elevation measurements were conducted. Three rounds were conducted from existing monitoring wells in April, July, and November 2001, and three rounds were collected from existing and new monitoring wells in May, July, and October 2002.

Synoptic water level measurements from non-flowing monitoring wells were collected with an electronic water level indicator. Static water levels in the monitoring wells were measured to the nearest 0.01 foot from the surveyors mark, a groove filed into the top of the inner riser casing, which was surveyed by CDM's surveying subcontractor. Flowing monitoring wells were unable to be measured during the first four water level events. However, during the water level measuring events in July and October 2002, CDM field staff used a device constructed to measure water levels from the flowing wells. The device consisted of either a 2-inch or 4-inch nominal diameter rubber plug which was set into the top of the inner riser casing, creating a water-tight seal. A 4 - 7-foot long, ½-inch diameter teflon tube extended from a hole drilled through the center of the rubber plug, which was also water-tight. The teflon tube extended vertically above the inner riser, held straight and connected to a rod. Water rose inside the teflon tube to the static water height, which was measured either from ground surface or from the outer casing. Groundwater elevation data are presented in Table 2-13 and Table 2-14.

2.3.8 Slug Tests

Slug tests were proposed in the work plan (CDM 2000a); the tests were contingent upon direction from EPA. The tests were not conducted because it was determined that data from slug tests in artesian wells would not be useful enough to justify the costs of increased water management associated with conducting the tests.

2.3.9 Continuous Water Level Measurements

Measurement of continuous water levels was proposed in the work plan (CDM 2000a); these measurements were intended to be done prior to an aquifer pump test, if EPA determined that a pump test was needed for the Site. A pump test was not conducted, so the continuous water level measurements were not done.

2.3.10 Pump Test

A 72-hour aquifer test was proposed in the work plan (CDM 2000a); the test was contingent upon direction from EPA. The aquifer test was not conducted because it was determined that data from a pump test in artesian wells would not be useful enough to justify the costs of increased water management associated with conducting the test.

2.4 Ecological Investigations

Several ecological investigations were conducted, including fish tissue sampling in the Unadilla River, ecological characterizations, and a wetland delineation, as described in the following sections.

2.4.1 Unadilla River Fish Tissue Sampling

Ten forage and three sport fish tissue samples were collected from five locations along the Unadilla River during Field Activity 2 in order to determine the impact of Site contamination on fish populations. Forage fish tissue samples were also used to support the ecological risk assessment, and sport fish tissue samples were used to support the human health risk assessment. One location upstream of the Site (URSF/URFF-1) was anticipated to be free from Site impacts and Site-specific contamination, to provide background data for the RI and RA. Two forage fish tissue samples were collected from each of the five locations. Sport fish samples were only collected from three sample locations (URSF-2, URSF-4, and URSF-5) due to the lack of fish species present in the river. Fish tissue sampling locations are presented in Figure 2-9; rationale for locations and samples are summarized in Table 2-15. Results of Unadilla River fish tissue samples are discussed in Section 4.2.11.

Fish were collected using a backpack electroshocker, dip nets, and fish traps. Samples were collected in accordance with the QAPP, with the exception that sport fish samples were only collected from three locations due to low sample availability. All samples were sent whole to the laboratory; forage fish samples were analyzed as whole-body samples and sport fish were filleted by the laboratory prior to analysis. Fish tissue samples were analyzed for full TCL organic parameters, full TAL metals, cyanide and percent lipids by the CDM analytical laboratory subcontractor, using the most current EPA-approved methods.

2.4.2 Ecological Characterization and Wetland Delineation

An ecological reconnaissance was conducted to characterize existing conditions in the immediate vicinity of the Site relative to the vegetative community structure, wildlife utilization, and sensitive ecological resources such as surface water and wetlands. The ecological reconnaissance consisted of a characterization of wildlife habitat/usage, a wetland delineation, and a determination of the occurrence or presence of endangered or special concern species.

The purpose of this field characterization was to identify ecological conditions of the area near the Site which are potentially affected by the migration of Site contaminants. The conditions of the study area were visually inspected. Observations on habitat conditions, wildlife utilization, and contaminant exposure pathways were made. The results of the ecological characterization are discussed in Section 3. The ecological reconnaissance was completed in accordance with EPA's *Ecological Risk Assessment Guidance for Superfund (ERAGS) Process for Designing and Conducting Ecological Risk Assessments*. The checklist for Ecological Assessments provided in the ERAGS document was completed and is provided in Appendix I. The wetland delineation report is also presented in Appendix I.

2.4.3 Baseline Ecological Risk Assessment Sampling

CDM conducted sampling activities in September 2004 to support the BERA and to provide information to help establish remedial priorities and serve as a scientific basis for regulatory and remedial actions for the Site. BERA activities included the following:

- Supplemental Unadilla River sediment and surface water sampling
- Unadilla River sediment toxicity testing
- Onsite wetland sediment toxicity testing
- Soil toxicity testing
- Onsite biota sampling (small mammal, earthworm and vegetation)
- Unadilla River biota sampling (crayfish)

The results of these activities will be discussed in the BERA Report, to be submitted under separate cover.

2.5 Control of Investigation-Derived Waste

Investigation-derived waste (IDW) was stored onsite within a locked, fenced compound. Liquid waste (e.g., purge water from wells) was stored in a 21,000-gallon Baker tank. Drilling mud and related cuttings were stored in two 6,000-gallon covered roll-off containers. Waste decontamination fluids (from personal and equipment decontamination), disposal material related to Site activities (e.g., used Tyvek coveralls and gloves), and all semi-solid wastes (e.g., drill cuttings) were drummed and stored in an onsite staging area. All IDW was sampled and disposed of by CDM's waste disposal subcontractor.

2.6 Cultural Resources Survey

In August 2001, the Stage 1A level Cultural Resources Survey was performed on and around the Site by the CDM subcontractor (JMA 2002). The Stage 1A survey is the initial level of a cultural resource investigation and requires a comprehensive documentary research designed to identify known or potential historical, architectural, and/or archaeological resources within the Site.

JMA evaluated the potential for any historical, architectural, or archaeological resources that might be impacted by the project activities and determined the probability that archaeological resources were present within the project area. All work was undertaken in accordance with the guidelines of the New York Archaeological Council's *Standards for Cultural Resources Investigations and the Curation of Archaeological Collections*, recommended for used by the New York State Office of Parks, Recreation, and Historic Preservation. The Stage 1A report was prepared in conformance with standard report format included in these guidelines and reflects contemporary organization and illustrative standards currently used in the field of professional cultural resource management. The Stage 1A Cultural Resource Survey, Hiteman Leather Site is attached as Appendix J.

2.7 Surface Feature Survey

Topographic surveying was performed at the Site by CDM's New York licensed surveying subcontractor. Surveyors conducted an aerial survey on April 26, 2001 and used conventional surveying techniques to map the Site. The horizontal datum for this survey was the North American Datum (NAD), 1983, revised 1986. The vertical datum was the North American Vertical Datum (NAVD), 1929.

Based on the survey, a topographic base map was created for the Site and the area within a one-mile radius, with a scale of one inch equals 250 feet, and a 5-foot contour interval. Property boundaries from tax maps and all physical features such as buildings, driveways, roads, railroads, woodlands, and creeks are identified on the map. The locations and elevations of all sampling points and existing monitoring wells were surveyed and are identified on the map. In addition, the survey provided orthophotography for the Site map and the study area location map, at a scale of 1 inch equals 400 feet. All figures generated for this report are based on the orthophotography.

Table 2-1

RI Field Investigation Tasks
Hiteman Leather Site
West Winfield, New York

Field Activity	Activity/Task	Dates
1	Surface Feature Survey	5/23/01 - 5/24/01
	Monitoring Well Redevelopment	4/30/01 - 5/04/01
	Unadilla River Surface Water Sampling	5/14/01 - 5/15/01
	Unadilla River Sediment Sampling	5/14/01 - 5/15/01
	Wetland Sediment Sampling	5/16/01 - 5/21/01
	Groundwater Sampling - Existing Monitoring Wells and Municipal Wells	5/22/01 - 5/24/01
	Synoptic Water Level Measurements	4/30/01; 7/31/01
	Ecological Characterization and Wetland Delineation	5/23/01 - 5/24/01
	Cultural Resources Survey	5/22/01
	Building Demolition and Removal	5/14/01 - 5/18/01
	IDW Sampling and Removal	5/30/01; 6/20/01
2	Additional Unadilla River Surface Water Sampling	11/06/01
	Additional Unadilla River Sediment Sampling	11/06/01
	Additional Wetland Sediment Sampling	11/05/01 - 11/07/01
	MW-11D Redevelopment and Sampling	11/08/01
	Fish Tissue Sampling	11/12/01 - 11/15/01
	Soil Boring, Building Boring, and Lagoon Boring Sampling	4/01/02 - 4/22/02; 7/25/02
	Monitoring Well Installation and Development	4/03/02 - 5/10/02
	Test Pit Excavation	4/03/02
	Geotechnical Boring Sampling	4/30/02 - 5/10/02
	Groundwater Sampling - New and Existing Monitoring Wells and Residential Wells	5/14/02 - 5/23/02
	Background Soil Boring Sampling	7/23/02
	Synoptic Water Level Measurements	11/08/01; 5/23/02; 7/25/02
	IDW Sampling and Removal	7/10/02; 7/24/02; 7/26/02
3	Additional Soil Boring Sampling	10/22/02 - 10/24/02
	Synoptic Water Level Measurements	10/24/02
	Surface Soil Sampling	10/23/02
	IDW Sampling and Removal	6/25/02; 10/25/02

Table 2-2

Summary of Unadilla River Surface Water Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
1	URSW-1	05/15/01	Characterize upgradient background	MS/MSD
	URSW-2	05/15/01	Characterize outfall from concrete settling tanks	
	URSW-7	05/15/01		Duplicate of URSW-2
	URSW-3	05/14/01	Characterize area adjacent to lagoons	
	URSW-4	05/14/01	Characterize drainage from onsite wetland	
	URSW-5	05/14/01	Determine nature and extent of downstream contamination	
	URSW-6	05/15/01	Determine nature and extent of downstream contamination	
2	URSW-7	11/06/01	Determine nature and extent of downstream contamination	MS/MSD
	URSW-8	11/06/01	Determine nature and extent of downstream contamination	
	URSW-13	11/06/01		Duplicate of URSW-8
	URSW-9	11/06/01	Determine nature and extent of downstream contamination	
	URSW-10	11/06/01	Determine nature and extent of downstream contamination	

Notes:

All samples analyzed for VOC, SVOC, P/PCB, Metals, Cn, Cr^{+6}, TDS, TSS, Alkalinity, and Hardness
VOC - Volatile organic compounds
SVOC - Semivolatile organic compounds
P/PCB - Pesticides/Polychlorinated biphenyls
Cn - Cyanide
Cr^{+6} - Hexavalent chromium
TDS - Total dissolved solids
TSS - Total suspended solids
MS/MSD - Matrix spike/matrix spike duplicate

Table 2-3

Summary of Unadilla River Sediment Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
1	URSD-1	05/15/01	Characterize upgradient background	MS/MSD
	URSD-2	05/15/01	Characterize outfall from concrete settling tanks	
	URSD-7	05/15/01		Duplicate of URSD-2
	URSD-3	05/14/01	Characterize area adjacent to lagoons	
	URSD-4	05/14/01	Characterize drainage from onsite wetland	
	URSD-5	05/14/01	Determine nature and extent of downstream contamination	
	URSD-6	05/15/01	Determine nature and extent of downstream contamination	
2	URSD-7	11/06/01	Determine nature and extent of downstream contamination	MS/MSD
	URSD-8	11/06/01	Determine nature and extent of downstream contamination	
	URSD-13	11/06/01		Duplicate of URSD-8
	URSD-9	11/06/01	Determine nature and extent of downstream contamination	
	URSD-10	11/06/01	Determine nature and extent of downstream contamination	

Notes:

All samples analyzed for VOC, SVOC, P/PCB, Metals, Cn, Cr^{+6}, pH, TOC, and grain size
VOC - Volatile organic compounds
SVOC - Semivolatile organic compounds
P/PCB - Pesticides/Polychlorinated biphenyls
Cn - Cyanide
Cr^{+6} - Hexavalent chromium
TOC - Total organic carbon
MS/MSD - Matrix Spike/Matrix Spike Duplicate

Table 2-4

Summary of Wetland Sediment Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
1	WTSD-01-0-6	05/16/01	Characterize nature and extent of contamination along northern boundary of the wetland	
	WTSD-01-18-24	05/17/01		
	WTSD-02-0-6	05/16/01	Characterize nature and extent of contamination along western boundary of the wetland	MS/MSD
	WTSD-02-18-24	05/17/01		
	WTSD-03-0-6	05/16/01	Characterize nature and extent of contamination in north/central area of the wetland	
	WTSD-03-18-24	05/17/01		
	WTSD-04-0-6	05/16/01	Characterize nature and extent of contamination along northeastern boundary of the wetland	Re-sampled during FA2
	WTSD-04-18-24	05/17/01		
	WTSD-05-0-6	05/16/01	Characterize nature and extent of contamination in center of wetland	
	WTSD-05-18-24	05/17/01		
	WTSD-06-0-6	05/18/01	Characterize nature and extent of contamination along western boundary of the wetland	
	WTSD-06-18-24	05/18/01		
	WTSD-07-0-6	05/17/01	Characterize nature and extent of contamination in south/central area of the wetland	
	WTSD-07-18-24	05/17/01		
	WTSD-08-0-6	05/16/01	Characterize nature and extent of contamination along southeastern boundary of the wetland	
	WTSD-08-18-24	05/17/01		
	WTSD-09-0-6	05/18/01	Characterize nature and extent of contamination in southern area of wetland	
	WTSD-09-18-24	05/18/01		
	WTSD-10-0-6	05/18/01	Characterize nature and extent of contamination at drainage to Unadilla River	
	WTSD-10-18-24	05/18/01		
	WTSD-13-18-24	05/18/01		Duplicate of WTSD-10-18-24
	WTSD-11-0-6	05/18/01	Obtain background data for sediment samples	
	WTSD-11-18-24	05/18/01		
	WTSD-12-0-6	05/21/01	Obtain background data for sediment samples	
	WTSD-12-18-24	05/21/01		

Table 2-4

Summary of Wetland Sediment Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
2	WTSD-04-0-6	11/05/01	Characterize nature and extent of contamination at the surficial interval at the WTSD-04 location sampled during FA 2.	Resampled due to rejected results
	WTSD-20-0-6	11/05/01		Duplicate of WTSD-04-0-6
	WTSD-13-0-6	11/07/01	Characterize nature and extent of contamination along the eastern edge of the wetland, where data gap existed from FA1 sample results	
	WTSD-13-18-20	11/07/01		
	WTSD-14-0-6	11/07/01	Characterize nature and extent of contamination along the eastern edge of the wetland, where data gap existed from FA1 sample results	
	WTSD-14-18-20	11/07/01		
	WTSD-15-0-6	11/07/01	Characterize nature and extent of contamination along the eastern edge of the wetland, where data gap existed from FA1 sample results	
	WTSD-15-18-20	11/07/01		
	WTSD-16-0-6	11/07/01	Characterize nature and extent of contamination along the eastern edge of the wetland, where data gap existed from FA1 sample results	
	WTSD-16-18-20	11/07/01		
	WTSD-17-0-6	11/07/01	Characterize nature and extent of contamination along the eastern edge of the wetland, where data gap existed from FA1 sample results	
	WTSD-17-18-20	11/07/01		

Notes:

All samples analyzed for VOC, SVOC, P/PCB, Metals, Cn, Cr^{+6}, pH, TOC, and grain size
VOC - Volatile organic compounds
SVOC - Semivolatile organic compounds
P/PCB - Pesticides/Polychlorinated biphenyls
Cn - Cyanide
Cr^{+6} - Hexavalent chromium
TOC - Total organic carbon
MS/MSD - Matrix spike/matrix spike duplicate
FA - Field Activity

Table 2-5

Summary of Surface Soil Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
3	RSS-01	10/23/02	Characterization of the nature and extent of surface soil contamination in the northwestern section of the South Bank Front Lot	
	RSS-02	10/23/02	Characterization of the nature and extent of surface soil contamination in the northern section of the South Bank Front Lot	
	RSS-03	10/23/02	Characterization of the nature and extent of surface soil contamination in the northwest section of the South Bank Front Lot	
	RSS-10	10/23/02		Duplicate sample of RSS-03
	RSS-04	10/23/02	Characterization of the nature and extent of surface soil contamination in the southwestern section of the South Bank Front Lot	
	RSS-05	10/23/02	Characterization of the nature and extent of surface soil contamination in the southern section of the South Bank Front Lot	
	RSS-06	10/23/02	Characterization of the nature and extent of surface soil contamination in the southeastern section of the South Bank Front Lot	

Notes:
All samples analyzed for TAL metals, cyanide, hexavalent chromium, Total Organic Carbon, and grain size
Cn - Cyanide
Cr^{+6} - Hexavalent chromium
TOC - Total organic carbon
MS/MSD - Matrix spike/matrix spike duplicate

Table 2-6

Summary of Lagoon Boring Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
2	LSB-01-0-2	4/22/02	Characterize the nature and extent of soil contamination in the eastern section of the former wastewater lagoon area	MS/MSD
	LSB-01-2-4	4/22/02		Water table at approximately 2 feet bgs
	LSB-01-10-12	4/22/02		
	LSB-01-18-20	4/22/02		Bottom of lagoon material at approximately 17.5 feet bgs
	LSB-35-18-20	4/22/02		Duplicate of LSB-01-18-20
	LSB-02-02	4/11/02	Characterize the nature and extent of soil contamination in the central section of the former wastewater lagoon area	
	LSB-02-4-6	4/11/02		Water table at approximately 3 feet bgs
	LSB-02-14-16	4/11/02		
	LSB-02-16-18	4/11/02		Bottom of lagoon material at approximately 15 feet bgs
	LSB-03-4-6	4/11/02	Characterize the nature and extent of soil contamination in the western section of the former wastewater lagoon area	Water table at approximately 3 feet bgs
	LSB-04-4-6	4/11/02		Duplicate of LSB-03-4-6
	LSB-03-12-14	4/11/02		Bottom of lagoon material at approximately 10.5 feet bgs
	LSB-03-14-16	4/11/02		

Notes:
All samples analyzed for Target Compound List and Target Analyte List, hexavalent chromium, Total Organic Carbon, pH, grain size, and Toxicity Characteristics Leachate Procedure
bgs = below ground surface
MS/MSD = Matrix Spike/Matrix Spike Duplicate

Table 2-7

Summary of Soil Boring Surface and Subsurface Soil Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
2	HITEMAN LEATHER SITE SOIL BORING SAMPLES			
	RSB-01-0-2	4/08/02	Characterize impacts to soils near the UST	
	RSB-01-2-4	4/08/02		
	RSB-30-2-4	4/08/02		Duplicate of RSB-01-0-2
	RSB-01-8-10	4/08/02		
	RSB-02 -0-2	4/08/02	Characterize impacts to soils near the former sluiceway	
	RSB-02-2-4	4/08/02		
	RSB-02 -8-10	4/08/02		
	RSB-03 -0-2	4/05/02	Characterize impacts to soils near the discharge from the concrete setling tanks	
	RSB-03 -2-4	4/05/02		
	RSB-03 -4-6	4/05/02		Contingency sample collected due to elevated HNu reading (0.8 ppm)
	RSB-03 -8-10	4/05/02		
	RSB-04 -0-2	4/09/02	Characterize impacts to soils near the former sluiceway	
	RSB-04 -2-4	4/09/02		
	RSB-04 -8-10	4/09/02		
	RSB-05 -0-2	4/10/02	Characterize impacts to soils related to overflow from the former wastewater lagoons	
	RSB-05 -2-4	4/10/02		
	RSB-05 -8-10	4/10/02		MS/MSD
	RSB-06 -0-2	4/10/02	Characterize impacts to soils related to overflow from the former wastewater lagoons	
	RSB-06 -2-4	4/10/02		
	RSB-06 -4-6	4/10/02		Contingency sample collected due to green material
	RSB-06 -8-10	4/10/02		
	RSB-07 -0-2	4/12/02	Characterize impacts to soils related to discharge through the former weir box	
	RSB-07 -2-4	4/12/02		MS/MSD
	RSB-07 -8-10	4/12/02		
	RSB-07 -10-12	4/12/02		Extra sample collected due to low sample volume in 8-10 foot sample

Table 2-7

Summary of Soil Boring Surface and Subsurface Soil Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
2	RSB-08 -0-2	4/12/02	Confirm elevated chromium concentratons detected in SB-10 during the NYSDEC RI	
	RSB-08 -2-4	4/12/02		
	RSB-08 -8-10	4/12/02		
	RSB-34-8-10	4/12/02		Duplicate of RSB-08-8-10
	RSB-09 -0-2	4/10/02	Characterize material landfilled along the site's eastern embankment area	
	RSB-09 -2-4	4/10/02		
	RSB-09 -8-10	4/10/02		
	RSB-10 -0-2	4/09/02	Characterize material landfilled along the site's eastern embankment area	
	RSB-10 -2-4	4/09/02		
	RSB-10 -8-10	4/09/02		
	RSB-11 -0-2	4/09/02	Characterize material landfilled along the site's eastern embankment area	
	RSB-11 -2-4	4/09/02		MS/MSD: Cr^{+6}, pH, TOC, Grain Size
	RSB-11 -5-7	4/09/02		Contingency sample collected due to black staining
	RSB-11 -8-10	4/09/02		
	RSB-12 -0-2	4/05/02	Characterize soils in an area of historic contamination	
	RSB-12 -0-2	4/05/02		
	RSB-12 -2-4	4/05/02		
	RSB-12 -8-10	4/05/02		
	RSB-13 -0-2	4/05/02	Characterize soils in area where historic photos indicated past site activities	
	RSB-13 -2-4	4/05/02		MS/MSD; no sample collected at 8-10 foot interval due to refusal at 8 feet bgs
	RSB-14 -0-2	4/05/02	Characterize material landfilled along the site's eastern embankment area	
	RSB-14 -2-4	4/0502		
	RSB-14 -8-10	4/05/02		
	RSB-15 -0-2	4/08/02	Confirm presence and location of buried hides discovered during the NYSDEC RI	
	RSB-15 -2-4	4/08/02		
	RSB-15 -4-6 [3]	4/08/02		Hide sample
	RSB-15 -8-10	4/08/02		

Table 2-7

Summary of Soil Boring Surface and Subsurface Soil Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
2	RSB-16 -0-2	4/09/02	Confirm presence and location of buried hides discovered during the NYSDEC RI	
	RSB-16 -2-4	4/09/02		
	RSB-31-2-4	4/09/02		Duplicate of RSB-16-2-4
	RSB-16 -8-10	4/09/02		
	RSB-17 -0-2	4/09/02	Characterize impacts to soils near the former sluiceway,	
	RSB-17 -2-4	4/09/02		MS/MSD
	RSB-17 -6-8	4/09/02		Contingency sample collected due to oily sheen
	RSB-17 -8-10	4/09/02		
	RSB-26-0-2	4/10/02	Characterize soils at possible drainage way into the onsite wetland	
	RSB-32-0-2	4/10/02		Duplicate of RSB-26-0-2
	RSB-26-2-4	4/10/02		
	RSB-26-8-10	4/10/02		
2	SOUTHBANK FRONT LOT SOIL BORING SAMPLES			
	RSB-18 -0-2 [1]	4/22/02	Characterize soils at the southbank front lot, which had not previously been sampled	
	RSB-18 -2-4 [1]	4/22/02		
	RSB-18 -8-10 [1]	4/22/02		
	RSB-19 -0-2 [3]	4/04/02	Characterize soils at the southbank front lot, which had not previously been sampled	Hide sample
	RSB-19 -2-4 [1]	4/04/02		
	RSB-19 -8-10 [1]	4/04/02		
3	RSB-48-0-2 [1]	10/24/02	Characterize soils at the southbank front lot, due to chromium contamination detected in RSB-19 during Field Activity 2	
	RSB-48-2-4 [1]	10/24/02		
	RSB-48-8-10 [1]	10/24/02		
	RSB-49-0-2 [1]	10/24/02		
	RSB-49-2-4 [1]	10/24/02		
	RSB-49-8-10 [1]	10/24/02		
	RSB-52-8-10 [1]	10/24/02		Duplicate of RSB-49-8-10

Table 2-7

Summary of Soil Boring Surface and Subsurface Soil Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
2	FERGUSON FUELS SOIL BORING SAMPLES			
	RSB-20 -0-2 [1]	4/05/02	Confirm presence and location of buried hides discovered during excavation for the installation of a water line	
	RSB-20 -2-4 [1]	4/05/02		
	RSB-20 -8-10 [1]	4/03/02		
2	CRUMB TRAILER PARK SOIL BORINGS			
	RSB-21-0-2 [1]	4/30/02	Characterize soils along the northern side of the former Town Dump, which had not previously been sampled	
	RSB-21-2-4 [1]	4/03/02		
	RSB-21-8-10 [1]	4/03/02		
	RSB-22 -0-2 [1]	4/03/02		
	RSB-22-2-4 [1]	4/03/02		
	RSB-22-6-8 [1]	4/03/02		Contingency sample collected due to oily sheen
	RSB-22-8-10 [1]	4/03/02		
	RSB-23 -0-2 [1]	4/03/02		
	RSB-23-2-4 [1]	4/03/02		
	RSB-23-8-10 [1]	4/03/02		
	RSB-24 -0-2 [1]	4/05/02		
	RSB-24 -2-4 [1]	4/05/02		MS/MSD
	RSB-24-8-10 [1]	4/05/02		
	RSB-25 -0-2 [1]	4/05/02		
	RSB-25 -2-4 [1]	4/05/02		
	RSB-25 -8-10 [1]	4/05/02		
3	RSB-40-0-2 [1]	10/22/02	Further characterize soils within the former Town Dump, due to chromium contamination detected in samples collected during Field Activity 2	
	RSB-40-2-4 [1]	10/22/02		
	RSB-40-8-10 [1]	10/22/02		
	RSB-41-0-2 [1]	10/22/02		
	RSB-41-4-6 [1]	10/22/02		Sample collected in place of 2-4 foot interval due to low sample volume
	RSB-41-8-10 [1]	10/22/02		

Table 2-7

Summary of Soil Boring Surface and Subsurface Soil Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
	RSB-42-0-2 [1]	10/23/02	Further characterize soils within the former Town Dump, due to chromium contamination detected in samples collected during Field Activity 2	
	RSB-42-2-4 [1]	10/23/02		
	RSB-42-4-6 [1]	10/23/02		Contingency sample collected due to elevated HNu reading (0.8 ppm) and slight odor
	RSB-42-8-10 [1]	10/23/02		
	RSB-43-0-2 [2]	10/24/02		
	RSB-43-2-4 [1]	10/24/02		
	RSB-43-8-10 [1]	10/24/02		
	RSB-44-0-2 [1]	10/24/02		
	RSB-44-2-4 [1]	10/24/02		
	RSB-44-8-10 [1]	10/24/02		MS/MSD
	RSB-45-0-2 [1]	10/23/02		MS/MSD
	RSB-45-2-4 [1]	10/23/02		
	RSB-45-4-6 [1]	10/23/02		Contingency sample collected due to elevated HNu readings (0.5 ppm)
	RSB-45-8-10 [1]	10/23/02		
	RSB-46-0-2 [1]	10/23/02		
	RSB-46-2-4 [2]	10/23/02		
	RSB-46-8-10 [1]	10/23/02		
	RSB-47-0-2 [1]	10/23/02		
	RSB-47-2-4 [1]	10/23/02		
	RSB-47-4-6 [1]	10/23/02		Contingency sample collected due to elevated HNu reading (1.2 ppm); no sample collected at 8-10 foot interval due to refusal at 8 feet bgs

Table 2-7

Summary of Soil Boring Surface and Subsurface Soil Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
2	BACKGROUND SOIL BORINGS			
	RSB-35-0-2 [1]	7/25/02	Obtain data to calculate background soil screening criteria for TAL metals	
	RSB-35-2-4 [1]	7/25/02		
	RSB-35-4-6 [1]	7/25/02		Sample collected at termination of boring
2	RSB-36-0-2 [1]	7/25/02	Obtain data to calculate background soil screening criteria for TAL metals	
	RSB36-2-4 [1]	7/25/02		
	RSB36-4-6 [1]	7/25/02		Sample collected at termination of boring
	RSB37-0-2 [1]	7/25/02		Duplicate of RSB36-0-2

Notes:

Samples analyzed for Target Compound List (TCL)/Target Analyte List (TAL), hexavalent chromium (Cr^{+6}), Total Organic Carbon (TOC), pH, and grain size, unless noted as follows:

1 sample analyzed for TAL, hexavalent chromium, pH, TOC, and grain size
2 sample analyzed for TAL, hexavalent chromium, pH, and TOC only (no analysis for grain size due to low sample volume)
3 sample analyzed for total arsenic and total chromium only (hide sample)

MS/MSD = Matrix spike/matrix spike duplicate
UST = Underground storage tank
ppm = parts per million
bgs = below ground surface
NYSDEC RI = New York State Department of Environmental Conservation Remedial Investigation

Table 2-8

Summary of Building Boring Subsurface Soil Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Location Rationale	Comments
2	BSB-01-0-2	4/02/02	Characterize the nature and extent of subsurface soil beneath the former building in the beam house area of the building	MS/MSD-metals only
	BSB-01-8-10	4/02/02		
	BSB-02-0-2	4/02/02	Characterize the nature and extent of subsurface soil beneath the former building in the tanning, finishing, and drying area of the building	
	BSB-02-6-8	4/02/02		Contingency sample collected due to elevated PID reading
	BSB-02-8-10	4/02/02		
	BSB-03-0-2	4/03/02	Characterize the nature and extent of subsurface soil beneath the former building in the finishing and drying area of the building	
	BSB-03-8-10	4/03/02		
	BSB-04-0-2	4/02/02	Characterize the nature and extent of subsurface soil beneath the former building in the southeastern addition of the building	
	BSB-04-2-4	4/02/02		Contingency sample collected due to observed black soil staining
	BSB-04-8-10	4/03/02		
	BSB-05-0-2	4/03/02	Characterize the nature and extent of subsurface soil beneath the former building in the tanning, finishing, and drying area of the building	
	BSB-07-0-2	4/03/02		Duplicate of BSB-05-0-2
	BSB-05-8-10	4/03/02		

Notes:
All samples analyzed for: Total Compound List/Target Analyte List, pH, Total Organic Carbon, and grain size
MS/MSD - Matrix spike/matrix spike duplicate
PID - Photoionization detector

Table 2-9

Summary of Geotechnical Boring Subsurface Soil Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Analysis	Sample Location Rationale
2	GTB01-2-4	05/08/02	Grain size	Characterize the physical and mechanical properties of the material, stratification, and thickness southwest of the former wastewater lagoon area to evaluate remedial alternatives.
	GTB01-10-12	05/08/02		
	GTB01-32-34	05/10/02		
	GTB01ST-34-36.5 (Shelby Tube)	05/10/02	Atterberg limits, shear strength, permeability, and visual descriptions of soil structures	
	GTB02-18-20	05/07/02	Grain size	Characterize the physical and mechanical properties of the material, stratification, and thickness at the south side of the former wastewater lagoon area to evaluate remedial alternatives.
	GTB02ST-30-32.5 (Shelby Tube)	05/08/02	Atterberg limits, shear strength, permeability, and visual descriptions of soil structures	
	GTB02-34-36	05/08/02	Grain size	
	GTB03-2-4	04/30/02		Characterize the physical and mechanical properties of the material, stratification, and thickness southeast of the former wastewater lagoon area to evaluate remedial alternatives.
	GTB03-16-18	04/30/02		
	GTB03-22-24	04/30/02		
	GTB03ST-32-34.5 (Shelby Tube)	05/06/02	Atterberg limits, shear strength, permeability, and visual descriptions of soil structures	
	GTB03-36-38	05/06/02	Grain size	

Table 2-10

Summary of Newly Installed Monitoring Wells
Hiteman Leather Site
West Winfield, New York

WELL ID	MONITORING WELL CONSTRUCTION DETAILS						DRILLING INFORMATION			Rationale
	12" Casing Depth	8" Casing Depth	Screen Interval	Stratigraphic Unit of Screen Interval	Hydrological Unit of Screen Interval	Total Boring Depth	Drilling Method	Start Date	End Date	
RMW-4B	28	43	56-66	Bedrock	Onondaga Limestone	67	mud and air rotary	4/22/2002	4/26/2002	Characterize groundwater in bedrock aquifer in the lagoon area
RMW-9D	--	28	36-46	Silty Clay	Glacio-Lacustrine Deposits	47	mud rotary	4/12/2002	4/16/2002	Replace MW-9D to characterize groundwater in the deep overburden aquifer south of the Unadilla River
RMW-11D	--	24	25-35	Silty Clay	Glacio-Lacustrine Deposits	35	mud rotary	4/11/2002	4/12/2002	Repace MW-11D to characterize groundwater in the deep overburden aquifer in the most downgradient well cluster
RMW-11B	28	39	56-66	Bedrock	Onondaga Limestone	66	mud and air rotary	4/9/2002	4/16/2002	Characterize groundwater in the bedrock aquifer in the most downgradient well cluster, and to serve as a sentinel bedrock well.
RMW-16S	--	--	7-17	Sand and Gravel	Glacial Outwash Deposits	18	hollow stem auger	4/23/2002	4/23/2002	Characterize shallow groundwater in the overburden aquifer upgradient of the Site
RMW-16D	--	36	55-65	Silty Clay	Glacio-Lacustrine Deposits	66	mud rotary	4/23/2002	4/26/2002	Characterize deep groundwater on the overburden aquifer upgradient of the Site
RMW-16B	38	70	76-86	Bedrock	Onondaga Limestone	90	mud and air rotary	4/27/2002	4/29/2002	Characterize groundwater in the bedrock aquifer upgradient of the Site
RMW-17S	--	--	14-24	Sand and Gravel	Glacial Outwash Deposits	29	hollow stem auger	4/5/2002	4/8/2002	Characterize groundwater at a possible source location upgradient of MW-8S
RMW-18S	--	--	3-13	Sand and Gravel	Glacial Outwash Deposits	14	hollow stem auger	4/29/2002	4/29/2002	Characterize groundwater at a overburden aquifer downgradient of the Site
RMW-18D	--	15	19-29	Silty Clay	Glacio-Lacustrine Deposits	30	mud rotary	4/27/2002	4/28/2002	Characterize groundwater in the overburden aquifer downgradient of the Site.

Notes:

All measurements are feet below ground surface

Table 2-11

Final Turbidity Readings for Well Development
Hiteman Leather Site
West Winfield, New York

Well ID	Turbidity (Nephthalometric Turbidity Units)
Existing Monitoring Wells	
MW-2S	14
MW-3S	110
MW-4S	>999
MW-4D	>999
MW-5S	>999
MW-5D	>999
MW-6S	>999
MW-6D	>999
MW-7S	890
MW-8S	35
MW-9S	>999
MW-10S	50
MW-10D	>999
MW-11S	>999
MW-12S	>999
MW-13S	670
MW-13D	.999
MW-14S	15
MW-15S	>999
Newly Installed Monitoring Wells	
RMW-4B	80
RMW-9D	>999
RMW-11B	172
RMW-11D	159
RMW-16S	212
RMW-16D	760
RMW-16B	78
RMW-17S	266
RMW-18S	10
RMW-18D	>999

Table 2-12

Summary of Groundwater Samples
Hiteman Leather Site
West Winfield, New York

Well ID	Sample ID: Field Activity 1 (Round 1)	Sample ID: Field Activity 2 (Round 2)	Comments
Existing Wells			
MW-2S	MW-2S-R1	MW-2S-R2	
MW-3S	MW-3S-R1	MW-3S-R2	
MW-4S	MW-4S-R1	MW-4S-R2	
MW-4D	MW-4D-R1	MW-4D-R2	
MW-5S	MW-5S-R1	MW-5S-R2	
	MW-17S-R1		Duplicate of MW-5S-R1
MW-5D	MW-5D-R1	MW-5D-R2	
MW-6S	MW-6S-R1	MW-6S-R2	
MW-6D	MW-6D-R1	MW-6D-R2	
MW-7S	MW-7S-R1	MW-7S-R2	
MW-8S	MW-8S-R1	MW-8S-R2	
		RMW-22	Duplicate of MW-8S-R2
MW-9S	MW-9S-R1	MW-9S-R2	
MW-10S	MW-10S-R1	MW-10S-R2	
MW-10D	MW-10D-R1	MW-10D-R2	
	MW-16D-R1		Duplicate of MW-10D-R1
MW-11S	MW-11S-R1	MW-11S-R2	
MW-12S	MW-12S-R1	MW-12S-R2	
MW-13S	MW-13S-R1	MW-13S-R2	
MW-13D	MW-13D-R1	MW-13D-R2	
MW-14S	MW-14S-R1	MW-14S-R2	
MW-15S	MW-15S-R1	MW-15S-R2	
MW-11D	NS	MW-11D	Only analyzed for Metals, Cn, Cr^{+6}
		MW-20	Duplicate of MW-11D
Newly Installed Wells			
RMW-4B	NS	RMW-4B-R1	
RMW-9D	NS	RMW-9D-R1	
RMW-11D	NS	RMW-11D-R1	

Table 2-12

Summary of Groundwater Samples
Hiteman Leather Site
West Winfield, New York

Well ID	Sample ID		Comments
	Field Activity 1 (Round 1)	Field Activity 2 (Round 2)	
RMW-11B	NS	RMW-11B-R1	
RMW-16S	NS	RMW-16S-R1	
RMW-16D	NS	RMW-16D-R1	
RMW-16B	NS	RMW-16B-R1	MS/MSD
RMW-17S	NS	RMW-17S-R1	
RMW-18S	NS	RMW-18S-R1	
RMW-18D	NS	RMW-18D-R1	
		RMW-25	Duplicate of RMW-18D-R1
Municipal Wells			
Town Well 1	MUNI-1TAP	NS	MS/MSD
Town Well 2	MUNI-2TAP	NS	
Residential Wells			
371 Mill St.	NS	TAP-371MILL-GW	
123 South St.	NS	TAP-123SOUTH-GW	MS/MSD

Notes:

All samples analyzed for the following parameters unless otherwise noted: low detection limit (LDL) volatile organic compounds(VOCs), semi-volatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), metals, cyanide (Cn), hexavalent chromium (Cr^{+6}),total dissolved solids (TDS), total suspended solids (TSS), biological oxygen demand (BOD), total kjeldahl nitrogen (TKN), total organic carbon (TOC), chemical oxygen demand (COD), nitrate/nitrite, alkalinity, chloride, sulfate, and ammonia
MS/MSD - Matrix spike/matrix spike duplicate
NS - Not sampled

Table 2-13

Groundwater Level Elevation Data - 2001
Hiteman Leather Site
West Winfield, New York

Well ID	Well [1] Elevation	April 2001		July 2001		November 2001	
		DTW [2]	Water Elevation [1]	DTW [2]	Water Elevation	DTW [2]	Water Elevation
MW-2S	1186.52	13.46	1173.06	15.00	1171.52	16.18	1170.34
MW-3S	1177.21	4.75	1172.46	--	--	7.05	1170.16
MW-4S	1176.97	4.50	1172.47	5.69	1171.28	9.10	1167.87
MW-4D	1177.28	flowing	>1177.28	TIC	1177.28	flowing	>1177.28
MW-5S	1177.34	5.49	1171.85	6.49	1170.85	7.47	1169.87
MW-5D	1176.78	flowing	>1176.78	0.0	1176.78	0.0	1176.78
MW-6S	1177.29	5.80	1171.49	5.99	1171.30	7.10	1170.19
MW-6D	1176.91	flowing	>1176.91	flowing	>1176.91	flowing	>1176.91
MW-7S	1181.81	8.84	1172.97	10.20	1171.61	11.26	1170.55
MW-8S	1177.29	4.83	1172.46	5.89	1171.40	6.26	1171.03
MW-9S	1176.12	4.65	1171.47	5.61	1170.51	6.30	1169.82
MW-9D	1176.01	flowing	>1176.01	flowing	>1175.13	flowing	>1176.01
MW-10S	1175.24	4.39	1170.85	5.30	1169.94	6.20	1169.04
MW-10D	1175.13	flowing	>1175.13	flowing	>1175.13	flowing	>1175.13
MW-11S	1175.92	5.49	1170.43	5.57	1170.35	6.55	1169.37
MW-11D	1176.92	5.75	1171.17	6.55	1170.37	7.50	1169.42
MW-12S	1181.44	8.74	1172.72	9.97	1171.47	11.14	1170.30
MW-13S	1183.69	10.88	1172.81	12.14	1171.55	12.60	1171.09
MW-13D	1183.72	flowing	>1183.72	2.22	1181.50	3.40	1180.32
MW-14S	1185.23	12.56	1172.67	--	--	14.82	1170.41
MW-15S	1175.23	4.58	1170.65	5.26	1169.97	5.42	1169.81

Table 2-13

Groundwater Level Elevation Data - 2001
Hiteman Leather Site
West Winfield, New York

Notes:

ID	=	Identification
DTW	=	Depth to water
- -	=	Not applicable. Well not measured.
>	=	Indicates flowing artesian conditions (water level is greater than the top of the inner casing)

[1] Well elevation and water table elevations are reported as feet above mean sea level; well elevation measurements were made from top of the inner casing.
[2] Depth to water measurements are reported as feet below the top of the inner casing.

Table 2-14

Groundwater Level Elevation Data - 2002
Hiteman Leather Site
West Winfield, New York

Well ID	Well Elevation Measurements[1]			May 2002		July 2002		October 2002	
	Top of Inner Casing	Top of Outer Casing	Ground Surface	Water Level[2]	Water Elevation[1]	Water Level[2]	Water Elevation[1]	Water Level[2]	Water Elevation[1]
MW-2S	1186.52	1186.91	1184.45	12.85	1173.67	15.08	1171.44	13.03	1173.49
MW-3S	1177.21	1177.34	1175.05	3.82	1173.39	5.95	1171.26	4.06	1173.15
MW-4S	1176.97	1177.05	1175.05	3.56	1173.41	5.69	1171.28	6.67	1170.30
MW-4D	1177.28	1177.24	1175.22	flowing	>1177.28	3.47 atic	1180.75	0.12 ags	1175.34
MW-5S	1177.34	1177.44	1174.13	4.10	1173.24	6.48	1170.86	4.11	1173.23
MW-5D	1176.78	1176.93	1174.13	flowing	>1176.78	1.03 atoc	1177.96	0.0 atoc	1176.93
MW-6S	1177.29	1177.39	1174.75	4.12	1173.13	6.04	1171.25	4.29	1173.00
MW-6D	1176.91	1177.02	1174.45	flowing	>1176.91	3.98 atic	1180.89	0.0 toc	1177.02
MW-7S	1181.81	1181.85	1179.54	8.36	1173.45	10.22	1171.59	8.42	1173.39
MW-8S	1177.29	1177.36	1174.66	4.20	1173.09	5.94	1171.35	4.35	1172.94
MW-9S	1176.12	1176.20	1173.68	4.14	1171.98	5.55	1170.57	4.29	1171.83
MW-10S	1175.24	1175.28	1172.56	3.90	1171.34	5.24	1170	4.15	1171.09
MW-10D	1175.13	1175.07	1172.57	flowing	>1175.13	5.20 atic	1180.33	5.76 ags	1178.33
MW-11S	1175.92	1176.62	1173.06	3.84	1172.08	5.55	1170.37	5.44	1170.48
MW-11D	1176.92	1176.95	1173.33	NA	NA	NA	NA	0.60	1176.32

Table 2-14

Groundwater Level Elevation Data - 2002
Hiteman Leather Site
West Winfield, New York

Well ID	Well Elevation Measurements[1]			May 2002		July 2002		October 2002	
	Top of Inner Casing	Top of Outer Casing	Ground Surface	Water Level[2]	Water Elevation[1]	Water Level[2]	Water Elevation[1]	Water Level[2]	Water Elevation[1]
MW-12S	1181.44	1181.36	1177.85	7.47	1173.97	10.15	1171.29	8.40	1173.04
MW-13S	1183.69	1183.81	1181.20	10.03	1176.66	12.26	1171.43	1021	1173.48
MW-13D	1183.72	1183.78	1181.49	2.06	1181.66	3.10	1180.52	3.22	1180.50
MW-14S	1185.23	1185.61	1185.56	11.48	1173.75	13.73	1171.50	11.63	1173.60
MW-15S	1175.23	1175.27	1172.22	4.10	1171.13	5.19	1170.04	4.25	1170.98
RMW-4B	1175.13	1176.59	1175.09	flowing	>1175.13	5.81 ags	1180.90	6.73 ags	1181.82
RMW-9D	1175.42	1175.57	1173.90	flowing	>1173.96	4.43 Ags	1178.33	5.41 ags	1180.70
RMW-11D	1177.28	1177.42	1175.21	2.48	1174.80	4.16	1173.12	2.64	1174.64
RMW-11B	1176.62	1176.93	1175.29	flowing	>1176.61	5.13 ags	1180.42	5.41 ags	1180.70
RMW-16S	1183.74	1183.95	1181.86	9.77	1173.97	11.84	1171.90	10.38	1173.36
RMW-16D	1183.86	1184.03	1182.02	flowing	>1181.89	0.15	1183.71	0.20	1183.66
RMW-16B	1182.00	1182.48	1182.48	flowing	>1182.00	0.56 ags	1183.04	0.40 ags	1182.88
RMW-17S	1181.86	1182.00	1179.08	8.28	1173.58	10.33	1171.53	8.39	1173.47
RMW-18S	1173.92	1174.30	1174.30	3.22	1170.70	4.70	1169.22	3.58	1170.34
RMW-18D	1173.93	1174.23	1174.26	flowing	>1177.93	5.65 ags	1179.91	2.42 ags	1176.68

Table 2-14

Groundwater Level Elevation Data - 2002
Hiteman Leather Site
West Winfield, New York

Notes:

[1] measurements are in feet above mean sea level

[2] measurements are taken in feet below top of inner casing unless otherwise noted as follows:

- ags = above ground surface
- atic = above top of inner casing
- ags = above top of outer casing

NA = measurement not taken

Water level measurements for flowing artesian wells were not collected in May 2002.

> = Indicates flowing artesian conditions (water level is greater than the top of the inner casing)

Table 2-15

Summary of Unadilla River Fish Tissue Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Species	Total Fish Weight (grams)	Fish Length (range in millimeters)	Number of Fish in Sample	Species Type	Sample Location Rationale
2	URFF-1-A	11/13/01	Minnow species	84	112-40	21	Forage Fish (Unknown Feeder)	Characterize upgradient background
	URFF-1-B	11/13/01	Slimy Sculpin	108	112-40	42	Forage Fish (Bottom Feeder)	
	URFF-2-A	11/13/01	Blacknose Shiner	95	105-40	18	Forage Fish (Bottom Feeder)	Characterize outfall from concrete settling tanks
	URFF-2-B	11/14/01	Slimy Sculpin	54	83-37	8	Forage Fish (Bottom Feeder)	
	URSF-2*	11/14/01	Brown Trout	16	126	1	Sport Fish	
	URFF-3-A	11/14/01	Blacknose Shiner	106	82-35	45	Forage Fish (Bottom Feeder)	Characterize area adjacent to lagoons
	URFF-3-B	11/14/01	Slimy Sculpin	99	96-36	19	Forage Fish (Bottom Feeder)	
	URFF-4-A	11/14/01	Minnow species	64	167-135	2	Forage Fish	Characterize drainage from onsite wetland
	URFF-4-B	11/14/01	Northern Hog Sucker	77	146-73	9	Forage Fish (Bottom Feeder)	
	URSF-4*	11/14/01	Brown Trout	16	111-5	2	Sport Fish	
	URFF-5-A	11/13/01	Blacknose Shiner	108	85-36	41	Forage Fish (Bottom Feeder)	Determine nature and extent of downstream contamination

Table 2-15

Summary of Unadilla River Fish Tissue Samples
Hiteman Leather Site
West Winfield, New York

Field Activity	Sample ID	Date Collected	Sample Species	Total Fish Weight (grams)	Fish Length (range in millimeters)	Number of Fish in Sample	Species Type	Sample Location Rationale
2	URFF-5-B	11/13/01	Slimy Sculpin	95	93-33	28	Forage Fish (Bottom Feeder)	Determine nature and extent of downstream contamination
	URSF-5**	11/13/01	Largemouth Bass	34	85-69	4	Sport Fish	

Notes:
All samples analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (P/PCBs), metals, cyanide, and percent lipids, unless otherwise indicated, as follows:
* Samples analyzed for metals and percent lipids only, due to low sample volume
** Samples analyzed for VOCs, metals and percent lipids only, due to low sample volume

LEGEND

- Surface Water and Sediment Sample Location (Field Activity 1)
- Surface Water and Sediment Sample Location (Field Activity 2)
- Onsite Wetland
- Site Fence Line

**Aerial photograph dated April 26, 2001*

N

0 500 1000 1500 2000 Feet

Figure 2-1
Unadilla River Surface Water and Sediment Sampling Locations
Hiteman Leather Site
West Winfield, New York
CDM

Sediment Samples were collected from the 0-6 and 18-24 inch intervals at each sampling location

LEGEND
- Wetland Sediment Sample Location (Field Activity 1)
- Wetland Sediment Sample Location (Field Activity 2)
- Tax Map Boundary
- Fence Line
- Onsite Wetland

**Aerial photograph dated April 26, 2001*

N

0 100 200 300 400 Feet

Figure 2-2
Onsite Wetland and Background Sediment Sampling Locations
Hiteman Leather Site
West Winfield, NJ

CDM

Note: The 0-6 inch interval at location WTSD-4 was collected during Field Activity 2

File Path: c:\egis\hiteman\section_2.apr

LEGEND

- Lagoon Boring Location (Field Activity 2)
- Test Pit Location Marking
- Lagoon Boundary (Field Activity 2)
- Surface Soil Sample Location (Field Activity 3)
- Onsite Wetland
- Site Fence Line
- Concrete Foundation
- Tax Map Boundary

**Aerial photograph dated April 26, 2001*

N

0 50 100 150 200 Feet

Figure 2-3
Surface Soil Sampling, Lagoon Boring, and Test Pit Locations
Hiteman Leather Site
West Winfield, New York
CDM

File Path: c:\egis\hiteman\section_2.apr

LEGEND
- Building Boring Location (Field Activity 2)
- Onsite Soil Boring Location (Field Activity 2)
- Onsite Soil Boring Location (Field Activity 3)
- Fence Line
- Concrete Foundation
- Onsite Wetland
- Tax Map Boundary

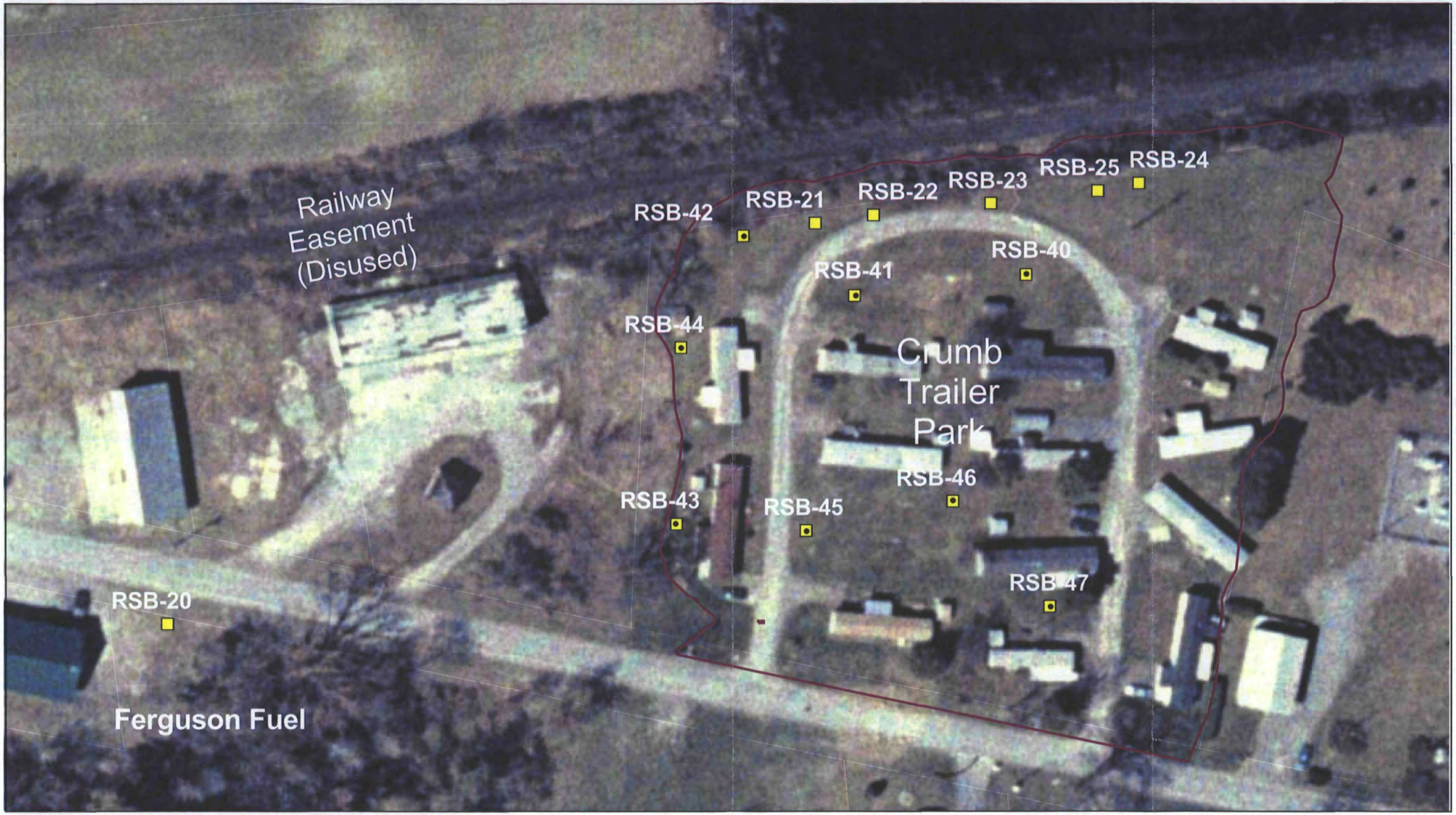
**Aerial photograph dated April 26, 2001*

N

0 50 100 150 200 Feet

Figure 2-4
Onsite Building Boring and Soil Boring Locations
Hiteman Leather Site
West Winfield, New York

CDM



LEGEND
- Off Site Soil Boring Location (Field Activity 2)
- Off Site Soil Boring Location (Field Activity 3)
- Estimated Extent of Former Town Dump*
- Tax Map Boundary

* *Based on topographic break of slope and changes in ground vegetation color.*

***Aerial photograph dated April 26, 2001*

N

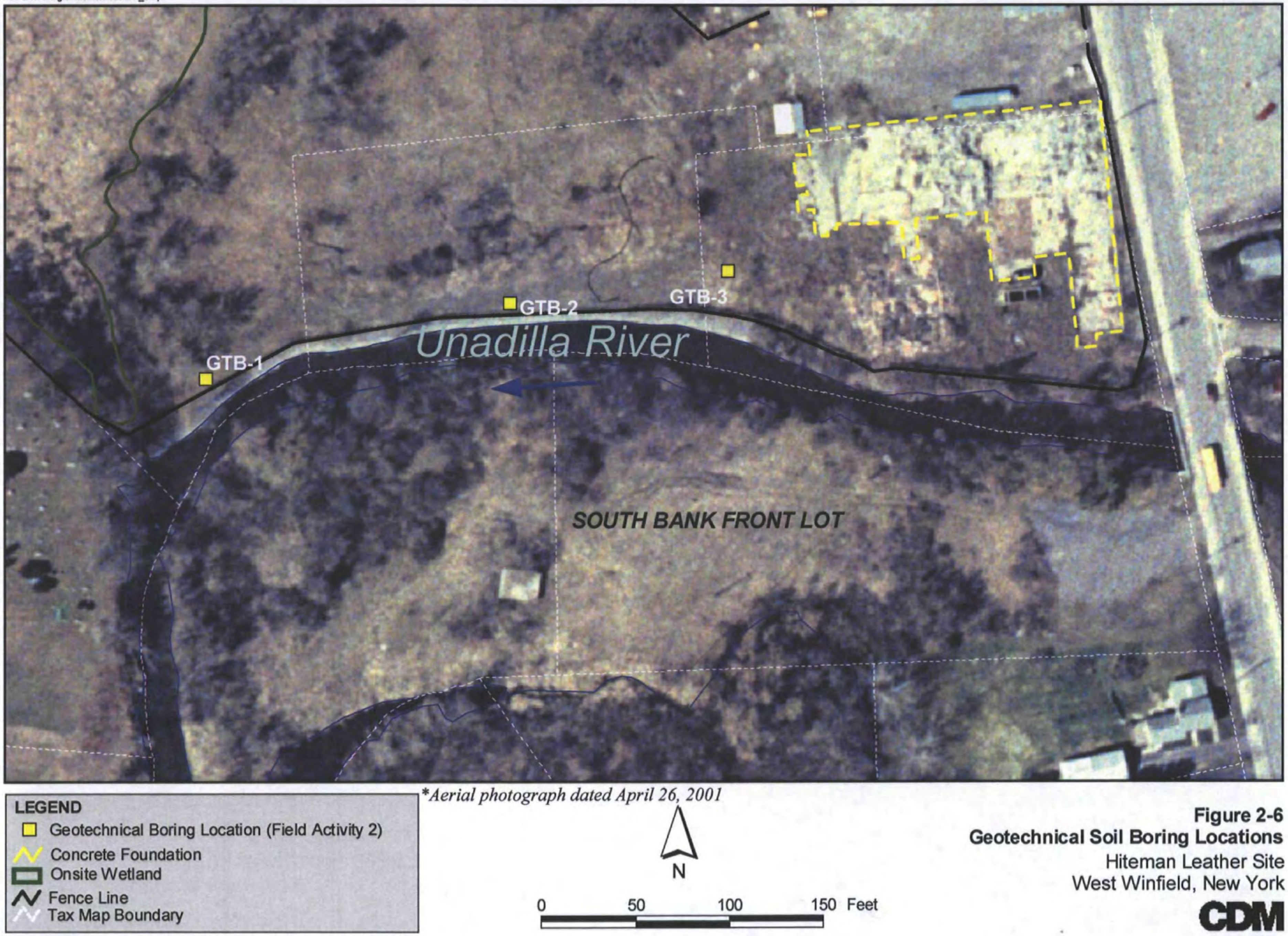
0 50 100 150 Feet

Figure 2-5
Offsite Soil Boring Locations

Hiteman Leather Site
West Winfiled, New York

CDM

File Path: c:\egis\hiteman\section_2.apr



**Aerial photograph dated April 26, 2001*

Figure 2-6
Geotechnical Soil Boring Locations
Hiteman Leather Site
West Winfield, New York

CDM

LEGEND

- Monitoring Well Location (c.1988 RI)
- CDM Monitoring Well Location (Field Activity 2)
- Site Fence Line
- Concrete Foundation
- Onsite Wetland
- Tax Map Boundary

**Aerial photograph dated April 26, 2001*

Figure 2-7
Monitoring Well Locations
Hiteman Leather Site
West Winfield, New York
CDM

LEGEND

- Municipal Supply Well Location (Field Activity 1)
- Residential Well Location (Field Activity 2)
- Site Fence Line
- Concrete Foundation
- Onsite Wetland
- Tax Map Boundary

**Aerial photograph dated April 26, 2001*

N

0 500 Feet

Figure 2-8
Municipal and Residential Well Locations
Hiteman Leather Site
West Winfield, New York

CDM

File Path: c:\egis\hiteman\section_2.apr

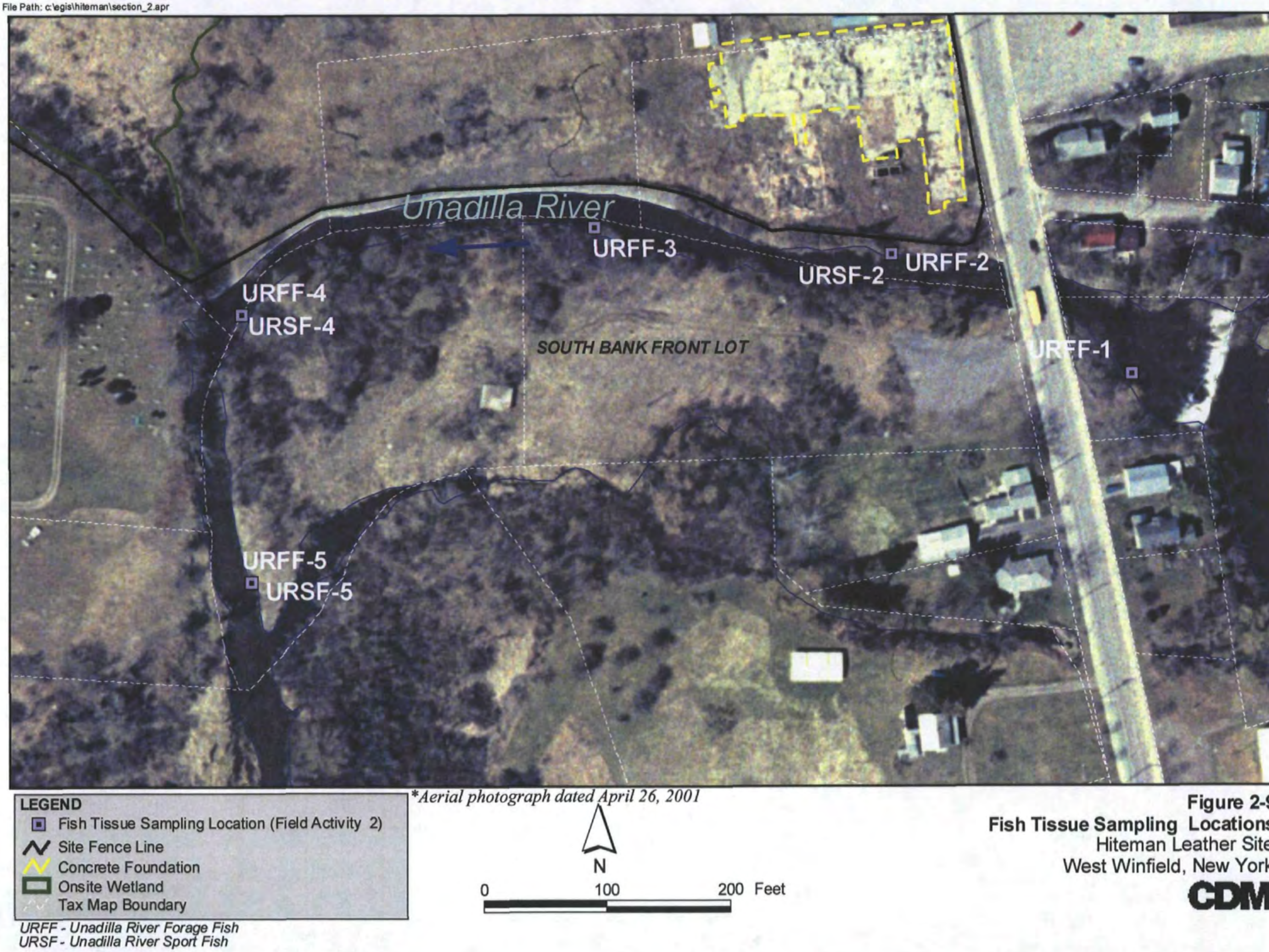


Figure 2-9
Fish Tissue Sampling Locations
Hiteman Leather Site
West Winfield, New York
CDM

3 Section Three

Section 3
Physical Characteristics of the Study Area

3.1 Surface Features

The Hiteman Leather Site is located within the northern portion of the Appalachian Upland physiographic province, and is traversed by the westward-flowing Unadilla River. The Site is bordered to the south by a residential property and a small tributary to the Unadilla River, with a wetland beyond, to the east by Route 51, and to the west by the West Winfield Cemetery. Residential areas are located north of the Site. The concrete foundation of the former tannery building is located on the eastern border of the Site, just north of the Unadilla River. Two buildings still exist at the Site, including a storage garage that is maintained and operated by the Village of West Winfield DPW and a small storage shed.

Topographic relief at the Site is generally flat, with a gentle southwestern slope from the northern and northeastern portions of the Site on the northern bank of the river toward the onsite wetland and Unadilla River. Ground surface elevations range from approximately 1,170 to 1,180 feet above msl. Rolling hills rise to the north and south, approximately 300-500 feet above the valley floor.

The southern portion of the Site, south of the river, is level. North of the river, the Site slopes gently from the northern portion of the Site towards the southwestern wetland area. However, a slightly steeper grade is observed at the location of the former tannery buildings on the eastern portion of the Site due to mounds of demolition debris resting above the original grade. The northern river bank drops steeply (between 6 and 8 feet) down to the river from grade; rip-rap has been deposited along the river bank as an erosion control measure which obscures this abrupt drop in elevation. The area once occupied by the former wastewater lagoons has no topographic expression other than small mounds and hummocks. The surface expression of a former channel leading from the northern lagoon to the wetlands, observed in historical aerial photographs, can be identified visually. The border between the onsite wetland and the cemetery is characterized by a steep embankment, which is continuous along the western portion of the wetland and is generally more than 10 feet higher than the wetland. The embankment is lined with a chainlink fence, which creates the western property boundary between the cemetery and the Site.

3.2 Meteorology

West Winfield is located in the central part of New York where the climate is defined as temperate continental. The following data was obtained for the town of Utica, New York, located approximately 20.5 miles north of West Winfield. According to the National Climatic Data Center, the national repository for National Weather Service Data, the town of Utica had prevailing winds from the north northeast, with an average maximum wind speed of 10.3 miles per hour in February. Average precipitation is 43.94 inches per year, 50 per cent of which falls from April to September. Thunderstorms occur on about 50 days each year, mostly in the summer. The average seasonal snowfall is 180 inches, falling on an average of 90 days during the winter. The average temperatures range from 27 degrees Fahrenheit (° F) in winter to 68° F in the summer.

The Hiteman Leather Site is located within the Central New York climatic zone, according to data presented by a climatologist at the Northeast Regional Climate Center, Katheryn Vreeland. The Central Zone includes portions of Oneida, Herkimer, Madison, Otsego, and Montgomerie counties. Average monthly temperature and precipitation data for central New York are available for the years 1948-2002. The following averages are for the years 1961-1990 in Little Falls, NY located approximately 25 miles northeast of West Winfield (http://www.worldclimate.com) The warmest average temperatures are recorded in July, with average maximum and minimum temperatures of 79.9° F and 56.3° F, respectively. The coldest average temperatures are recorded in January; average maximum and minimum temperatures are 26.8° F and 7.5° F, respectively. The month during which precipitation is normally greatest is June (mean of 4.3 inches) and the month in which precipitation is normally the smallest is February (mean of 2.3 inches). The mean annual precipitation is 41.6 inches.

Data for the period January 2001 to June 2002 were obtained from the National Climatic Data Center and are summarized in Table 3-1. In general, monthly temperature trends for the period January 2001 to June 2002 were similar to the normal long-term trends. For the period January 2001 to June 2002, the greatest precipitation was recorded in June 2001 (8.12 inches) and the least rainfall amount was measured in February 2002 (0.80 inch). The precipitation measured for the 18 month period from January 2001 to June 23, 2002 was 58.84 inches.

3.3 Surface Water Hydrology

The Unadilla River is one of several tributaries within the Susquehanna River Basin, a major drainage basin located within the southern tier of New York State and eastern Pennsylvania. The Susquehanna River eventually discharges into Chesapeake Bay. The headwaters of the Unadilla River originate approximately five miles northeast of the Site in Herkimer County, at the drainage basin watershed, the groundwater divide between the Susquehanna and Mohawk river basins. The Unadilla River flows to the south-southwest through Herkimer, Madison, Otsego, and Chenango Counties until its confluence with the Susquehanna River, approximately 50 miles south of the Site.

Within the Unadilla River drainage basin in the vicinity of the Site, surface drainage is characterized by a combination of trellis and dendritic drainage patterns. Tributary streams generally flow from the topographically high areas north and south of the valley towards the northeast to southwest-flowing Unadilla River.

Local surface water runoff flows towards the Unadilla River, which traverses the Hiteman Leather Company Site from the Route 51 bridge at the eastern edge of the Site to the outflow of the wetland area on the western side of the property. The river, at this point, turns and flows in a southerly direction towards the former Erie-Lackawanna Railroad tracks. The width of the river ranges from approximately 10 to

50 feet, with narrower reaches in the vicinity of the Site and wider reaches in slower moving areas upstream and downstream of the Site. Southwest of the Hiteman property, the Unadilla River branches into several stream channels characterized by a series of meanders (NYSDEC 1992).

In general, the river morphology is characterized by segmented riffle runs, quiescent runs, and pools. The bottom is generally characterized by large cobbles, gravels with silt, and detritus. A sediment shelf composed of gray silty material exists in the northern river bank in the western portion of the Site. This shelf extends approximately 12-18 inches horizontally from the river bank into the river, then drops abruptly to the river bottom (approximately 3 feet). Rip-rap has been placed on the bank to curb erosion.

The major tributary to the Unadilla River in the vicinity of the Site is North Winfield Creek. The creek, which originates in the Town of Litchfield approximately seven miles north of West Winfield, flows in a southerly direction towards the Unadilla River. The Unadilla River also receives recharge from the wetland area along the western portion of the Hiteman property and from drainage from Route 51 and the area north and east of the Unadilla River. Flow data for the Unadilla River at West Winfield are not available.

The surface water of the Unadilla River adjacent to the Hiteman property does not exhibit discoloration other than that associated with normal biologic and sedimentologic processes. Crayfish and trout have been observed in the river adjacent to the property.

The nearest gaging station is about 19.5 miles southwest of the Site, at West Berlin, New York. Average discharge at this station is 317 cubic feet per second (cfs) (NYSDEC 1992).

The Unadilla River in the Site area is classified as a "Class C(T)" stream (6 NYCRR 17, Ch 10, Section 931.4 §1006). This classification indicates that waters are suitable for fishing and all other uses except as a source of water supply for drinking, culinary, and food processing purposes, or for primary contact recreation. The (T) represents suitable conditions for trout propagation and fishing.

The Site is located in a 500-year flood plain (EPA 1997b).. According to the Federal Emergency Management Agency's (FEMA) Hazard Information and Awareness interactive website (http://www.esri.com/hazards/makemap.html, 2003) approximately sixty percent of the Site is in the 100-year flood plain. This area includes the southern and western portion of the Site north of the river (including the wetland area) and all of the portion of the Site south of the river. The flood plain map is presented in Figure 3-1a.

3.4 Soils

According to the *Soil Survey of Southern Herkimer County, New York* (USDA 1975), four classified soil types are expected to occur onsite. Figure 3-1b presents the portion of the Soil Conservation Soil map that covers the Site vicinity. The following is a description of the soils expected in the Site area.

Palmyra gravelly silt loam, 3 to 8 percent slopes (PIB)- This soil is gently sloping and is found on glacial outwash terraces and kames. The soil type occupies the terrace on the eastern portion of the Site upon which the former facility buildings stood. Areas of this soil are irregular in shape and range from 5 to 40 acres. In a typical soil profile of Palmyra soils, the surface layer is nine inches, composed of dark brown gravelly silt loam. It is underlain by a layer of dark brown, very friable, neutral, gravelly, very fine sandy loam that is eight inches thick. From depths of about 17 to 27 inches, the subsoil is a dark brown, neutral, friable, gravelly silt loam. At a depth of about 27 inches it merges with a calcareous lower part of the subsoil that is a very friable, very dark brown, gravelly silt loam that is about nine inches thick. The substratum begins at about 36 inches, consisting of a very dark brown, calcareous, stratified gravel and sand that extends to depths of more than 60 inches.

Cut and Fill Land (Cu) - This consists of nearly level to steep areas of soil material recently disturbed by man. This soil is delineated on the western portion of the Site formerly occupied by the wastewater lagoons and the existing wetland area. The cut and fill soils have not been exposed or have not been in place long enough for profile development to take place.

Alluvial Land (Ad) - This is a nearly level area of unconsolidated alluvium, generally stratified, and varying widely in texture and drainage over short distances. The soil unit is mapped on the eastern portion of the South Bank Front Lot. Alluvium is deposited by streams and is subject to frequent changes through stream overflow. It is found in long, narrow areas on flood plains that range from about 3 to 20 acres. Alluvial land floods frequently and is poorly suited to farming.

Fredon fine sandy loam (Fr) - This is a level to nearly level soil on glacial outwash terraces. Individual areas are irregularly shaped and range from 3 to 20 acres. This soil is suited to most crops, pasture, and trees.

3.5 Geology

The regional and local geology are described below.

3.5.1 Regional Geology

The Hiteman Leather Site lies in the northern portion of the Appalachian Upland physiographic province, near the bedrock divide between the Appalachian Upland and the Mohawk Lowland physiographic provinces. Geology in the region consists of limestone bedrock and glacial overburden materials.

3.5.1.1 Bedrock Geology

The Site is located in a relatively thin outcrop belt of the Middle Devonian Onondaga Formation. The formation consists of a limestone-dominated succession which is approximately 60 feet thick at its type location in Onondaga County, approximately 50 miles west of the Site, and up to approximately 150 feet thick in eastern and western parts of the state (Friedman 1985). In general, the formation has a shallow stratigraphic dip of less than 10 degrees towards the south.

The limestones of the Onondaga Formation were deposited approximately 385 to 405 million years ago, during a westward-transgressing, shallow enclosed northeast-trending sea, which had a major connection to the open ocean to the southwest. (Lindemann and Friedman 1987). Coral-rich limestones were deposited in shallow water along the eastern and western margins of the sea, where reefs flourished and thicker accumulations of sediments took place. These coral-rich limestones are now exposed near Albany and along the Niagra Peninsula. Deposits in deeper parts of the sea, such as central New York, consist of a higher proportion of fine-grained clastic sediments, such as shales and fine sandstones, which are commonly interbedded within thinner fine-grained limestones (Oliver 1954 and 1976; Turner 1977; Mesolella 1978; Lindemann 1979; Williams 1980; Friedman 1985; Brett and Ver Straeten 1994; and Wolosz and Paquette 1995).

3.5.1.2 Overburden Geology

Overburden deposits overlie the Onondaga Formation limestones, and consist of glacial and flood plain deposits. Large volumes of sediment-laden water from the melting ice were generated and created the outwash deposits which consist of well stratified fine- to coarse-grained sand and gravel. The outwash deposits tend to become finer with distance from the ice border. The glacio-lacustrine deposits that formed in the ice-contact or pro-glacial lakes generally consist of laminated silt and clay. Post-glacial streams reworked the sediments in the low-lying areas, depositing sediments such as channel and overbank floodplain sand, gravels, and clays.

The region has been subject to several periods of glaciation during the Pleistocene. As a result, most of the regional glacial sediments were derived almost entirely from the most recent southward advance and northward retreat of the ice sheet during the Late Wisconsin-age glacial event, which began approximately 30,000 years ago and reached its maximum southerly extent approximately 20,000 years ago on Long Island. The retreating ice sheet deposited a series of recessional moraines, preglacial lake sediments, and outwash deposits in the valleys. Since the Pleistocene, glacial deposits have been moderately reworked and reshaped by streams to form the Recent fluvial valley floor deposits.

3.5.2 Site Geology

Site-specific geologic information was obtained during drilling activities for the NYSDEC RI and the CDM RI. Both bedrock and unconsolidated surficial deposits underlie the Site. Four types of unconsolidated deposits were encountered: glacio-lacustrine deposits, glacial outwash deposits, floodplain deposits, and fill material.

Lithologic information from soil borings and monitoring well borings from both field events were compiled to generate stratigraphic cross sections that illustrate subsurface geology at the Site and surrounding areas. Figure 3-2 illustrates a northeast-southwest trending cross section and Figure 3-3 illustrates a north-south trending cross section.

3.5.2.1 Bedrock Geology

During the NYSDEC RI drilling program, bedrock was encountered at eight locations (NYSDEC 1992); depths to bedrock ranged from approximately 43 feet bgs at monitoring well MW-13B, at the northern edge of the Site, to 50 feet bgs at MW-15B, an abandoned bedrock well (adjacent to MW-15S) located on the southern bank of the Unadilla River. During the CDM RI drilling program, bedrock was encountered at six locations at depths ranging from 30 feet bgs in RMW-18D, located west of the Site in the Winfield cemetery, to 66.5 feet bgs in RMW-16B, located east of the Site. These data indicate a slight easterly/southeasterly dip. Figure 3-4 illustrates the contour of the top of bedrock (NYSDEC 1992, CDM boring logs).

Bedrock cores were retrieved from four borings during the NYSDEC RI (MW-6D, MW-10B, MW-13D, and MW-15B), and from RMW-11B during the CDM RI. The bedrock samples recovered from the cores indicate that the bedrock underlying the Hiteman property consists of a dark-gray, thin- to medium-bedded, fractured fine-grained micritic limestone with abundant chert nodules and few bryozoan and brachiopod fossils. Based on available published descriptions and the core descriptions, the bedrock underlying the Hiteman property has been assigned to the Moorehouse Member of the Onondaga Formation (NYSDEC 1992, CDM boring logs, Oliver 1954).

3.5.2.2 Glacio-Lacustrine Deposits

The glacio-lacustrine deposits were observed in all deep and bedrock monitoring well borings. The deposits consist of gray silty-clay with abundant dark gray clay seams and light gray silt seams. A thin layer of gray silt and sand mantles the bedrock over the northern portions of the Hiteman property. Thicknesses range from just over 10 feet at MW-11D in the vicinity of the onsite wetland, to over 30 feet northeast of the Site (RMW-16S). From the thinnest point at MW-11D, the unit tends to thicken to the northeast, southeast, and southwest; no lithologic information is available to the northwest. In general, the glacio-lacustrine deposits are thicker under the Unadilla River. Figure 3-5 illustrates the thickness of this unit. This unit is believed to be related to the finer-grained glacio-lacustrine sediments observed in the area (NYSDEC 1992, CDM boring logs).

3.5.2.3 Glacial Outwash Deposits

The glacial outwash deposits observed onsite are variable in composition but commonly described as light brown, coarse- to fine-grained gravel, some coarse- to fine-grained sand, little silt and cobbles were observed underlying the recent fluvial deposits throughout the Hiteman property. In the vicinity of the former wastewater lagoons the outwash consists of black, medium- to coarse-grained gravel with varying amounts of cobbles and lesser amounts of fine to coarse sand. Thinner outwash deposits occur at the northern edge of the Site (1.5 feet in NYSDEC soil boring SB-12) and southwest of the Site (approximately 7 feet at RMW-18D). Thicker deposits occur to the south (RMW-9D) and east (RMW-16D), indicating a thickening of the unit to the south and east (NYSDEC 1992).

3.5.2.4 Floodplain Deposits

Recent fluvial sediments were identified as thin surficial deposits across the Site. Fluvial deposits consist of light-brown silt and clayey-silt with some medium to fine sand and a trace of fine gravel. The main distinguishing feature between the fluvial deposits and the fine-grained portions of the outwash deposits is that the outwash tends to contain cobbles and the fluvial deposits do not. The fluvial deposits range in thickness from 3.5 feet at MW-5D, at the southwest corner of the former wastewater lagoons, to 10 feet at MW-1S, at the northeast corner of the former facility building (NYSDEC 1992, CDM boring logs).

3.5.2.5 Fill Material

Artificial fill extends along the western margin of the Hiteman Leather Company parking lot and the margins of the public parking area north of the property. The fill consists of concrete, wood debris, and varying amounts of glass, bricks, ashes, tile flooring and other assorted materials (NYSDEC 1992, CDM boring logs).

3.6 Hydrogeology

The regional and local hydrogeology are discussed in the following sections.

3.6.1 Regional Hydrogeology

MacNish and Randall (1982) describe the aquifers in the vicinity of the Site. The shallow aquifer underlying the Site is a northeast-southwest trending unconfined aquifer in the Unadilla River Valley. The aquifer is comprised of stratified outwash deposits greater than 40 feet in thickness. In the vicinity of the Site, the Unadilla River is primarily a 'gaining' surface water body; in this case, the vertical direction of groundwater flow in the shallow aquifer is upward into the river from the underlying bedrock aquifer as opposed to horizontal and downward due to the migration of infiltrated precipitation as groundwater toward the river. The Unadilla River is also fed by surface water runoff and tributaries. The northern extent of this aquifer underlies the southern portion of North Winfield Creek. The unconfined valley fill aquifer becomes a buried aquifer system approximately 4,000 feet southwest of the Site. Depth to the top of this buried aquifer is reported to be greater than 200 feet bgs and underlies a fine sand, silt, and/or clay confining unit.

Groundwater in the bedrock aquifer occurs primarily along bedding planes, fractures, and joints (secondary porosity features). Joints tend to be wider and more numerous near the bedrock surface due to a lower compressive stress, coupled with more frequent exposure to acidic surface-derived water which acts to dissolve the limestone, resulting in solution enlargement. In sandstone and shale units, the widths of the fractures and joints are typically 0.01 inch. In the limestone beds, which are slightly soluble in water, the joints and fractures may be enlarged to widths of 0.1 inch to several inches. Joints and fractures tend to become progressively narrower and more widely spaced with depth where bedding planes become the dominant anisotropy. In shale units, few openings exist at depths greater than 100 to 200 feet bgs; however, in sandstone and limestone units, fractures capable of yielding significant volumes of water may exist to depths of more than 500 feet bgs. The average yield of wells installed in bedrock aquifers in the Susquehanna River basin is approximately 8 gallons per minute (gpm) (MacNish and Randall 1982). The direction of groundwater flow in the bedrock aquifer is controlled by regional discharge points and locally by the orientation of the interconnected, water-bearing joints and fractures.

Glacial deposits are variable in grain size, from silt and clay in glacio-lacustrine deposits; sand, gravel, cobbles, and boulders in glacial outwash; and clay to boulder-size particles within glacial till deposits. Storage and transmission of groundwater in the unconsolidated deposits is dependent in part on the distribution of grain sizes. Hydraulic conductivity values (a coefficient of proportionality describing the rate that water can move through a permeable medium) are generally greatest in the coarser-grained, well-sorted glacial outwash deposits and recently-deposited fluvial sediments.

The regional direction of groundwater flow in the unconsolidated aquifer, based on topography and surface water elevations, is most likely towards the Unadilla River Valley, then southwest through the valley towards the Susquehanna River (NYSDEC 1992).

3.6.2 Site Hydrogeology

Hydrogeologic data collected during the NYSDEC RI and the CDM RI field events indicate a highly complex hydrogeologic system governed by artesian conditions, seasonal variations, well completion practices, and the presence of natural and man-made surface water bodies. It is likely that several factors, including historic Site activities, have altered the natural flow of groundwater underlying the Site. The hydrogeology at the Site is characterized by the existence of three hydrologic units: a shallow glacial outwash aquifer, a glacio-lacustrine semi-confining unit, and an underlying bedrock aquifer. The hydrogeologic characteristics of these three units are described in the following subsections.

Several monitoring wells have been installed and monitored during the field events for the CDM RI, as described in Section 2 of this report, and the NYSDEC RI. A total of 24 monitoring wells, 10 piezometers, and 3 surface water stations were established during the NYSDEC RI: 15 single-cased monitoring wells were installed in the shallow unconsolidated overburden aquifer (glacial outwash) and 7 single-cased monitoring wells were installed in the glacio-lacustrine deposits between the shallow unconsolidated aquifer and the bedrock aquifer. CDM installed a total of 10 monitoring wells, as described in Section 2 of this report: 3 single-cased monitoring wells in the shallow outwash aquifer, 4 double-cased monitoring wells in the glacio-lacustrine semi-confining unit, and 3 triple-cased monitoring wells in the bedrock aquifer.

Groundwater elevation data collected from monitoring wells screened in the three hydrogeologic units were used to construct water table and piezometric surface contour maps. Contours were established by interpolation between data points, assuming homogeneous and isotropic aquifer conditions (aquifer properties do not vary with location or direction). Contour maps are referenced in the following subsections, as appropriate. In addition, groundwater elevation data from water level measurements collected in October 2002 and well screen information were added to the lithologic cross sections to create hydrostratigraphic cross sections that illustrate the variation in water table and piezometric surface elevations between the three aquifer units. Figure 3-6 presents the northeast/southwest trending hydrostratigraphic cross section and Figure 3-7 presents the north/south trending hydrostratigraphic cross section.

3.6.2.1 Bedrock Aquifer

The limestone bedrock unit underlying the Site comprises the bedrock aquifer; groundwater flow in this unit is defined by joints and bedding planes, which were observed to be wider and more numerous near the bedrock surface. The bedrock aquifer is semi-confined by the glacio-lacustrine deposits, resulting in highly artesian conditions in wells completed in this unit. Therefore, the elevation of the piezometric surface in this aquifer is generally higher than the ground surface elevation, causing wells completed in the bedrock aquifer to flow freely when uncapped. During the NYSDEC RI, well casings were temporarily installed in two bedrock boreholes (MW-10B and MW-15B) located south of the river; artesian conditions were observed (water levels rose to approximately 11 feet above the ground surface). All three bedrock monitoring wells installed during the CDM RI exhibited artesian conditions, with water levels ranging from 0.4 to 6.73 feet above the ground surface.

There are currently three bedrock monitoring wells completed in the area of the Site: one upgradient of the Site to the east (RMW-16B), one in the former wastewater lagoon area (RMW-4B), and one at the edge of the onsite wetland, downgradent and west of the former wastewater lagoon area. According to water level measurements collected in July and October 2002, groundwater in the bedrock aquifer flows at a slight gradient to the west/southwest (Figure 3-6). Figures 3-8 and 3-9 illustrate groundwater flow during July and October 2002, respectively. Therefore, groundwater in the bedrock aquifer beneath the Site has a dominant upward flow direction with a minor west/southwest component. Groundwater from this aquifer largely recharges the shallow glacial outwash aquifer and replenishes surface water flow in the Unadilla River.

3.6.2.2 Glacio-Lacustrine Semi-Confining Unit

The glacio-lacustrine semi-confining unit overlies the bedrock aquifer. The fine-grained glacio-lacustrine deposits create a leaky semi-confining unit, separating the underlying bedrock aquifer from the shallow outwash aquifer above. The term "leaky" is used to indicate that the glacio-lacustrine deposit probably transmits a small proportion of water between the aquifer units (NYSDEC 1992).

According to data collected during the NYSDEC RI, this unit is four to seven orders of magnitude less permeable than the shallow overburden aquifer. However, despite its lower permeability, the unit is water-producing, and likely serves to retard downward vertical groundwater flow. In fact, according to water level data in deep wells, there is an upward vertical gradient through this unit, suggesting a hydrological connection between this unit and the bedrock aquifer. This is supported by the following observations:

- The majority of monitoring wells in this unit are completed in the lower section of the unit; these wells are artesian.

- The potentiometric elevation measured for the semi-confining unit is higher than the water table elevation measured in the wells screened in the overlying shallow outwash aquifer.

- During CDM RI well installation, coring and air rotary drilling activities in the bedrock unit caused significant water level fluctuation in proximal deep wells screened in the glacio-lacustrine semi-confining unit.

Water level measurements collected in July and October 2002 indicate that there is a slight horizontal groundwater flow gradient to the southwest, as indicated by Figure 3-10 and Figure 3-11. However, an upward vertical gradient is the prominent flow direction in this unit, as indicated by head differences of up to 10 feet between wells screened in the shallow outwash aquifer and those in the deeper part of the glacio-lacustrine unit. Given the lower permeability, the glacio-lacustrine semi-confining unit acts as a leaky aquitard, confining and retarding the upward flow component in the underlying bedrock aquifer.

3.6.2.3 Shallow Outwash Aquifer

The shallow outwash aquifer unit overlies the glacio-lacustrine semi-confining unit and is composed of glacial outwash and fluvial sediments, and fill material. This aquifer is unconfined, and unlike the lower units, does not exhibit artesian conditions. Water table depths vary seasonally, but generally ranged from 3 to 18 feet bgs during 2001-2002. During periods of high precipitation, the aquifer recharges the Unadilla River and onsite wetland, which are at topographic lows in the Site. During periods of lower precipitation, this aquifer largely receives its recharge from the underlying bedrock aquifer, through leaky zones in the glacio-lacustrine semi-confining unit.

Six rounds of water level measurements were collected during the CDM RI in 2001-2002, as discussed in Section 2. Based on these data, general groundwater flow in the shallow aquifer is to the southwest. Figures 3-12 and 3-13 illustrate groundwater flow during July and October 2002, respectively.

The southwesterly-directed groundwater flow in the glacial outwash aquifer indicates that most of the recharge to this aquifer is derived from the underlying bedrock aquifer rather than the surrounding topography. In conditions of a largely downward component of flow (lacking an underlying artesian source) the glacial outwash aquifer would be recharged from precipitation and the local flow direction at the Site would be south, toward the river. However, both the aquifer and the river are recharged dominantly by the bedrock aquifer. Thus the groundwater flow direction in both aquifers is to the southwest.

Zones in the glacial outwash aquifer that receive the most recharge are those overlying leaky zones in the glacial lacustrine semi-confining unit. Recharge to the glacial outwash aquifer appears as localized mounds in the water table elevation. The geometry of these mounds is likely to vary over time because the groundwater flow dynamics in the limestone aquifer are highly variable.

3.7 Population and Land Use

Based on the Census 2000, population estimates taken from the joint Oneida-Herkimer counties' website (http://www.oneidacounty.org/oneidacty/gov/dept/planning/Census.html 2003), the population of Village of West Winfield was 862 in 2001, down from 871 in 1990.

The commercial business and government center of the Village of West Winfield is centered around the intersection of Routes 20 and 51 (approximately 450 feet north/northeast of the Hiteman property). This area is comprised of retail businesses, two small restaurants, gasoline and service stations, food stores, office space, the Village office, library, post office, fire company, and numerous residences and apartments. According to Village of West Winfield zoning maps, the Hiteman property is zoned "commercial".

The Village of West Winfield is currently supplied with potable water from two water supply wells located north of Route 20, but within the village limits. The wells are approximately 0.3 mile (1,700 feet) northeast of the Hiteman facility.

The Winfield Memorial Park, including a park and athletic field, are located approximately 1,200 feet east of the Hiteman Leather Company Site and south of Route 20. A water supply exploratory program was conducted in the park area in 1966.

The former Erie-Lackawanna Railroad right-of-way extends in an east-west direction approximately 0.15 mile (800 feet) south of the Hiteman building. Several small industrial businesses exist further south of the Agway on Route 51. Residential property and farm land occupies the area further to the south.

West of the Hiteman property is the West Winfield Cemetery, and beyond the cemetery is residential land and farm land. Southwest of the Hiteman property is a large wetland area associated with the Unadilla River.

As part of the research into current land uses, CDM located and mapped the addresses of private wells in the vicinity of the Site to identify any domestic water wells that could be affected by Site-related contamination. As part of this effort, CDM contacted and received information from Herkimer County, Otsego County, Oneida County, and the Herkimer District Office of the NYSDOH.

Initially, CDM reviewed tax maps and, based on their proximity to the Site, defined areas of interest. Once these areas were defined, CDM contacted Herkimer, Otsego, and Oneida Counties for information regarding public and private wells in their counties that were close to the Site. Herkimer County provided CDM with a spreadsheet that contained the names and addresses of all property owners in the areas of interest and indicated whether the property had a public or private water well. This data was confirmed by the NYSDOH, which indicated the existence of only a few private wells near the Village of West Winfield.

Otsego County also provided the addresses of some additional private wells located just to the southwest of Herkimer County and the Site. These well locations were added to the Herkimer County spreadsheet. Data from Oneida County, the southeast corner of which is west of the Site, was not used, since it was determined, based on conversations with the County Planning Department, that few, if any, wells were located in the area closest to the Site.

Once all of the information was compiled, CDM edited the spreadsheet so it could be used with a Geographical Information System streets coverage map that was downloaded from the internet, to generate a map of all known private wells near the Site. County and municipality boundaries, stream locations, and railroad tracks in the area were also mapped. Radii of one-half mile, one mile, two miles, and three miles were also imposed onto the map.

Based upon CDM's mapping, it was determined that five private wells were located within the Village of West Winfield, less than 0.5 mile from the Site, two of them to the south of the Site. Two additional wells, to the south, are located within one mile. Approximately 20 wells were found within two miles further south and west of the Site. This information was submitted to EPA for review and consideration. Figures 3-14 and 3-15 show the wells identified within two and three miles, respectively, of the Site.

3.8 Ecological Characterization

The Site ecological characterization is presented below.

3.8.1 Site Setting

The Site is bounded by Route 51 to the east, commercial/residential areas to the north, a cemetery to the west, and a tributary to the Unadilla River and a residential property to the south.

On Site, the land slopes down slightly from northeast to southwest. Much of the Site has been disturbed due to past construction, grading, filling, earth-moving activities, and processing operations. During the ecological reconnaissance, discolored surface soils, including green, blue, and white soils, were noted at the Site. Much of the Site is covered with herbaceous vegetation in both the uplands and wetlands.

The Site can be broadly divided geographically into four sections; the Eastern, Central, Western, and Southern Areas. These areas differ from one another by slight changes in elevation and past usages.

3.8.1.1 Eastern Area/Former Tannery Building Area

In the Eastern Area, located in the vicinity of the former tannery building, the land is highly disturbed and covered with the remnants and foundation of the former facility, a gravel roadway and parking areas, and construction debris.

3.8.1.2 Central Area/Former Wastewater Lagoon Area

The Central Area, located in the vicinity of the former wastewater lagoons, is predominantly a broad, flat plain covered with open fields. These fields can be classified as old-field habitat and disturbed areas. The fields located in the Central Area are at a slightly lower elevation than the Eastern Area. Portions of this area were used as the facility's wastewater lagoons. Along the Central Area's northern boundary, the land slopes upward approximately 10 to 15 feet. A dirt access road runs along the southern boundary of the Central Area.

3.8.1.3 Western Area/Onsite Wetland Area

The Western Area, located in the vicinity of the onsite wetland, is a predominantly flat, low area dominated by an emergent wetland. When the tannery was active, this wetland was fed by runoff from the wastewater lagoons. The wetland drains into the Unadilla River through a pipe located at the southern end of the wetland.

3.8.1.4 Southern Area/South Bank Front Lot Area

The Southern Area, located south of the Unadilla River, is a predominantly flat, low-lying, undeveloped area which consists of a mix of emergent and forested wetlands and bottom lands. This area drains into the Unadilla River and a tributary to the Unadilla River located along the southern border of the Site.

3.8.2 Ecological Characterization and Cover Types

Ecological communities identified onsite included old-field habitats, emergent wetlands, semi-maintained grass areas, and urban/disturbed areas. Wooded areas were limited to thin bands of trees and shrubs along the Site's boundaries, and isolated thin hedgerows in the interior of the Site.

3.8.2.1 Old-Field Community

Old-field communities were primarily located in the Site's Central Area where the former wastewater lagoons were located. Vegetation in the old fields included pioneer weed species such as teasel (*Dipascus sylvestris*), common burdock (*Arctium minus*), Queen Anne's lace (*Daucus carota*), wild madder (*Galium mollugo*), red-stemmed plantain (*Plantago rugelli*), Garlic mustard (*Alliaria petiolata*), Virginia creeper (*Parthenocissus quinquefoli*), grasses, Graminaceae Family, and small saplings.

The old-field habitat could be utilized as a habitat resource by insects, small mammals, amphibians, reptiles, passerine bird species, and as a feeding ground for raptors and other predators.

3.8.2.2 Wooded Areas

The wooded areas noted at the Site consist of thin wooded bands of trees and saplings located along fence rows, roadways, steep-sloped areas, and near the wetland boundary. The wooded areas are dominated by maples (*Acer sp.*), Quaking aspen (*Populus tremuloides*), willows (*Salix sp.*), and birch species (*Betula sp.*). These wooded areas are fragmented, thin, narrow edge communities that provide habitat for insects, reptiles, amphibians, small mammals, and birds. Predators such as raptors, fox, and mink could hunt along these edge communities.

3.8.2.3 Wetlands

Two wetland areas were delineated on Site; a 1.8 acre emergent wetlands and a small 0.03 acre depressional wetland located around an onsite monitoring well. Both wetlands are located in the Site's Western Area. For a more detailed description of the wetlands, refer to the wetland delineation report provided as Appendix I.

The large wetland is dominated by herbaceous vegetation, notably skunk cabbage (*Symplocarpus foetidus*), and common cattail (*Typha latifolia*). Scrub/shrub vegetation was generally limited to the perimeter of the wetland and included red-osier dogwood (*Cornus stolonifera*); honey suckles (*Lonicera* sp.); red maple (*Acer rubrum*) and saplings of small birch and willow trees.

No amphibians or reptiles were observed or heard in the wetlands, and there was no evidence of suitable year-round fish habitat. No invertebrates were observed during sediment sampling completed during the field investigation. Due to the lack of observed wetland fauna and high levels of contamination noted in the samples, the wetlands on Site may provide less desirable habitat when compared to wetlands located nearby and off site.

3.8.2.4 Urban/Disturbed Areas

Urban and disturbed areas were predominately located in the Site's Eastern Area. Vegetation in these areas was characteristic of plants of an urban environment and included: Virginia Creeper (*Parthenocissus quinquefolia*), Common mullein (*Verbascum thapsus*), grasses Gramineae Family, isolated birch and aspen trees, and willow shrubs. The habitat resources in this area are of low ecological value and would most likely be favored by species characteristic of an urban environment (e.g., rodents, feral cats, passerine bird species).

A semi-maintained grassy area was located in the northwest portion of the Site along the fence line. The dominant vegetation in this area included grasses and would be of low ecological value as a habitat resource.

3.8.2.5 Unadilla River

The Unadilla River traverses the Site and receives both surface water runoff and groundwater flow from the Hiteman Leather Site. The river flows adjacent to the Site from the Route 51 bridge to the wetlands at the western end of the Site. Riffles and small falls of approximately two feet in elevation are present near the bridge and at the western corner of the Site property. The remaining portion of the river adjacent to the Site, is approximately one to two feet deep and is a slow moving, linear pool with an algae-covered cobble rock bottom. Emergent vegetation was noted along the northern bank of the river, and forested wetlands, emergent wetlands, and bottom lands were observed on the southern side of the river.

The river and adjacent natural areas to the south provide valuable habitat for flora and fauna. However, these areas have also been subject to contamination via historic impacts to the river and off-site migration of contaminants from the Site.

3.8.3 Terrestrial Wildlife Observed Onsite

A 10-foot high chain-link fence along the northern bank of the Unadilla River limits the use of the Site as a habitat resource by large mammals such as white-tailed deer (*Odocoileus virginianus*). White-tailed deer are present outside the fenced Site area in the fields and wooded habitat near the river and residential areas. The Site is utilized as a habitat resource by smaller mammals including the eastern cottontail (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), and mice and vole species. During the field investigations, one burrow believed to be a ground hog (*Marmota monax*) burrow was observed on Site.

Avifauna utilize the Site as a habitat resource. During the ecological reconnaissance, several passerine species were observed at the Site. Observed species included red-winged blackbird (*Agelaius phoeniceus*), gray catbird (*Dumetella carolinensis*), American robin (*Turdus migratorius*), American crow (*Corvus brachyrhynchos*), and several unidentified sparrow species. No raptors, waterfowl, or wading birds were observed on the Site.

No reptiles or amphibians were observed during the Site visit. The wetlands do not support adequate surface water resources to provide year-round habitat for fish.

Predators were not observed on Site, but it is possible that hawks, owls, shrews, mink, weasels, raccoon, skunk, and fox hunt in the fields and edge communities on the Site.

3.8.4 Aquatic Wildlife Observed Onsite (Unadilla River)

During fish sampling activities completed in November of 2001 as part of the RI field investigation, forage, sport and crayfish were recovered from the Unadilla River. The following species were collected:

<u>Sport Fish</u>
Rock bass *Ambloplites ruestris*
Largemouth bass *Micropterus salmoides*
Brown trout *Salmo trutta*

<u>Forage Fish</u>
Blacknose shiner *Notropis heterolepis*
Central stoneroller *Campostoma anomalum*
Minnow sp. *Pimephales sp.*
Red horse sp. *Moxostoma sp.*
Testelated darter *Etheostoma olmstedi*
Bluntnose minnow *Pimephales notatus*
Longnose dace *Rhinichthys cataractae*
Northern hog sucker *Hypentelium nigricans*
Slimy sculpin *Cottus cognatus*

<u>Invertebrate</u>
Crayfish *Astacidea*

3.8.5 Threatened and Endangered Species
As part of the ecological characterization activities, requests were made to the NYSDEC and the United States Fish and Wildlife Service (USF&WS) for information on the presence of threatened and endangered species or habitats of special concern within a two-mile radius of the Hiteman Leather Site.

3.8.5.1 NYSDEC
In correspondences dated May 29, 2002, the NYSDEC reported that a review of their records for the Site, and surrounding two mile radius, indicated that there were no known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of the Site.

3.8.5.2 USF&WS
In a phone conversation on May 29, 2002, Mr. Mike Skoll, USF&WS Wildlife Biologist, reported that review of USF&WS records indicated that there were no records of known occurrences of federally-listed threatened and endangered species or habitats of special concern within a two mile radius of the Site.

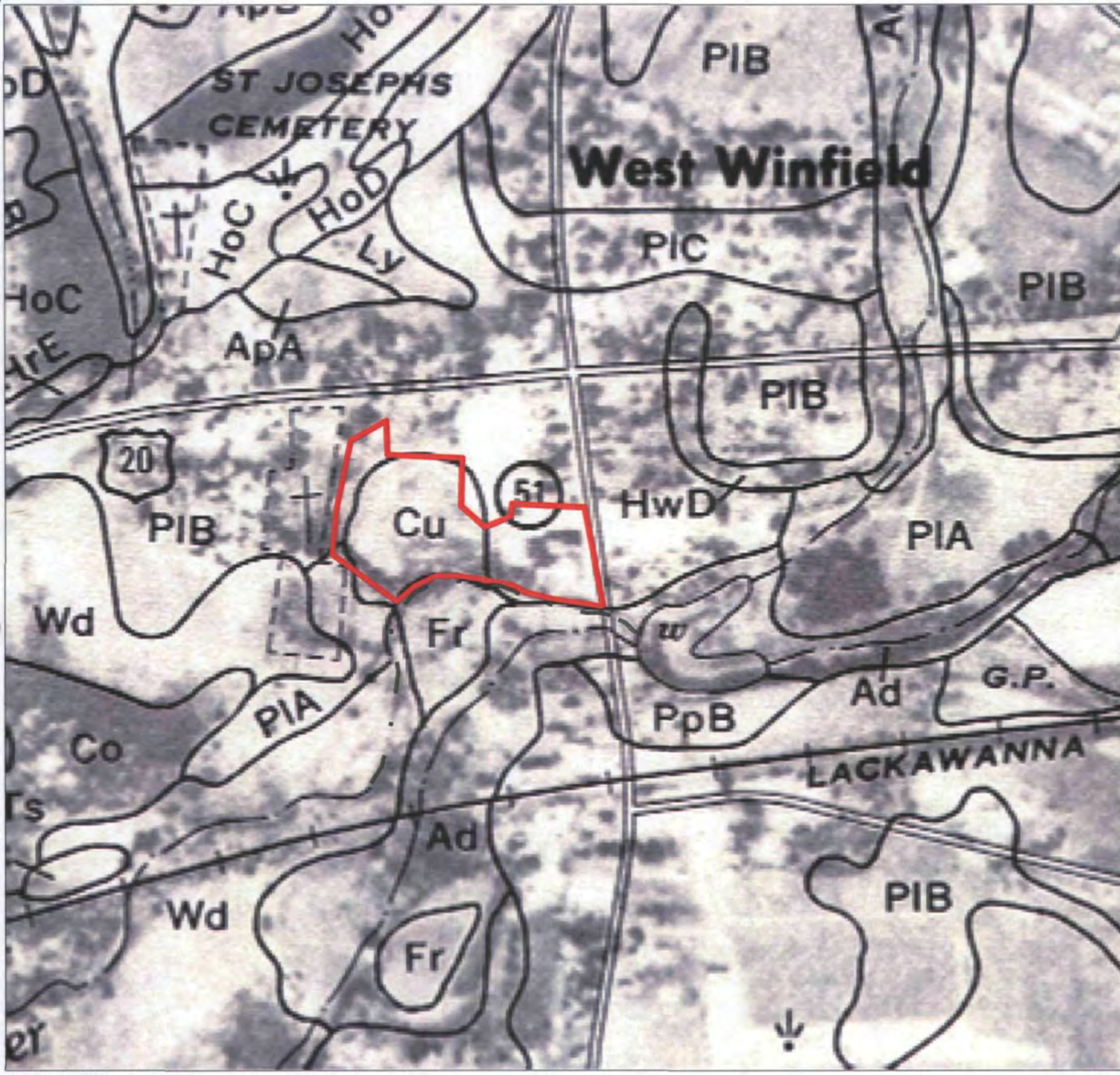
3.8.5.3 Presence of Threatened and Endangered Species and Habitats of Special Concern
During the ecological characterization, no known threatened and endangered species were observed at the Site.

Table 3-1

Average Monthly Climatic Data
January 2001 - June 2002
Hiteman Leather Site
West Winfield, New York

Month/Year	Average Temperature (^{0}F)	Average Precipitation (inches)	Average Wind Speed (mph)
January 2001	22.9	0.98	7.6
February 2001	24.5	1.84	10.3
March 2001	27.8	4.51	8.8
April 2001	44.7	1.8	8.6
May 2001	57.6	2.22	9.0
June 2001	65.1	8.12	6.6
July 2001	66.6	2.36	6.6
August 2001	71.2	3.55	5.6
September 2001	60.1	4.16	6.0
October 2001	50.5	3.15	8.7
November 2001	44.4	2.80	8.6
December 2001	33.5	1.85	8.5
January 2002	30.3	1.91	8.9
February 2002	29.7	0.80	9.4
March 2002	33.4	2.62	10.0
April 2002	46.3	5.77	8.7
May 2002	51.8	7.04	9.1
June 1-13, 2002	63.8	3.36	6.8

Notes:
mph = miles per hour
° F = degrees farenheit
Source: National Climatic Data Center, National Weather Service Data, http://www.worldclimate.com.



from USDA (1975)

LEGEND

Site Fence Line

Approx. 600 feet

Figure 3-1
Soil Map
Hiteman Leather Site
West Winfield, New York

CDM.

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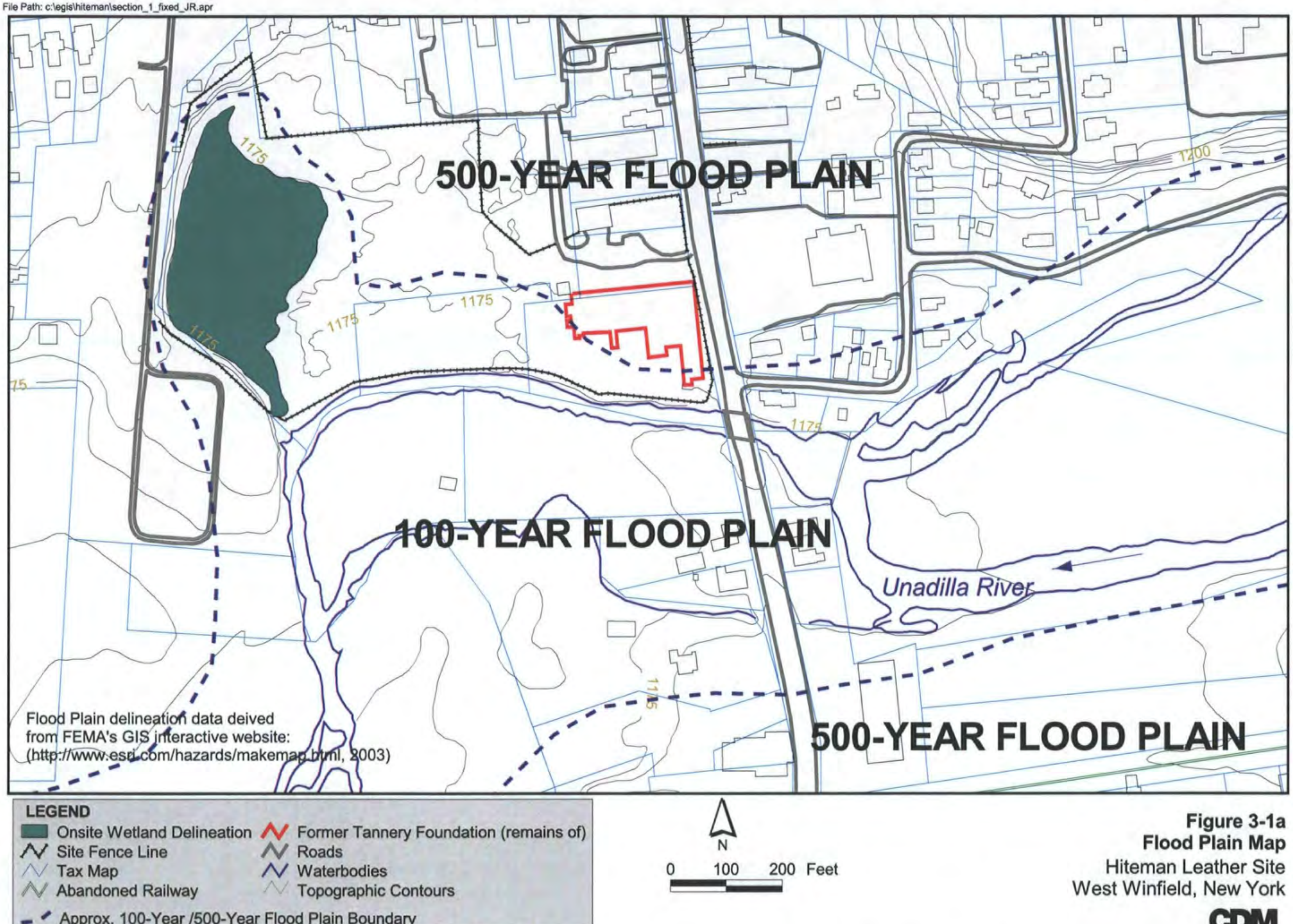


Figure 3-1a
Flood Plain Map
Hiteman Leather Site
West Winfield, New York
CDM

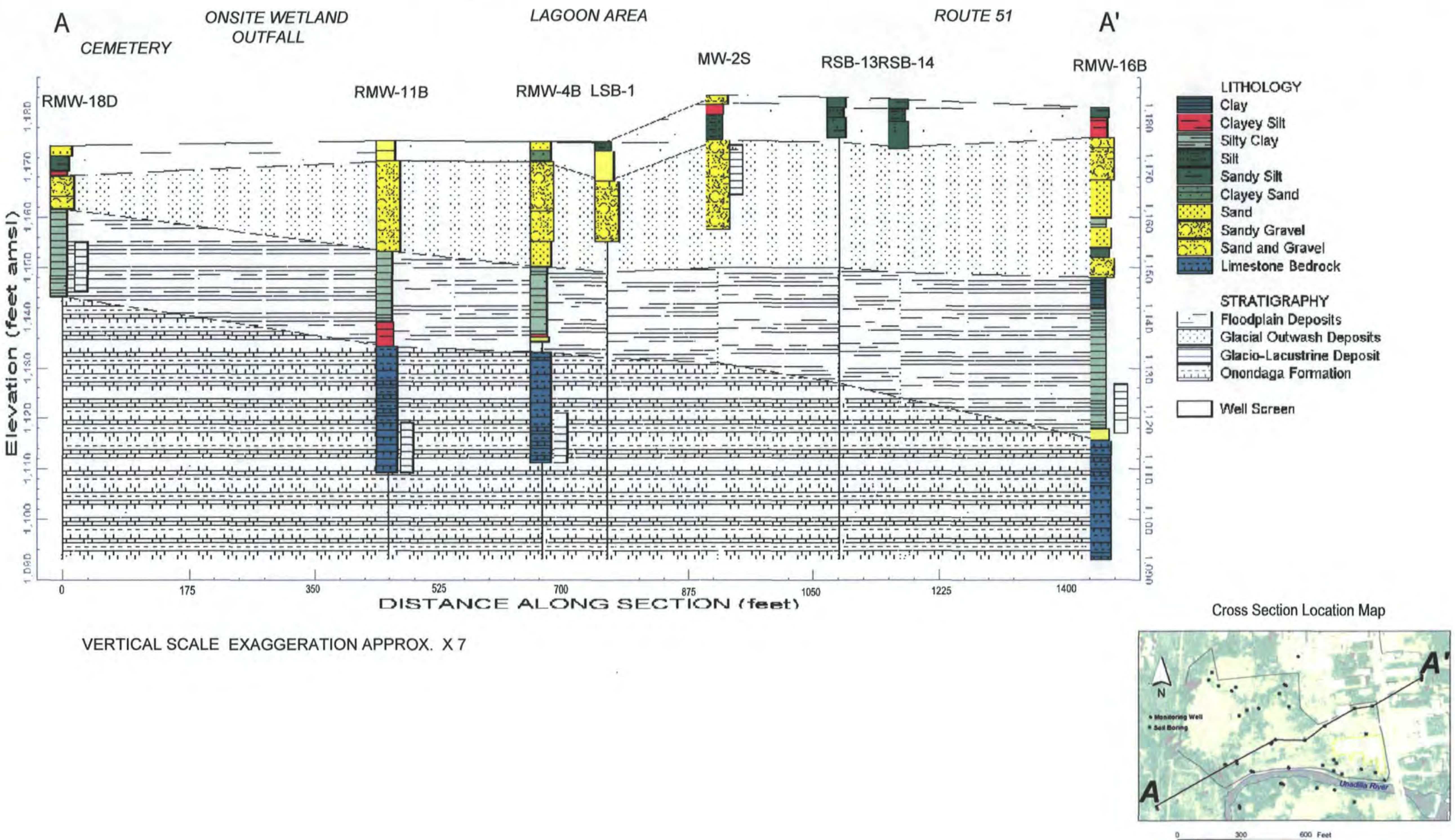
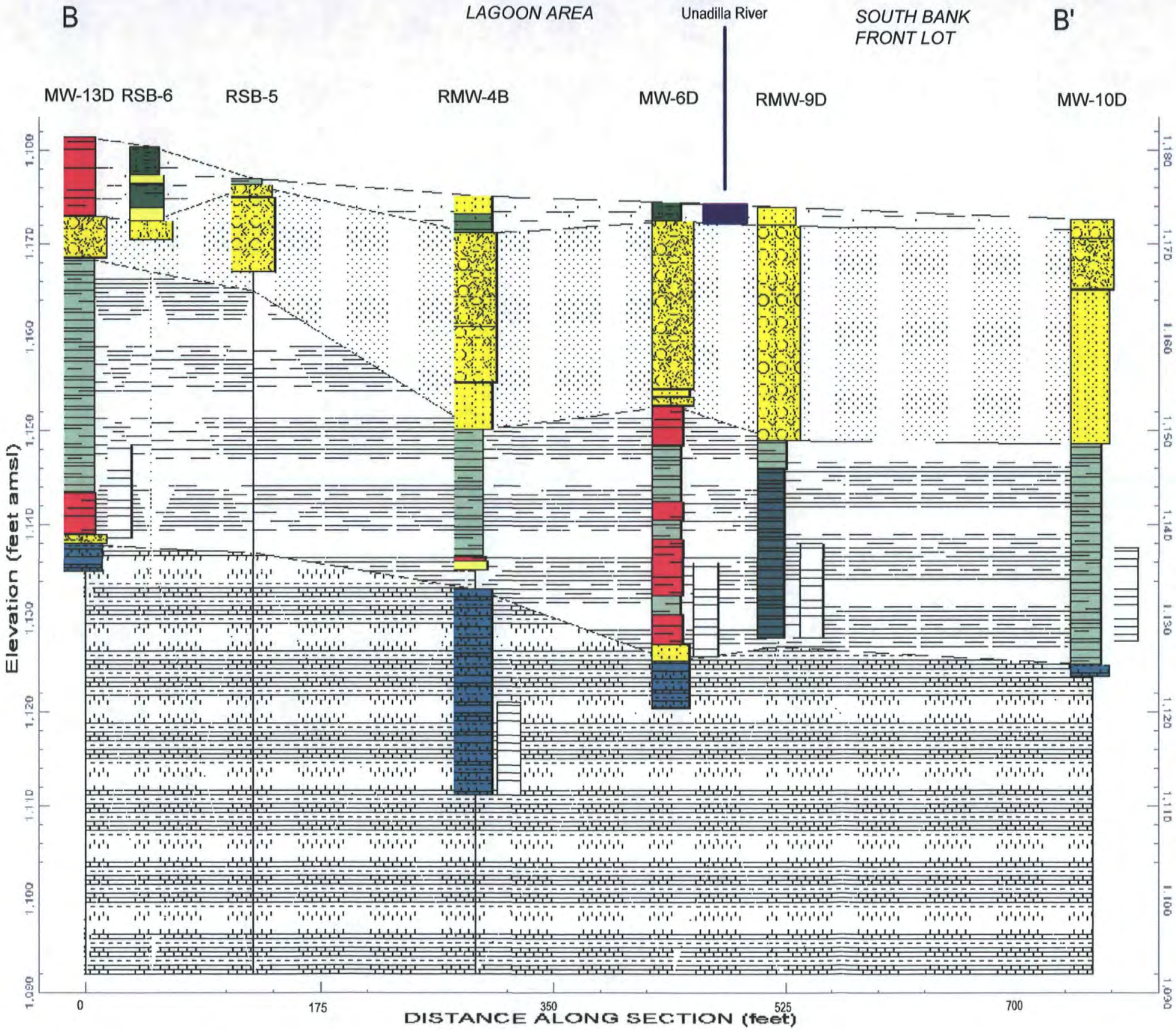


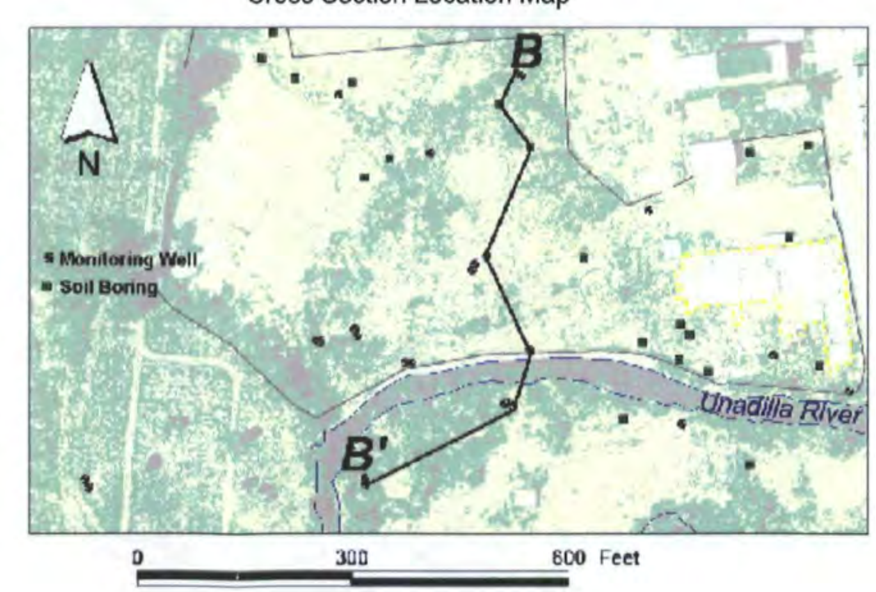
Figure 3-2
Lithostratigraphic Cross Section A-A'
Hiteman Leather Site
West Winfield, NY
A

* *Lithologic and lithostratigraphic surfaces are interpolated between data points*

Figure 3-3
Lithostratigraphic Cross Section B-B'
Hiteman Leather Site
West Winfield, NY
CDM



Cross Section Location Map



VERTICAL SCALE EXAGGERATION APPROX. X 7

* *Lithologic and lithostratigraphic surfaces are interpolated between data points*

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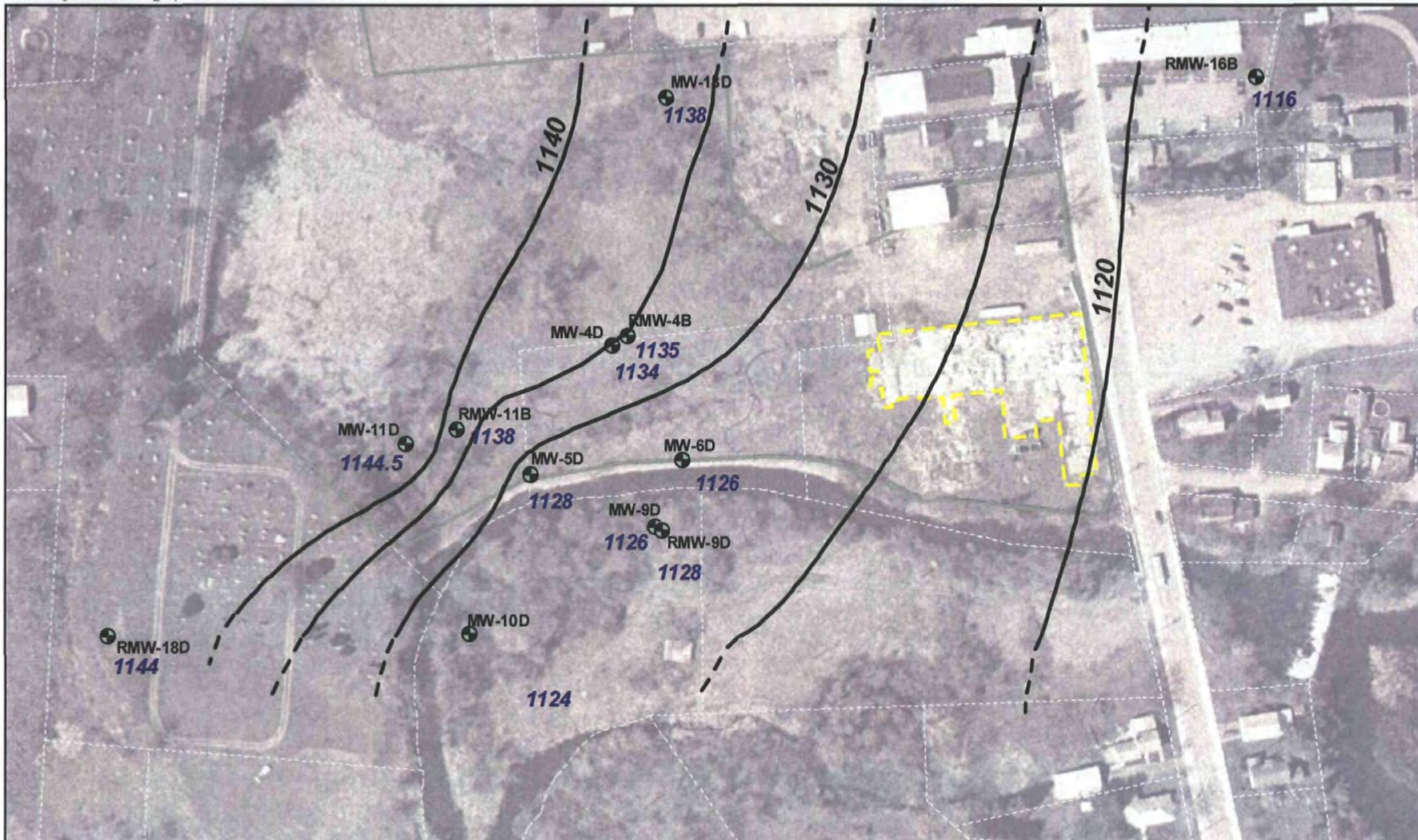

* *Contours are interpolated using the kriging gridding method and therefore are approximate*

LEGEND
- Bedrock Monitoring wells
- *1144* Top of Bedrock Elevation (feet above msl)
- Top of Bedrock Contour (feet above msl)
- Site Fence Line
- Concrete Foundation

N

0 100 200 Feet

Figure 3-4
Top of Bedrock Elevation Contour Map
Hiteman Leather Site
West Winfield, New York
CDM

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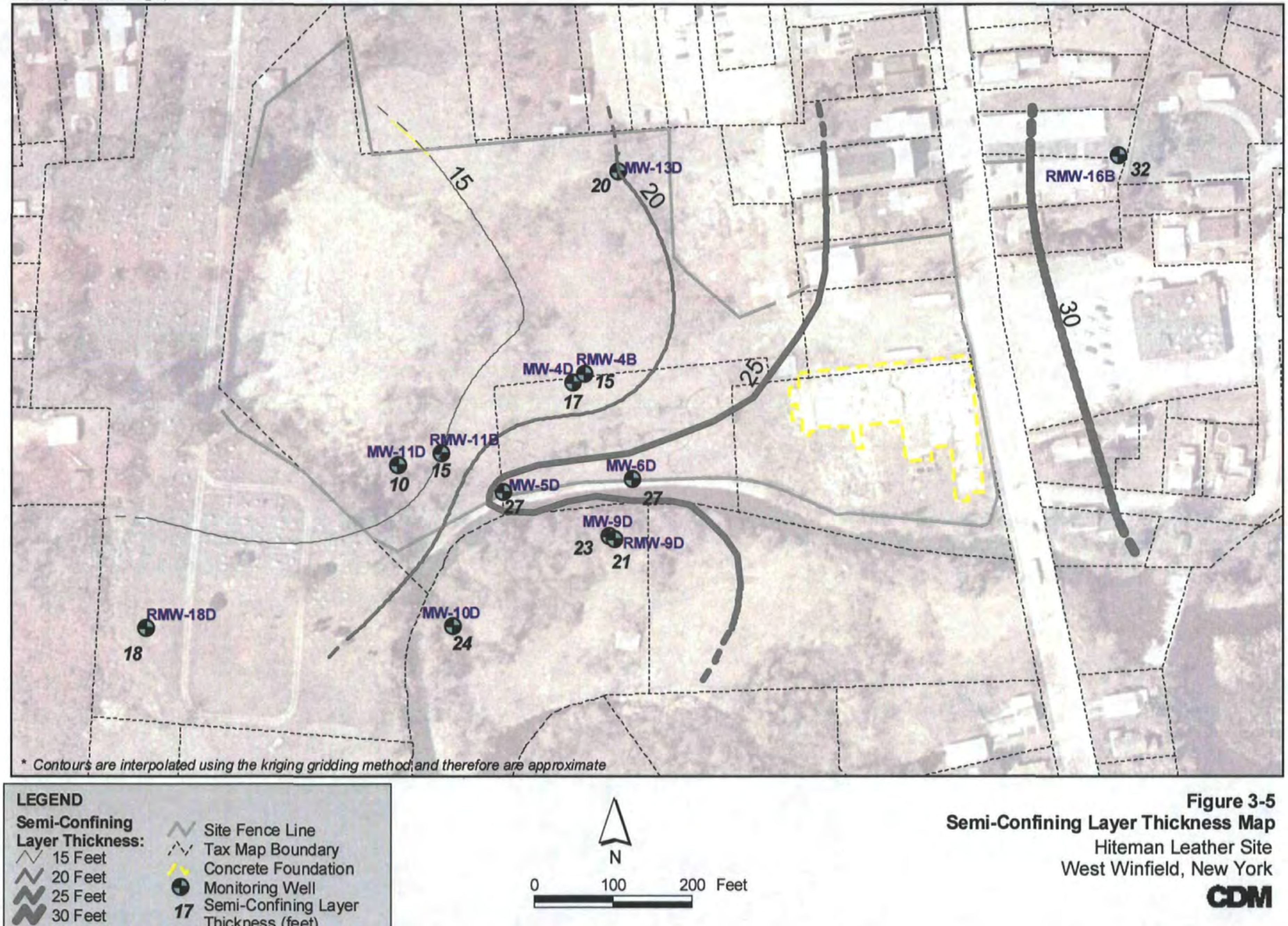


Figure 3-5
Semi-Confining Layer Thickness Map
Hiteman Leather Site
West Winfield, New York
CDM

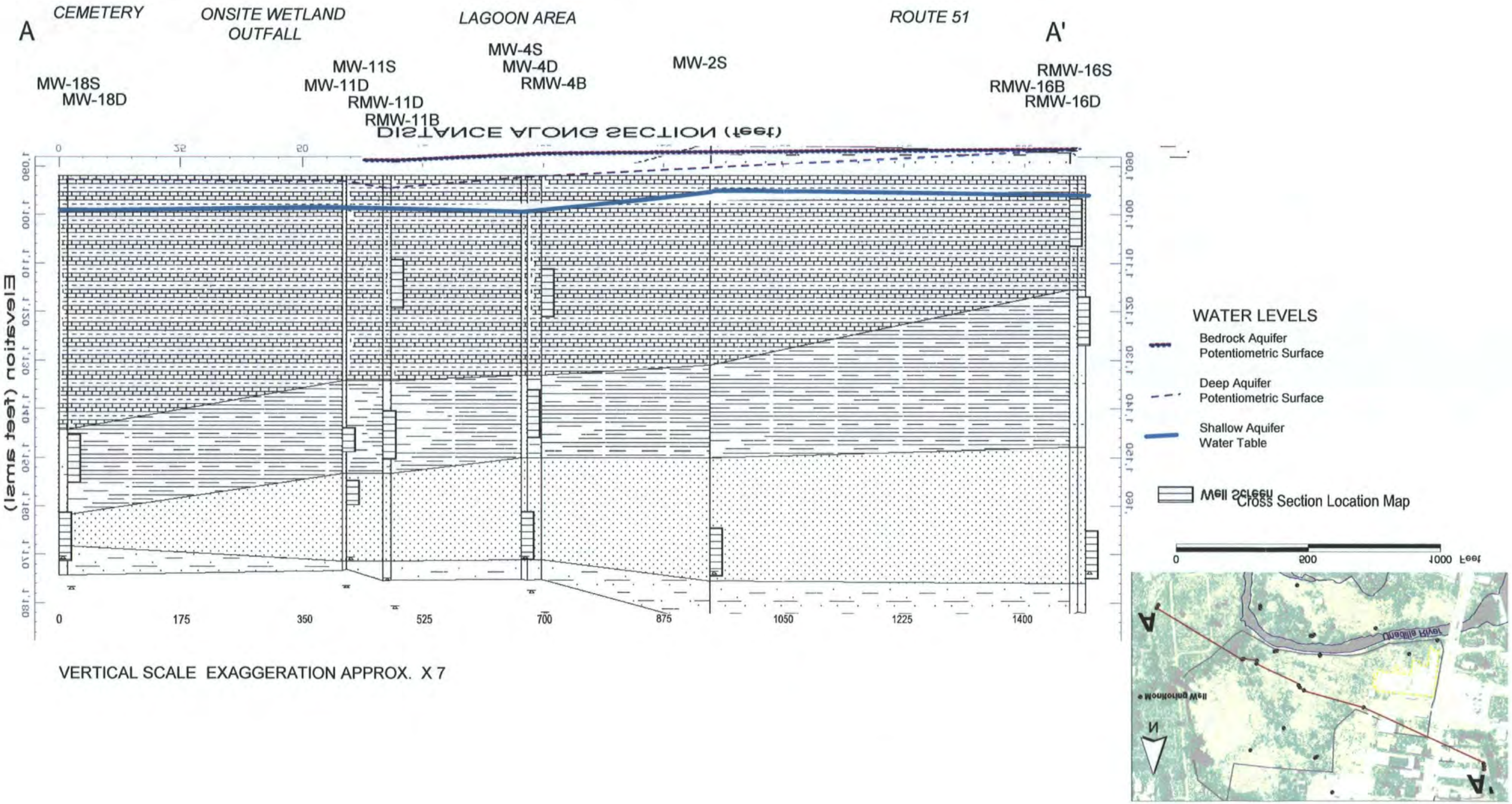
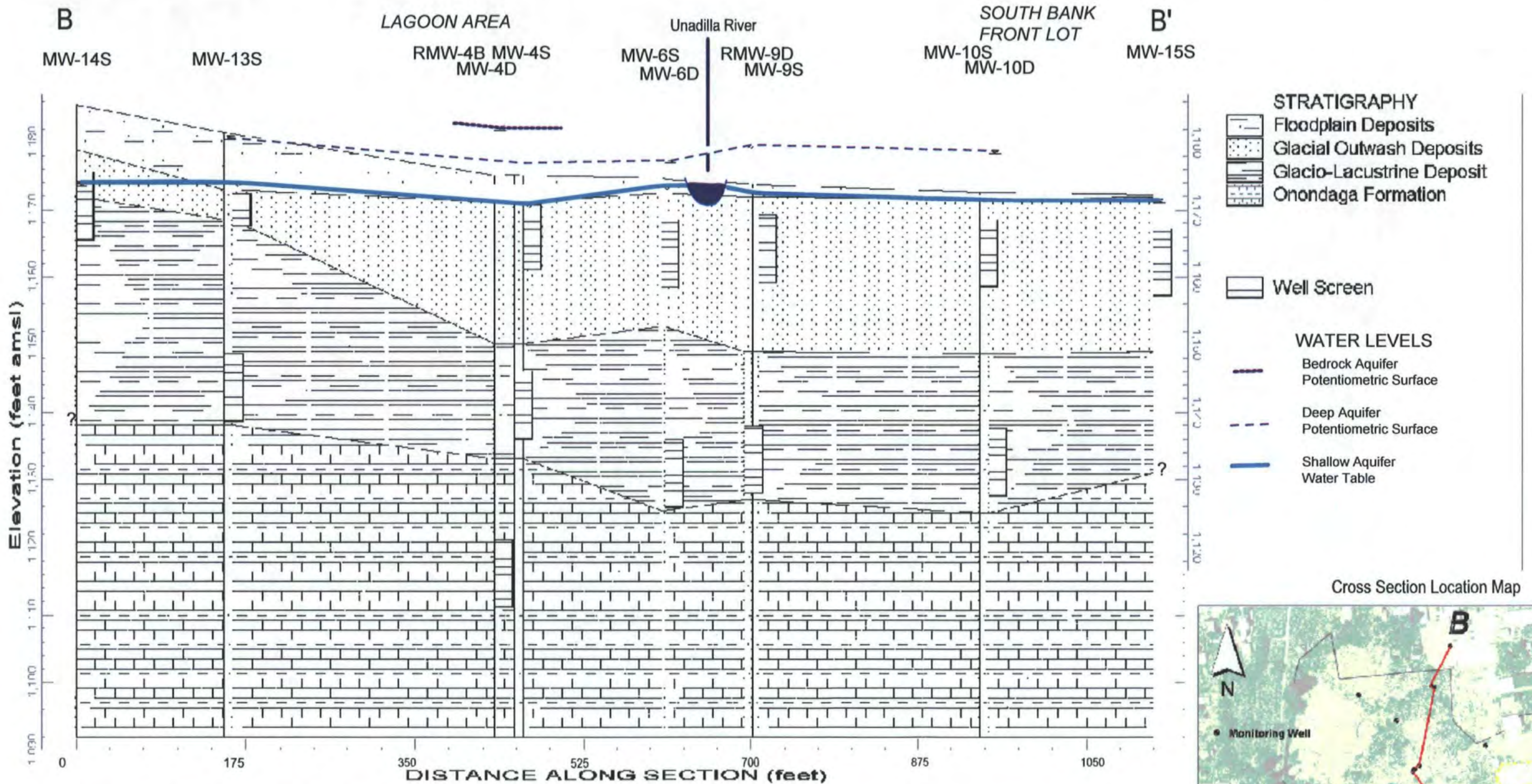


Figure 3-6
Hydrostratigraphic Cross Section A-A
Hiteman Leather Site
West Winfield, NY
CDM

* *Potentiometric surfaces, water table, and lithostratigraphic contacts are interpolated between data points*



VERTICAL SCALE EXAGGERATION APPROX. X 7

Cross Section Location Map

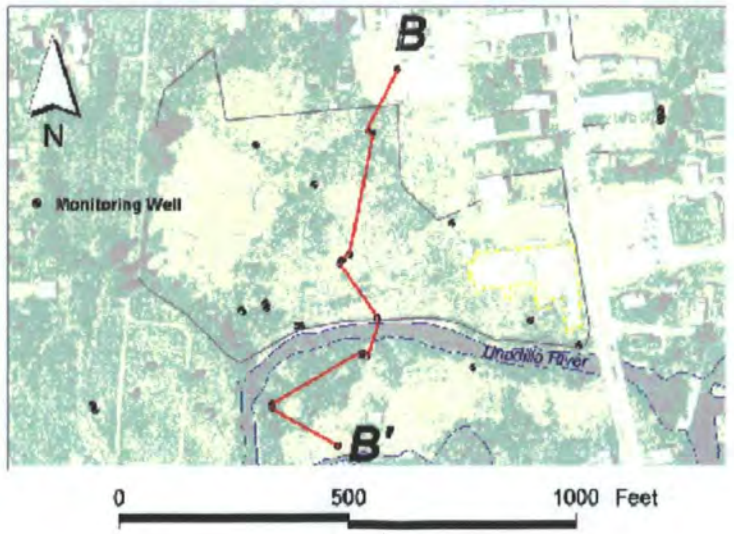


Figure 3-7
Hydrostratigraphic Cross Section B-B'
Hiteman Leather Site
West Winfield, NY
CDM

* *Potentiometric surfaces, water table, and lithostratigraphic contacts are interpolated between data points*

File Path: c:\egis\hiteman\section_3.apr

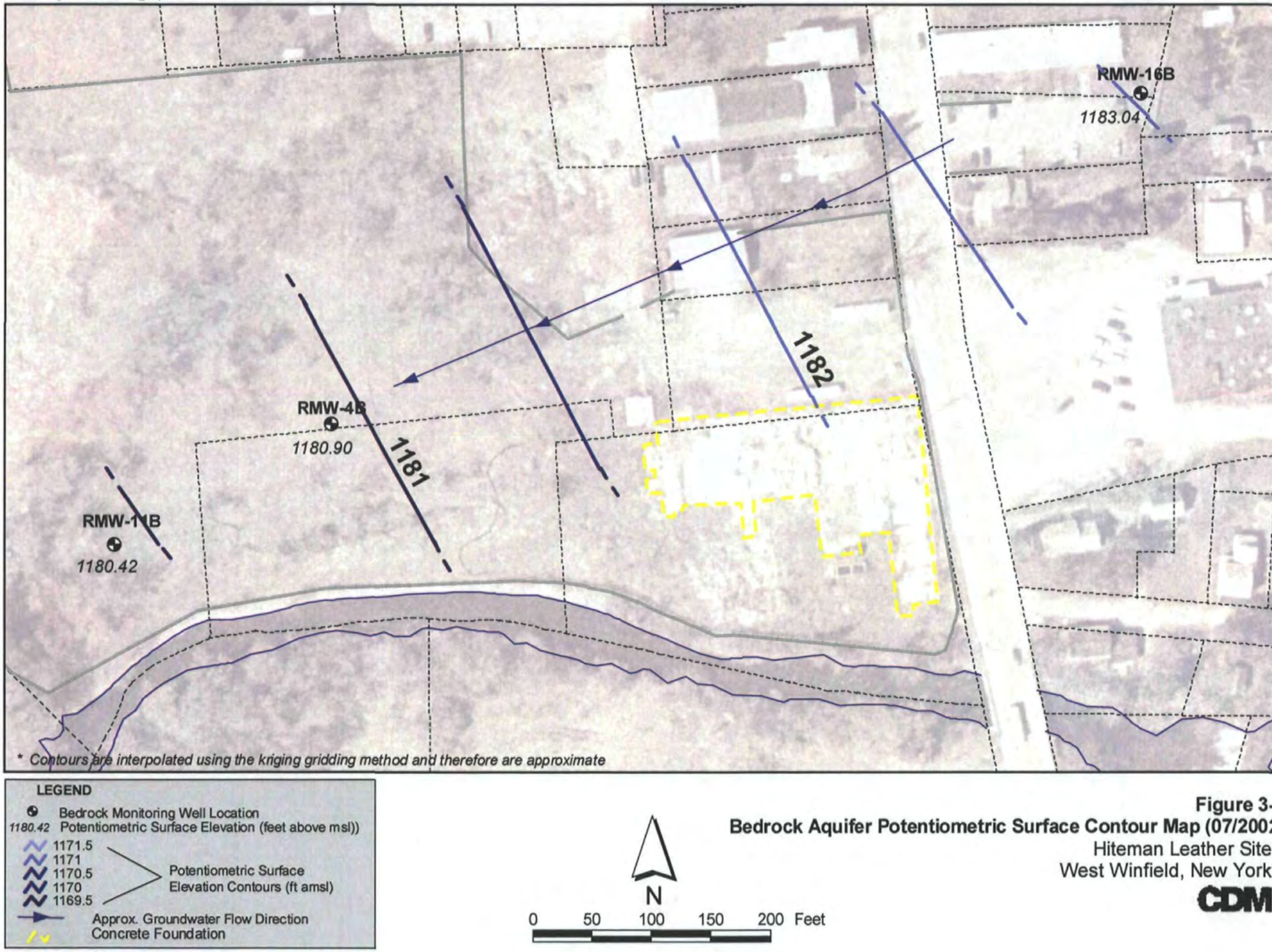
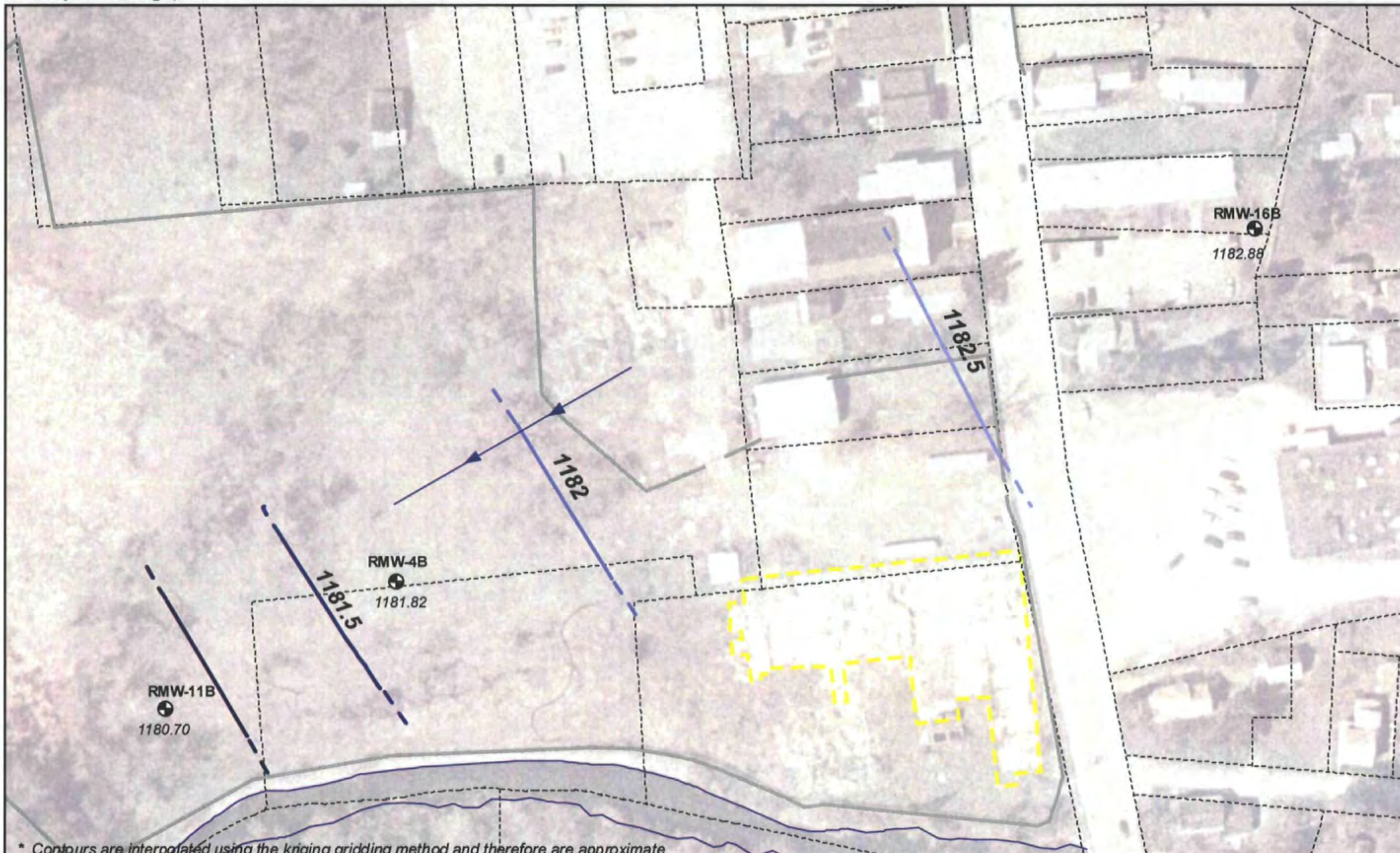


Figure 3-8
Bedrock Aquifer Potentiometric Surface Contour Map (07/2002)
Hiteman Leather Site
West Winfield, New York

CDM

File Path: c:\egis\hiteman\section_3.apr



LEGEND
- Bedrock Monitoring Well Location
- *1180.42* Potentiometric Surface Elevation (feet above msl))
- 1171.5, 1171, 1170.5, 1170, 1169.5 — Potentiometric Surface Elevation Contours (ft amsl)
- Approx. Groundwater Flow Direction
- Concrete Foundation

N

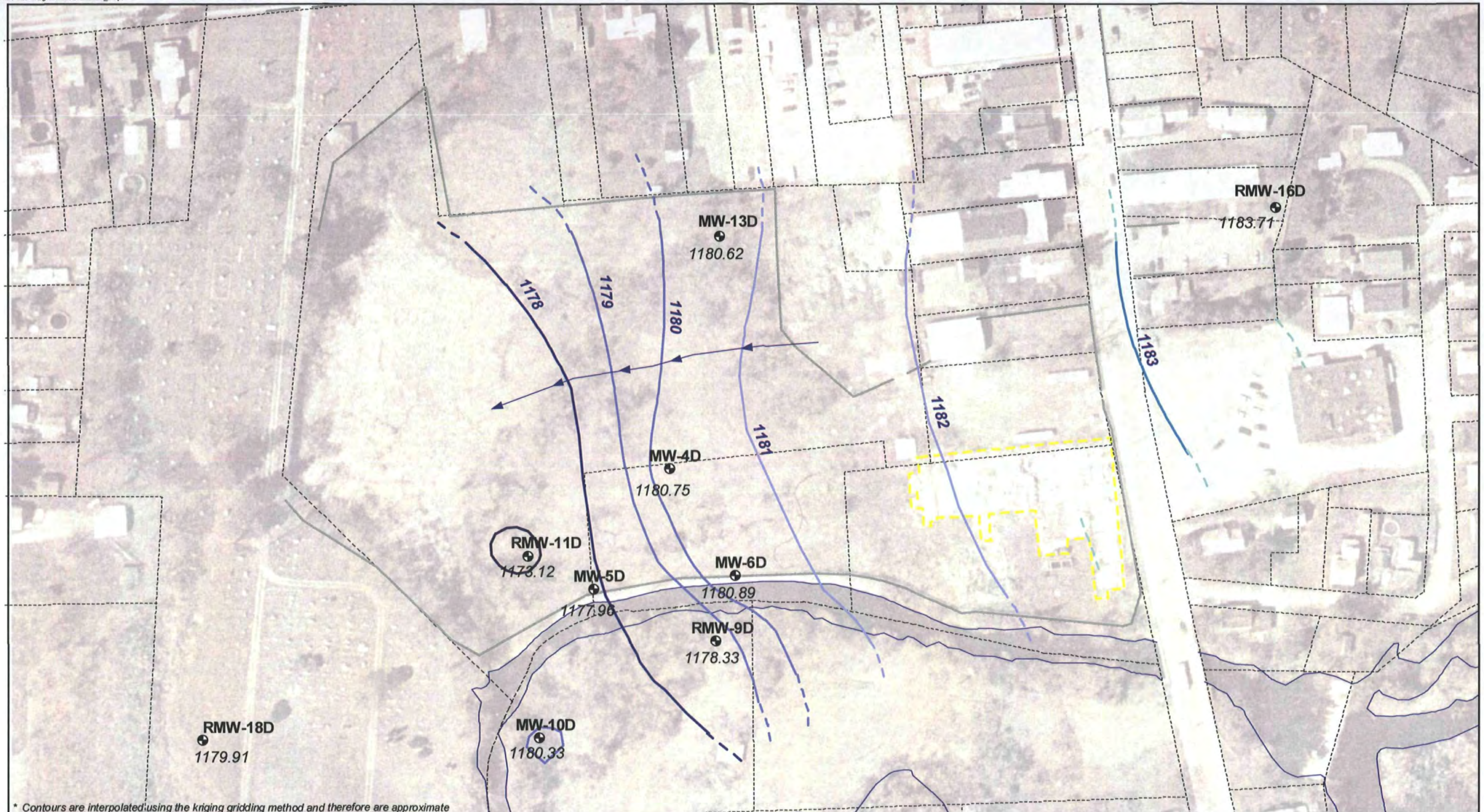
0 50 100 150 200 Feet

Figure 3-9
Bedrock Aquifer Potentiometric Contour Map (10/2002)

Hiteman Leather Site
West Winfield, New York

CDM

File Path: c:\egis\hiteman\section_3.apr



LEGEND

- Deep Monitoring Well Location
- *1180.42* Potentiometric Surface Elevation (feet above msl))
- Potentiometric Surface Elevation Contours (ft amsl)
- Approx. Groundwater Flow Direction
- Concrete Foundation

N

0 100 200 300 400 Feet

Figure 3-10
Deep Aquifer Potentiometric Surface Contour Map (07/2002)

Hiteman Leather Site
West Winfield, New York

CDM

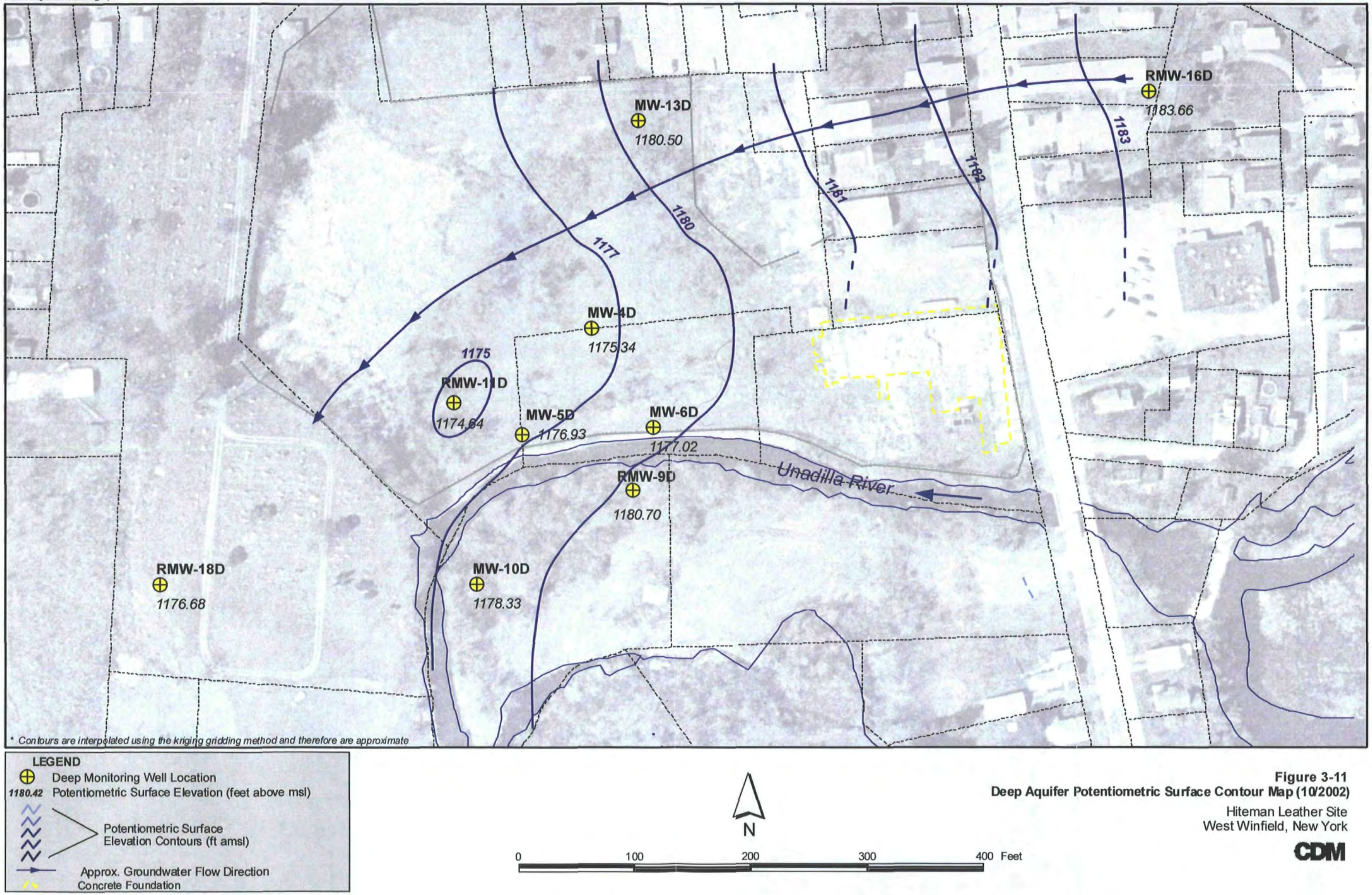


Figure 3-11
Deep Aquifer Potentiometric Surface Contour Map (10/2002)
Hiteman Leather Site
West Winfield, New York

CDM

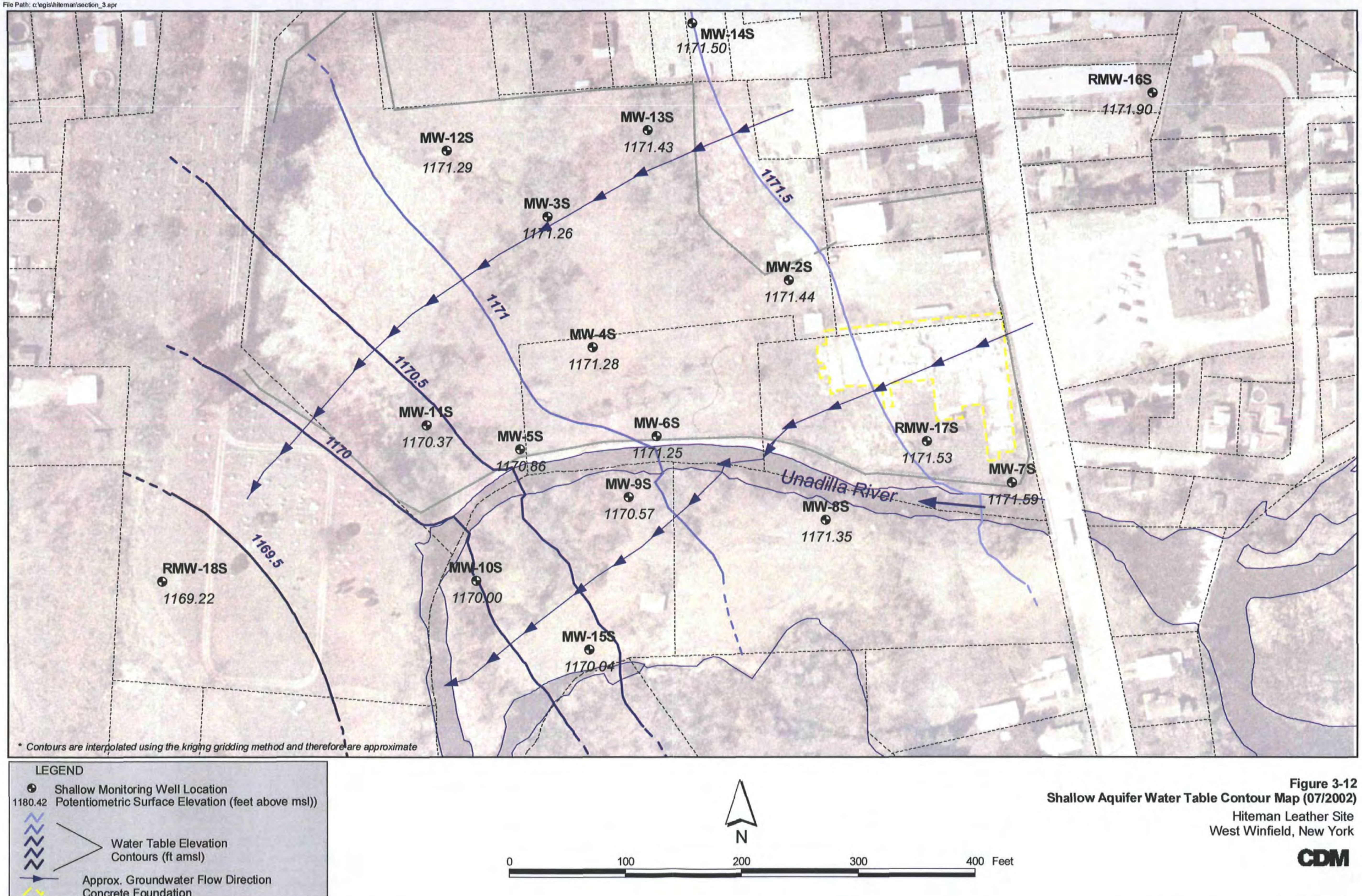


Figure 3-12
Shallow Aquifer Water Table Contour Map (07/2002)
Hiteman Leather Site
West Winfield, New York

CDM

File Path: c:\egis\hiteman\section_3.apr

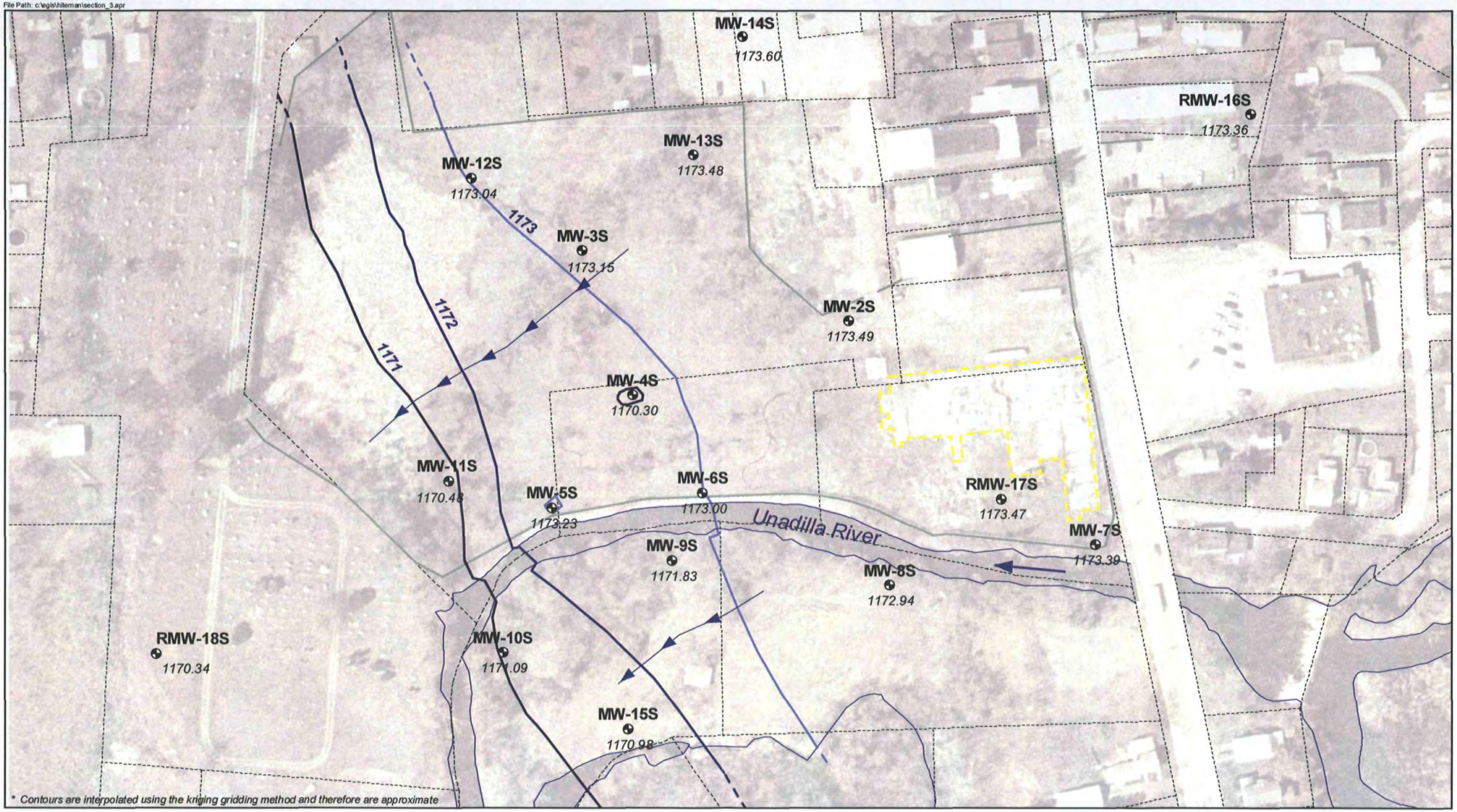
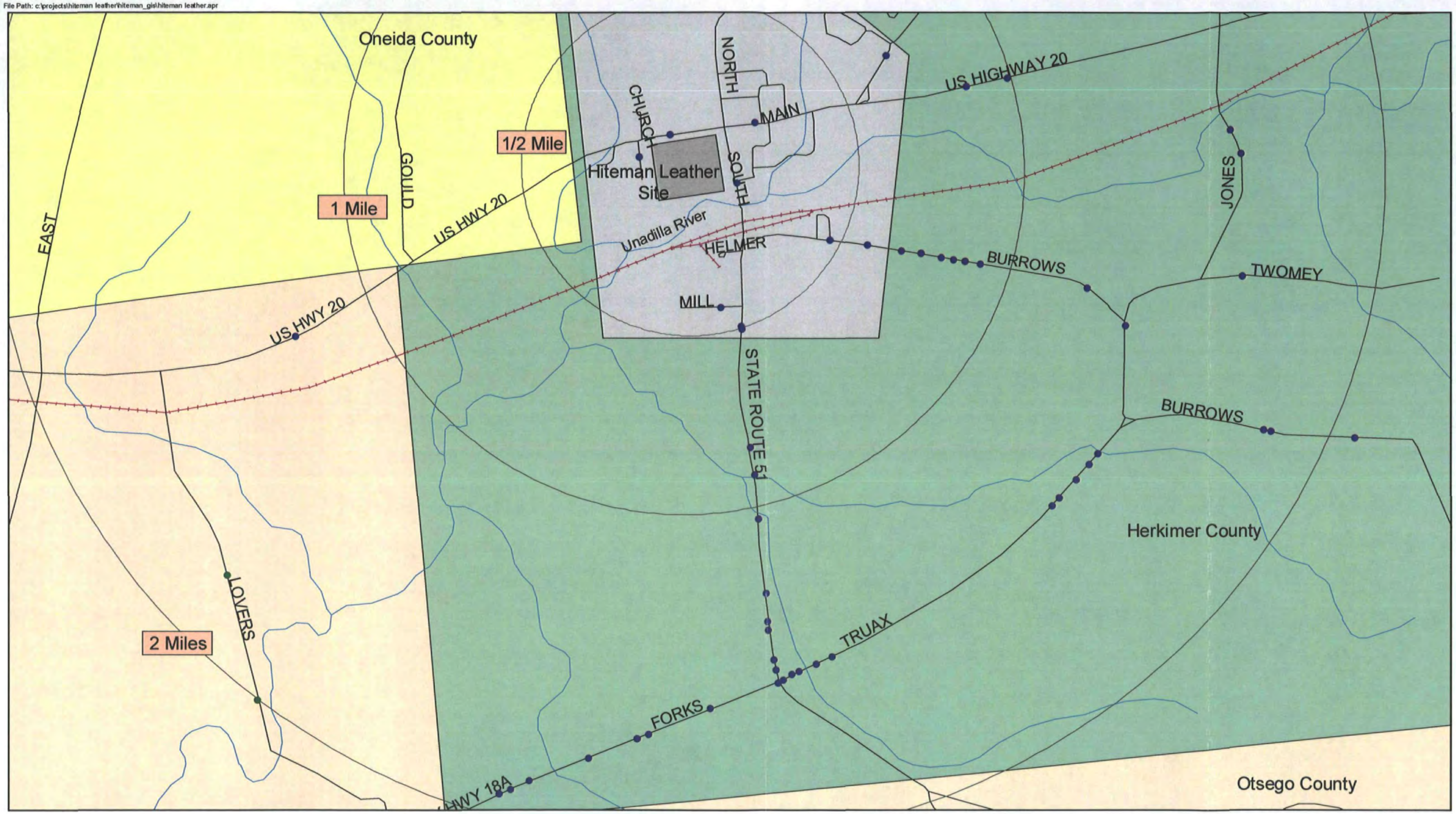


Figure 3-13
Shallow Aquifer Water Table Contour Map (10/2002)
Hiteman Leather Site
West Winfield, New York

CDM

File Path: c:\projects\hiteman leather\hiteman_gis\hiteman leather.apr



LEGEND
- Private Wells
- Agricultural Property (No structure or street number)
- Stream
- Roads
- Railroad
- Approximate Location of the Hiteman Leather Site
- Oneida County
- Otsego County
- West Winfield
- Herkimer County

N

0 400 800 Yards

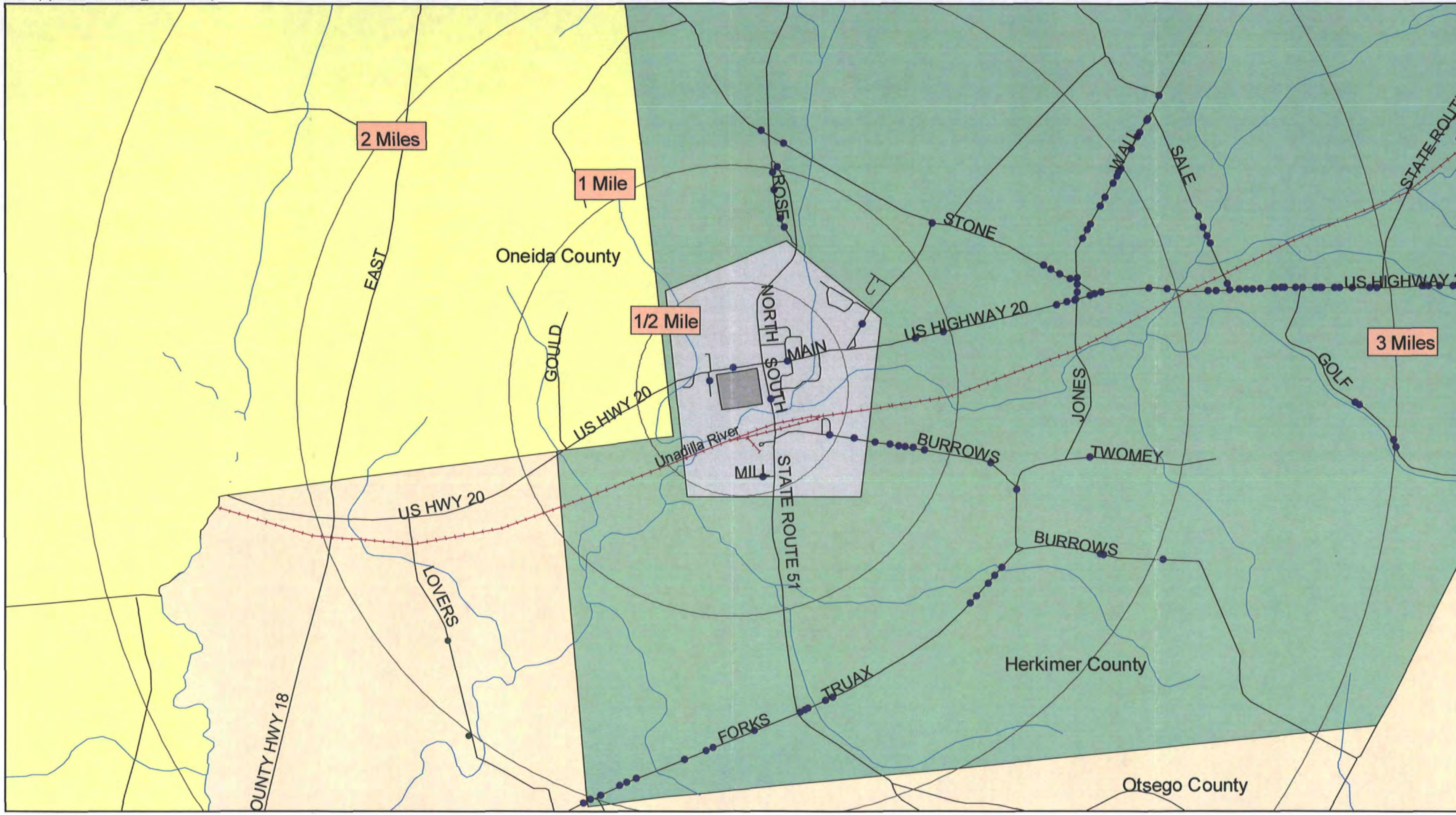
0 200 400 Meters

Figure 3-14
Private Well Locations Within 2 Miles South of Hiteman Leather

Hiteman Leather Site
West Winfield, New York

CDM

File Path: c:\projects\hiteman leather\hiteman_gis\hiteman leather.apr



LEGEND

- Private Wells
- Agricultural Property (No structure or street number)
- Stream
- Roads
- Railroad
- Approximate Location of the Hiteman Leather Site
- Oneida County
- Otsego County
- West Winfield
- Herkimer County

N

0 600 1200 Yards

0 500 1000 Meters

Figure 3-15
Private Well Locations Within 3 Miles of Hiteman Leather

Hiteman Leather Site
West Winfield, New York

CDM

Section Four

Section 4
Nature and Extent of Contamination

This section documents the nature and extent of organic and inorganic contamination at the Hiteman Leather Site. Section 4.1 documents CDM's approach to the evaluation of analytical data, with the use of applicable screening levels and detected background chemical concentrations to characterize Site contamination. Section 4.2 documents the nature and extent of contamination by media and location. Where appropriate, data from previous investigations are included in the discussion of the nature and extent of contamination.

4.1 Approach to the Evaluation of Contamination

A three-step approach was used to evaluate the nature and extent of contamination at the Site. As a first step, EPA and New York State regulatory standards and criteria were selected to evaluate and screen detected constituents in the various sampled media. In the case where more than one type of standard or criteria existed, the lowest, or most stringent, value was used for screening purposes.. All detected compounds or analytes that exceeded the most stringent regulatory standards and criteria were considered for further evaluation as contaminants of potential concern (COPCs). Secondly, results from background, or upgradient samples that were collected for each sampled media were evaluated and compared to data from environmental, or downgradient samples. In accordance with NYSDEC protocols, analytical data from background soil samples were used to calculate Site-specific background values for inorganic analytes for both surface and subsurface soil.

The final step involved assigning compounds or analytes detected in Site media into three categories: primary COPCs, secondary COPCs, and non-COPCs. Further information regarding the selection process for primary COPCs, secondary COPCs, and non-COPCs is presented in Section 4.1.3. The characterization of Site conditions emphasizes the extent and spatial distribution of primary COPCs in each media. Secondary COPCs are assessed on a more limited basis, and non-COPCs are only briefly noted. Only primary and secondary COPCs are illustrated on the data presentation figures. Note that primary, secondary, and non-COPCs documented in this report may subsequently be identified as COPCs in either the human health or ecological risk assessments, which assess the risk-based characteristics of the data more rigorously.

Further information regarding the selection of regulatory standards and criteria, background samples, and the selection of primary, secondary, and non-COPCs are presented below. Regulatory standard/criteria exceedance tables are provided in Appendix K, and a complete set of analytical data (TCL organic, TAL inorganic, and subcontract laboratory analyses) is provided in Appendix L.

4.1.1 Selection of Regulatory Standards and Criteria (ARARs, TBCs)

Regulatory standards and criteria were selected for each sampled matrix, and were approved by EPA. Whenever possible, established regulatory standards, known as chemical-specific applicable or relevant and appropriate requirements (ARARs), were used to screen data. This was the case for groundwater and surface water, where state and/or federal drinking water standards exist for many contaminants. In the absence of ARARs, regulatory guidance values, known as "to be considered," or "TBCs" , were used to screen the data. This was the case for the sediment and soil data that have no established state or federal ARARs, but do have established quality criteria and guidelines. Background values, representative of conditions proximal to the Site which were not impacted by Site-related activities, were also used to screen data to supplement regulatory guidances. Background surface and subsurface soil samples were collected to calculate chemical-specific background concentrations for use in screening inorganic chemicals detected in soil. Background samples were also collected from other media as described in Section 4.1.2.

The regulatory standards, criteria, and guidelines used to screen the analytical data included:

Regulatory Standard or Criteria	Status
EPA Primary Drinking Water Standards, Maximum Contaminant Levels	ARAR
NYS Standards and Guidance for Class GA Groundwater	ARAR/TBC
NYSDOH Drinking Water Quality Standards	ARAR
EPA Ambient Water Quality Criteria for: a) Human Health, Consumption of Organism Only, and b) Aquatic Life, Chronic, Freshwater Continuous Consumption	TBC
NYSDEC Standards and Guidance for Class C(T) Surface Water Bodies for : a) Human Food Chain, and b) Aquatic Life	ARAR/TBC
NYSDEC Freshwater Sediment Criteria for: a) Human Health Bioaccumulation, and b) Aquatic Life (Low-Effects Level and Severe-Effects Level)	TBC
NYSDEC Recommended Soil Cleanup Objectives	TBC
Hiteman Leather Site-Specific Background for Surface Soil Inorganics	TBC
Hiteman Leather Site-Specific Background for Subsurface Soil Inorganics	TBC
EPA Region 3 Risk-Based Fish Screening Criteria	TBC

4.1.1.1 Surface Water Screening Standards and Criteria

Analytical results from all surface water samples collected from the Unadilla River were screened against New York State Standards and Guidance Values for Class C Surface Water for Human Food Chain (NYSW-C-HFC) and Aquatic Life (NYSW-C-AC). Surface water sample results were also screened against the EPA Ambient Water Quality Criteria for Human Health (Consumption of Organism Only) (EPASW-HHORG) and Aquatic Life (Chronic, Fresh water, Continuous Consumption) (EPASW-AFRESHCC). Surface water screening standards and criteria for organic and inorganic contaminants are presented in Table 4-1.

4.1.1.2 Sediment Screening Criteria

All sediment samples, including those collected in the Unadilla River and the onsite wetland, were screened against New York State Freshwater Sediment Criteria for Human Health Bioaccumulation (NYSED-HFW) and for Benthic Aquatic Life Chronic Toxicity (NYSED-AC). As required by NYSDEC Technical Guidance for Screening Contaminated Sediments, Site-specific TOC measurements were used to calculate organic screening criteria. Sediment criteria values in units of ug/grams of organic carbon were multiplied by the area-specific TOC values in units of grams of organic carbon per kilogram of sediment. Separate values were calculated based on area-specific averages of TOC measurements for the Unadilla River samples and the onsite wetland samples.

NYSED-AC criteria are divided into the low-effects level (LEL) and severe-effects level (SEL) values for inorganic analytes. The LEL indicates a level of sediment contamination that can be tolerated by the majority of benthic organisms, but will still cause toxicity to a few species; the SEL indicates the concentration at which pronounced disturbance of the sediment-dwelling community can be expected. Inorganic sediment results were screened against both the LEL and SEL criteria. Sediment criteria for Unadilla River wetland samples are presented in Table 4-2. Sediment criteria for onsite wetland samples are presented in Table 4-3.

4.1.1.3 Groundwater Screening Standards and Guidelines

All monitoring well, residential well, and municipal well samples were screened against EPA's National Primary Drinking Water Maximum Contaminant Levels (EPAPDW-MCLs), New York State Standards and Guidance Values for Class GA Groundwater (Human Water Source) (NYSDEC-GW-GA), and NYSDOH Drinking Water Quality Standards (NYSDOH-DW-MCLs). The groundwater screening standards and guidelines are presented in Table 4-4.

4.1.1.4 Soil Screening Criteria

All surface soil and subsurface soil data, including data from former wastewater lagoon borings, building borings, onsite soil borings, off-site soil borings, and surficial soil samples collected from the South Bank Front Lot were screened against New York State Recommended Soil Cleanup Objectives (NYSDEC-RSCO). Where applicable, Site-wide average soil TOC measurements were used to calculate screening values.

The RSCO values provided in the Technical and Administrative Guidance Memorandum (TAGM) #4046, are based on a soil TOC of 1%; however, the average Site-wide TOC was determined to be 5.24%. As recommended by TAGM #4046, the TOC adjusted values were calculated by multiplying the RSCO value by 5.24.

In accordance with NYSDEC guidelines, CDM used inorganic data from background soil samples (collected from two soil borings RSB-35 and RSB-36) to determine Site background values for inorganic soil sample results. Two separate sets of inorganic background values were calculated from this data: one set for surface soil samples and one set for subsurface soil samples. Surface soil background values were calculated by doubling the average of the two soil samples collected from 0-2 feet bgs; these surface background values were used for comparison to all surficial samples collected from former wastewater lagoon borings, South Bank Front Lot surface soils, onsite soil borings and offsite soil borings. The subsurface soil background values were calculated by doubling the average of the four subsurface soil sample results collected from 2-6 feet bgs (samples RSB-35-2-4, RSB-35-4-6, RSB-36-2-4, and RSB-36-4-6); these subsurface background values were used for comparison to all onsite and offsite subsurface soil samples, including those collected from lagoon borings, building borings, onsite soil borings, and offsite soil borings. Surface and subsurface soil criteria are presented in Tables 4-5 and 4-6.

4.1.1.5 Fish Tissue Screening Criteria
Forage fish tissue and sport fish tissue samples were screened against the EPA Region 3 Risk-Based Fish Screening Criteria (USEPA-FISH). This criterion applies to humans only. Fish tissue screening criteria are presented in Table 4-7.

4.1.2 Background Samples
CDM collected upstream background samples for Unadilla River surface water, sediment, fish tissue, upstream wetland sediment samples, hydraulically upgradient groundwater samples, and background location soil samples. Background samples were analyzed for the same parameters as the investigation samples. Background environmental samples that were completely unimpacted by chemical contamination were difficult to obtain due to the widespread use of industrial and agricultural products. However, upon review, CDM determined that the background samples collected during Field Activity 1 and Field Activity 2 indicated that they were not impacted by Site-specific contamination. Therefore, the samples were appropriate for comparison purposes.

4.1.2.1 Unadilla River Surface Water, Sediment, and Fish Tissue Background
During Field Activity 1, one background surface water (URSW-1), and one co-located sediment sample (URSD-1) were collected at a location upstream of the Hiteman facility. During Field Activity 2, two background forage fish tissue samples (URFF-1-A and URFF-1-B) were collected at the same upstream location; lack of sufficient sport fish sample volume resulted in no background sample. Surface water and fish tissue background detections are presented in Table 4-8, Unadilla River sediment sample background detections are presented in Table 4-9.

4.1.2.2 Wetland Sediment Background

Two background sediment samples (WTSD-11 and WTSD-12) were collected from off site areas to be used as background samples for the onsite wetland. WTSD-11 was collected from a wetland area in the cemetery located to the south of the facility and WTSD-12 was collected from a wetland area in the Winfield Memorial Park, located to the west of the facility. Results for sediment samples collected as background for the onsite wetland are presented in Table 4-9.

4.1.2.3 Groundwater Background

During well redevelopment activities, hydraulically upgradient monitoring well MW-1 could not be located. Therefore, no background groundwater samples were collected during Field Activity 1. During Field Activity 2, CDM installed and sampled a hydraulically upgradient background monitoring well cluster (RMW-16B, RMW-16D, and RMW-16S), located east of the Site to the rear of the Village of West Winfield parking lot on South Street. Results for the three background groundwater wells are presented in Table 4-10.

4.1.2.4 Soil Background

CDM collected surface soil and subsurface soil samples from two background soil borings located topographically upgradient of the Site at the Winfield Memorial Park, for analysis of metals only. Analytical data from these samples were used to calculate site-specific background values for inorganic analytes in the surface soil (BKGD-SURF) and subsurface soil (BKGD-SUBSURF). These values were used for comparison against all surface and subsurface soil samples collected during the RI field activities. Results of surface and subsurface background samples are presented in Table 4-11.

4.1.3 Identification of Primary, Secondary, and Non-COPCs

Per EPA approval, CDM identified detected compounds or analytes in Site media into three groups: primary COPCs, secondary COPCs, and non-COPCs. Each group was designated, based on the following criteria: 1) association with site-related processes and waste disposal practices, 2) magnitude of exceedance of regulatory screening standards and criteria, and 3) frequency of exceedance of regulatory standards and criteria. In general, exceedance of background levels alone was not a selection criterion, but was used to support the selection. As a result of this evaluation, nine primary COPCs were identified: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide. These nine analytes were designated as primary COPCs for each Site media in which they were detected at levels exceeding the most stringent regulatory standard or criteria.

The remaining detected compounds or analytes in each Site media were designated as either secondary COPCs or non-COPCs. In general, secondary COPCs were contaminants in which only one or two of the decision-making criteria were met. Non-COPCs did not meet the criteria, but were still detected at levels exceeding the most stringent regulatory standard or criteria.

4.2 Nature and Extent of Contamination in Site Media

CDM collected samples from onsite and offsite surface and subsurface soils, the onsite wetland, Unadilla River surface water, sediment, and fish tissue, and groundwater in and around the Hiteman Leather Site to determine if Site-related contaminants have degraded the quality of these media.

The nature and extent of contamination in Site media are documented in the sections below. In each section, the nature of contamination is documented through the identification of primary COPCs, secondary COPCs, and non-COPCs. The extent of contamination is presented in the context of location-specific primary and secondary COPC exceedances as they relate to historical tannery-process activities.

4.2.1 Data Presentation

Statistical summary tables were generated for each sample media and area. These tables present summaries of all contaminants that exceed the most stringent screening standard and criteria values, and catagorize them into "primary COPC", "secondary COPC", and "non-COPC" classifications. The tables summarize the number of detections and exceedances, the range of detections, the location and result of the highest detection, screening standard/criteria, and exceedance quotient, by contaminant. This report focuses only on the exceedances of the most stringent standards and criteria for primary and secondary COPCs. The human health and ecological risk assessments will evaluate the risk from chemicals that exceed one or more standard or criteria.

As part of the evaluation process, box map figures for each matrix and area were created to present location-specific regulatory exceedances for primary and secondary COPCs. Planar-view contour maps and 3-dimensional block diagrams were also developed to illustrated the distribution of chromium contamination in specific areas.

Some of the analytical results were qualified as estimated during data validation review with a "J" qualifier. Data were estimated, and in some cases rejected, due to exceeded quality control criteria, including holding time exceedances and poor spike and surrogate recovery. The data that were estimated were determined to be usable. Rejected data were not used. An explanation of data validation qualifiers is presented in Table 4-1A. A complete discussion of data validation, data usability, and data quality objectives (DQOs) is included in Data Usability Reports for Field Activity 1 and Field Activity 2 (Appendix C).

4.2.2 Lagoon Test Pits

Since the former wastewater lagoon area had been sampled extensively during the NYSDEC RI, no analytical samples were collected from test pits. However, the areal extent of the lagoon area, as delineated by boundaries surveyed at each of the test pits, appears to be approximately 37,500 square feet. Depths to lagoon materials ranged from 3 to 4 feet bgs.

4.2.3 Lagoon Soil Borings

Soil samples were collected at select intervals in three lagoon borings. The three borings were located in the former wastewater lagoon area, after the boundary was delineated during the test pit excavation activity. The uppermost interval samples (0-2 feet bgs) were classified as surface soil samples and deeper interval samples (greater than 2 feet bgs) were classified as subsurface soil samples. All nine primary COPCs were found in lagoon boring surface soil samples; nine additional detected compounds or analytes were identified as non-COPCs. In the subsurface soil samples, all primary COPCs except mercury, were found; one organic compound and nine inorganic analytes were identified as non-COPCs. No secondary COPCs were identified for either surface or subsurface lagoon boring soil samples. Table 4-12 summarizes statistical data for all contaminants exceeding surface and subsurface soil screening criteria. Figure 4-1 illustrates the distribution of primary and secondary COPCs in the lagoon boring soils.

4.2.3.1 Primary COPCs in Lagoon Soil Borings

Nine primary COPCs were identified for surface soils in lagoon soil borings: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide. With the exception of mercury, the same contaminants were identified as primary COPCs in subsurface soils. Note that the NYSDEC-RSCO screening values for these contaminants, except cadmium, are more stringent than the Site-specific background screening criteria values. For these contaminants, concentrations that exceed the background screening criteria are more likely to indicate Site-related contamination than those that only exceed the NYSDEC-RSCO.

Arsenic was detected in all surface and subsurface soil samples at concentrations ranging from 0.98 mg/kg to 9.1 mg/kg. The highest levels in surface and subsurface soils were both detected in LSB-03 at 0-2 feet bgs and 4-6 feet bgs. Arsenic slightly exceeded the NYSDEC-RSCO in three samples, but did not exceed background values.

Antimony and cadmium concentrations, relative to screening criteria, are similar. The greatest exceedance of antimony, in sample LSB-03-0-2 at a concentration of 22.8 mg/kg, exceeded background by 33 times. The highest detection of cadmium, in sample LSB-03-0-2 at a concentration of 2.9 mg/kg, exceeded background by 32 times.

Total chromium was detected in all lagoon boring surface and subsurface soil samples at levels ranging from 5.4 mg/kg to 11,100 mg/kg; in general, the highest concentrations were detected in LSB-03 from 0-2 feet bgs (8,550 mg/kg) and 2-4 feet bgs (11,100 mg/kg). Surface soil samples exceeded NYSDEC-RSCO criteria by up to 855 times and exceeded the background screening value by up to 370 times. Subsurface soil samples exceeded NYSDEC-RSCO criteria by up to 1,110 times and the background screening value by up to 362 times. Hexavalent chromium was detected in three samples: LSB-01-0-2 at 6 mg/kg; LSB-01-2-4 at 6 mg/kg; and LSB-02-0-2 at 9 mg/kg. There is no soil screening value for hexavalent chromium.

Lead was detected in all surface and subsurface soil samples, at levels ranging from 1.9 J mg/kg to 118 mg/kg. The highest levels of lead were reported in LSB-03 at 0-2 feet bgs (106 mg/kg) and 4-6 feet bgs (118 mg/kg). Lead concentrations exceeded background screening criteria by up to 5 times in all surface samples and by up to 6 times in two of the subsurface soil samples.

Mercury was detected in two surface soil samples; one sample slightly exceeded the NYSDEC-RSCO value. No detections were above background screening criteria.

Nickel was detected at levels ranging from 4.2 mg/kg to 33.8 mg/kg. Concentrations in surface and subsurface soil samples exceeded NYSDEC-RSCO by up to 3 times.

Cyanide was detected in all surface and in eight subsurface soil samples at levels ranging from 0.03 mg/kg to 1.2 mg/kg. The highest levels in both surface and subsurface soils were detected in LSB-03 at 0-2 feet bgs and 4-6 feet bgs. Cyanide was detected in all three surface and in two subsurface samples at levels up to 6 times the background screening value.

4.2.3.2 Non-COPCs in Lagoon Soil Boring Soils

The following nine inorganic analytes were identified as non-COPCs in the surface soils: barium, beryllium, copper, iron, selenium, silver, sodium, thallium, and zinc. One organic compound and nine inorganic analytes were identified as non-COPCs in the subsurface soils: pentachlorophenol, beryllium, calcium, copper, iron, magnesium, selenium, sodium, thallium, and zinc.

4.2.3.3 Extent of Contamination in Lagoon Soil Borings

In general, the highest concentrations and greatest number of exceedances in lagoon soil samples collected during the CDM RI were detected in samples collected from location LSB-03 (located on the eastern side of the former wastewater lagoons). The lowest concentrations were detected in samples collected from location LSB-01 (located on the western side of the former wastewater lagoons). Because effluent probably flowed into the lagoon(s) from east to west, the pattern of contamination generally corresponds to the most likely historical waste management practices. This is especially true for antimony, cadmium, and chromium, which were detected most often and at the highest concentrations.

Contaminant levels generally tended to decrease with depth. The primary contaminants with the highest concentrations and greatest number of detections were antimony, cadmium, and chromium. Cadmium was detected at concentrations above screening criteria in the terminal interval in all borings; chromium concentrations also exceeded respective criteria in the terminal interval in the eastern boring. In these areas, the vertical extent of contamination below observed lagoon materials is not known.

During the 1996 EPA ERT SI, surface and subsurface samples collected for onsite XRF analysis in and around the suspected edges of the lagoons indicated that the majority of lagoon soils from 0 to 8 feet bgs contained chromium at levels over 1,000 mg/kg, with levels as high as 37,000 mg/kg. Confirmatory laboratory samples indicated chromium levels up to 50,000 mg/kg. The highest chromium concentrations were in subsurface soil at depths from 2 to 6 feet.

4.2.4 Building Soil Borings

A total of 12 subsurface soil samples plus a duplicate sample were collected beneath the former tannery building at five boring locations, BSB-01 through BSB-05. Samples were collected from each boring location at the 0-2-foot interval (directly below the concrete foundation) and the 8-10-foot interval. Additional samples were collected in BSB-02 (6-8 feet) and in BSB-04 (2-4 feet), as described in Section 2. All nine primary COPCs were found in building boring soil samples. Eleven detected compounds or analytes were identified as non-COPCs; no secondary contaminants were identified. Table 4-13 summarizes statistical data for all building boring COPCs. Figure 4-2 illustrates the distribution of primary contaminants in the building boring soils.

4.2.4.1 Primary COPCs in Building Soil Borings

All nine primary COPCs were found in building boring samples: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide. Note that the NYSDEC-RSCO screening values for these contaminants, except cadmium, are more stringent than the Site-specific background screening criteria values. For these contaminants, concentrations that exceed the background screening criteria are more likely to indicate Site-related contamination than those that only exceed the NYSDEC-RSCO.

Antimony was detected and exceeded background screening criteria in two building boring samples. Concentrations in the 0-2 foot intervals at BSB-02 and BSB-04 were 1.1 BJ mg/kg and 7 BJ mg/kg, respectively.

Arsenic was detected in 10 building boring samples, at levels ranging from 1 to 2 times NYSDEC-RSCO levels, but below background screening criteria levels. Concentrations ranged from 1.7 mg/kg to 9.9 mg/kg with the highest concentration reported in BSB-05 (0-2 feet).

Cadmium was detected in all 13 soil samples at levels ranging from 0.14 mg/kg to 0.77 mg/kg. All cadmium results exceeded background screening criteria, but did not exceed NYSDEC-RSCO screening criteria. In general, cadmium levels decreased with depth, with the highest cadmium levels at all locations detected in the first two feet. Levels in the 0-2-foot interval ranged from 4 to 8 times background screening criteria, with levels in the 8-10-foot interval ranging from 1 to 5 times. Elevated concentrations of cadmium were also detected in BSB-04 from 2-4 feet at 8 times background screening criteria.

Total chromium was detected in all 13 soil samples at levels ranging from 4.5 J mg/kg to 2,210 J mg/kg. Results from 11 of the 13 samples exceeded the NYSDEC-RSCO, and 10 exceeded the Site-specific background screening criteria for subsurface soil. The

Site-specific background screening criteria for chromium is over three times higher than the NYSDEC-RSCO. The highest levels of chromium were detected in BSB-04. Chromium levels in the 0-2-foot interval were 221 times the NYSDEC-RSCO screening criteria and 72 times background screening criteria; levels in the 8-10-foot interval were 40 times and 13 times NYSDEC-RSCO and background screening criteria, respectively. Elevated levels of chromium were also detected in BSB-02 (0-2 feet) and BSB-05 (8-10 feet). Hexavalent chromium was detected in BSB-02 (6-8-foot interval) and in BSB-05 (both the 0-2 and 8-10-foot intervals); results for all three samples were 4 J mg/kg. No soil screening criteria value is available for hexavalent chromium.

Lead was detected in all 13 soil samples at levels ranging from 2.6 mg/kg to 141 J mg/kg. Results from 5 of the 13 samples exceeded background screening criteria; no screening criteria is listed for NYSDEC-RSCO. The lead concentration in BSB-02 was detected at 7 times the background screening criteria. Lead concentrations in the remaining four samples, located in building borings BSB-01, BSB-02, and BSB-04, ranged from 1 to 2 times the background screening criteria.

Mercury and nickel were detected at levels ranging from 1 to 2 times NYSDEC-RSCO levels, but below background screening criteria. Mercury was detected in 8 of the 13 soil samples at levels ranging from 0.06 mg/kg to 0.23 mg/kg. Mercury levels exceeded screening criteria from samples at the 0-2-foot interval in BSB-01 and BSB-02. Nickel was detected in all 13 samples at levels ranging from 4.4 mg/kg to 30.7 J mg/kg. Results from five samples in each of the soil borings exceeded screening criteria, with the highest concentration in BSB-01 (0-2 feet).

Cyanide was detected in all samples at levels ranging from 0.07B mg/kg to 1 mg/kg. Concentrations exceeded background screening criteria in five samples at levels up to 5 times. The highest concentration was reported in the 0-2 foot interval at BSB-02.

4.2.4.2 Non-COPCs in Building Soil Borings

Eleven analytes were identified as non-COPCs for subsurface soil samples: barium, beryllium, calcium, copper, iron, magnesium, manganese, potassium, sodium, and zinc. Iron, zinc, beryllium exceeded screening criteria in 13, 11, and 10 samples, respectively.

4.2.4.3 Extent of Contamination in Building Soil Borings

Contaminant concentrations of COPC inorganic chemicals generally tended to decrease with depth, with the exception of hexavalent chromium levels, which were elevated at depth. Primary COPCs with the highest concentrations and greatest number of detections during the CDM RI were cadmium, chromium, and lead. Arsenic, mercury, and nickel generally were present only in the 0-2-foot interval directly below the building foundation. These metals were detected at levels from 1 to 2 times NYSDEC-RSCO screening criteria but below background screening criteria. Cadmium, chromium, and lead were detected at the terminal interval at the majority of the soil borings; the vertical extent of chromium contamination in these locations is not defined.

The presence of elevated levels of primary COPCs in soils below the building foundation is a clear indicator of contamination associated with seepage of process wastewater underneath the former tannery. Cadmium, chromium, and lead were known to be used in tannery operations and were present in historical samples from wastewater discharging from the Site. The majority of cadmium, chromium, lead, and other primary COPC contamination appears to be concentrated in soils underlying "tan house" operations in the former tannery building (BSB-02, BSB-04, and BSB-05). BSB-02 is located in the center of "tan house" operations, BSB-04 is located in the southeast corner (approximately 50 feet from the Unadilla River), and BSB-05 is located in the southwest corner, by the coloring process concrete dye tanks.

Arsenic and nickel were detected in historic source samples, and are considered site-related contaminants; however, because they were detected below background screening criteria, and only slightly above NYSDEC-RSCO criteria, arsenic, mercury, and nickel may not clearly indicate site-related contamination.

4.2.5 Onsite Soil Borings

A total of 22 surface soil samples, plus a duplicate and 52 subsurface soil samples were collected at 22 onsite soil borings, RSB-01 through RSB-19, RSB-26, RSB-48, and RSB-49. Surface soil samples were collected at each boring from the 0-2-foot depth interval. Subsurface soil samples were collected from multiple depth intervals at each boring location ranging from the 2-4-foot interval to the 8-10-foot interval. All nine primary COPCs were found in both surface and subsurface soils from onsite soil borings. In addition, four organic secondary COPCs were identified for both surface and subsurface soil samples. Fourteen compounds or analytes in surface soils and 15 in subsurface soils were identified as non-COPCs. Table 4-14 summarizes statistical data for all contaminants exceeding surface and subsurface soil screening criteria. Figure 4-3a and Figure 4-3b summarize results of primary and secondary COPCs in onsite soil boring samples.

4.2.5.1 Primary COPCs in Onsite Soil Borings

All nine primary COPCs were identified for both surface and subsurface soil samples as exceeding the soil screening criteria: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide. Note that the NYSDEC-RSCO screening values for these contaminants, except cadmium, are more stringent than the Site-specific background screening criteria values. For these contaminants, concentrations that exceed the background screening criteria are more likely to indicate Site-related contamination than those that only exceed the NYSDEC-RSCO.

Antimony exceedances were similar in both surface and subsurface soil. In onsite surface soil, antimony detections ranged from 1.3 BJ to 260 J mg/kg. Antimony was detected in 10 of 23 samples and all detections exceeded regulatory criteria. The maximum exceedance quotient for antimony was 377 times the background screening criteria at sampling location RSB-08-0-2. In subsurface soil, antimony detections ranged from 0.55 to 225 J mg/kg. Antimony was detected in 20 of 52 samples and exceeded regulatory criteria in 19 samples. The maximum exceedance quotient for antimony was 363 times the background screening criteria at sampling location RSB-01-2-4 in the depth interval of 2-4 feet.

Arsenic detections ranged from 3.1 J to 41 mg/kg in surface soil. Arsenic was detected in all surface soil samples and 9 exceeded regulatory criteria. The maximum exceedance quotient for arsenic in surface soil was 5 times the NYSDEC-RSCO, at sampling location RSB-02-0-2. The extent and magnitude of arsenic in subsurface soil were very similar. Concentrations ranged from 1.4 to 45 mg/kg and were detected in all samples, with 13 exceeding regulatory criteria. The maximum exceedance quotient for arsenic in subsurface soil was 6 times the NYSDEC-RSCO at sampling location RSB-15-4-6 in the depth interval of 4-6 feet.

Cadmium detections ranged from 0.32 to 4.1 mg/kg in surface soil. Cadmium was detected in 21 of 23 samples and all exceeded regulatory criteria. The maximum exceedance quotient for cadmium was 46 times the background screening criteria value at sampling location RSB-17-0-2. In subsurface soil cadmium detections ranged from 0.15 to 11.8 J mg/kg. It was detected in 47 of 52 samples and all exceeded regulatory criteria. The maximum exceedance quotient for cadmium was 124 times the background screening criteria at sampling location RSB-16-2-4 in the depth interval of 2-4 feet.

Total chromium was detected in all surface and subsurface soil samples. Concentrations ranged from 5.2 J mg/kg to 75,800 mg/kg in surface soil and from 4.8 mg/kg to 74,600 J mg/kg in subsurface soil. Total chromium levels exceeded NYSDEC-RSCO criteria in 19 surface and 45 subsurface soil samples. Surface soil concentrations were detected to 7,380 times NYSDEC-RSCO and to 328 times background screening criteria at RSB-08. The highest subsurface soil result at RSB-01-2-4 exceeded NYSDEC-RSCO by 7,460 and background screening criteria by 243 times. Hexavalent chromium detections ranged from 6 to 36 J mg/kg in surface soil. It was detected in 3 of 23 samples. The highest detection was in sample RSB-02-0-2. In subsurface soil hexavalent chromium detections ranged from 4 to 86 mg/kg. It was detected in 8 of 52 samples. The highest detection was in sample RSB-06-4-6 in the depth interval of 4-6 feet. No screening value is available for hexavalent chromium.

Lead detections ranged from 5.8 to 319 mg/kg in surface soil. Lead was detected in all 23 surface soil samples collected and 20 exceeded regulatory criteria. The maximum exceedance quotient for lead was 14 times the background screening criteria at sampling location RSB-16-0-2. In subsurface soil, lead detections ranged from 2.5 to 849 mg/kg. Lead was detected in all 52 samples collected and 23 exceeded regulatory criteria. The maximum exceedance quotient for lead was 40 times the background screening criteria at sampling location RSB-15-2-4 in the depth interval of 2-4 feet.

Mercury detections ranged from 0.07 BJ to 0.8 mg/kg in surface soil. Mercury was detected in 17 of the 21 samples, and 14 exceeded the NYSDEC-RSCO. The maximum exceedance quotient for arsenic was 8 times the NYSDEC-RSCO at sampling location RSB-07-0-2. The extent and magnitude of mercury in subsurface soil were very similar. Its detections ranged from 0.05 BJ to 0.86 mg/kg and it was detected in 30 of the 47 samples that passed through data validation, exceeding regulatory criteria in 23 samples. The maximum exceedance quotient for mercury was 9 times the NYSDEC-RSCO screening criterion of 0.1 mg/kg, at sampling location RSB-15-2-4 in the depth interval of 2-4 feet.

Nickel was detected in all 23 samples, at concentrations ranging from 6.3 to 43.1 mg/kg in surface soil; concentrations exceeded regulatory criteria in 17 samples. The maximum exceedance quotient for nickel was 3 times the NYSDEC-RSCO screening criterion at sampling location RSB-01-0-2. In subsurface soil, nickel detections ranged from 4.3 to 60.8 J mg/kg. Nickel was detected in all samples collected and exceeded regulatory criteria in 26 samples. The maximum exceedance quotient for nickel in subsurface soil was 5 times the NYSDEC-RSCO screening criterion at RSB-16-2-4.

Cyanide detections ranged from 0.06 to 3.1 mg/kg in surface soil. Cyanide was detected in all 23 samples collected and 16 exceeded regulatory criteria. The maximum exceedance quotient for cyanide was 21 times the background screening criteria at sampling location RSB-01-0-2. In subsurface soil cyanide detections ranged from .03 to 6.8 J mg/kg. Cyanide was detected in 41 of 52 samples, with 19 exceeding regulatory criteria. The maximum exceedance quotient for cyanide was 34 times the background screening criteria at sampling location RSB-01-2-4 in the depth interval of 2-4 feet.

4.2.5.2 Secondary COPCs in Onsite Soil Borings

Four PAHs are identified as secondary COPCs in both onsite surface and subsurface soil: benzo(a)anthracene, benzo(a)pyrene, chrysene, and dibenz(a,h)anthracene. Detected values ranged from 43 J to 15,000 J ug/kg in surface soil and from 60 J to 8,400 ug/kg in subsurface soil. Benzo(a)anthracene, benzo(a)pyrene, and chrysene were detected in 13 to 14 of the 18 surface soil samples and in 19 to 21 of the 42 subsurface soil samples. Dibenz(a,h)anthracene was less frequently detected in 3 of the 18 surface soil samples and in 7 of the 42 subsurface soil samples. Some of the PAH data were rejected. Exceedance quotients in surface soil ranged from 7 to 44 times the NYSDEC-RSCO screening criterion, with the maximum exceedances for all 4 PAHs found at RSB-07-0-2. Exceedance quotients in subsurface soil ranged from 7 to 25 times the NYSDEC-RSCO screening criterion. The maximum exceedances for benzo(a)anthracene, benzo(a)pyrene, and chrysene were found on the south side of the Unadilla River at RSB-16-2-4 in the depth interval of 2-4 feet, and the maximum exceedances for dibenz(a,h)anthracene found at RSB-09-2-4 in the depth interval of 2-4 feet.

4.2.5.3 Non-COPCs in Onsite Soil Borings

Fourteen analytes were identified as non-COPCs in surface soil. Of those, barium, beryllium, calcium, cobalt, copper, iron, selenium, sodium, vanadium, and zinc were detected in most or all 23 of the samples, whereas, thallium and silver were only detected in a few of the samples.

Fifteen analytes were identified as non-COPC exceedances in subsurface soil. Of those, barium, beryllium, calcium, cobalt, copper, iron, magnesium, manganese, sodium, and zinc were detected in most or all samples, whereas, selenium, thallium, and silver were only detected in a few to approximately one third of the samples. Two PAHs, benzo(b)fluoranthene and benzo(k)fluoranthene, were detected in approximately half of the samples.

4.2.5.4 Extent of Contamination in Onsite Soil Borings

Specific areas of the Site contain clusters of higher-magnitude detections of primary COPCs in both surface and subsurface soil, indicating locations where wastes probably were released more frequently or directly to the ground in conjunction with tannery waste disposal practices. The location of the most frequent exceedances of soil screening criteria by the primary COPCs in both surface and subsurface soil is southwest of the former building footprint, between the former building location and the river where the former sluiceway and underground storage tank (UST) were located. Other areas of elevated primary COPC contamination in surface and subsurface soil include the area directly south of the east wing of the building footprint adjacent to the concrete dye tanks, the west-central portions of the Site where lagoon overflow was directed to the onsite wetland, the south side of the river where wastes were apparently disposed, and the northwestern portion of the Site where waste materials likely were landfilled along the eastern bank of the onsite wetland.

Figure 4-4a presents an isoconcentration map of total chromium results in all surface soil samples. Surface soil results from lagoon boring, building boring, and South Bank Front Lot samples are included in the figure to complete the illustration. Figure 4-4b presents an isoconcentration map of the highest subsurface soil total chromium results in onsite soil borings; subsurface soil results from lagoon boring and building boring samples area are also included. Figures 4-5a and 4-5b present 3-dimensional models, generated by the Environmental Visualization System (EVS), of total chromium distribution in onsite soils at levels exceeding 100, 1,000, 2,500, 5,000 and 10,000 mg/kg. As shown in these figures, total chromium concentrations are most extensive in and below the areas of the former sluiceway and UST on the southwest side of the former building, the concrete dye tanks on the southeast side of the former building, and in the area of lagoon overflow to the north of the former wastewater lagoons. The highest detections, greater than 5,000 times NYSDEC-RSCO, and deepest extent of contamination are concentrated below the former sluiceway, around the UST, and along the drainage discharge path from lagoon overflow. According to the EVS model, the approximate volume of soil exceeding 100 mg/kg is approximately 110,000 cubic yards and the approximate volume of soil exceeding 10,000 mg/kg is 600 cubic yards.

PAHs were found in surface and near surface soil in the west-central portion of the Site and on the south side of the river, respectively. Specific sources of PAHs observed in soils are unknown.

During the 1996 EPA ERT SI, soil samples collected in the area north of the former wastewater lagoons had XRF chromium concentrations up to 60,000 mg/kg, with the highest levels occurring at the surface.

4.2.6 Off Site Soil Borings

CDM collected a total of 14 surface and 38 subsurface soil samples at off site soil boring locations. Soil samples were collected at the 0-2 foot interval and at select intervals from 2-10 feet in 13 borings located at the Crumb Trailer Park and in one boring located at the Ferguson Fuels property. All nine primary COPCs were found in surface and subsurface soil samples at off site soil borings. Eleven compounds or analytes in surface soil samples and 12 in subsurface soil samples were identified as non-COPCs. No secondary COPCs were identified. Table 4-15 summarizes statistical data for all contaminants exceeding surface and subsurface soil screening criteria. Figures 4-6a and Figure 4-6b illustrate the distribution of primary COPCs in off site soils.

4.2.6.1 Primary COPCs in Off Site Soil Borings

All nine primary contaminants were identified during the CDM RI for both surface and subsurface soil samples: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide. NYSDEC-RSCO screening values for these contaminants, except cadmium, are more stringent than the Site-specific background screening criteria values. For these contaminants, concentrations that exceed the background screening criteria are more likely to indicate Site-related contamination than those that only exceed the NYSDEC-RSCO.

Antimony was detected in 5 surface and 10 subsurface soil samples; all detections exceeded background screening criteria at levels up to 14 times. Highest concentrations during the CDM RI were detected in surface soils at RSB-41 (9.9B mg/kg) and at the 2-4 foot interval at RSB-22 (5.8B mg/kg).

Arsenic was detected in all surface and subsurface soil samples and exceeded the NYSDEC-RSCO in 11 of the surface and 20 of the subsurface samples at levels up to 11 times. Concentrations also exceeded background values in 4 surface and 4 subsurface samples by 7 times and 1 time, respectively. Highest concentrations during the CDM RI were in surface soils in RSB-41 (80.9 mg/kg) and the 2-4 foot interval in RSB-21 (26.7 mg/kg).

Cadmium was detected in all surface and in 28 of 38 subsurface soil samples; concentrations in these samples exceeded background screening criteria up to 56 and 71 times, respectively. Concentrations in surface soils ranged from 0.19 B mg/kg to 5 mg/kg in surface soils and from 0.15 B mg/kg to 6.7 mg/kg in subsurface soils. The highest concentrations during the CDM RI were detected in the top six feet in borings in the northeast and southeast sections of the trailer park. Cadmium was also detected in the boring located at Ferguson Fuels at levels 2 to 5 times background screening criteria.

Total chromium was detected in all surface and subsurface soil samples; concentrations in surficial soils ranged from 6.7 mg/kg to 1,430 mg/kg and in subsurface soils from 3.8 mg/kg to 1,190 J mg/kg. Total chromium concentrations exceeded background screening criteria in 13 surface and 20 subsurface soil samples, located primarily along the northern border and southwestern corner of the trailer park. The highest concentration in surface soils was found in RSB-41 at 143 times the NYSDEC-RSCO and 62 times background screening criteria. The highest concentration in subsurface soils was found in RSB-21-2-4 at 119 times the NYSDEC-RSCO and 39 times background screening criteria. In general, the highest concentrations during the CDM RI were detected in soil borings RSB-22, RSB-41, RSB-42, and RSB-43, where concentrations exceeded background screening criteria at every interval. Total chromium was also detected in the surface soil at the soil boring located at Ferguson Fuels at 5 times the NYSDEC-RSCO. Hexavalent chromium was detected in 1 surface and 5 subsurface soil samples at levels ranging from 4 J mg/kg to 17 J mg/kg. The highest concentrations during the CDM RI were detected in the surface soil sample at RSB-22, and the subsurface soil detection at the same location and at the two soil borings directly to the west, RSB-21 and RSB-42.

Lead was detected in all surface and subsurface soil samples at levels ranging from 13.7 J mg/kg to 1,820 mg/kg in the surface and from 3.7 mg/kg to 1,490 mg/kg in the subsurface. The highest surface and subsurface soil lead concentrations were both found in RSB-43; the surface soil sample was 77 times background screening criteria and the 2-4-foot interval was 70 times background screening criteria.

Mercury was detected in 10 surface and 16 subsurface soil samples. Mercury concentrations in surface soils ranged from 0.09 mg/kg to1.1 mg/kg and exceeded background screening criteria in 8 samples. The highest surface concentration was detected at RSB-41, 11 times NYSDEC-RSCO. Subsurface concentrations ranged from 0.05 B mg/kg to 30.3 NJ mg/kg and exceeded background screening criteria in 9 samples. The highest mercury concentration in subsurface soils was detected at RSB-42-4-6, 303 times NYSDEC-RSCO.

Nickel was detected in all surface and subsurface soil samples. Nickel levels exceeded NYSDEC-RSCO values in 8 surface and 14 subsurface samples by 3 and 5 times, respectively. Nickel concentrations slightly exceeded background levels in 2 subsurface samples but no surface samples. Highest levels in subsurface soils were detected in RSB-41 from 4-6 feet bgs.

Cyanide was detected in all surface and all but one subsurface soil samples. Concentrations exceeded background screening values in 11 surface and 11 subsurface samples by up to 11 times. Concentrations ranged from 0.04 B mg/kg to 1.7 mg/kg with highest detections in RSB-21 and RSB-22.

4.2.6.2 Non-COPCs in Off Site Soil Borings

Eleven analytes were also detected in surface soil samples: barium, beryllium, calcium, copper, iron, manganese, selenium, silver, sodium, thallium, and zinc. Twelve (barium, beryllium, calcium, copper, iron, magnesium, potassium, selenium, silver, sodium, thallium, and zinc) were detected in subsurface soils. These analytes are considered non-COPCs.

4.2.6.3 Extent of Contamination in Off Site Soil Borings

The highest levels of the majority of primary and secondary COPCs are found in the northwest corner of the trailer park in RSB-21, RSB-22, RSB-41, RSB-42, and RSB-44). In general, the highest concentrations of primary COPCs, antimony, arsenic, total and hexavalent chromium, cyanide and lead were found in surface soils during the CDM RI, where the highest concentrations of primary COPCs cadmium, mercury, and nickel were found in the subsurface soils. With the exception of RSB-21 and RSB-42, chromium and other primary COPC concentrations tended to decrease with depth. This distribution is consistent with landfill operation and closure (i.e., pushing materials to the rear and some mixing with cover soils).

4.2.7 South Bank Front Lot Surface Soils

Surface soil samples were collected at six locations in the South Bank Front Lot. Seven of the nine primary COPCs were found in surface soil samples. An additional nine detected analytes were identified as non-COPCs. Table 4-16 summarizes statistical data for all contaminants exceeding surface soil screening criteria. Figure 4-7 illustrates the distribution of primary COPCs.

4.2.7.1 Primary COPCs in South Bank Front Lot Surface Soils

Seven primary COPCs were found in South Bank Front Lot surface soil samples: antimony, arsenic, cadmium, total chromium, cyanide, lead, and nickel. Mercury and hexavalent chromium were not detected in any samples.

Antimony was detected in three surface soil samples at concentrations ranging from 0.64B mg/kg to 1.6 B mg/kg. Concentrations exceeded background screening criteria in RSS-01 (1.6 B mg/kg) and RSS-02 (0.75 B mg/kg).

Arsenic was detected in all of the samples collected with concentrations ranging from 5.3 mg/kg to 16.5 mg/kg. Five of the concentrations exceeded the RSCO of 7.5 mg/kg. The highest concentration was in RSS-06, which exceeded NYSDEC-RSCO criteria by 2 times.

Cadmium was detected in all of the soil samples at levels ranging from 0.18 B mg/kg to 0.92 B mg/kg. All cadmium results exceeded background screening criteria of 0.09 mg/kg , but none of the detected concentrations exceeded the NYSDEC-RSCO screening criteria of 1 mg/kg. The highest cadmium concentration was detected in RSS-03-DUP, which exceeded NYSDEC-RSCO by 10 times.

Chromium was detected in all of the soil samples at concentrations ranging from 104 mg/kg to 474 mg/kg. All chromium results exceeded both the NYSDEC-RSCO screening criteria of 10 mg/kg as well as the background screening criteria of 23.1

mg/kg. The highest chromium concentration was detected in RSS-01, which exceeded NYSDEC-RSCO by 47 times.

Cyanide was detected in all of the samples collected with concentrations ranging from 0.1 mg/kg to 0.26 mg/kg. Four of the concentrations exceeded the Site background criteria of 0.15 mg/kg. The highest concentration was in RSS-05, which exceeded background screening values by 2 times.

Lead was detected in all of the soil samples at concentrations ranging from 22.8 mg/kg to 189 mg/kg. Six of the seven lead results exceeded the background screening criteria of 23.5 mg/kg. The highest lead concentration was detected in RSS-03-DUP, which exceeded background screening value by 48 times. There is no NYSDEC-RSCO for lead.

Nickel was detected in all of the samples collected, with concentrations ranging from 8.8 B mg/kg to 21.3 J mg/kg. Six of the concentrations exceeded NYSDEC-RSCO of 13 mg/kg. The highest concentration was detected in RSS-03-DUP, which exceeded the lowest screening criteria by 2 times.

4.2.7.2 Non-COPCs in South Bank Front Lot Surface Soils

Nine analytes were consistently detected in all of the surface soil samples and identified as non-COPCs: barium, beryllium, copper, iron, magnesium, manganese, potassium, selenium, silver, and zinc. These analytes are ubiquitous in natural environments, were detected at concentrations minimally exceeded screening criteria, and were not suspected to be Site-related.

4.2.7.3 Extent of Contamination in South Bank Front Lot Surface Soils

The distribution and type of contaminants detected in the South Bank Front Lot soils are consistent with the premise that Hiteman waste material was used to fill the area. In addition, the contaminant detections in the South Bank Front Lot surface soils are consistent with onsite detections. The sporadic distribution of the primary contaminants is also consistent with random fill and disposal activities.

4.2.8 Onsite Wetland Sediments

Sediment samples were collected from two depths (0-6 inches and 18-24 inches) at 15 locations in the onsite wetland. Table 4-17 summarizes statistical data for all contaminants exceeding sediment screening criteria. Figures 4-8a and 4-8b illustrate the distribution of primary and secondary COPCs in the onsite wetland sediments.

4.2.8.1 Primary COPCs in Wetland Sediments

Eight of the primary COPCs were found in wetland sediment samples: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, and nickel. There are no NYSED-HFW screening values available for inorganic analytes. Therefore, the primary COPCs were screened against the NYSED-AC-LEL and NYSED-AC-SEL criteria.

Antimony was detected in 21 sediment samples at levels ranging from 2.1 mg/kg to 795 mg/kg. All of the samples exceeded the NYSED-AC-LEL screening criterion by up to 398 times; 10 of the samples exceeded the NYSED-AC-SEL by up to 32 times.

Arsenic was detected in all 32 sediment samples at levels ranging from 3.1 BJ mg/kg to 188 J mg/kg. Concentrations in 27 samples exceeded the NYSED-AC-LEL screening criterion by up to 31 times; 6 samples exceeded the NYSED-AC-SEL screening criterion by up to 6 times. The highest concentrations during the CDM RI were detected along the eastern border of the wetland with the highest concentration of 188 J mg/kg in the surface samples at WTSD-14.

Cadmium was detected in 22 of the 32 samples at concentrations ranging from 0.4 B to 6.2 J mg/kg. Nineteen detections were above the NYSED-AC-LEL screening criterion at levels up to 10 times; none of the samples exceeded the NYSED-AC-SEL.

Chromium was detected in all wetland sediment samples at levels ranging from 15.2 J mg/kg to 89,900 J mg/kg. Concentrations in 30 of the samples exceeded the NYSED-AC-LEL screening criterion by up to 3,458 times and 26 samples exceeded the NYSED-AC-SEL screening criterion by up to 82 times. The magnitude of total chromium exceedances was the greatest, when compared with the other primary COPCs. Figures 4-9a and 4-9b illustrate the distribution of chromium contamination in the onsite wetland. Hexavalent chromium was detected in 10 sediment samples at levels ranging from 19 J mg/kg to 160 J mg/kg. Hexavalent chromium concentrations exceeded the LEL by up to 6 times in 7 samples, primarily located along the eastern border of the wetland. Concentrations in both intervals at WTSD-17 slightly exceeded the SEL.

Lead was detected in all samples at levels ranging from 16.1 mg/kg to 316 J mg/kg, with the highest concentration in WTSD-01-0-6. Lead concentrations exceeded the LEL in 26 samples by up to 10 times and exceeded the SEL in 14 samples by up to 3 times.

Mercury and nickel were detected in the majority of sediment samples. Mercury concentrations ranged from 0.18 mg/kg to 0.82 J mg/kg, all of which exceeded the LEL. The highest levels of mercury were detected in WTSD-05-18-24 at 5 times the SEL. Mercury concentrations did not exceed the SEL.

Nickel was detected at levels from 8.3 BJ mg/kg to 37.3 J mg/kg, with the highest concentration at WTSD-07-18-24. Nickel concentrations exceeded the LEL by up to 2 times in 19 samples. Nickel concentrations did not exceeded the SEL.

4.2.8.2 Secondary COPCs in Wetland Sediments

Copper, alpha-chlordane and gamma-chlordane were identified as secondary COPCs for wetland sediments. Twenty-six detections were above the NYSED-AC-LEL screening criterion; one of the samples exceeded the NYSED-AC-SEL by six times.

Alpha- and gamma-chlordane were detected in all samples at levels up to 226 and 199 times the NYSED-HFW, respectively.

4.2.8.3 Non-COPCs in Wetland Sediments

Four inorganic analytes and 12 organic compounds were identified as non-COPCs, including several pesticides, one PCB Aroclor, and two metals; however, they either are not considered to be Site-derived contaminants or are not present at sufficient concentrations to have significantly impacted the wetland.

4.2.8.4 Extent of Contamination in Wetland Sediments

The highest concentrations during the CDM RI of total chromium, hexavalent chromium, lead, and mercury generally were detected in samples collected from the surface interval compared with the deeper interval across the lower portion of the wetland, especially around the eastern margin at sample location WTSD-14. WTSD-14 is located by the outfall from a weir box that directed overflow water into the onsite wetland. However, concentrations were highest in the deeper sample compared with the surface sample interval in the northern portion of the wetland, primarily centered around sample location WTSD-4, at the discharge from the ditch that also collected lagoon overflow. This areal and vertical distribution of contamination is best illustrated with the total chromium results.

Contaminant concentrations were generally greater in all surface samples compared with deeper samples, with the exception of chromium, lead, and mercury; concentrations of these contaminants were higher in the deeper samples in the area of the northern outfall. Variations in the vertical distribution of these analytes may have been controlled by a combination of chemical and biochemical factors such as pH, competitive sorption between metals, organic carbon quantity, and varying Kd. Variation in the head of water across the wetland above the water-sediment interface also may have influenced downward contaminant migration rates.

During the 1996 EPA ERT SI, surface and subsurface soil samples were collected from the central portion of the onsite wetland. Surface samples from almost every location had XRF chromium concentrations greater than 10,000 mg/kg, with concentrations up to 71,000 mg/kg. Chromium in subsurface soils was significantly less than surface soils, but was still elevated, ranging up to 8,000 mg/kg.

Historical evidence suggests process wastes were routinely discharged to the onsite wetland when the wastewater lagoons became full. Historical aerial photography suggests that most tannery wastes normally flowed out of the western side of the lagoons, into the eastern margin of the wetland. In addition, under occasional extreme conditions when the lagoon berms were unable to contain the tannery waste stream, process wastes overflowed from the lagoons and drained along a ditch trending northwestwards to an outfall near the northern apex of the onsite wetland. The approximate location for both of these process waste discharge routes is known.

4.2.9 Unadilla River Sediments

Sediment samples were collected from 10 locations in the Unadilla River. Six of the primary COPCs were found in Unadilla River sediments. Two organic contaminants were identified as secondary COPCs and eight organics and three inorganics were identified as non-COPCs. Table 4-18 summarizes statistical data for all contaminants exceeding sediment screening criteria. Figure 4-10 illustrates the distribution of primary and secondary COPCs in Unadilla River sediments.

4.2.9.1 Primary COPCs in Unadilla River Sediments

The primary COPCs antimony, arsenic, chromium, lead, mercury, and nickel were found in Unadilla River sediment samples. All five primary COPCs were detected at levels exceeding the most stringent screening criteria, the NYSED-AC-LEL, as well as upstream (background) concentrations. Cadmium levels did not exceed the most stringent screening criteria. Hexavalent chromium and cyanide were not detected in any Unadilla River sediment samples.

Antimony was detected in eight sediment samples, six of which were detected above the LEL; the highest concentration was located at URSD-5, 8 times the SEL. Arsenic was detected in all but one downstream location at levels ranging from 1.7 B mg/kg to 7.2 J mg/kg, and exceeded the LEL at URSD-5 by one time.

Chromium was detected in all downstream sediment samples at levels ranging from 10.9 mg/kg to 1,670 mg/kg. It was detected in 7 samples at levels up to 64 times the LEL, and in 4 samples at levels 15 times the SEL. Chromium was the only primary COPC to exceed the SEL. Chromium was also detected above the LEL in URSW-10, the most downgradient sample, located approximately 2 miles downstream.

Lead was detected in all sediment samples, with the highest concentration in URSD-6. Lead was detected at levels ranging from 6.1 J mg/kg to 58.3 mg/kg. Concentrations exceeded the LEL in three samples at levels up to two times. Mercury was detected in 6 samples at levels ranging from 0.09 BJ mg/kg to 0.25 BJ mg/kg, and exceeded the LEL in 4 samples: URSD-2, URSD-5, URSD-6, and URSD-1 (the upstream background location). Nickel was detected in all sediment samples at levels from 6.2 B mg/kg to 18.8 mg/kg; concentrations exceeded the LEL by one time at three locations (URSD-5, URSD-7, and URSD-8).

4.2.9.2 Secondary COPCs in Unadilla River Sediments

Two organic compounds, benzo(a)anthracene and gamma-chlordane, were identified as secondary COPCs. All secondary COPCs were detected at levels exceeding those in the upstream (background) sample. Benzo(a) anthracene was detected in 8 sediment samples; three exceeded the NYDEC Sediment Criteria for Human Food Chain, and two exceeded the LEL. The highest levels were found in URSD-2. Gamma-chlordane was detected at the highest magnitude above the LEL, at 245 times in URSD-9. Gamma chlordane was detected in only 2 samples downstream of the Site. However, based on Site historical data, it is unclear whether it can be attributed to Site operations. Further, due to the presence of large farms along the Unadilla, these values may be indicative of runoff from pesticide use at farms downstream of the Site.

4.2.9.3 Non-COPCs in Unadilla River Sediments

4-Methylphenol, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, endosulfan I, chrysene, beta-BHC, copper, iron, and manganese were detected at levels ranging from 1 to 5 times the NYDEC Sediment Criteria for Human Food Chain.

4.2.9.4 Extent of Contamination in Unadilla River Sediments

Primary COPCs are present in sediments adjacent to and downstream of the Site. With the exception of concentrations in URSD-3, all downstream concentrations exceeded those in the upstream sample. The highest concentrations of primary contaminants during the CDM RI were found at the discharge from the "tan house" concrete dye tanks (URSD-2), approximately 2,500 feet downstream (URSD-6), and approximately 1.2 miles downstream (URSD-9). The lowest concentrations were detected in URSD-3. This suggests that impacted sediments are continuing to migrate downstream from the Site, and that contaminated upstream sediments adjacent to the Site are acting as a source that continues to impact the downstream locations. The extent of chromium contamination in sediments downstream of URSD-10 is unknown at this time, as evidenced by the presence of total chromium in the most down-stream sample location.

4.2.10 Unadilla River Surface Water

Surface water samples were collected from 10 locations in the Unadilla River. No contaminants identified as primary COPCs were detected at levels exceeding sediment screening criteria. Aluminum, a secondary COPC, was detected at the four furthest downstream locations at levels ranging from one to two times screening criteria. Table 4-19 summarizes statistical data for all contaminants detected at levels above screening criteria. Although these downstream levels were greater than the aluminum level in the upstream background location, the absence of notable levels in the section of the river adjacent to and directly downstream of the facility indicate that elevated aluminum levels are not attributable to activities at the Hiteman Leather Site.

During the 1996 EPA ERT SI, the surface water sample adjacent to the wetlands and west of the former wastewater lagoons had the highest concentrations of metals in the filtered and unfiltered samples. Chromium was detected in this sample at 33 µg/L (unfiltered) and 5.7 µg/L (filtered). Eight other TAL metals were detected in surface water samples, including aluminum, barium, calcium, iron, magnesium, manganese, sodium, and zinc. Except for aluminum, concentrations of metals in unfiltered and filtered samples were similar, indicating that the majority of the analytes were in the dissolved fraction. Conversely, aluminum was only detected in the unfiltered samples, indicating that this analyte is associated with suspended particles.

4.2.11 Unadilla River Fish Tissue

Tissue samples of sport fish and top and bottom feeder forage fish were collected at five locations in the Unadilla River. No contaminants identified as primary COPCs were detected at levels exceeding fish tissue screening criteria for human health. Table 4-20 summarizes statistical data for all secondary COPCs and non-COPCs exceeding fish tissue screening criteria.

4.2.11.1 Secondary COPCs in Fish Tissue

Methylene chloride, identified as a secondary COPC, was detected in all downstream forage fish samples. No detections were found in sport fish samples. Concentrations were detected at up to twice the EPA Region 3 Risk-Based screening criteria in five samples. However, only three of these samples (URFF-2-A, URFF-3-B, and URFF-5-B) indicated levels above those in upstream (background) samples. Methylene chloride is not suspected to have been derived from tannery operations.

4.2.11.2 Non-COPCs in Fish Tissue

Benzene, aldrin, and heptachlor epoxide were detected at levels above screening criteria in forage fish samples but were identified as non-COPCs; no detections were found in sport fish samples. Aldrin was detected up to 40 times screening criteria at the two locations furthest downstream, and heptachlor epoxide was detected in URFF-3-A at 18 times screening criteria. Benzene was detected in one sample at the screening criteria, but below upstream (background) levels.

4.2.12 Monitoring Wells

Two rounds of groundwater samples were collected from monitoring wells located in and outside of the Site boundaries. In shallow monitoring wells, two primary COPCs were found during Field Activity 1 and only one during Field Activity 2. One organic compound was identified as a secondary COPC and six inorganic analytes were identified non-COPCs during both Field Activities. In deep monitoring wells, three primary COPCs were found during Field Activity 1 and four were found during Field Activity 2. No secondary COPCs and six non-COPCs were identified for deep monitoring wells during both Field Activities. No contaminants were detected in bedrock monitoring wells at levels above guidance or screening criteria. Tables 4-21 and 4-22 summarize statistical data for compounds and analytes exceeding groundwater standard screening levels in shallow and deep overburden monitoring wells, respectively. Figures 4-11a and 4-11b illustrate the distribution of primary and secondary COPCs in monitoring wells.

4.2.12.1 Primary COPCs in Monitoring Wells

Arsenic was detected above screening criteria in a few deep monitoring wells. During Field Activity 1, arsenic was detected in one deep monitoring well, MW-11D, at 12.5 µg/L, just above its EPA MCL. During the second round of sampling, arsenic was detected above screening levels in two wells, MW-9D and MW-13D.

Total chromium was detected in 13 shallow and 6 deep monitoring wells. Concentrations exceeded NYSDEC guidance and screening standards by up to 12 times in 4 shallow monitoring well samples and by up to 6 times in 2 deep monitoring well samples. During Field Activity 1, concentrations in shallow wells ranged from 2.2 B µg/L to 610 J µg/L, with the highest concentrations detected in MW-5S, MW-8S, and MW-6S; however, concentrations did not exceed guidance or screening standards during Field Activity 2. Concentrations in deep wells ranged from 8.3 B µg/L to 304 J µg/L during Field Activity 1, with the highest concentration in MW-11D. During Field Activity 2, total chromium was detected at levels ranging from 1.5 B µg/L to 184 J µg/L, with the highest concentration in MW-13D. Hexavalent chromium was detected at its screening level during Field Activity 2 in MW-15S, at a concentration of 0.05 mg/L (50 µg/L). No primary COPCs were detected in bedrock monitoring wells at concentrations that exceeded screening levels. However, hexavalent chromium was detected in two samples below the NYSDEC guidance and screening criteria of 50 µg/L. During Field Activity 2, hexavalent chromium was detected in well RMW-4B at a concentration of 30 µg/L and in well RMW-11B at a concentration of 40 µg/L.

Lead was only detected in deep monitoring wells. During Field Activity 1, lead was detected in only one deep monitoring well (MW-11D) at 19.5 µg/L, just above the EPA MCL. During Field Activity 2, the highest concentration above the EPA MCL was detected in MW-13D at 176 µg/L, 12 times its MCL.

Nickel was detected above screening criteria in shallow monitoring wells during Field Activity 1, and in deep monitoring wells during Field Activity 2. During Field Activity 1, nickel exceeded NYSDEC guidance and screening criteria in MW-5S at concentrations up to 477 µg/L, 5 times its screening criteria. Nickel levels did not exceed criteria in any shallow wells during Field Activity 2, or in any deep wells during Field Activity 1. However, during Field Activity 2, nickel concentrations exceeded NYSDEC guidance and screening criteria in 2 deep monitoring wells, with the highest level at MW-13D (323 J µg/L).

4.2.12.2 Secondary COPCs in Monitoring Wells

Bis(2-ethylhexyl)phthalate is the only secondary COPC identified for shallow monitoring wells; no secondary COPCs were identified for deep monitoring wells. During the first round of sampling, it was detected in MW-13S-R1 at a concentration of 48 µg/L, which exceeded its screening level by almost 10 times. During the second round of sampling, it was detected in MW-8S-R2 at a concentration of 140D µg/L, which exceeded its screening level by 28 times, and in MW-5S-R2 at a concentration of 6 µg/L, which marginally exceeded its screening level.

4.2.12.3 Non-COPCs in Monitoring Wells

A total of six analytes were identified as non-COPCs for shallow monitoring wells: iron, magnesium, manganese, sodium, thallium, zinc. Nine analytes were identified as non-COPCs for deep monitoring wells during Field Activity 1 and 2, including antimony, beryllium, copper, iron, magnesium, manganese, sodium, thallium, and zinc. Overall, non-COPCs exceeded screening levels more frequently than either primary or secondary COPCs. The greatest exceedance was iron.

Sampling results from MW-13S indicated elevated concentrations of VOCs consistent with fuel compounds. Results were reported to the NYSDEC, who sampled the wells in October 2002.

4.2.12.4 Extent of Contamination in Monitoring Wells

Analytical results for primary COPCs in monitoring wells are relatively inconsistent between sampling rounds, with some results varying by up to an order of magnitude between sampling events. Although past waste management practices may have artificially changed groundwater flow patterns sufficiently to spread groundwater contamination over a broad area in different directions at the Site, significant quantities of fine-grained material (turbidity) in groundwater samples may also have influenced sample results. High turbidity is at least partly responsible for the inorganic concentrations that exceeded screening levels because exceedance samples typically had turbidity readings greater than 999 NTUs and inorganic concentrations are closely linked to turbidity.

The primary COPCs detected at concentrations that exceeded screening levels, total and hexavalent chromium, arsenic, lead, and nickel, are all linked to the Site's historical waste management practices and have been detected in all media sampled at the Site. During Field Activity 1, primary COPCs were detected at levels above NYSDEC guidance and screening criteria in shallow wells located on the south side of the Site just north of the Unadilla River (MW-5S and MW-6S) and on the south side of the river in MW-8S. MW-5S and MW-6S are located adjacent to the former wastewater lagoons; MW-8S is directly across the river from one of the most contaminated areas of the Site (the sluiceway and former UST). These detections are consistent with the premise that contaminants in shallow groundwater were able to migrate to the south side of the river during periods of low flow in the river. However, total chromium was not detected above NYSDEC guidance and screening criteria during Field Activity 2, although hexavalent chromium was (in MW-15S). Contaminants were also detected in MW-11D located downgradient between the former wastewater lagoons and the onsite wetland, during Field Activity 1 and in MW-13D located north of the former wastewater lagoons.

During the 1996 EPA ERT SI, groundwater samples were analyzed for unfiltered and filtered total chromium and unfiltered hexavalent chromium; four samples were analyzed for unfiltered and filtered TAL metals; and five samples were analyzed for unfiltered TCL organics. With the exception of chromium, no organic or inorganic analytes exceed NYS groundwater standards or federal MCLs. Total chromium was detected in 71 percent of the unfiltered groundwater samples and in none of the filtered groundwater samples. The unfiltered chromium concentrations in shallow monitoring wells ranged from not detected to 1,000 μg/L in monitoring well MW-3S and in deep monitoring wells ranged from not detected to 690 μg/L in monitoring well MW-11D. Hexavalent chromium was not detected in any groundwater samples.

4.2.13 Residential and Municipal Wells

CDM collected groundwater samples from two municipal supply wells for the Village of West Winfield and from two private residential wells proximal to the Site. None of the wells are located hydraulically downgradient of the Site. No primary or secondary COPCs were identified for municipal or residential well samples.

One pesticide and nine metals were detected in municipal well samples, at levels below regulatory screening levels. Zinc was detected in town well #2 at 16.3 µg/L, 3 times the NYSDOH MCL.

Two SVOCs and 10 metals were detected in residential well samples at levels below regulatory screening levels. Lead was detected in the residential well located at 371 Mill Street, at 3 times the EPA and NYSDOH MCLs. This well is not located hydraulically downgradient of the Site. The lead in groundwater from this well might be due to leaching from old pipes associated with plumbing from the well. However, because the lead detection was above EPA MCLs, the results were forwarded to NYSDEC. Zinc was detected in both residential wells at two and five times the NYSDOH MCL; zinc is not considered a COPC for the Site.

4.2.14 Effects of Waste Disposal Practices on Site Media

During the period that the facility was in operation, contaminated wastewater generated from the leather tanning process, containing chromium and other primary COPCs was disposed through a consistent series of steps, as discussed in Section 1.3.2 and illustrated in Figure 1-3. Consequently, soils, sediments, and groundwater that are in this path have been affected to varying degrees. The highest levels of primary COPC contamination exhibit a strong correlation to the pathway. The progressive waste disposal steps are summarized below with respect to related contamination in the affected matrices.

Contaminated wastewater was discharged to a series of floor drains inside the building. Wastewater appears to have seeped through cracks or holes in either the building foundation or floor drains, as evidenced by elevated levels of total chromium and other primary COPCs in building boring soil samples. The highest concentrations are found underlying "tan house" operations and the concrete dye tanks located in the southeast corner of the building. Contaminant concentrations generally tended to decrease with depth, with the exception of hexavalent chromium levels, which were elevated at depth.

Floor drains in the building flowed to the sluiceway and the outfall to the Unadilla River located on the southeast corner of the Site, adjacent to URSD-2. These areas contain some of the highest concentrations and deepest extent of primary COPCs detected during the CDM RI, especially total chromium, in surface and subsurface soils, as shown in Figures 4-4a and 4-4b. The highest subsurface soil total chromium concentrations on the entire Site are by the former UST. Contamination from these areas apparently migrated to the south side of the Unadilla River, as evidenced by low levels of chromium in MW-8S. Sediment at the outfall from the building contained the highest levels of primary COPCs in the Unadilla River.

The sluiceway discharged to the west into a system of unlined, bermed wastewater lagoons. The eastern, western, and northern boundaries of the former wastewater lagoon area were surveyed from a series of test pits, and determined to be more extensive than previously found. As shown in Figure 4-4b, results from boring samples indicate that concentrations of COPCs in surface and subsurface soils are highest in the eastern end of the former wastewater lagoons and decrease to the west and with depth. This pattern is consistent with the westerly flow of wastewater through the series of lagoons. Contamination from the lagoons migrated to the shallow overburden aquifer, as evidenced by lower levels of chromium and nickel in monitoring wells located on the southern boundary of the former wastewater lagoon area (MW-5S and MW-6S). Elevated levels of primary COPCs also are present in a deep monitoring well directly across the river (RMW-9D).

During periods of high discharge, lagoon overflow reportedly flowed west to the onsite wetland and north/northwest through a low-lying area toward an apparently former weir (from two scattered remnants) located on the eastern side of the wetland. The weir directed overflow into the wetland. Overflow was also reportedly directed to the northern area of Site where it flowed overland to the northeastern side of the wetland. High levels of total chromium in subsurface soils occur in the overland flow path to the north of the former wastewater lagoons. The highest levels of total chromium contamination in surface soils are located at the drainage to the onsite wetland by the former weir box. Contamination from overland flow in these areas also reached the deep overburden aquifer, as evidenced by elevated levels of chromium and other primary COPCs in deep monitoring wells to the north and west of the former wastewater lagoon area (MW-13D and MW-11D, respectively).

The onsite wetland, in which wastewater from lagoon overflow was directed, contains the highest concentrations of total chromium on the Site, found during the CDM RI. In general, concentrations decreased in downstream areas of the wetland, and with depth. Two areas in the wetland are of particular importance. The first is the eastern side of the wetland, by the former weir. Here, the highest concentration of total chromium in surface sediments (0-6 inches bgs) is adjacent to the highest concentration in surface soils, clearly indicating a major flow pattern of contamination across the Site. Figure 4-12a illustrates this pattern with total chromium concentrations in onsite surface soils and wetland surface sediments. The second is at the northeast side of the onsite wetland, which contains the highest total chromium concentrations in the subsurface sediment (18-24 inches bgs). This location is due west of a northern-trending area of elevated total chromium concentrations in subsurface soil. This pattern may indicate a second major flow pattern of contamination that was directed to the north of the lagoons. Figure 4-12b illustrates this pattern with total chromium concentrations in onsite subsurface soils and wetland subsurface sediments.

Contaminants migrated south through the wetland and discharged to the Unadilla River. Once in the river, contaminants continued to migrate downstream and accumulated in depositional areas in the river bottom. This downstream migration is evidenced by elevated levels of primary COPCs in Unadilla River sediments adjacent to and downstream of the Site. Surface water and fish populations in the downstream portions of the river do not contain primary COPCs above human health screening criteria.

4.2.15 Effects of Waste Disposal Practices on Off Site Media

Contaminated soils were transported to the former Town Dump, currently the Crumb Trailer Park. Elevated levels of primary COPCs are found in surface and subsurface soils, with the highest levels concentrated in the northwestern and western borders of the trailer park. Concentrations in this area generally tended to decrease with depth. This distribution is consistent with landfill operation and closure (i.e., pushing materials to the rear and some mixing with cover soils). Contaminated soils from the Site were likely also transported to the South Bank Front Lot, located on the south side of the Unadilla River. Lower levels of total chromium and primary COPCs are found in the surface soils in this area, primarily along the river bank. The distribution and type of contaminants detected in the South Bank Front Lot soils are consistent with the premise that Hiteman waste material was used to fill the area.

Table 4-1A

Explanation of Data Qualifiers and Screening Criteria Abbreviations
Hiteman Leather Site
West Winfield, New York

Data Qualifiers

Organic Qualifiers:

U	-	Compound was analyzed for but not detected. The associated numerical value is the sample quantitation limit.
J	-	Estimated data due to exceeded quality control criteria.
B	-	Analyte is found in the associated blank and in the sample.
E	-	Compound concentration exceeds the calibration range of the instrument for that specific analysis.
D	-	Compound is identified at a secondary dilution factor.
R	-	Data is rejected due to exceeded quality control criteria.

Inorganic Qualifiers:

B	-	Reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
J	-	Estimated data due to exceeded quality control criteria.
U	-	Analyte was analyzed for but not detected.
E	-	The reported value is estimated because of the presence of interference.
M	-	Duplicate injection precision not met.
N	-	Sample recovery is not within control limits.
S	-	The reported value was determined by the Method of Standard Additions (MSA).
W	-	Post-digestion spike for furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
R	-	Data is rejected.
*	-	Duplicate analysis not within control limits.
+	-	Correlation coefficient for the MSA is less than 0.995.

Screening Criteria Abbreviations

Soil Screening Criteria

NYSDEC-RSCO :	NYS Recommended Soil Cleanup Objectives, adjusted for Site TOC of 5.24%
BKGD-SURF :	Hiteman Background Criteria for Inorganics - Surface Soil
BKGD-SUBSURF :	Hiteman Background Criteria for Inorganics - Subsurface Soil

Sediment Screening Criteria

NYSED-HFW :	NYS Sediment Criteria for HH Bioaccumulation Freshwater - Sediment
NYSED-AC-LELW :	NYS Sediment Criteria for Benthic Aquatic Life, LEL for Inorganics (Onsite Wetland)
NYSED-AC-SELW :	NYS Sediment Criteria for Benthic Aquatic, SEL for Inorganics (Onsite Wetland)
NYSED-AC-LELR :	NYS Sediment Criteria for Benthic Aquatic Life, LEL for Inorganics (Unadilla River)
NYSED-AC-SELR :	NYS Sediment Criteria for Benthic Aquatic, SEL for Inorganics (Unadilla River)

Surface Water and Fish Tissue Screening Criteria

EPASW-AFRESHCC :	EPA Ambient Water Criteria - Aquatic Life Chronic Freshwater
EPASW-HHORG :	EPA Ambient Water Criteria - Human Health for Consumption of Organisms
NYSW-C-AC :	NYS Standards and Guidance Values for Class C Surface Water
NYSW-C-HFC :	NYS Standards and Guidance Values for Class C Surface Water H(FC)
USEPA-FISH:	USEPA Region 3 Risk-Based Fish Screening Criteria

Groundwater Regulatory Standards

EPAPDW-MCL :	National Primary Drinking Water Standards
NYSDEC-GW-GA :	NYS Standards/Guidance for Class GA groundwater H(WS)
NYSDOH-DW-MCLS :	NYS Department of Health Drinking Water Quality Standards

Table 4-1

Surface Water Screening Standards and Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Contaminant	Unit	EPA Ambient Water Quality Criteria - Human Health - for Consumption of Organism Only (1)			EPA Ambient Water Quality Criteria - Aquatic Life - Chronic - Fresh water - CCC (1)			New York State Standards (S) and Guidance (G) Values for Class C Surface Water - H(FC) (2)			New York State Standards (S) and Guidance (G) Values for Class C Surface Water - A(C) (2)		
			Value	Note	S/G	Value	Note	S/G	Value	Note	S/G		Note	S/G
Volatile Organic Compounds														
71-55-6	1,1,1-Trichloroethane	ug/l	NL			NL			NL			NL		
79-34-5	1,1,2,2-Tetrachloroethane	ug/l	11		G	NL			NL			NL		
79-00-5	1,1,2-Trichloroethane	ug/l	NL			NL			NL			NL		
76-13-1	1,1,2-Tricholoro-1,2,2-trifluoroethane	ug/l	42		G	NL			NL			NL		
75-34-3	1,1-Dichloroethane	ug/l	NL			NL			NL			NL		
75-35-4	1,1-Dichloroethene	ug/l	3.2		G	NL			NL			NL		
87-61-6	1,2,3-Trichlorobenzene	ug/l	NL			NL			NL			5	D	S
120-82-1	1,2,4-Trichlorobenzene	ug/l	940		G	NL			NL			5	D	S
96-12-8	1,2-Dibromo-3-chloropropane	ug/l	NL			NL			NL			NL		
106-93-4	1,2-Dibromoethane	ug/l	NL			NL			NL			NL		
95-50-1	1,2-Dichlorobenzene	ug/l	17000		G	NL			NL			5	I	S
107-06-2	1,2-Dichloroethane	ug/l	99		G	NL			NL			NL		
78-87-5	1,2-Dichloropropane	ug/l	39		G	NL			NL			NL		
541-73-1	1,3-Dichlorobenzene	ug/l	2600		G	NL			NL			5	I	S
106-46-7	1,4-Dichlorobenzene	ug/l	2600		G	NL			NL			5	I	S
78-93-3	2-Butanone	ug/l	NL			NL			NL			NL		
591-78-6	2-Hexanone	ug/l	NL			NL			NL			NL		
108-10-1	4-Methyl-2-pentanone	ug/l	NL			NL			NL			NL		
67-64-1	Acetone	ug/l	NL			NL			NL			NL		
71-43-2	Benzene	ug/l	71		G	NL			10		S	210		G
74-97-5	Bromochloromethane	ug/l	NL			NL			NL			NL		
75-27-4	Bromodichloromethane	ug/l	46		G	NL			NL			NL		
75-25-2	Bromoform	ug/l	360		G	NL			NL			NL		
74-83-9	Bromomethane	ug/l	4000		G	NL			NL			NL		
75-15-0	Carbon Disulfide	ug/l	NL			NL			NL			NL		
56-23-5	Carbon Tetrachloride	ug/l	4.4		G	NL			NL			NL		
108-90-7	Chlorobenzene	ug/l	21000		G	NL			400		S	5		S
75-00-3	Chloroethane	ug/l	NL			NL			NL			NL		
67-66-3	Chloroform	ug/l	470		G	NL			NL			NL		

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			Value	Note	S/G	Value	Note	S/G	Value	Note	S/G		Note	S/G
74-87-3	Chloromethane	ug/l	NL			NL			NL			NL		
156-59-2	cis-1,2-Dichloroethene	ug/l	NL			NL			NL			NL		
10061-01-5	cis-1,3-Dichloropropene	ug/l	1700		G	NL			NL			NL		
110-82-7	Cyclohexane	ug/l	NL			NL			NL			NL		
124-48-1	Dibromochloromethane	ug/l	34		G	NL			NL			NL		
75-71-8	Dichlorodifluoromethane	ug/l	NL			NL			NL			NL		
100-41-4	Ethylbenzene	ug/l	29000		G	NL			NL			17		G
98-82-8	Isopropylbenzene	ug/l	NL			NL			NL			2.6		G
79-20-9	Methyl Acetate	ug/l	NL			NL			NL			NL		
1634-04-4	Methyl Tert-Butyl Ether	ug/l	NL			NL			NL			NL		
108-87-2	Methylcyclohexane	ug/l	NL			NL			NL			NL		
75-09-2	Methylene Chloride	ug/l	1600		G	NL			200		S	NL		
100-42-5	Styrene	ug/l	NL			NL			NL			NL		
127-18-4	Tetrachloroethene	ug/l	8.85		G	NL			1		G	NL		
108-88-3	Toluene	ug/l	200000		G	NL			6000		S	100		G
156-60-5	trans-1,2-Dichloroethene	ug/l	140000		G	NL			NL			NL		
10061-02-6	trans-1,3-Dichloropropene	ug/l	1700		G	NL			NL			NL		
79-01-6	Trichloroethene	ug/l	81		G	NL			40		S	NL		
75-69-4	Trichlorofloromethane	ug/l	NL			NL			NL			NL		
75-01-4	Vinyl Chloride	ug/l	525		G	NL			NL			NL		
1330-20-7	Xylenes (total)	ug/l	NL			NL			NL			65		G
Semi-Volatile Organics														
92-52-4	1,1'-Biphenyl	ug/l	NL			NL			NL			NL		
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/l	2.9		G	NL			NL			NL		
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/l	NL			NL			NL			NL		
95-95-4	2,4,5-Trichlorophenol	ug/l	9800		G	NL			NL			NL		
88-06-2	2,4,6-Trichlorophenol	ug/l	6.5		G	NL			NL			NL		
120-83-2	2,4-Dichlorophenol	ug/l	790		G	NL			NL			NL		
105-67-9	2,4-Dimethylphenol	ug/l	2300		G	NL			1000		S	NL		
51-28-5	2,4-Dinitrophenol	ug/l	14000		G	NL			400		S	NL		

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Surface Water Screening Standards and Criteria
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			Value	Note	S/G	Value	Note	S/G	Value	Note	S/G		Note	S/G
121-14-2	2,4-Dinitrotoluene	ug/l	9.1		G	NL			NL			NL		
606-20-2	2,6-Dinitrotoluene	ug/l	NL			NL			NL			NL		
91-58-7	2-Chloronaphthalene	ug/l	4300		G	NL			NL			NL		
95-57-8	2-Chlorophenol	ug/l	400		G	NL			NL			NL		
91-57-6	2-Methylnaphthalene	ug/l	NL			NL			4.7		G	NL		
95-48-7	2-Methylphenol	ug/l	NL			NL			NL			NL		
88-74-4	2-Nitroaniline	ug/l	NL			NL			NL			NL		
88-75-5	2-Nitrophenol	ug/l	NL			NL			NL			NL		
91-94-1	3,3'-Dichlorobenzidine	ug/l	0.077		G	NL			NL			NL		
99-09-2	3-Nitroaniline	ug/l	NL			NL			NL			NL		
534-52-1	4,6-Dinitro-2-methylphenol	ug/l	765		G	NL			NL			NL		
101-55-3	4-Bromophenyl-phenylether	ug/l	NL			NL			NL			NL		
59-50-7	4-Chloro-3-methylphenol	ug/l	NL			NL			NL			NL		
106-47-8	4-Chloroaniline	ug/l	NL			NL			NL			NL		
7005-72-3	4-Chlorophenyl-phenylether	ug/l	NL			NL			NL			NL		
106-44-5	4-Methylphenol	ug/l	NL			NL			NL			NL		
100-01-6	4-Nitroaniline	ug/l	NL			NL			NL			NL		
100-02-7	4-Nitrophenol	ug/l	NL			NL			NL			NL		
83-32-9	Acenaphthene	ug/l	2700		G	NL			NL			5.3		G
208-96-8	Acenaphthylene	ug/l	NL			NL			NL			NL		
98-86-2	Acetophenone	ug/l	NL			NL			NL			NL		
120-12-7	Anthracene	ug/l	110000		G	NL			NL			3.8		G
1912-24-9	Atrazine	ug/l	NL			NL			NL			NL		
100-52-7	Benzaldehyde	ug/l	NL			NL			NL			NL		
56-55-3	Benzo(a)anthracene	ug/l	0.049		G	NL			NL			0.03		G
50-32-8	Benzo(a)pyrene	ug/l	0.049		G	NL			0.0012		G	NL		
205-99-2	Benzo(b)fluoranthene	ug/l	0.049		G	NL			NL			NL		
191-24-2	Benzo(g,h,i)perylene	ug/l	NL			NL			NL			NL		
207-08-9	Benzo(k)fluoranthene	ug/l	0.049		G	NL			NL			NL		
111-91-1	bis(2-Chloroethoxy)methane	ug/l	NL			NL			NL			NL		

Table 4-1

Surface Water Screening Standards and Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Contaminant	Unit	EPA Ambient Water Quality Criteria - Human Health - for Consumption of Organism Only (1)			EPA Ambient Water Quality Criteria - Aquatic Life - Chronic - Fresh water - CCC (1)			New York State Standards (S) and Guidance (G) Values for Class C Surface Water - H(FC) (2)			New York State Standards (S) and Guidance (G) Values for Class C Surface Water - A(C) (2)		
			Value	Note	S/G	Value	Note	S/G	Value	Note	S/G		Note	S/G
111-44-4	bis(2-Chloroethyl)ether	ug/l	1.4		G	NL			NL			NL		
117-81-7	bis-(2-Ethylhexyl)phthalate	ug/l	5.9		G	NL			NL			0.6		S
85-68-7	Butylbenzylphthalate	ug/l	5200		G	NL			NL			NL		
105-60-2	Caprolactam	ug/l	NL			NL			NL			NL		
86-74-8	Carbazole	ug/l	NL			NL			NL			NL		
218-01-9	Chrysene	ug/l	0.049		G	NL			NL			NL		
53-70-3	Dibenz(a,h)anthracene	ug/l	0.049		G	NL			NL			NL		
132-64-9	Dibenzofuran	ug/l	NL			NL			NL			NL		
84-66-2	Diethylphthalate	ug/l	120000		G	NL			NL			NL		
131-11-3	Dimethylphthalate	ug/l	2900000		G	NL			NL			NL		
84-74-2	Di-n-butylphthalate	ug/l	12000		G	NL			NL			NL		
117-84-0	Di-n-octyl phthalate	ug/l	NL			NL			NL			NL		
206-44-0	Fluoranthene	ug/l	370		G	NL			NL			NL		
86-73-7	Fluorene	ug/l	14000		G	NL			NL			0.54		G
118-74-1	Hexachlorobenzene	ug/l	0.00077		G	NL			0.00003		S	NL		
87-68-3	Hexachlorobutadiene	ug/l	50		G	NL			0.01		S	1		S
77-47-4	Hexachlorocyclopentadiene	ug/l	17000		G	NL			NL			0.45		S
67-72-1	Hexachloroethane	ug/l	8.9		G	NL			0.6		S	NL		
193-39-5	Indeno(1,2,3-cd)pyrene	ug/l	0.049		G	NL			NL			NL		
78-59-1	Isophorone	ug/l	2600		G	NL			NL			NL		
91-20-3	Naphthalene	ug/l	NL			NL			NL			13		G
98-95-3	Nitrobenzene	ug/l	1900		G	NL			NL			NL		
621-64-7	N-Nitroso-di-n-propylamine	ug/l	1.4		G	NL			NL			NL		
86-30-6	N-Nitrosodiphenylamine	ug/l	16		G	NL			NL			NL		
87-86-5	Pentachlorophenol	ug/l	8.2		G	14.9543167	p	G	NL			14.95431669	p	S
85-01-8	Phenanthrene	ug/l	NL			NL			NL			5		G
108-95-2	Phenol	ug/l	4600000		G	NL			NL			NL		
129-00-0	Pyrene	ug/l	11000		G	NL			NL			4.6		G
Pesticides/PCBs														
72-54-8	4,4'-DDD	ug/l	0.00084		G	NL			0.00008		S	NL		

Table 4-1

Surface Water Screening Standards and Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Contaminant	Unit	EPA Ambient Water Quality Criteria - Human Health - for Consumption of Organism Only (1)			EPA Ambient Water Quality Criteria - Aquatic Life - Chronic - Fresh water - CCC (1)			New York State Standards (S) and Guidance (G) Values for Class C Surface Water - H(FC) (2)			New York State Standards (S) and Guidance (G) Values for Class C Surface Water - A(C) (2)		
			Value	Note	S/G	Value	Note	S/G	Value	Note	S/G		Note	S/G
72-55-9	4,4'-DDE	ug/l	0.00059		G	NL			0.000007		S	NL		
50-29-3	4,4'-DDT	ug/l	0.00059		G	0.001		G	0.00001		S	NL		
309-00-2	Aldrin	ug/l	0.00014		G	NL			0.001	A	S	NL		
319-84-6	alpha-BHC	ug/l	0.013		G	NL			0.002		S	NL		
5103-71-9	alpha-Chlordane	ug/l	0.0022	F	G	0.0043	F	G	0.00002	F	S	NL		
12674-11-2	Aroclor-1016	ug/l	0.00017	C	G	0.014	C	G	NL			NL		
11104-28-2	Aroclor-1221	ug/l	0.00017	C	G	0.014	C	G	NL			NL		
11141-16-5	Aroclor-1232	ug/l	0.00017	C	G	0.014	C	G	NL			NL		
53469-21-9	Aroclor-1242	ug/l	0.00017	C	G	0.014	C	G	NL			NL		
12672-29-6	Aroclor-1248	ug/l	0.00017	C	G	0.014	C	G	NL			NL		
11097-69-1	Aroclor-1254	ug/l	0.00017	C	G	0.014	C	G	NL			NL		
11096-82-5	Aroclor-1260	ug/l	0.00017	C	G	0.014	C	G	NL			NL		
319-85-7	beta-BHC	ug/l	0.046		G	NL			0.007		S	NL		
319-86-8	delta-BHC	ug/l	NL			NL			0.008		S	NL		
60-57-1	Dieldrin	ug/l	0.00014		G	0.056		G	0.0000006		S	0.056		S
959-98-8	Endosulfan I	ug/l	240		G	0.056		G	NL			NL		
33213-65-9	Endosulfan II	ug/l	240		G	0.056		G	NL			NL		
1031-07-8	Endosulfan sulfate	ug/l	240		G	NL			NL			NL		
72-20-8	Endrin	ug/l	0.81		G	0.036		G	0.002		S	0.036		S
7421-93-4	Endrin aldehyde	ug/l	0.81		G	NL			NL			NL		
53494-70-5	Endrin ketone	ug/l	NL			NL			NL			NL		
58-89-9	gamma-BHC (Lindane)	ug/l	0.063		G	NL			0.008		S	NL		
5103-74-2	gamma-Chlordane	ug/l	0.0022	F	G	0.0043	F	G	0.00002	F	S	NL		
76-44-8	Heptachlor	ug/l	0.00021		G	0.0038		G	0.0002		S	NL		
1024-57-3	Heptachlor epoxide	ug/l	0.00011		G	0.0038		G	0.0003		S	NL		
72-43-5	Methoxychlor	ug/l	NL			0.03		G	NL			0.03		S
8001-35-2	Toxaphene	ug/l	0.00075		G	0.0002		G	0.000006		S	0.005		S
Inorganic Analytes														
7429-90-5	Aluminum	ug/l	NL			87		G	NL			100		S
7440-36-0	Antimony	ug/l	4300		G	NL			NL			NL		

Table 4-1

Surface Water Screening Standards and Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Contaminant	Unit	EPA Ambient Water Quality Criteria - Human Health - for Consumption of Organism Only (1)			EPA Ambient Water Quality Criteria - Aquatic Life - Chronic - Fresh water - CCC (1)			New York State Standards (S) and Guidance (G) Values for Class C Surface Water - H(FC) (2)			New York State Standards (S) and Guidance (G) Values for Class C Surface Water - A(C) (2)		
			Value	Note	S/G	Value	Note	S/G	Value	Note	S/G		Note	S/G
7440-38-2	Arsenic	ug/l	0.14		G	150		G	NL			150		S
7440-39-3	Barium	ug/l	NL			NL			NL			NL		
7440-41-7	Beryllium	ug/l	NL			NL			NL			11	B	S
7440-43-9	Cadmium	ug/l	NL			2.24	H,K	G	NL			2.09	H,K	S
7440-70-2	Calcium	ug/l	NL			NL			NL			NL		
7440-47-3	Chromium	ug/l	NL			74.1	H,K	G	NL			74.1	H,K	S
18540-29-9	Chromium (hexavalent)	ug/l	NL			10.6	K	G	NL			11	K	S
7440-48-4	Cobalt	ug/l	NL			NL			NL			5		S
7440-50-8	Copper	ug/l	NL			8.96	H,K	G	NL			8.96	H,K	S
57-12-5	Cyanide	ug/l	220000		G	5.2		G	9000		S	5.2		S
7439-89-6	Iron	ug/l	NL			1000		G	NL			300		S
7439-92-1	Lead	ug/l	NL			2.52	H,K	G	NL			3.78	H,K	S
7439-95-4	Magnesium	ug/l	NL			NL			NL			NL		
7439-96-5	Manganese	ug/l	100		G	NL			NL			NL		
7439-97-6	Mercury	ug/l	0.051		G	0.6545		G	0.0007		S	0.77	K	S
7440-02-0	Nickel	ug/l	4600		G	52	H,K	G	NL			52	H,K	S
7440-09-7	Potassium	ug/l	NL			NL			NL			NL		
7782-49-2	Selenium	ug/l	11000		G	5		G	NL			4.6		S
7440-22-4	Silver	ug/l	NL			NL			NL			0.1		S
7440-23-5	Sodium	ug/l	NL			NL			NL			NL		
7440-28-0	Thallium	ug/l	6.3		G	NL			NL			8		S
7440-62-2	Vanadium	ug/l	NL			NL			NL			14		S
7440-66-6	Zinc	ug/l	69000		G	118.1	H,K	G	NL			82.6	H,K	S

Table 4-1

Surface Water Screening Standards and Crireria
Hiteman Leather Site
West Winfield, New York

Notes:

1. Source: EPA. April 1999. National Recommended Water Quality Criteria - Correction. EPA 822_Z-99-001
2. Source: NYSDEC. June 1998. TOGS 1.1.1. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.
   Includes April 2000 Addendum values. H(FC) is for human (fish consumption) and A(C) is for aquatic life (chronic).
   Note: NYSDEC classifies Unadilla River as Class C(T) (i.e., for trout propagation, fishing, primary and secondary contact recreation).
3. Hiteman Surface Water screening criteria is the lowest of the EPA and NYSDEC surface water quality values for fresh water that is not classified for use as drinking water.

A - Value applies to the sum of Aldrin and Dieldrin
B - 11 ug/L when the hardness is less than or equal to 75 ppm; 1,100 ug/L when hardness is greater than 75 ppm
C - Value applies to the sum of the PCB compounds
D - Value applies to the sum of 1,2,3-, 1,2,4- and 1,3,5-trichlorobenzene
F - Value applies to the sum of alpha- and gamma-Chlordane
G - Guidance Value
H - Hardness-dependent
100 : Hardness (ppm, or mg/L) assumed, based on default in EPA AWQC guidance

NYSDEC equations for Aquatic Life, Chronic, Fresh water (A(C))

Cadmium	=0.85*EXP(0.7852*LN(hardness)-2.715)
Chromium	=0.86*EXP(0.819*LN(hardness)+0.6848)
Copper	=0.96*EXP(0.8545*LN(hardness)-1.702)
Lead	=(1.46203-(LN(hardness)*0.145712))*EXP(1.273*LN(hardness)-4.297)
Nickel	=(0.997)*EXP(0.846*LN(hardness)+0.0584)
Zinc	=EXP(0.85*LN(hardness)+0.5)

EPA equations for Aquatic Life, Chronic, Fresh water (CCC)

Cadmium	=0.85*EXP(0.7852*LN(hardness)-2.715)
Chromium	=0.86*EXP(0.819*LN(hardness)+0.6848)
Copper	=0.96*EXP(0.8545*LN(hardness)-1.702)
Lead	=(1.46203-(LN(hardness)*0.145712))*EXP(1.273*LN(hardness)-4.705)
Nickel	=(0.997)*EXP(0.846*LN(hardness)+0.0584)
Zinc	=0.986*EXP(0.8473*LN(hardness)+0.884)
Pentachlorophenol	=EXP(1.005*(pH)-5.134)

I - Value applies to the sum of 1,2-, 1,3-, and 1,4-dichlorobenzene
K - Value applies to the dissolved form of the metal (not total)
M - Value applies to total xylenes (sum of o-, m-, and p-xylene)
NL - No value listed
p - pH-dependent
7.8 : pH assumed, based on default used in EPA AWQC guidance.
S - Standard
G - Guidance

Table 4-2

River Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
Volatile Organic Compounds								
71-55-6	1,1,1-Trichloroethane	ug/kg	NL		NL		NL	
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	6.87	B	NL		NL	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	NL		NL		NL	
79-00-5	1,1,2-Trichloroethane	ug/kg	13.74	B	NL		NL	
75-34-3	1,1-Dichloroethane	ug/kg	NL		NL		NL	
75-35-4	1,1-Dichloroethene	ug/kg	0.458	B	NL		NL	
87-61-6	1,2,3-Trichlorobenzene	ug/kg	NL		2083.9	B,E	2083.9	B,E
120-82-1	1,2,4-Trichlorobenzene	ug/kg	NL		2083.9	B,E	2083.9	B,E
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg	NL		NL		NL	
106-93-4	1,2-Dibromoethane	ug/kg	NL		NL		NL	
95-50-1	1,2-Dichlorobenzene	ug/kg	NL		274.8	B,D	274.8	B,D
107-06-2	1,2-Dichloroethane	ug/kg	16.03	B	NL		NL	
78-87-5	1,2-Dichloropropane	ug/kg	NL		NL		NL	
541-73-1	1,3-Dichlorobenzene	ug/kg	NL		274.8	B,D	274.8	B,D
106-46-7	1,4-Dichlorobenzene	ug/kg	NL		274.8	B,D	274.8	B,D
78-93-3	2-Butanone	ug/kg	NL		NL		NL	
591-78-6	2-Hexanone	ug/kg	NL		NL		NL	
108-10-1	4-Methyl-2-pentanone	ug/kg	NL		NL		NL	
67-64-1	Acetone	ug/kg	NL		NL		NL	
71-43-2	Benzene	ug/kg	13.74	B	NL		NL	
74-97-5	Bromochloromethane	ug/kg	NL		NL		NL	
75-27-4	Bromodichloromethane	ug/kg	NL		NL		NL	
75-25-2	Bromoform	ug/kg	NL		NL		NL	
74-83-9	Bromomethane	ug/kg	NL		NL		NL	
75-15-0	Carbon Disulfide	ug/kg	NL		NL		NL	
56-23-5	Carbon Tetrachloride	ug/kg	13.74	B	NL		NL	
108-90-7	Chlorobenzene	ug/kg	NL		80.15	B	80.15	B
75-00-3	Chloroethane	ug/kg	NL		NL		NL	
67-66-3	Chloroform	ug/kg	NL		NL		NL	
74-87-3	Chloromethane	ug/kg	NL		NL		NL	
156-59-2	*cis*-1,2-Dichloroethene	ug/kg	NL		NL		NL	

Table 4-2

River Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
10061-01-5	*cis*-1,3-Dichloropropene	ug/kg	NL		NL		NL	
110-82-7	Cyclohexane	ug/kg	NL		NL		NL	
124-48-1	Dibromochloromethane	ug/kg	NL		NL		NL	
75-71-8	Dichlorodifluoromethane	ug/kg	NL		NL		NL	
100-41-4	Ethylbenzene	ug/kg	NL		549.6	B	549.6	B
98-82-8	Isopropylbenzene	ug/kg	NL		274.8	B	274.8	B
79-20-9	Methyl Acetate	ug/kg	NL		NL		NL	
1634-04-4	Methyl Tert-Butyl Ether	ug/kg	NL		NL		NL	
108-87-2	Methylcyclohexane	ug/kg	NL		NL		NL	
75-09-2	Methylene Chloride	ug/kg	NL		NL		NL	
100-42-5	Styrene	ug/kg	NL		NL		NL	
127-18-4	Tetrachloroethene	ug/kg	18.32	B	NL		NL	
108-88-3	Toluene	ug/kg	NL		1122.1	B	1122.1	B
156-60-5	*trans*-1,2-Dichloroethene	ug/kg	NL		NL		NL	
10061-02-6	*trans*-1,3-Dichloropropene	ug/kg	NL		NL		NL	
79-01-6	Trichloroethene	ug/kg	45.8	B	NL		NL	
75-69-4	Trichlorofluoromethane	ug/kg	NL		NL		NL	
75-01-4	Vinyl Chloride	ug/kg	1.603	B	NL		NL	
1330-20-7	Xylenes (total)	ug/kg	NL		2106.8	B,F	2106.8	B,F
Semi-Volatile Organics								
92-52-4	1,1'Biphenyl	ug/kg	NL		NL		NL	
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	NL		NL		NL	
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/kg	NL		NL		NL	
95-95-4	2,4,5-Trichlorophenol	ug/kg	NL		13.74	B,G	13.74	B,G
88-06-2	2,4,6-Trichlorophenol	ug/kg	NL		13.74	B,G	13.74	B,G
120-83-2	2,4-Dichlorophenol	ug/kg	NL		13.74	B,G	13.74	B,G
105-67-9	2,4-Dimethylphenol	ug/kg	NL		11.45	B,J	11.45	B,J
51-28-5	2,4-Dinitrophenol	ug/kg	NL		11.45	B,J	11.45	B,J
121-14-2	2,4-Dinitrotoluene	ug/kg	NL		NL		NL	
606-20-2	2,6-Dinitrotoluene	ug/kg	NL		NL		NL	
91-58-7	2-Chloronaphthalene	ug/kg	NL		NL		NL	
95-57-8	2-Chlorophenol	ug/kg	NL		13.74	B,G	13.74	B,G

Table 4-2

River Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
91-57-6	2-Methylnaphthalene	ug/kg	NL		778.6	B	778.6	B
95-48-7	2-Methylphenol	ug/kg	NL		11.45	B,J	11.45	B,J
88-74-4	2-Nitroaniline	ug/kg	NL		NL		NL	
88-75-5	2-Nitrophenol	ug/kg	NL		11.45	B,J	11.45	B,J
91-94-1	3,3'-Dichlorobenzidine	ug/kg	NL		NL		NL	
99-09-2	3-Nitroaniline	ug/kg	NL		NL		NL	
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	NL		11.45	B,J	11.45	B,J
101-55-3	4-Bromophenyl-phenylether	ug/kg	NL		NL		NL	
59-50-7	4-Chloro-3-methylphenol	ug/kg	NL		13.74	B,G	13.74	B,G
106-47-8	4-Chloroaniline	ug/kg	NL		NL		NL	
7005-72-3	4-Chlorophenyl-phenylether	ug/kg	NL		NL		NL	
106-44-5	4-Methylphenol	ug/kg	NL		11.45	B,J	11.45	B,J
100-01-6	4-Nitroaniline	ug/kg	NL		NL		NL	
100-02-7	4-Nitrophenol	ug/kg	NL		11.45	B,J	11.45	B,J
83-32-9	Acenaphthene	ug/kg	NL		3206	B	3206	B
208-96-8	Acenaphthylene	ug/kg	NL		NL		NL	
98-86-2	Acetophenone	ug/kg	NL		NL		NL	
120-12-7	Anthracene	ug/kg	NL		2450.3	B	2450.3	B
1912-24-9	Atrazine	ug/kg	NL		NL		NL	
100-52-7	Benzaldehyde	ug/kg	NL		NL		NL	
56-55-3	Benzo(a)anthracene	ug/kg	29.77	B	274.8	B	274.8	B
50-32-8	Benzo(a)pyrene	ug/kg	29.77	B	NL		NL	
205-99-2	Benzo(b)fluoranthene	ug/kg	29.77	B	NL		NL	
191-24-2	Benzo(g,h,i)perylene	ug/kg	NL		NL		NL	
207-08-9	Benzo(k)fluoranthene	ug/kg	29.77	B	NL		NL	
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	NL		NL		NL	
111-44-4	bis(2-Chloroethyl)ether	ug/kg	0.687	B	NL		NL	
117-81-7	bis(2-Ethylhexyl)phthalate	ug/kg	NL		4568.55	B	4568.55	B
85-68-7	Butylbenzylphthalate	ug/kg	NL		NL		NL	
105-60-2	Caprolactam	ug/kg	NL		NL		NL	
86-74-8	Carbazole	ug/kg	NL		NL		NL	
218-01-9	Chrysene	ug/kg	29.77	B	NL		NL	

Table 4-2

River Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
53-70-3	Dibenz(a,h)anthracene	ug/kg	NL		NL		NL	
132-64-9	Dibenzofuran	ug/kg	NL		NL		NL	
84-66-2	Diethylphthalate	ug/kg	NL		NL		NL	
131-11-3	Dimethylphthalate	ug/kg	NL		NL		NL	
84-74-2	Di-n-butylphthalate	ug/kg	NL		NL		NL	
117-84-0	Di-n-octyl phthalate	ug/kg	NL		NL		NL	
206-44-0	Fluoranthene	ug/kg	NL		23358	B	23358	B
86-73-7	Fluorene	ug/kg	NL		183.2	B	183.2	B
118-74-1	Hexachlorobenzene	ug/kg	3.435	B	127553	B	127553	B
87-68-3	Hexachlorobutadiene	ug/kg	6.87	B	125.95	B	125.95	B
77-47-4	Hexachlorocyclopentadiene	ug/kg	NL		100.76	B	100.76	B
67-72-1	Hexachloroethane	ug/kg	NL		NL		NL	
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	29.77	B	NL		NL	
78-59-1	Isophorone	ug/kg	NL		NL		NL	
91-20-3	Naphthalene	ug/kg	NL		687	B	687	B
98-95-3	Nitrobenzene	ug/kg	NL		NL		NL	
621-64-7	N-Nitroso-di-n-propylamine	ug/kg	NL		NL		NL	
86-30-6	N-Nitrosodiphenylamine	ug/kg	NL		NL		NL	
87-86-5	Pentachlorophenol	ug/kg	NL		916	B	916	B
85-01-8	Phenanthrene	ug/kg	NL		2748	B	2748	B
108-95-2	Phenol	ug/kg	NL		11.45	B,J	11.45	B,J
129-00-0	Pyrene	ug/kg	NL		22006.9	B	22006.9	B
Pesticides/PCBs								
72-54-8	4,4'-DDD	ug/kg	0.229	B	22.9	B	22.9	B
72-55-9	4,4'-DDE	ug/kg	0.229	B	NL		NL	
50-29-3	4,4'-DDT	ug/kg	0.229	B	NL		NL	
309-00-2	Aldrin	ug/kg	2.29	B,K	NL		NL	
319-84-6	Alpha-BHC	ug/kg	1.374	B,L	1.374	B,L	1.374	B,L
5103-71-9	alpha-Chlordane	ug/kg	0.0229	B,C	0.687	B,C	0.687	B,C
12674-11-2	Aroclor-1016	ug/kg	0.01832	B,H	441.97	B,H	441.97	B,H
11104-28-2	Aroclor-1221	ug/kg	0.01832	B,H	441.97	B,H	441.97	B,H
11141-16-5	Aroclor-1232	ug/kg	0.01832	B,H	441.97	B,H	441.97	B,H

Table 4-2

River Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
53469-21-9	Aroclor-1242	ug/kg	0.01832	B,H	441.97	B,H	441.97	B,H
12672-29-6	Aroclor-1248	ug/kg	0.01832	B,H	441.97	B,H	441.97	B,H
11097-69-1	Aroclor-1254	ug/kg	0.01832	B,H	441.97	B,H	441.97	B,H
11096-82-5	Aroclor-1260	ug/kg	0.01832	B,H	441.97	B,H	441.97	B,H
319-85-7	Beta-BHC	ug/kg	1.374	B,L	1.374	B,L	1.374	B,L
319-86-8	Delta-BHC	ug/kg	1.374	B,L	1.374	B,L	1.374	B,L
60-57-1	Dieldrin	ug/kg	2.29	B,K	NL		NL	
959-98-8	Endosulfan I	ug/kg	NL		0.687	B	0.687	B
33213-65-9	Endosulfan II	ug/kg	NL		0.687	B	0.687	B
1031-07-8	Endosulfan sulfate	ug/kg	NL		NL		NL	
72-20-8	Endrin	ug/kg	18.32	B	91.6	B	91.6	B
7421-93-4	Endrin aldehyde	ug/kg	NL		NL		NL	
53494-70-5	Endrin ketone	ug/kg	NL		NL		NL	
58-89-9	gamma-BHC (Lindane)	ug/kg	1.374	B,L	1.374	B,L	1.374	B,L
5103-74-2	gamma-Chlordane	ug/kg	0.0229	B,C	0.0229	B,C	0.0229	B,C
76-44-8	Heptachlor	ug/kg	0.01832	B	2.29	B	2.29	B
1024-57-3	Heptachlor epoxide	ug/kg	0.01832	B	2.29	B	2.29	B
72-43-5	Methoxychlor	ug/kg	NL		13.74	B	13.74	B
8001-35-2	Toxaphene	ug/kg	0.458	B	0.229	B	0.229	B
Inorganic Analytes								
7429-90-5	Aluminum	mg/kg	NL		NL		NL	
7440-36-0	Antimony	mg/kg	NL		2		25	
7440-38-2	Arsenic	mg/kg	NL		6		33	
7440-39-3	Barium	mg/kg	NL		NL		NL	
7440-41-7	Beryllium	mg/kg	NL		NL		NL	
7440-43-9	Cadmium	mg/kg	NL		0.6		9	
7440-70-2	Calcium	mg/kg	NL		NL		NL	
7440-47-3	Chromium	mg/kg	NL		26		110	
18540-29-9	Chromium (hexavalent)	mg/kg	NL		26		110	
7440-48-4	Cobalt	mg/kg	NL		NL		NL	
7440-50-8	Copper	mg/kg	NL		16		110	
57-12-5	Cyanide	mg/kg	NL		NL		NL	

Table 4-2

River Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
7439-89-6	Iron	mg/kg	NL		20000		40000	
7439-92-1	Lead	mg/kg	NL		31		110	
7439-95-4	Magnesium	mg/kg	NL		NL		NL	
7439-96-5	Manganese	mg/kg	NL		460		1110	
7439-97-6	Mercury	mg/kg	NL		0.15		1.3	
7440-02-0	Nickel	mg/kg	NL		16		50	
7440-09-7	Potassium	mg/kg	NL		NL		NL	
7782-49-2	Selenium	mg/kg	NL		NL		NL	
7440-22-4	Silver	mg/kg	NL		1		2.2	
7440-23-5	Sodium	mg/kg	NL		NL		NL	
7440-28-0	Thallium	mg/kg	NL		NL		NL	
7440-62-2	Vanadium	mg/kg	NL		NL		NL	
7440-66-6	Zinc	mg/kg	NL		120		270	

Notes:

1. NYSDEC. Technical Guidance for Screening Contaminated Sediments, Division of Fish, Wildlife and Marine Resources, January 25, 1999.
3. Hiteman Sediment Screening Criteria is the lowest of the NYS sediment criteria

NL - Chemical name not listed or screening value of this type not listed for the chemical
B Values are calculated based on a site average organic carbon content: 2.29 % OC 22.9 g OC/kg sediment
C Value applies to total Chlordane
D Value applies to total Dichlorobenzenes
E Value applies to total Trichlorobenzenes
F Value applies to total Xylenes
G Value applies to total chlorinated Phenols
H Value applies to total PCBs
J Value applies to total unchlorinated Phenols
K Value applies to sum of Aldrin and Dieldrin
L Value applies to total BHCs (hexachlorocyclohexanes)
M The criteria for total chromium will be applied to hexavalent chromium
OC Organic Carbon

Table 4-3

Wetland Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
Volatile Organic Compounds								
71-55-6	1,1,1-Trichloroethane	ug/kg	NL		NL		NL	
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	33.15	B	NL		NL	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	NL		NL		NL	
79-00-5	1,1,2-Trichloroethane	ug/kg	66.3	B	NL		NL	
75-34-3	1,1-Dichloroethane	ug/kg	NL		NL		NL	
75-35-4	1,1-Dichloroethene	ug/kg	2.21	B	NL		NL	
87-61-6	1,2,3-Trichlorobenzene	ug/kg	NL		10055.5	B,E	10055.5	B,E
120-82-1	1,2,4-Trichlorobenzene	ug/kg	NL		10055.5	B,E	10055.5	B,E
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg	NL		NL		NL	
106-93-4	1,2-Dibromoethane	ug/kg	NL		NL		NL	
95-50-1	1,2-Dichlorobenzene	ug/kg	NL		1326	B,D	1326	B,D
107-06-2	1,2-Dichloroethane	ug/kg	77.35	B	NL		NL	
78-87-5	1,2-Dichloropropane	ug/kg	NL		NL		NL	
541-73-1	1,3-Dichlorobenzene	ug/kg	NL		1326	B,D	1326	B,D
106-46-7	1,4-Dichlorobenzene	ug/kg	NL		1326	B,D	1326	B,D
78-93-3	2-Butanone	ug/kg	NL		NL		NL	
591-78-6	2-Hexanone	ug/kg	NL		NL		NL	
108-10-1	4-Methyl-2-pentanone	ug/kg	NL		NL		NL	
67-64-1	Acetone	ug/kg	NL		NL		NL	
71-43-2	Benzene	ug/kg	66.3	B	NL		NL	
74-97-5	Bromochloromethane	ug/kg	NL		NL		NL	
75-27-4	Bromodichloromethane	ug/kg	NL		NL		NL	
75-25-2	Bromoform	ug/kg	NL		NL		NL	
74-83-9	Bromomethane	ug/kg	NL		NL		NL	
75-15-0	Carbon Disulfide	ug/kg	NL		NL		NL	
56-23-5	Carbon Tetrachloride	ug/kg	66.3	B	NL		NL	
108-90-7	Chlorobenzene	ug/kg	NL		386.75	B	386.75	B

Table 4-3

Wetland Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
75-00-3	Chloroethane	ug/kg	NL		NL		NL	
67-66-3	Chloroform	ug/kg	NL		NL		NL	
74-87-3	Chloromethane	ug/kg	NL		NL		NL	
156-59-2	*cis*-1,2-Dichloroethene	ug/kg	NL		NL		NL	
10061-01-(	*cis*-1,3-Dichloropropene	ug/kg	NL		NL		NL	
110-82-7	Cyclohexane	ug/kg	NL		NL		NL	
124-48-1	Dibromochloromethane	ug/kg	NL		NL		NL	
75-71-8	Dichlorodifluoromethane	ug/kg	NL		NL		NL	
100-41-4	Ethylbenzene	ug/kg	NL		2652	B	2652	B
98-82-8	Isopropylbenzene	ug/kg	NL		1326	B	1326	B
79-20-9	Methyl Acetate	ug/kg	NL		NL		NL	
1634-04-4	Methyl Tert-Butyl Ether	ug/kg	NL		NL		NL	
108-87-2	Methylcyclohexane	ug/kg	NL		NL		NL	
75-09-2	Methylene Chloride	ug/kg	NL		NL		NL	
100-42-5	Styrene	ug/kg	NL		NL		NL	
127-18-4	Tetrachloroethene	ug/kg	88.4	B	NL		NL	
108-88-3	Toluene	ug/kg	NL		5414.5	B	5414.5	B
156-60-5	*trans*-1,2-Dichloroethene	ug/kg	NL		NL		NL	
10061-02-(	*trans*-1,3-Dichloropropene	ug/kg	NL		NL		NL	
79-01-6	Trichloroethene	ug/kg	221	B	NL		NL	
75-69-4	Trichlorofluoromethane	ug/kg	NL		NL		NL	
75-01-4	Vinyl Chloride	ug/kg	7.735	B	NL		NL	
1330-20-7	Xylenes (total)	ug/kg	NL		10166	B,F	10166	B,F
Semi-Volatile Organics								
92-52-4	1,1'Biphenyl	ug/kg	NL		NL		NL	
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	NL		NL		NL	
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/kg	NL		NL		NL	
95-95-4	2,4,5-Trichlorophenol	ug/kg	NL		66.3	B,G	66.3	B,G

Table 4-3

Wetland Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
88-06-2	2,4,6-Trichlorophenol	ug/kg	NL		66.3	B,G	66.3	B,G
120-83-2	2,4-Dichlorophenol	ug/kg	NL		66.3	B,G	66.3	B,G
105-67-9	2,4-Dimethylphenol	ug/kg	NL		55.25	B,J	55.25	B,J
51-28-5	2,4-Dinitrophenol	ug/kg	NL		55.25	B,J	55.25	B,J
121-14-2	2,4-Dinitrotoluene	ug/kg	NL		NL		NL	
606-20-2	2,6-Dinitrotoluene	ug/kg	NL		NL		NL	
91-58-7	2-Chloronaphthalene	ug/kg	NL		NL		NL	
95-57-8	2-Chlorophenol	ug/kg	NL		66.3	B,G	66.3	B,G
91-57-6	2-Methylnaphthalene	ug/kg	NL		3757	B	3757	B
95-48-7	2-Methylphenol	ug/kg	NL		55.25	B,J	55.25	B,J
88-74-4	2-Nitroaniline	ug/kg	NL		NL		NL	
88-75-5	2-Nitrophenol	ug/kg	NL		55.25	B,J	55.25	B,J
91-94-1	3,3'-Dichlorobenzidine	ug/kg	NL		NL		NL	
99-09-2	3-Nitroaniline	ug/kg	NL		NL		NL	
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	NL		55.25	B,J	55.25	B,J
101-55-3	4-Bromophenyl-phenylether	ug/kg	NL		NL		NL	
59-50-7	4-Chloro-3-methylphenol	ug/kg	NL		66.3	B,G	66.3	B,G
106-47-8	4-Chloroaniline	ug/kg	NL		NL		NL	
7005-72-3	4-Chlorophenyl-phenylether	ug/kg	NL		NL		NL	
106-44-5	4-Methylphenol	ug/kg	NL		55.25	B,J	55.25	B,J
100-01-6	4-Nitroaniline	ug/kg	NL		NL		NL	
100-02-7	4-Nitrophenol	ug/kg	NL		55.25	B,J	55.25	B,J
83-32-9	Acenaphthene	ug/kg	NL		15470	B	15470	B
208-96-8	Acenaphthylene	ug/kg	NL		NL		NL	
98-86-2	Acetophenone	ug/kg	NL		NL		NL	
120-12-7	Anthracene	ug/kg	NL		11823.5	B	11823.5	B
1912-24-9	Atrazine	ug/kg	NL		NL		NL	
100-52-7	Benzaldehyde	ug/kg	NL		NL		NL	

Table 4-3

Wetland Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
56-55-3	Benzo(a)anthracene	ug/kg	143.65	B	1326	B	1326	B
50-32-8	Benzo(a)pyrene	ug/kg	143.65	B	NL		NL	
205-99-2	Benzo(b)fluoranthene	ug/kg	143.65	B	NL		NL	
191-24-2	Benzo(g,h,i)perylene	ug/kg	NL		NL		NL	
207-08-9	Benzo(k)fluoranthene	ug/kg	143.65	B	NL		NL	
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	NL		NL		NL	
111-44-4	bis(2-Chloroethyl)ether	ug/kg	3.315	B	NL		NL	
117-81-7	bis(2-Ethylhexyl)phthalate	ug/kg	NL		22044.75	B	22044.75	B
85-68-7	Butylbenzylphthalate	ug/kg	NL		NL		NL	
105-60-2	Caprolactam	ug/kg	NL		NL		NL	
86-74-8	Carbazole	ug/kg	NL		NL		NL	
218-01-9	Chrysene	ug/kg	143.65	B	NL		NL	
53-70-3	Dibenz(a,h)anthracene	ug/kg	NL		NL		NL	
132-64-9	Dibenzofuran	ug/kg	NL		NL		NL	
84-66-2	Diethylphthalate	ug/kg	NL		NL		NL	
131-11-3	Dimethylphthalate	ug/kg	NL		NL		NL	
84-74-2	Di-n-butylphthalate	ug/kg	NL		NL		NL	
117-84-0	Di-n-octyl phthalate	ug/kg	NL		NL		NL	
206-44-0	Fluoranthene	ug/kg	NL		112710	B	112710	B
86-73-7	Fluorene	ug/kg	NL		884	B	884	B
118-74-1	Hexachlorobenzene	ug/kg	16.575	B	615485	B	615485	B
87-68-3	Hexachlorobutadiene	ug/kg	33.15	B	607.75	B	607.75	B
77-47-4	Hexachlorocyclopentadiene	ug/kg	NL		486.2	B	486.2	B
67-72-1	Hexachloroethane	ug/kg	NL		NL		NL	
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	143.65	B	NL		NL	
78-59-1	Isophorone	ug/kg	NL		NL		NL	
91-20-3	Naphthalene	ug/kg	NL		3315	B	3315	B
98-95-3	Nitrobenzene	ug/kg	NL		NL		NL	

Table 4-3

Wetland Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
621-64-7	N-Nitroso-di-n-propylamine	ug/kg	NL		NL		NL	
86-30-6	N-Nitrosodiphenylamine	ug/kg	NL		NL		NL	
87-86-5	Pentachlorophenol	ug/kg	NL		4420	B	4420	B
85-01-8	Phenanthrene	ug/kg	NL		13260	B	13260	B
108-95-2	Phenol	ug/kg	NL		55.25	B,J	55.25	B,J
129-00-0	Pyrene	ug/kg	NL		106190.5	B	106190.5	B
Pesticides/PCBs								
72-54-8	4,4'-DDD	ug/kg	1.105	B	110.5	B	110.5	B
72-55-9	4,4'-DDE	ug/kg	1.105	B	NL		NL	
50-29-3	4,4'-DDT	ug/kg	1.105	B	NL		NL	
309-00-2	Aldrin	ug/kg	11.05	B,K	NL		NL	
319-84-6	Alpha-BHC	ug/kg	6.63	B,L	6.63	B,L	6.63	B,L
5103-71-9	alpha-Chlordane	ug/kg	0.1105	B,C	3.315	B,C	3.315	B,C
12674-11-:	Aroclor-1016	ug/kg	0.0884	B,H	2132.65	B,H	2132.65	B,H
11104-28-:	Aroclor-1221	ug/kg	0.0884	B,H	2132.65	B,H	2132.65	B,H
11141-16-!	Aroclor-1232	ug/kg	0.0884	B,H	2132.65	B,H	2132.65	B,H
53469-21-!	Aroclor-1242	ug/kg	0.0884	B,H	2132.65	B,H	2132.65	B,H
12672-29-(	Aroclor-1248	ug/kg	0.0884	B,H	2132.65	B,H	2132.65	B,H
11097-69-	Aroclor-1254	ug/kg	0.0884	B,H	2132.65	B,H	2132.65	B,H
11096-82-:	Aroclor-1260	ug/kg	0.0884	B,H	2132.65	B,H	2132.65	B,H
319-85-7	Beta-BHC	ug/kg	6.63	B,L	6.63	B,L	6.63	B,L
319-86-8	Delta-BHC	ug/kg	6.63	B,L	6.63	B,L	6.63	B,L
60-57-1	Dieldrin	ug/kg	11.05	B,K	NL		NL	
959-98-8	Endosulfan I	ug/kg	NL		3.315	B	3.315	B
33213-65-!	Endosulfan II	ug/kg	NL		3.315	B	3.315	B
1031-07-8	Endosulfan sulfate	ug/kg	NL		NL		NL	
72-20-8	Endrin	ug/kg	88.4	B	442	B	442	B
7421-93-4	Endrin aldehyde	ug/kg	NL		NL		NL	

Table 4-3

Wetland Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
53494-70-	Endrin ketone	ug/kg	NL		NL		NL	
58-89-9	gamma-BHC (Lindane)	ug/kg	6.63	B,L	6.63	B,L	6.63	B,L
5103-74-2	gamma-Chlordane	ug/kg	0.1105	B,C	0.1105	B,C	0.1105	B,C
76-44-8	Heptachlor	ug/kg	0.0884	B	11.05	B	11.05	B
1024-57-3	Heptachlor epoxide	ug/kg	0.0884	B	11.05	B	11.05	B
72-43-5	Methoxychlor	ug/kg	NL		66.3	B	66.3	B
8001-35-2	Toxaphene	ug/kg	2.21	B	1.105	B	1.105	B
Inorganic Analytes								
7429-90-5	Aluminum	mg/kg	NL		NL		NL	
7440-36-0	Antimony	mg/kg	NL		2		25	
7440-38-2	Arsenic	mg/kg	NL		6		33	
7440-39-3	Barium	mg/kg	NL		NL		NL	
7440-41-7	Beryllium	mg/kg	NL		NL		NL	
7440-43-9	Cadmium	mg/kg	NL		0.6		9	
7440-70-2	Calcium	mg/kg	NL		NL		NL	
7440-47-3	Chromium	mg/kg	NL		26		110	
18540-29-	Chromium (hexavalent)	mg/kg	NL		26		110	
7440-48-4	Cobalt	mg/kg	NL		NL		NL	
7440-50-8	Copper	mg/kg	NL		16		110	
57-12-5	Cyanide	mg/kg	NL		NL		NL	
7439-89-6	Iron	mg/kg	NL		20000		40000	
7439-92-1	Lead	mg/kg	NL		31		110	
7439-95-4	Magnesium	mg/kg	NL		NL		NL	
7439-96-5	Manganese	mg/kg	NL		460		1110	

Table 4-3

Wetland Sediment Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	New York State Sediment Criteria for Human Health Bioaccumulation, Freshwater (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC LEL for inorganics (1)		New York State Sediment Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater - with NYSDEC SEL for inorganics (1)	
7439-97-6	Mercury	mg/kg	NL		0.15		1.3	
7440-02-0	Nickel	mg/kg	NL		16		50	
7440-09-7	Potassium	mg/kg	NL		NL		NL	
7782-49-2	Selenium	mg/kg	NL		NL		NL	
7440-22-4	Silver	mg/kg	NL		1		2.2	
7440-23-5	Sodium	mg/kg	NL		NL		NL	
7440-28-0	Thallium	mg/kg	NL		NL		NL	
7440-62-2	Vanadium	mg/kg	NL		NL		NL	
7440-66-6	Zinc	mg/kg	NL		120		270	

Notes:
1. NYSDEC. Technical Guidance for Screening Contaminated Sediments, Division of Fish, Wildlife and Marine January 25, 1999.
NL - Chemical name not listed or screening value of this type not listed for the chemical
B Values are calculated based on a site average organic carbon content: 11.05 % OC 110.5 g OC/kg sediment
C Value applies to total Chlordane
D Value applies to total Dichlorobenzenes
E Value applies to total Trichlorobenzenes
F Value applies to total Xylenes
G Value applies to total chlorinated Phenols
H Value applies to total PCBs
J Value applies to total unchlorinated Phenols
K Value applies to sum of Aldrin and Dieldrin
L Value applies to total BHCs (hexachlorocyclohexanes)
M The criteria for total chromium will be applied to hexavalent chromium
OC Organic Carbon

Table 4-4

Groundwater Screening Standards and Guidelines
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	National Primary Drinking Water Standards (1)			New York State Standards (S) and Guidance (G)Values for Class GA Groundwater Human Water Source (H(WS)) (2)			NYSDOH Drinking Water Quality Standards (3)	
			Value	Note	G/S	Value	Note	G/S	Value	G/S
Volatile Organic Compounds										
71-55-6	1,1,1-Trichloroethane	ug/l	200		S	5	PC	S	5	S
79-34-5	1,1,2,2-Tetrachloroethane	ug/l	NL			5		S	5	S
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	NL			5	PC	S	NL	
79-00-5	1,1,2-Trichloroethane	ug/l	5		S	1		S	5	S
75-34-3	1,1-Dichloroethane	ug/l	NL			5	PC	S	5	S
75-35-4	1,1-Dichloroethene	ug/l	7		S	5	PC	S	5	S
87-61-6	1,2,3-Trichlorobenzene	ug/l	NL			5	PC	S	5	S
120-82-1	1,2,4-Trichlorobenzene	ug/l	70		S	5	PC	S	5	S
96-12-8	1,2-Dibromo-3-chloropropane	ug/l	0.2		S	0.04		S	0.2	S
106-93-4	1,2-Dibromoethane	ug/l	0.05		S	0.0006		S	0.05	S
95-50-1	1,2-Dichlorobenzene	ug/l	600		S	3		S	5	S
107-06-2	1,2-Dichloroethane	ug/l	5		S	0.6		S	5	S
78-87-5	1,2-Dichloropropane	ug/l	5		S	1		S	5	S
541-73-1	1,3-Dichlorobenzene	ug/l	NL			3		S	5	S
106-46-7	1,4-Dichlorobenzene	ug/l	75		S	3		S	5	S
78-93-3	2-Butanone	ug/l	NL			50		G	NL	
591-78-6	2-Hexanone	ug/l	NL			50		G	50	S
108-10-1	4-Methyl-2-pentanone	ug/l	NL			NL			50	S
67-64-1	Acetone	ug/l	NL			50		G	50	S
71-43-2	Benzene	ug/l	5		S	1		S	5	S
74-97-5	Bromochloromethane	ug/l	NL			5	PC	S	5	S
75-27-4	Bromodichloromethane	ug/l	80	T	S	50		G	100	S
75-25-2	Bromoform	ug/l	80	T	S	50		G	100	S
74-83-9	Bromomethane	ug/l	NL			5	PC	S	5	S
75-15-0	Carbon Disulfide	ug/l	NL			60		G	50	S
56-23-5	Carbon Tetrachloride	ug/l	5		S	5		S	5	S
108-90-7	Chlorobenzene	ug/l	100		S	5	PC	S	5	S
75-00-3	Chloroethane	ug/l	NL			5	PC	S	5	S
67-66-3	Chloroform	ug/l	80	T	S	7		S	100	S

Table 4-4

Groundwater Screening Standards and Guidelines
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	National Primary Drinking Water Standards (1)			New York State Standards (S) and Guidance (G)Values for Class GA Groundwater Human Water Source (H(WS)) (2)			NYSDOH Drinking Water Quality Standards (3)	
			Value	Note	G/S	Value	Note	G/S	Value	G/S
74-87-3	Chloromethane	ug/l	NL			5	PC	S	5	S
156-59-2	cis-1,2-Dichloroethene	ug/l	70		S	5	PC	S	5	S
10061-01-5	cis-1,3-Dichloropropene	ug/l	NL			0.4	J	S	5	S
110-82-7	Cyclohexane	ug/l	NL			NL			NL	
124-48-1	Dibromochloromethane	ug/l	80	T	S	50		G	100	S
75-71-8	Dichlorodifluoromethane	ug/l	NL			5	PC	S	5	S
100-41-4	Ethylbenzene	ug/l	700		S	5	PC	S	5	S
98-82-8	Isopropylbenzene	ug/l	NL			5	PC	S	5	S
79-20-9	Methyl Acetate	ug/l	NL			NL			NL	
1634-04-4	Methyl Tert-Butyl Ether	ug/l	NL			10		G	50	S
108-87-2	Methylcyclohexane	ug/l	NL			NL			NL	
75-09-2	Methylene Chloride	ug/l	5		S	5	PC	S	5	S
100-42-5	Styrene	ug/l	100		S	5	PC	S	5	S
127-18-4	Tetrachloroethene	ug/l	5		S	5	PC	S	5	S
108-88-3	Toluene	ug/l	1000		S	5	PC	S	5	S
156-60-5	trans-1,2-Dichloroethene	ug/l	100		S	5	PC	S	5	S
10061-02-6	Trans-1,3-Dichloropropene	ug/l	NL			0.4	J	S	5	S
79-01-6	Trichloroethene	ug/l	5		S	5	PC	S	5	S
75-69-4	Trichlorofluoromethane	ug/l	NL			5	PC	S	5	S
75-01-4	Vinyl Chloride	ug/l	2		S	2		S	2	S
1330-20-7	Xylenes (total)	ug/l	10000		S	5	PC	S	5	S
Semi-Volatile Organics										
92-52-4	1,1'Biphenyl	ug/l	NL			5	PC	S	NL	
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/l	NL			5	PC	S	NL	
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/l	NL			5	PC	S	NL	
95-95-4	2,4,5-Trichlorophenol	ug/l	NL			NL			5	S
88-06-2	2,4,6-Trichlorophenol	ug/l	NL			NL			5	S
120-83-2	2,4-Dichlorophenol	ug/l	NL			5	PC	S	NL	
105-67-9	2,4-Dimethylphenol	ug/l	NL			50		G	50	S
51-28-5	2,4-Dinitrophenol	ug/l	NL			10		G	NL	

Table 4-4

Groundwater Screening Standards and Guidelines
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	National Primary Drinking Water Standards (1)			New York State Standards (S) and Guidance (G)Values for Class GA Groundwater - Human Water Source (H(WS)) (2)			NYSDOH Drinking Water Quality Standards (3)	
			Value	Note	G/S	Value	Note	G/S	Value	G/S
121-14-2	2,4-Dinitrotoluene	ug/l	NL			5	PC	S	50	S
606-20-2	2,6-Dinitrotoluene	ug/l	NL			5	PC	S	50	S
91-58-7	2-Chloronaphthalene	ug/l	NL			NL			5	S
95-57-8	2-Chlorophenol	ug/l	NL			NL			5	S
91-57-6	2-Methylnaphthalene	ug/l	NL			NL			NL	
95-48-7	2-Methylphenol	ug/l	NL			NL			50	S
88-74-4	2-Nitroaniline	ug/l	NL			5	PC	S	5	S
88-75-5	2-Nitrophenol	ug/l	NL			NL			50	S
91-94-1	3,3'-Dichlorobenzidine	ug/l	NL			5	PC	S	5	S
99-09-2	3-Nitroaniline	ug/l	NL			5	PC	S	5	S
534-52-1	4,6-Dinitro-2-methylphenol	ug/l	NL			NL			50	S
101-55-3	4-Bromophenyl-phenylether	ug/l	NL			NL			50	S
59-50-7	4-Chloro-3-methylphenol	ug/l	NL			NL			5	S
106-47-8	4-Chloroaniline	ug/l	NL			5	PC	S	5	S
7005-72-3	4-Chlorophenyl-phenylether	ug/l	NL			NL			50	S
106-44-5	4-Methylphenol	ug/l	NL			NL			50	S
100-01-6	4-Nitroaniline	ug/l	NL			5	PC	S	5	S
100-02-7	4-Nitrophenol	ug/l	NL			NL			50	S
83-32-9	Acenaphthene	ug/l	NL			NL			50	S
208-96-8	Acenaphthylene	ug/l	NL			NL			50	S
98-86-2	Acetophenone	ug/l	NL			NL			50	S
120-12-7	Anthracene	ug/l	NL			50		G	50	S
1912-24-9	Atrazine	ug/l	3		S	7.5		S	3	S
100-52-7	Benzaldehyde	ug/l	NL			NL			NL	
56-55-3	Benzo(a)anthracene	ug/l	NL			0.002		G	50	S
50-32-8	Benzo(a)pyrene	ug/l	0.2		S	ND		S	0.2	S
205-99-2	Benzo(b)fluoranthene	ug/l	NL			0.002		G	50	S
191-24-2	Benzo(g,h,i)perylene	ug/l	NL			NL			50	S
207-08-9	Benzo(k)fluoranthene	ug/l	NL			0.002		G	50	S
111-91-1	bis(2-Chloroethoxy)methane	ug/l	NL			5	PC	S	5	S

Table 4-4

Groundwater Screening Standards and Guidelines
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	National Primary Drinking Water Standards (1)			New York State Standards (S) and Guidance (G)Values for Class GA Groundwater - Human Water Source (H(WS)) (2)			NYSDOH Drinking Water Quality Standards (3)	
			Value	Note	G/S	Value	Note	G/S	Value	G/S
111-44-4	bis(2-Chloroethyl)ether	ug/l	NL			1		S	5	S
117-81-7	bis(2-Ethylhexyl)phthalate	ug/l	6		S	5		S	6	S
85-68-7	Butylbenzylphthalate	ug/l	NL			50		G	50	S
105-60-2	Caprolactam	ug/l	NL			NL			NL	
86-74-8	Carbazole	ug/l	NL			NL			50	S
218-01-9	Chrysene	ug/l	NL			0.002		G	50	S
53-70-3	Dibenz(a,h)anthracene	ug/l	NL			NL			50	S
132-64-9	Dibenzofuran	ug/l	NL			NL			50	S
84-66-2	Diethylphthalate	ug/l	NL			50		G	50	S
131-11-3	Dimethylphthalate	ug/l	NL			50		G	50	S
84-74-2	Di-n-butylphthalate	ug/l	NL			50		S	NL	
117-84-0	Di-n-octyl phthalate	ug/l	NL			50		G	50	S
206-44-0	Fluoranthene	ug/l	NL			50		G	50	S
86-73-7	Fluorene	ug/l	NL			50		G	NL	
118-74-1	Hexachlorobenzene	ug/l	1		S	0.04		S	1	S
87-68-3	Hexachlorobutadiene	ug/l	NL			0.5		S	5	S
77-47-4	Hexachlorocyclopentadiene	ug/l	50		S	5	PC	S	5	S
67-72-1	Hexachloroethane	ug/l	NL			5	PC	S	5	S
193-39-5	Indeno(1,2,3-cd)pyrene	ug/l	NL			0.002		G	50	S
78-59-1	Isophorone	ug/l	NL			50		G	50	S
91-20-3	Naphthalene	ug/l	NL			NL			50	S
98-95-3	Nitrobenzene	ug/l	NL			0.4		S	5	S
621-64-7	N-Nitroso-di-n-propylamine	ug/l	NL			NL			50	S
86-30-6	N-Nitrosodiphenylamine	ug/l	NL			50		G	50	S
87-86-5	Pentachlorophenol	ug/l	1		S	NL			1	S
85-01-8	Phenanthrene	ug/l	NL			50		G	50	S
108-95-2	Phenol	ug/l	NL			NL			50	S
129-00-0	Pyrene	ug/l	NL			50		G	50	S
Pesticides/PCBs										
72-54-8	4,4'-DDD	ug/l	NL			0.3		S	5	S

Table 4-4

Groundwater Screening Standards and Guidelines
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	National Primary Drinking Water Standards (1)			New York State Standards (S) and Guidance (G)Values for Class GA Groundwater Human Water Source (H(WS)) (2)			NYSDOH Drinking Water Quality Standards (3)	
			Value	Note	G/S	Value	Note	G/S	Value	G/S
72-55-9	4,4'-DDE	ug/l	NL			0.2		S	NL	
50-29-3	4,4'-DDT	ug/l	NL			0.2		S	5	S
309-00-2	Aldrin	ug/l	NL			ND		S	5	S
319-84-6	Alpha-BHC	ug/l	NL			0.01		S	5	S
5103-71-9	alpha-Chlordane	ug/l	2	F	S	0.05	F	S	2	S
12674-11-2	Aroclor-1016	ug/l	0.5		S	0.09	C	S	0.5	S
11104-28-2	Aroclor-1221	ug/l	0.5		S	0.09	C	S	0.5	S
11141-16-5	Aroclor-1232	ug/l	0.5		S	0.09	C	S	0.5	S
53469-21-9	Aroclor-1242	ug/l	0.5		S	0.09	C	S	0.5	S
12672-29-6	Aroclor-1248	ug/l	0.5		S	0.09	C	S	0.5	S
11097-69-1	Aroclor-1254	ug/l	0.5		S	0.09	C	S	0.5	S
11096-82-5	Aroclor-1260	ug/l	0.5		S	0.09	C	S	0.5	S
319-85-7	Beta-BHC	ug/l	NL			0.04		S	5	S
319-86-8	Delta-BHC	ug/l	NL			0.04		S	5	S
60-57-1	Dieldrin	ug/l	NL			0.004		S	5	S
959-98-8	Endosulfan I	ug/l	NL			NL			50	S
33213-65-9	Endosulfan II	ug/l	NL			NL			50	S
1031-07-8	Endosulfan sulfate	ug/l	NL			NL			50	S
72-20-8	Endrin	ug/l	2		S	ND		S	2	S
7421-93-4	Endrin aldehyde	ug/l	NL			5	PC	S	5	S
53494-70-5	Endrin ketone	ug/l	NL			5	PC	S	NL	
58-89-9	gamma-BHC (Lindane)	ug/l	0.2		S	0.05		S	0.2	S
5103-74-2	gamma-Chlordane	ug/l	2	F	S	0.05	F	S	2	S
76-44-8	Heptachlor	ug/l	0.4		S	0.04		S	0.4	S
1024-57-3	Heptachlor epoxide	ug/l	0.2		S	0.03		S	0.2	S
72-43-5	Methoxychlor	ug/l	40		S	35		S	40	S
8001-35-2	Toxaphene	ug/l	3		S	0.06		S	3	S
Inorganic Analytes										
7429-90-5	Aluminum	ug/l	NL			NL			NL	
7440-36-0	Antimony	ug/l	6		S	3		S	6	S

Table 4-4

Groundwater Screening Standards and Guidelines
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	National Primary Drinking Water Standards (1)			New York State Standards (S) and Guidance (G)Values for Class GA Groundwater - Human Water Source (H(WS)) (2)			NYSDOH Drinking Water Quality Standards (3)	
			Value	Note	G/S	Value	Note	G/S	Value	G/S
7440-38-2	Arsenic	ug/l	10		S	25		S	50	S
7440-39-3	Barium	ug/l	2000		S	1000		S	2000	S
7440-41-7	Beryllium	ug/l	4		S	3		G	4	S
7440-43-9	Cadmium	ug/l	5		S	5		S	5	S
7440-70-2	Calcium	ug/l	NL			NL			NL	
7440-47-3	Chromium	ug/l	100		S	50		S	100	S
18540-29-9	Chromium (hexavalent)	ug/l	NL			50		S		
7440-48-4	Cobalt	ug/l	NL			NL			NL	
7440-50-8	Copper	ug/l	1300	TT	S	200		S	1300	S
57-12-5	Cyanide	ug/l	200		S	200		S	200	S
7439-89-6	Iron	ug/l	NL			NL			300	S
7439-92-1	Lead	ug/l	15	TT	S	25		S	15	S
7439-95-4	Magnesium	ug/l	NL			35000		G	NL	
7439-96-5	Manganese	ug/l	NL			NL			300	S
7439-97-6	Mercury	ug/l	2		S	0.7		S	2	S
7440-02-0	Nickel	ug/l	NL			100		S	NL	
7440-09-7	Potassium	ug/l	NL			NL			NL	
7782-49-2	Selenium	ug/l	50		S	10		S	50	S
7440-22-4	Silver	ug/l	NL			50		S	100	S
7440-23-5	Sodium	ug/l	NL			20000		S	NL	
7440-28-0	Thallium	ug/l	2		S	0.5		G	2	S
7440-62-2	Vanadium	ug/l	NL			NL			NL	
7440-66-6	Zinc	ug/l	NL			2000		G	5	S

Table 4-4

Groundwater Screening Standards and Guidance
Hiteman Leather Site
West Winfield, New York

Notes:

1. EPA National Primary Drinking Water Standards (web page), EPA 816-F-01-007, Summer 2002
2. NYSDEC. June 1998. TOGS 1.1.1. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. Includes April 2000 Addendum values.
3. New York State Department of Health Drinking Water Standards

MCL - Maximum Contaminant Level
ND - The criteria for this compound is below any detection limit
TT - Treatment Technique
C - Value applies to the sum of the PCB compounds
D - Value applies to the sum of 1,2,3-, 1,2,4- and 1,3,5-trichlorobenzene
F - Value applies to the sum of alpha- and gamma-Chlordane
G - Guidance Value
J - Value applies to the sum of cis- and trans-1,3-dichloropropene
K - Value applies to the sum of 1,2,3,4-, 1,2,3,5-, and 1,2,4,5-tetrachlorobenzene
L - Standard of 500 ug/L applies to the sum of manganese and iron in groundwater (based on aesthetics).
M - Value applies to total xylenes (sum of o-, m-, and p-xylene)
NL - No value listed
PC - Principal Organic Contaminant
S - Standard
T - Value applies to total trihalomethanes (bromodichloromethane, bromoform, chloroform, dibromochloromethane)
X - Value applies to the sum of phenolic compounds

Table 4-5

Subsurface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	NYSDEC RSCO Adjusted for Site TOC of 5.24% (1)		Hiteman Background for Inorganics in Subsurface Soil (2)
Volatile Organic Compounds					
71-55-6	1,1,1-Trichloroethane	ug/kg	4,192	A,E	NL
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	3,144	A,E	NL
79-00-5	1,1,2-Trichloroethane	ug/kg	NL	A	NL
76-13-1	1,1,2-Tricholoro-1,2,2-trifluoroethane	ug/kg	10,000	A,E,V	NL
75-34-3	1,1-Dichloroethane	ug/kg	1,048	A,E	NL
75-35-4	1,1-Dichloroethene	ug/kg	2,096	A,E	NL
87-61-6	1,2,3-Trichlorobenzene	ug/kg	NL	A	NL
120-82-1	1,2,4-Trichlorobenzene	ug/kg	10,000	A,E,V	NL
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg	NL	A	NL
106-93-4	1,2-Dibromoethane	ug/kg	NL	A	NL
95-50-1	1,2-Dichlorobenzene	ug/kg	10,000	A,E,V	NL
107-06-2	1,2-Dichloroethane	ug/kg	524	A,E	NL
78-87-5	1,2-Dichloropropane	ug/kg	NL	A,E	NL
541-73-1	1,3-Dichlorobenzene	ug/kg	8,384	A,E	NL
106-46-7	1,4-Dichlorobenzene	ug/kg	10,000	A,E,V	NL
78-93-3	2-Butanone	ug/kg	1,572	A,E	NL
591-78-6	2-Hexanone	ug/kg	NL	A	NL
108-10-1	4-Methyl-2-pentanone	ug/kg	5,240	A,E	NL
67-64-1	Acetone	ug/kg	1,048	A,E	NL
71-43-2	Benzene	ug/kg	314	A,E	NL
74-97-5	Bromochloromethane	ug/kg	NL	A	NL
75-27-4	Bromodichloromethane	ug/kg	NL	A	NL
75-25-2	Bromoform	ug/kg	NL	A	NL
74-83-9	Bromomethane	ug/kg	NL	A	NL
75-15-0	Carbon Disulfide	ug/kg	10,000	A,E,V	NL
56-23-5	Carbon Tetrachloride	ug/kg	3,144	A,E	NL
108-90-7	Chlorobenzene	ug/kg	8,908	A,E	NL
75-00-3	Chloroethane	ug/kg	9,956	A,E	NL
67-66-3	Chloroform	ug/kg	1,572	A,E	NL
74-87-3	Chloromethane	ug/kg	NL	A	NL
156-59-2	*cis*-1,2-Dichloroethene	ug/kg	NL	A	NL
10061-01-5	*cis*-1,3-Dichloropropene	ug/kg	NL	A	NL
110-82-7	Cyclohexane	ug/kg	NL	A	NL
124-48-1	Dibromochloromethane	ug/kg	NL	A	NL
75-71-8	Dichlorodifluoromethane	ug/kg	NL	A	NL
100-41-4	Ethylbenzene	ug/kg	10,000	A,E,V	NL
98-82-8	Isopropylbenzene	ug/kg	NL	A	NL
79-20-9	Methyl Acetate	ug/kg	NL	A	NL
1634-04-4	Methyl Tert-Butyl Ether	ug/kg	NL	A	NL
108-87-2	Methylcyclohexane	ug/kg	NL	A	NL
75-09-2	Methylene Chloride	ug/kg	524	A,E	NL
100-42-5	Styrene	ug/kg	NL	A	NL
127-18-4	Tetrachloroethene	ug/kg	7,336	A,E	NL
108-88-3	Toluene	ug/kg	7,860	A,E	NL
156-60-5	*trans*-1,2-Dichloroethene	ug/kg	1,572	A,E	NL
10061-02-6	*trans*-1,3-Dichloropropene	ug/kg	NL	A	NL

Table 4-5

Subsurface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	NYSDEC RSCO Adjusted for Site TOC of 5.24% (1)		Hiteman Background for Inorganics in Subsurface Soil (2)	
79-01-6	Trichloroethene	ug/kg	3,668	A,E	NL	
75-69-4	Trichlorofluoromethane	ug/kg	NL	A	NL	
75-01-4	Vinyl Chloride	ug/kg	1,048	A,E	NL	
1330-20-7	Xylenes (Total)	ug/kg	6,288	A,E	NL	
Semi-Volatile Organic Compounds						
92-52-4	1,1'-Biphenyl	ug/kg	NL	D	NL	
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	NL	D	NL	
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/kg	NL	D	NL	
95-95-4	2,4,5-Trichlorophenol	ug/kg	524	D,E	NL	
88-06-2	2,4,6-Trichlorophenol	ug/kg	NL	D	NL	
120-83-2	2,4-Dichlorophenol	ug/kg	2,096	D,E	NL	
105-67-9	2,4-Dimethylphenol	ug/kg	NL	D	NL	
51-28-5	2,4-Dinitrophenol	ug/kg	1,048	D,E	NL	
121-14-2	2,4-Dinitrotoluene	ug/kg	NL	D	NL	
606-20-2	2,6-Dinitrotoluene	ug/kg	5,240	D,E	NL	
91-58-7	2-Chloronaphthalene	ug/kg	NL	D	NL	
95-57-8	2-Chlorophenol	ug/kg	4,192	D,E	NL	
91-57-6	2-Methylnaphthalene	ug/kg	50,000	D,E,S	NL	
95-48-7	2-Methylphenol	ug/kg	524	D,E	NL	
88-74-4	2-Nitroaniline	ug/kg	2,253	D,E	NL	
88-75-5	2-Nitrophenol	ug/kg	1,729	D,E	NL	
91-94-1	3,3'-Dichlorobenzidine	ug/kg	NL	D	NL	
99-09-2	3-Nitroaniline	ug/kg	2,620	D,E	NL	
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	NL	D	NL	
101-55-3	4-Bromophenyl-phenylether	ug/kg	NL	D	NL	
59-50-7	4-Chloro-3-methylphenol	ug/kg	1,258	D,E	NL	
106-47-8	4-Chloroaniline	ug/kg	1,153	D,E	NL	
7005-72-3	4-Chlorophenyl-phenylether	ug/kg	NL	D	NL	
106-44-5	4-Methylphenol	ug/kg	4,716	D,E	NL	
100-01-6	4-Nitroaniline	ug/kg	NL	D	NL	
100-02-7	4-Nitrophenol	ug/kg	524	D,E	NL	
83-32-9	Acenaphthene	ug/kg	50,000	D,E,S	NL	
208-96-8	Acenaphthylene	ug/kg	50,000	D,E,S	NL	
98-86-2	Acetophenone	ug/kg	NL	D	NL	
120-12-7	Anthracene	ug/kg	50,000	D,E,S	NL	
1912-24-9	Atrazine	ug/kg	NL	D	NL	
100-52-7	Benzaldehyde	ug/kg	NL	D	NL	
56-55-3	Benzo(a)anthracene	ug/kg	1,174	D,E	NL	
50-32-8	Benzo(a)pyrene	ug/kg	320	D,E	NL	
205-99-2	Benzo(b)fluoranthene	ug/kg	5,764	D,E	NL	
191-24-2	Benzo(g,h,i)perylene	ug/kg	50,000	D,E,S	NL	
207-08-9	Benzo(k)fluoranthene	ug/kg	5,764	D,E	NL	
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	NL	D	NL	
111-44-4	bis(2-Chloroethyl)ether	ug/kg	NL	D	NL	
117-81-7	bis-(2-Ethylhexyl)phthalate	ug/kg	50,000	D,E,S	NL	
85-68-7	Butylbenzylphthalate	ug/kg	50,000	D,E,S	NL	
105-60-2	Caprolactam	ug/kg	NL	D	NL	

Table 4-5

Subsurface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	NYSDEC RSCO Adjusted for Site TOC of 5.24% (1)		Hiteman Background for Inorganics in Subsurface Soil (2)	
86-74-8	Carbazole	ug/kg	NL	D	NL	
218-01-9	Chrysene	ug/kg	2,096	D,E	NL	
53-70-3	Dibenzo(a,h)anthracene	ug/kg	73	D,E	NL	
132-64-9	Dibenzofuran	ug/kg	32,488	D,E	NL	
84-66-2	Diethylphthalate	ug/kg	37,204	D,E	NL	
131-11-3	Dimethylphthalate	ug/kg	10,480	D,E	NL	
84-74-2	Di-n-butylphthalate	ug/kg	42,444	D,E	NL	
117-84-0	Di-n-octylphthalate	ug/kg	50,000	D,E,S	NL	
206-44-0	Fluoranthene	ug/kg	50,000	D,E,S	NL	
86-73-7	Fluorene	ug/kg	50,000	D,E,S	NL	
118-74-1	Hexachlorobenzene	ug/kg	2,148	D,E	NL	
87-68-3	Hexachlorobutadiene	ug/kg	NL	D	NL	
77-47-4	Hexachlorocyclopentadiene	ug/kg	NL	D	NL	
67-72-1	Hexachloroethane	ug/kg	NL	D	NL	
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	16,768	D,E	NL	
78-59-1	Isophorone	ug/kg	23,056	D,E	NL	
91-20-3	Naphthalene	ug/kg	50,000	D,E,S	NL	
98-95-3	Nitrobenzene	ug/kg	1,048	D,E	NL	
621-64-7	N-Nitroso-di-n-propylamine	ug/kg	NL	D	NL	
86-30-6	N-Nitrosodiphenylamine	ug/kg	NL	D	NL	
87-86-5	Pentachlorophenol	ug/kg	5,240	D,E	NL	
85-01-8	Phenanthrene	ug/kg	50,000	D,E,S	NL	
108-95-2	Phenol	ug/kg	157	D,E	NL	
129-00-0	Pyrene	ug/kg	50,000	D,E,S	NL	
Pesticides/PCBs						
72-54-8	4,4'-DDD	ug/kg	10,000	E,F,P	NL	
72-55-9	4,4'-DDE	ug/kg	10,000	E,F,P	NL	
50-29-3	4,4'-DDT	ug/kg	10,000	E,F,P	NL	
309-00-2	Aldrin	ug/kg	215	E,F	NL	
319-84-6	alpha-BHC	ug/kg	576	E,F	NL	
5103-71-9	alpha-Chlordane	ug/kg	2,830	E,F	NL	
12674-11-2	Aroclor-1016	ug/kg	5,240	E	NL	
11104-28-2	Aroclor-1221	ug/kg	5,240	E	NL	
11141-16-5	Aroclor-1232	ug/kg	5,240	E	NL	
53469-21-9	Aroclor-1242	ug/kg	5,240	E	NL	
12672-29-6	Aroclor-1248	ug/kg	5,240	E	NL	
11097-69-1	Aroclor-1254	ug/kg	5,240	E	NL	
11096-82-5	Aroclor-1260	ug/kg	5,240	E	NL	
319-85-7	beta-BHC	ug/kg	1,048	E,F	NL	
319-86-8	delta-BHC	ug/kg	1,572	E,F	NL	
60-57-1	Dieldrin	ug/kg	231	E,F	NL	
959-98-8	Endosulfan I	ug/kg	4,716	E,F	NL	
33213-65-9	Endosulfan II	ug/kg	4,716	E,F	NL	
1031-07-8	Endosulfan Sulfate	ug/kg	5,240	E,F	NL	
72-20-8	Endrin	ug/kg	524	E,F	NL	
7421-93-4	Endrin aldehyde	ug/kg	NL	F	NL	
53494-70-5	Endrin ketone	ug/kg	NL	F	NL	

Table 4-5

Subsurface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	NYSDEC RSCO Adjusted for Site TOC of 5.24% (1)		Hiteman Background for Inorganics in Subsurface Soil (2)	
58-89-9	gamma-BHC (Lindane)	ug/kg	314	E,F	NL	
5103-74-2	gamma-Chlordane	ug/kg	2,830	E,F	NL	
76-44-8	Heptachlor	ug/kg	524	E,F	NL	
1024-57-3	Heptachlor epoxide	ug/kg	105	E,F	NL	
72-43-5	Methoxychlor	ug/kg	NL	F	NL	
8001-35-2	Toxaphene	ug/kg	NL	F	NL	
Inorganic Analytes						
7429-90-5	Aluminum	mg/kg	NL	B	19,085	
7440-36-0	Antimony	mg/kg	NL	B	0.62	
7440-38-2	Arsenic	mg/kg	7.5	*	17.45	
7440-39-3	Barium	mg/kg	300	*	100.1	
7440-41-7	Beryllium	mg/kg	0.16	*	1.61	
7440-43-9	Cadmium	mg/kg	1	*	0.095	
7440-70-2	Calcium	mg/kg	NL	B	81,100	
7440-47-3	Chromium	mg/kg	10	*	30.7	
18540-29-9	Chromium (hexavalent)	mg/kg	NL		NL	
7440-48-4	Cobalt	mg/kg	30	*	13.6	
7440-50-8	Copper	mg/kg	25	*	28.8	
57-12-5	Cyanide	mg/kg	NL	C	0.2	
7439-89-6	Iron	mg/kg	2,000	*	40,150	
7439-92-1	Lead	mg/kg	NL	B	21.25	
7439-95-4	Magnesium	mg/kg	NL	B	6,610	
7439-96-5	Manganese	mg/kg	NL	B	717.5	
7439-97-6	Mercury	mg/kg	0.1		0.24	
7440-02-0	Nickel	mg/kg	13	*	42.3	
7440-09-7	Potassium	mg/kg	NL	B	1399	
7782-49-2	Selenium	mg/kg	2	*	0.86	
7440-22-4	Silver	mg/kg	NL	B	0.335	
7440-23-5	Sodium	mg/kg	NL	B	224.4	
7440-28-0	Thallium	mg/kg	NL	B	0.7	
7440-62-2	Vanadium	mg/kg	150	*	36.6	
7440-66-6	Zinc	mg/kg	20	*	105.1	

Table 4-5

Subsurface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

Notes:

1. New York State Recommended Soil Cleanup Objectives (TAGM #4046, January 1994)
2. Site-specific background concentrations (x2): RSB-35-36-02-avg for surface soil and RSB-36-35-2-6-avg for subsurface soil

A Total VOCs <10,000 ug/kg
B Use site background
C Must be calculated on a site specific basis dependant upon site specific form of cyanide
D Total SVOCs <500,000 ug/kg, individual SVOCs <50,000 ug/kg
E Values are calculated based on a site average organic carbon content:
5.24 % OC 52 g OC/kg soil
F Total Pesticides <10,000 ug/kg
P Value capped at the NYSDEC limit on total pesticides (10,000 ug/kg)
S Value capped at the NYSDEC limit on individual SVOCs (50,000 mg/kg)
V Value capped at the NYSDEC limit on total VOCs (10,000 mg/kg)
* Use this value or site background
OC - Organic Carbon
NL - Not Listed

Table 4-6

Surface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	NYSDEC RSCO Adjusted for Site TOC of 5.24% (1)		Hiteman Background for Inorganics in Surface Soil (2)	
Volatile Organic Compounds						
71-55-6	1,1,1-Trichloroethane	ug/kg	4,192	A,E	NL	
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	3,144	A,E	NL	
79-00-5	1,1,2-Trichloroethane	ug/kg	NL	A	NL	
76-13-1	1,1,2-Tricholoro-1,2,2-trifluoroethane	ug/kg	10,000	A,E,V	NL	
75-34-3	1,1-Dichloroethane	ug/kg	1,048	A,E	NL	
75-35-4	1,1-Dichloroethene	ug/kg	2,096	A,E	NL	
87-61-6	1,2,3-Trichlorobenzene	ug/kg	NL	A	NL	
120-82-1	1,2,4-Trichlorobenzene	ug/kg	10,000	A,E,V	NL	
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg	NL	A	NL	
106-93-4	1,2-Dibromoethane	ug/kg	NL	A	NL	
95-50-1	1,2-Dichlorobenzene	ug/kg	10,000	A,E,V	NL	
107-06-2	1,2-Dichloroethane	ug/kg	524	A,E	NL	
78-87-5	1,2-Dichloropropane	ug/kg	NL	A,E	NL	
541-73-1	1,3-Dichlorobenzene	ug/kg	8,384	A,E	NL	
106-46-7	1,4-Dichlorobenzene	ug/kg	10,000	A,E,V	NL	
78-93-3	2-Butanone	ug/kg	1,572	A,E	NL	
591-78-6	2-Hexanone	ug/kg	NL	A	NL	
108-10-1	4-Methyl-2-pentanone	ug/kg	5,240	A,E	NL	
67-64-1	Acetone	ug/kg	1,048	A,E	NL	
71-43-2	Benzene	ug/kg	314	A,E	NL	
74-97-5	Bromochloromethane	ug/kg	NL	A	NL	
75-27-4	Bromodichloromethane	ug/kg	NL	A	NL	
75-25-2	Bromoform	ug/kg	NL	A	NL	
74-83-9	Bromomethane	ug/kg	NL	A	NL	
75-15-0	Carbon Disulfide	ug/kg	10,000	A,E,V	NL	
56-23-5	Carbon Tetrachloride	ug/kg	3,144	A,E	NL	
108-90-7	Chlorobenzene	ug/kg	8,908	A,E	NL	
75-00-3	Chloroethane	ug/kg	9,956	A,E	NL	
67-66-3	Chloroform	ug/kg	1,572	A,E	NL	
74-87-3	Chloromethane	ug/kg	NL	A	NL	
156-59-2	*cis*-1,2-Dichloroethene	ug/kg	NL	A	NL	
10061-01-5	*cis*-1,3-Dichloropropene	ug/kg	NL	A	NL	
110-82-7	Cyclohexane	ug/kg	NL	A	NL	
124-48-1	Dibromochloromethane	ug/kg	NL	A	NL	
75-71-8	Dichlorodifluoromethane	ug/kg	NL	A	NL	
100-41-4	Ethylbenzene	ug/kg	10,000	A,E,V	NL	
98-82-8	Isopropylbenzene	ug/kg	NL	A	NL	
79-20-9	Methyl Acetate	ug/kg	NL	A	NL	
1634-04-4	Methyl Tert-Butyl Ether	ug/kg	NL	A	NL	
108-87-2	Methylcyclohexane	ug/kg	NL	A	NL	
75-09-2	Methylene Chloride	ug/kg	524	A,E	NL	
100-42-5	Styrene	ug/kg	NL	A	NL	
127-18-4	Tetrachloroethene	ug/kg	7,336	A,E	NL	
108-88-3	Toluene	ug/kg	7,860	A,E	NL	
156-60-5	*trans*-1,2-Dichloroethene	ug/kg	1,572	A,E	NL	
10061-02-6	*trans*-1,3-Dichloropropene	ug/kg	NL	A	NL	
79-01-6	Trichloroethene	ug/kg	3,668	A,E	NL	

Table 4-6

Surface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	NYSDEC RSCO Adjusted for Site TOC of 5.24% (1)		Hiteman Background for Inorganics in Surface Soil (2)	
75-69-4	Trichlorofluoromethane	ug/kg	NL	A	NL	
75-01-4	Vinyl Chloride	ug/kg	1,048	A,E	NL	
1330-20-7	Xylenes (Total)	ug/kg	6,288	A,E	NL	
Semi-Volatile Organics						
92-52-4	1,1'-Biphenyl	ug/kg	NL	D	NL	
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	NL	D	NL	
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/kg	NL	D	NL	
95-95-4	2,4,5-Trichlorophenol	ug/kg	524	D,E	NL	
88-06-2	2,4,6-Trichlorophenol	ug/kg	NL	D	NL	
120-83-2	2,4-Dichlorophenol	ug/kg	2,096	D,E	NL	
105-67-9	2,4-Dimethylphenol	ug/kg	NL	D	NL	
51-28-5	2,4-Dinitrophenol	ug/kg	1,048	D,E	NL	
121-14-2	2,4-Dinitrotoluene	ug/kg	NL	D	NL	
606-20-2	2,6-Dinitrotoluene	ug/kg	5,240	D,E	NL	
91-58-7	2-Chloronaphthalene	ug/kg	NL	D	NL	
95-57-8	2-Chlorophenol	ug/kg	4,192	D,E	NL	
91-57-6	2-Methylnaphthalene	ug/kg	50,000	D,E,S	NL	
95-48-7	2-Methylphenol	ug/kg	524	D,E	NL	
88-74-4	2-Nitroaniline	ug/kg	2,253	D,E	NL	
88-75-5	2-Nitrophenol	ug/kg	1,729	D,E	NL	
91-94-1	3,3'-Dichlorobenzidine	ug/kg	NL	D	NL	
99-09-2	3-Nitroaniline	ug/kg	2,620	D,E	NL	
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	NL	D	NL	
101-55-3	4-Bromophenyl-phenylether	ug/kg	NL	D	NL	
59-50-7	4-Chloro-3-methylphenol	ug/kg	1,258	D,E	NL	
106-47-8	4-Chloroaniline	ug/kg	1,153	D,E	NL	
7005-72-3	4-Chlorophenyl-phenylether	ug/kg	NL	D	NL	
106-44-5	4-Methylphenol	ug/kg	4,716	D,E	NL	
100-01-6	4-Nitroaniline	ug/kg	NL	D	NL	
100-02-7	4-Nitrophenol	ug/kg	524	D,E	NL	
83-32-9	Acenaphthene	ug/kg	50,000	D,E,S	NL	
208-96-8	Acenaphthylene	ug/kg	50,000	D,E,S	NL	
98-86-2	Acetophenone	ug/kg	NL	D	NL	
120-12-7	Anthracene	ug/kg	50,000	D,E,S	NL	
1912-24-9	Atrazine	ug/kg	NL	D	NL	
100-52-7	Benzaldehyde	ug/kg	NL	D	NL	
56-55-3	Benzo(a)anthracene	ug/kg	1,174	D,E	NL	
50-32-8	Benzo(a)pyrene	ug/kg	320	D,E	NL	
205-99-2	Benzo(b)fluoranthene	ug/kg	5,764	D,E	NL	
191-24-2	Benzo(g,h,i)perylene	ug/kg	50,000	D,E,S	NL	
207-08-9	Benzo(k)fluoranthene	ug/kg	5,764	D,E	NL	
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	NL	D	NL	
111-44-4	bis(2-Chloroethyl)ether	ug/kg	NL	D	NL	
117-81-7	bis-(2-Ethylhexyl)phthalate	ug/kg	50,000	D,E,S	NL	
85-68-7	Butylbenzylphthalate	ug/kg	50,000	D,E,S	NL	
105-60-2	Caprolactam	ug/kg	NL	D	NL	
86-74-8	Carbazole	ug/kg	NL	D	NL	
218-01-9	Chrysene	ug/kg	2,096	D,E	NL	

Table 4-6

Surface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	NYSDEC RSCO Adjusted for Site TOC of 5.24% (1)		Hiteman Background for Inorganics in Surface Soil (2)	
53-70-3	Dibenzo(a,h)anthracene	ug/kg	73	D,E	NL	
132-64-9	Dibenzofuran	ug/kg	32,488	D,E	NL	
84-66-2	Diethylphthalate	ug/kg	37,204	D,E	NL	
131-11-3	Dimethylphthalate	ug/kg	10,480	D,E	NL	
84-74-2	Di-n-butylphthalate	ug/kg	42,444	D,E	NL	
117-84-0	Di-n-octylphthalate	ug/kg	50,000	D,E,S	NL	
206-44-0	Fluoranthene	ug/kg	50,000	D,E,S	NL	
86-73-7	Fluorene	ug/kg	50,000	D,E,S	NL	
118-74-1	Hexachlorobenzene	ug/kg	2,148	D,E	NL	
87-68-3	Hexachlorobutadiene	ug/kg	NL	D	NL	
77-47-4	Hexachlorocyclopentadiene	ug/kg	NL	D	NL	
67-72-1	Hexachloroethane	ug/kg	NL	D	NL	
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	16,768	D,E	NL	
78-59-1	Isophorone	ug/kg	23,056	D,E	NL	
91-20-3	Naphthalene	ug/kg	50,000	D,E,S	NL	
98-95-3	Nitrobenzene	ug/kg	1,048	D,E	NL	
621-64-7	N-Nitroso-di-n-propylamine	ug/kg	NL	D	NL	
86-30-6	N-Nitrosodiphenylamine	ug/kg	NL	D	NL	
87-86-5	Pentachlorophenol	ug/kg	5,240	D,E	NL	
85-01-8	Phenanthrene	ug/kg	50,000	D,E,S	NL	
108-95-2	Phenol	ug/kg	157	D,E	NL	
129-00-0	Pyrene	ug/kg	50,000	D,E,S	NL	
Pesticides/PCBs						
72-54-8	4,4'-DDD	ug/kg	10,000	E,F,P	NL	
72-55-9	4,4'-DDE	ug/kg	10,000	E,F,P	NL	
50-29-3	4,4'-DDT	ug/kg	10,000	E,F,P	NL	
309-00-2	Aldrin	ug/kg	215	E,F	NL	
319-84-6	alpha-BHC	ug/kg	576	E,F	NL	
5103-71-9	alpha-Chlordane	ug/kg	2,830	E,F	NL	
12674-11-2	Aroclor-1016	ug/kg	5,240	E	NL	
11104-28-2	Aroclor-1221	ug/kg	5,240	E	NL	
11141-16-5	Aroclor-1232	ug/kg	5,240	E	NL	
53469-21-9	Aroclor-1242	ug/kg	5,240	E	NL	
12672-29-6	Aroclor-1248	ug/kg	5,240	E	NL	
11097-69-1	Aroclor-1254	ug/kg	5,240	E	NL	
11096-82-5	Aroclor-1260	ug/kg	5,240	E	NL	
319-85-7	beta-BHC	ug/kg	1,048	E,F	NL	
319-86-8	delta-BHC	ug/kg	1,572	E,F	NL	
60-57-1	Dieldrin	ug/kg	231	E,F	NL	
959-98-8	Endosulfan I	ug/kg	4,716	E,F	NL	
33213-65-9	Endosulfan II	ug/kg	4,716	E,F	NL	
1031-07-8	Endosulfan Sulfate	ug/kg	5,240	E,F	NL	
72-20-8	Endrin	ug/kg	524	E,F	NL	
7421-93-4	Endrin aldehyde	ug/kg	NL	F	NL	
53494-70-5	Endrin ketone	ug/kg	NL	F	NL	
58-89-9	gamma-BHC (Lindane)	ug/kg	314	E,F	NL	
5103-74-2	gamma-Chlordane	ug/kg	2,830	E,F	NL	
76-44-8	Heptachlor	ug/kg	524	E,F	NL	

Table 4-6

Surface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	NYSDEC RSCO Adjusted for Site TOC of 5.24% (1)		Hiteman Background for Inorganics in Surface Soil (2)	
1024-57-3	Heptachlor epoxide	ug/kg	105	E,F	NL	
72-43-5	Methoxychlor	ug/kg	NL	F	NL	
8001-35-2	Toxaphene	ug/kg	NL	F	NL	
Inorganic Analytes						
7429-90-5	Aluminum	mg/kg	NL	B	19,540	
7440-36-0	Antimony	mg/kg	NL	B	0.69	
7440-38-2	Arsenic	mg/kg	7.5	*	12.9	
7440-39-3	Barium	mg/kg	300	*	79.1	
7440-41-7	Beryllium	mg/kg	0.16	*	1.21	
7440-43-9	Cadmium	mg/kg	1	*	0.09	
7440-70-2	Calcium	mg/kg	NL	B	156,380	
7440-47-3	Chromium	mg/kg	10	*	23.1	
18540-29-9	Chromium (hexavalent)	mg/kg	NL		NL	
7440-48-4	Cobalt	mg/kg	30	*	13	
7440-50-8	Copper	mg/kg	25	*	25.1	
57-12-5	Cyanide	mg/kg	NL	C	0.15	
7439-89-6	Iron	mg/kg	2,000	*	33,650	
7439-92-1	Lead	mg/kg	NL	B	23.5	
7439-95-4	Magnesium	mg/kg	NL	B	13,130	
7439-96-5	Manganese	mg/kg	NL	B	699	
7439-97-6	Mercury	mg/kg	0.1		0.14	
7440-02-0	Nickel	mg/kg	13	*	35.4	
7440-09-7	Potassium	mg/kg	NL	B	1331	
7782-49-2	Selenium	mg/kg	2	*	0.98	
7440-22-4	Silver	mg/kg	NL	B	0.3	
7440-23-5	Sodium	mg/kg	NL	B	294.9	
7440-28-0	Thallium	mg/kg	NL	B	1.06	
7440-62-2	Vanadium	mg/kg	150	*	32.2	
7440-66-6	Zinc	mg/kg	20	*	98.4	

Table 4-6
Surface Soil Screening Criteria
Hiteman Leather Site
West Winfield, New York

Notes:

1. New York State Recommended Soil Cleanup Objectives (TAGM #4046, January 1994)
2. Site-specific background concentrations (x2): RSB-35-36-02-avg for surface soil and RSB-36-35-2-6-avg for subsurface soil

A Total VOCs <10,000 ug/kg
B Use site background
C Must be calculated on a site specific basis dependant upon site specific form of cyanide
D Total SVOCs <500,000 ug/kg, individual SVOCs <50,000 ug/kg
E Values are calculated based on a site average organic carbon content: 5.24 % OC 52.4 g OC/kg soil
F Total Pesticides <10,000 ug/kg
P Value capped at the NYSDEC limit on total pesticides (10,000 ug/kg)
S Value capped at the NYSDEC limit on individual SVOCs (50,000 mg/kg)
V Value capped at the NYSDEC limit on total VOCs (10,000 mg/kg)
* Use this value or site background
OC - Organic Carbon
NL - Not Listed

Table 4-7

Fish Tissue Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	USEPA Region 3 Risk Based Fish Screening Criteria (1)		Hiteman Fish Screening Criteria (2)	
Volatile Organic Compounds						
71-55-6	1,1,1-Trichloroethane	ug/kg	**379,000**	N	379,000	
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg	**120**	C	120	
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	**100**	C	100	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	**40,556,000**	N	40,556,000	
79-00-5	1,1,2-Trichloroethane	ug/kg	**60**	C	60	
75-34-3	1,1-Dichloroethane	ug/kg	**135,000**	N	135,000	
75-35-4	1,1-Dichloroethene	ug/kg	**5**	C	5.0	
563-58-6	1,1-Dichloropropene	ug/kg	NL		NL	
96-18-4	1,2,3-Trichloropropane	ug/kg	**1.6**	C	1.6	
87-61-6	1,2,3-Trichlorobenzene	ug/kg	NL		NL	
120-82-1	1,2,4-Trichlorobenzene	ug/kg	**13,500**	N	13,500	
95-63-6	1,2,4-Trimethylbenzene	ug/kg	**68,000**	N	68,000	
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg	**2**	C	2.0	
106-93-4	1,2-Dibromoethane	ug/kg	**0.04**	C	0.04	
95-50-1	1,2-Dichlorobenzene	ug/kg	**122,000**	N	122,000	
107-06-2	1,2-Dichloroethane	ug/kg	**30**	C	30	
78-87-5	1,2-Dichloropropane	ug/kg	**50**	C	50	
108-67-8	1,3,5-Trimethylbenzene	ug/kg	**68,000**	N	68,000	
541-73-1	1,3-Dichlorobenzene	ug/kg	**40,600**	N	40,600	
142-28-9	1,3-Dichloropropane	ug/kg	NL		NL	
106-46-7	1,4-Dichlorobenzene	ug/kg	**100**	C	100	
594-20-7	2,2-Dichloropropane	ug/kg	NL		NL	
78-93-3	2-Butanone	ug/kg	**811,000**	N	811,000	
95-49-8	2-Chlorotoluene	ug/kg	**27,000**	N	27,000	
591-78-6	2-Hexanone	ug/kg	**54,100**	N	54,100	
135-98-8	2-Phenylbutane	ug/kg	NL		NL	
106-43-4	4-Chlorotoluene	ug/kg	NL		NL	
108-10-1	4-Methyl-2-pentanone	ug/kg	**110,000**	N	110,000	
67-64-1	Acetone	ug/kg	**135,000**	N	135,000	
71-43-2	Benzene	ug/kg	**60**	C	60	
108-86-1	Bromobenzene	ug/kg	NL		NL	
74-97-5	Bromochloromethane	ug/kg	NL		NL	
75-27-4	Bromodichloromethane	ug/kg	**50**	C	50	
75-25-2	Bromoform	ug/kg	**400**	C	400	
74-83-9	Bromomethane	ug/kg	**1,900**	N	1,900	
75-15-0	Carbon Disulfide	ug/kg	**135,000**	N	135,000	
56-23-5	Carbon Tetrachloride	ug/kg	**20**	C	20	
108-90-7	Chlorobenzene	ug/kg	**27,000**	N	27,000	
75-00-3	Chloroethane	ug/kg	**1,100**	C	1,100	
67-66-3	Chloroform	ug/kg	**13,500**	N	13,500	
74-87-3	Chloromethane	ug/kg	**200**	C	200	
156-59-2	cis-1,2-Dichloroethene	ug/kg	**14,000**	N	14,000	
10061-01-5	cis-1,3-Dichloropropene	ug/kg	**30**	C,^	30	^
110-82-7	Cyclohexane	ug/kg	NL		NL	
99-87-6	Cymene	ug/kg	NL		NL	
124-48-1	Dibromochloromethane	ug/kg	**40**	C	40	
75-71-8	Dichlorodifluoromethane	ug/kg	**270,000**	N	270,000	
100-41-4	Ethylbenzene	ug/kg	**135,000**	N	135,000	

Table 4-7

Fish Tissue Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	USEPA Region 3 Risk Based Fish Screening Criteria (1)		Hiteman Fish Screening Criteria (2)	
74-88-4	Iodomethane	ug/kg	NL		NL	
98-82-8	Isopropylbenzene	ug/kg	**140,000**	N	140,000	
79-20-9	Methyl Acetate	ug/kg	**1,352,000**	N	1,352,000	
1634-04-4	Methyl Tert-Butyl Ether	ug/kg	**800**	C	800	
108-87-2	Methylcyclohexane	ug/kg	**NA**		NA	
75-09-2	Methylene Chloride	ug/kg	**400**	C	400	
104-51-8	n-Butylbenzene	ug/kg	**54,000**	N	54,000	
103-65-1	n-Propylbenzene	ug/kg	**54,000**	N	54,000	
100-42-5	Styrene	ug/kg	**270,000**	N	270,000	
127-18-4	Tetrachloroethene	ug/kg	**60**	C	60	
108-88-3	Toluene	ug/kg	**270,000**	N	270,000	
98-06-6	tert-Butylbenzene	ug/kg	**54,000**	N	54,000	
156-60-5	trans-1,2-Dichloroethene	ug/kg	NL		NL	
10061-02-6	Trans-1,3-Dichloropropene	ug/kg	**30**	C,^	30	^
79-01-6	Trichloroethene	ug/kg	**8**	C	8.0	
75-69-4	Trichlorofluoromethane	ug/kg	**406,000**	N	406,000	
108-05-4	Vinyl Acetate	ug/kg	**1,400,000**	N	1,400,000	
75-01-4	Vinyl Chloride	ug/kg	**4**	C	4.0	
1330-20-7	Xylenes (total)	ug/kg	**2,704,000**	N	2,704,000	
Semi-Volatile Organics						
92-52-4	1,1'Biphenyl	ug/kg	NL		NL	
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	NL		NL	
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/kg	NL		NL	
95-95-4	2,4,5-Trichlorophenol	ug/kg	**135,000**	N	135,000	
88-06-2	2,4,6-Trichlorophenol	ug/kg	**300**	C	300	
120-83-2	2,4-Dichlorophenol	ug/kg	**4,100**	N	4,100	
105-67-9	2,4-Dimethylphenol	ug/kg	**27,000**	N	27,000	
51-28-5	2,4-Dinitrophenol	ug/kg	**2,700**	N	2,700	
121-14-2	2,4-Dinitrotoluene	ug/kg	**2,700**	N	2,700	
606-20-2	2,6-Dinitrotoluene	ug/kg	**1,400**	N	1,400	
91-58-7	2-Chloronaphthalene	ug/kg	NL		NL	
95-57-8	2-Chlorophenol	ug/kg	**6,800**	N	6,800	
91-57-6	2-Methylnaphthalene	ug/kg	**27,000**	N	27,000	
95-48-7	2-Methylphenol	ug/kg	**67,600**	N	67,600	
88-74-4	2-Nitroaniline	ug/kg	**NA**		NA	
88-75-5	2-Nitrophenol	ug/kg	NL		NL	
91-94-1	3,3'-Dichlorobenzidine	ug/kg	**7**	C	7	
99-09-2	3-Nitroaniline	ug/kg	NL		NL	
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	**1,400**	N	1,400	
101-55-3	4-Bromophenyl-phenylether	ug/kg	NL		NL	
59-50-7	4-Chloro-3-methylphenol	ug/kg	NL		NL	
106-47-8	4-Chloroaniline	ug/kg	**5,400**	N	5,400	
7005-72-3	4-Chlorophenyl-phenylether	ug/kg	NL		NL	
106-44-5	4-Methylphenol	ug/kg	**6,800**	N	6,800	
100-01-6	4-Nitroaniline	ug/kg	NL		NL	
100-02-7	4-Nitrophenol	ug/kg	**10,800**	N	10,800	
83-32-9	Acenaphthene	ug/kg	**81,100**	N	81,100	
208-96-8	Acenaphthylene	ug/kg	NL		NL	
98-86-2	Acetophenone	ug/kg	**135,000**	N	135,000	

Table 4-7

Fish Tissue Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	USEPA Region 3 Risk Based Fish Screening Criteria (1)		Hiteman Fish Screening Criteria (2)	
120-12-7	Anthracene	ug/kg	**406,000**	N	406,000	
1912-24-9	Atrazine	ug/kg	**10**	C	10	
100-52-7	Benzaldehyde	ug/kg	**135,000**	N	135,000	
56-55-3	Benzo(a)anthracene	ug/kg	**4**	C	4	
50-32-8	Benzo(a)pyrene	ug/kg	**0.4**	C	0	
205-99-2	Benzo(b)fluoranthene	ug/kg	**4**	C	4	
191-24-2	Benzo(g,h,i)perylene	ug/kg	NL		NL	
207-08-9	Benzo(k)fluoranthene	ug/kg	**40**	C	40	
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	NL		NL	
111-44-4	bis(2-Chloroethyl)ether	ug/kg	**3**	C	3	
117-81-7	bis(2-Ethylhexyl)phthalate	ug/kg	**2.3**	C	2.3	
85-68-7	Butylbenzylphthalate	ug/kg	**270,000**	N	270,000	
105-60-2	Caprolactam	ug/kg	**676,000**	N	676,000	
86-74-8	Carbazole	ug/kg	**200**	C	200	
218-01-9	Chrysene	ug/kg	**400**	C	400	
53-70-3	Dibenz(a,h)anthracene	ug/kg	**0.4**	C	0.4	
132-64-9	Dibenzofuran	ug/kg	**5,400**	N	5,400	
84-66-2	Diethylphthalate	ug/kg	**1,081,000**	N	1,081,000	
131-11-3	Dimethylphthalate	ug/kg	**13,519,000**	N	13,519,000	
84-74-2	Di-n-butylphthalate	ug/kg	**135,000**	N	135,000	
117-84-0	Di-n-octyl phthalate	ug/kg	**27,000**	N	27,000	
206-44-0	Fluoranthene	ug/kg	**54,100**	N	54,100	
86-73-7	Fluorene	ug/kg	**54,100**	N	54,100	
118-74-1	Hexachlorobenzene	ug/kg	**2**	C	2.0	
87-68-3	Hexachlorobutadiene	ug/kg	**40**	C	40	
77-47-4	Hexachlorocyclopentadiene	ug/kg	**8,100**	N	8,100	
67-72-1	Hexachloroethane	ug/kg	**200**	C	200	
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	**4**	C	4.0	
78-59-1	Isophorone	ug/kg	**3,300**	C	3,300	
91-20-3	Naphthalene	ug/kg	**27,000**	N	27,000	
98-95-3	Nitrobenzene	ug/kg	**700**	N	700	
621-64-7	N-Nitroso-di-n-propylamine	ug/kg	**0.5**	C	0.5	
86-30-6	N-Nitrosodiphenylamine	ug/kg	**600**	C	600	
87-86-5	Pentachlorophenol	ug/kg	**30**	C	30	
85-01-8	Phenanthrene	ug/kg	NL		NL	
108-95-2	Phenol	ug/kg	**811,000**	N	811,000	
129-00-0	Pyrene	ug/kg	**40,600**	N	40,600	
Pesticides/PCBs						
72-54-8	4,4'-DDD	ug/kg	**10**	C	10.0	
72-55-9	4,4'-DDE	ug/kg	**9**	C	9.0	
50-29-3	4,4'-DDT	ug/kg	**9**	C	9.0	
309-00-2	Aldrin	ug/kg	**0.19**	C	0.2	
319-84-6	Alpha-BHC	ug/kg	**0.5**		0.5	
5103-71-9	alpha-Chlordane	ug/kg	**9**	C, *	9.0	*
12674-11-2	Aroclor-1016	ug/kg	**45**	C, #	45.0	#
11104-28-2	Aroclor-1221	ug/kg	**2**	C, #	2.0	#
11141-16-5	Aroclor-1232	ug/kg	**2**	C, #	2.0	#
53469-21-9	Aroclor-1242	ug/kg	**2**	C, #	2.0	#
12672-29-6	Aroclor-1248	ug/kg	**2**	C, #	2.0	#

Table 4-7

Fish Tissue Screening Criteria
Hiteman Leather Site
West Winfield, New York

CAS Number	Chemical Name	Unit	USEPA Region 3 Risk Based Fish Screening Criteria (1)		Hiteman Fish Screening Criteria (2)	
11097-69-1	Aroclor-1254	ug/kg	**2**	C, #	2.0	#
11096-82-5	Aroclor-1260	ug/kg	**2**	C, #	2.0	#
319-85-7	Beta-BHC	ug/kg	**1.8**		1.8	
319-86-8	Delta-BHC	ug/kg	NL		NL	
60-57-1	Dieldrin	ug/kg	**0.2**	C	0.2	
959-98-8	Endosulfan I	ug/kg	**8,100**	N	8,100	
33213-65-9	Endosulfan II	ug/kg	NL		NL	
1031-07-8	Endosulfan sulfate	ug/kg	NL		NL	
72-20-8	Endrin	ug/kg	**400**	N	400	
7421-93-4	Endrin aldehyde	ug/kg	NL		NL	
53494-70-5	Endrin ketone	ug/kg	NL		NL	
58-89-9	gamma-BHC (Lindane)	ug/kg	**2.4**		2.4	
5103-74-2	gamma-Chlordane	ug/kg	**9**	C, *	9.0	*
76-44-8	Heptachlor	ug/kg	**0.7**	C	0.7	
1024-57-3	Heptachlor epoxide	ug/kg	**0.3**	C	0.3	
72-43-5	Methoxychlor	ug/kg	**6,800**	N	6,800	
8001-35-2	Toxaphene	ug/kg	**3**	C	3.0	
Inorganic Analytes						
7429-90-5	Aluminum	mg/kg	**1,352**	N	1,352	
7440-36-0	Antimony	mg/kg	**0.5**	N	0.5	
7440-38-2	Arsenic	mg/kg	**0.002**	C	0.002	
7440-39-3	Barium	mg/kg	**94.6**	N	94.6	
7440-41-7	Beryllium	mg/kg	**2.7**	N	2.7	
7440-43-9	Cadmium	mg/kg	**1.4**	N	1.4	
7440-70-2	Calcium	mg/kg	NL		NL	
7440-47-3	Chromium	mg/kg	**2,028**	N,Z	2,028	
18540-29-9	Chromium (hexavalent)	mg/kg	**4.1**	N	4.1	
7440-48-4	Cobalt	mg/kg	**27**	N	27	
7440-50-8	Copper	mg/kg	**54.1**	N	54.1	
57-12-5	Cyanide	mg/kg	**27**	N	27	
7439-89-6	Iron	mg/kg	**406**	N	406	
7439-92-1	Lead	mg/kg	NL		NL	
7439-95-4	Magnesium	mg/kg	NL		NL	
7439-96-5	Manganese	mg/kg	**189**	N	189	
7439-97-6	Mercury	mg/kg	**0.1**	N	0.1	
7440-02-0	Nickel	mg/kg	**27**	N	27	
7440-09-7	Potassium	mg/kg	NL		NL	
7782-49-2	Selenium	mg/kg	**6.8**	N	6.8	
7440-22-4	Silver	mg/kg	**6.8**	N	6.8	
7440-23-5	Sodium	mg/kg	NL		NL	
7440-28-0	Thallium	mg/kg	**0.09**	N	0.09	
7440-62-2	Vanadium	mg/kg	**9.5**	N	9.5	
7440-66-6	Zinc	mg/kg	**406**	N	406	

Table 4-7

Fish Tissue Screening Criteria
Hiteman Leather Site
West Winfield, New York

Notes:

1. EPA Region 3 Risk Based Fish Screening Criteria, http://www.epa.gov/reg3hwmd/risk/index.htm

NA - Chemical name listed but no value available
NL - Chemical name not listed
N Based on noncarcinogenic effects
C Based on cancer risk
* Value applies to total chlordane
# Value applies to total PCBs
^ Value applies to total 1,3-Dichloropropene
A 0.1 mg/kg is screening criteria value for methyl mercury, and it is assumed that all the mercury present in fish tissue is in the form of methyl mercury
Z Value based on trivalent chromium

Table 4-8

Unadilla River Surface Water and Forage Fish Background Sample Detections
Hiteman Leather Site
West Winfield, New York

Surface Water

Chemical Name	URSW-1
Volatile Organic Compounds	
None Detected	
Semi-Volatile Organic Compounds	
bis(2-Ethylhexyl)phthalate	2 J
Pesticide/PCB Organic Compounds	
None Detected	
Inorganic Analytes	
Barium	33.7 B
Iron	110
Manganese	13.3 B
Potassium	1120 B
Cyanide	1.5 B

Notes:
All units ug/l

Forage Fish

Chemical Name	URFF-1-A	URFF-1-B
Volatile Organic Compounds		
Acetone	1400 J	3400 J
Methylene Chloride	140 J	460 J
Semi-Volatile Organic Compounds		
None Detected		
Pesticide Organic Compounds		
None Detected		
PCBs		
None Detected		
Inorganic Analytes		
Aluminum	9.3 B	123
Antimony	0.38 B	0.24 B
Barium	2.5 B	2.2 B
Beryllium	0.009 B	0.0047 B
Cadmium	0.03 B	0.025 B
Calcium	10400	16300
Chromium (Total)	3.3 EJ	8.7 EJ
Cobalt	0.08 B	0.26 B
Copper	1.4 B	1.2 B
Iron	34.5	575
Lead	U	0.15 B
Magnesium	323 EJ	413 EJ
Manganese	3.2 EJ	12 EJ
Mercury	U	0.089 B
Nickel	0.56 B	5.4
Potassium	2300 EJ	2770 EJ
Selenium	1.5 B	1.6
Sodium	953	1680
Vanadium	0.16 B	0.65 B
Zinc	28.5 EJ	32.6 EJ
Cyanide	7 U	2.5

Notes:
All organic compunds in ug/kg
All inorganic analytes in mg/kg
No sport fish were caught in the background locations
See Table 4-1A for an explanation of data qualifiers

Table 4-9

Unadilla River and Onsite Wetland Sediment Background Sample Detections
Hiteman Leather Site
West Winfield, New York

Chemical Name	Unadilla River	Onsite Wetland			
	URSD-1	WTSD-11-0-6	WTSD-11-18-24	WTSD-12-0-6	WTSD-12-18-24
Volatile Organic Compounds					
1,1,2-Trichloro-1,2,2-trifluoroethane	27 UJ	48 UJ	17 U	54 UJ	22 U
Acetone	59 UJ	**610 J**	**110**	**600 J**	42 U
Carbon Disulfide	**5 J**	48 UJ	17 U	**6 J**	**5 J**
Methyl Acetate	**5 J**	**77 J**	17 U	**16 J**	22 U
2-Butanone	27 UJ	**86 J**	17 U	55 UJ	22 U
4-Methyl-2-pentanone	27 UJ	**21 J**	17 U	**24 J**	22 U
Toluene	27 UJ	**35 J**	17 U	**8 J**	22 U
Semi-Volatile Organic Compounds					
Benzaldehyde	830 UJ	890 UJ	530 UJ	1000 UJ	**96 J**
4-Methylphenol	**89 J**	890 UJ	530 UJ	1000 UJ	650 U
Phenanthrene	**88 J**	890 UJ	530 UJ	**340 J**	650 U
Fluoranthene	**150 J**	**150 J**	530 UJ	**550 J**	**87 J**
Pyrene	**120 J**	**130 J**	530 UJ	**470 J**	**83 J**
Benzo(a)anthracene	830 UJ	890 UJ	530 UJ	**170 J**	650 U
Chrysene	830 UJ	890 UJ	530 UJ	**230 J**	650 U
bis(2-Ethylhexyl)phthalate	**100 J**	890 UJ	530 UJ	1000 UJ	650 U
Benzo(b)fluoranthene	**100 J**	890 UJ	530 UJ	**200 J**	650 U
Benzo(k)fluoranthene	830 UJ	890 UJ	530 UJ	**240 J**	650 U
Benzo(a)pyrene	830 UJ	890 UJ	530 UJ	**200 J**	650 U
Indeno(1,2,3-cd)pyrene	830 UJ	890 UJ	530 UJ	**150 J**	650 U
Pestcide/PCB Organic Compounds					
Heptachlor	4.3 UJ	4.6 UJ	**0.42 J**	5.2 UJ	3.3 U
4,4'-DDE	8.3 UJ	8.9 UJ	5.3 UJ	10 UJ	**5 J**
alpha-Chlordane	**5.6 J**	4.6 UJ	**3.5 J**	5.2 UJ	**4.8 J**
gamma-Chlordane	**4.8 J**	**2.5 J**	2.7 UJ	5.2 UJ	3.3 U
Inorganic Analytes					
Aluminum	**6180 J**	**13400 J**	**17000**	**9670 *J**	**12900**
Antimony	**12.8 BJ**	**25.6 BJ**	**32.4**	**22.2 BNJ**	**30.8 NJ**
Arsenic	**3.7 BJ**	**10.8 J**	**15.8**	**8.1 J**	**10**
Barium	**55 BJ**	**181 J**	**174**	**101 BJ**	**120**
Beryllium	0.46 UJ	**0.82 BJ**	**1.1 B**	**0.83 BJ**	**1.1 B**
Cadmium	0.46 UJ	**0.63 BJ**	**0.34 B**	0.59 UJ	**0.4 B**
Chromium (Total)	**11.1 J**	**41.6 J**	**58.8**	**16.6 J**	**19.9**
Cobalt	**5 BJ**	**12.3 BJ**	**15.7 B**	**7.5 BJ**	**9.9 B**
Copper	**9.4 BJ**	**27.2 J**	**36.2**	**23 J**	**26.4**
Iron	**12200 J**	**26700 *J**	**33700 ***	**20000 J**	**26700**
Lead	**20.6 J**	**34.4 J**	**17.1**	**39.5 NJ**	**24.2 NJ**
Magnesium	**3390 J**	**3550 J**	**4360**	**4890 J**	**3490**
Manganese	**247 J**	**781 J**	**898**	**720 J**	**576**
Mercury	**0.21 J**	**0.3 J**	**0.25**	**0.2 BNJ**	**0.17 BNJ**
Nickel	**12.9 BJ**	29 R	36.4 R	**19.5 BJ**	**25.2**
Potassium	**712 BJ**	**1430 BJ**	**1400 B**	**1050 BJ**	**766 B**
Selenium	1.4 UJ	**4.2 J**	**2 J**	**1.2 BJ**	**3 J**
Silver	1.4 UJ	0.53 UJ	0.32 U	0.59 UJ	0.39 U
Sodium	**727 BJ**	**791 BEJ**	**539 BEJ**	**814 BJ**	**590 BJ**
Thallium	2.3 UJ	**2.7 BJ**	**4.2**	**3.3 BJ**	**2.5 B**
Vanadium	**10.6 BJ**	**24.9 BJ**	**31.6**	**18.3 BJ**	**29.2**
Zinc	**62.2 J**	**120 J**	**107**	**121 J**	**111**
Cyanide	**0.13 BNJ**	**1.3 J**	**0.48 B**	**0.58 BJ**	**0.42 B**

Notes:
Hexavalent chromium was not detected in background sediment samples
Organic compounds are in ug/kg
Inorganic analytes are in mg/kg
See Table 4-1A for an explanation of data qualifiers
All dectections are bolded.

Table 4-10

Upgradient Groundwater Sample Detections
Hiteman Leather Site
West Winfield, New York

Chemical Name	Groundwater					
	RMW-16S Shallow		RMW-16D Deep		RMW-16B Bedrock	
Volatile Organic Compounds						
None Detected						
Semi-Volatile Organic Compounds						
Caprolactam	**0.7**	J	10	U	10	U
Pesticide/PCB Organic Compounds						
None Detected						
Inorganic Analytes						
Barium	**110**	B	**110**	B	**51.5**	B
Chromium (Total)	0.8	U	**3.3**	B	0.8	U
Iron	**146**		**1450**		17	U
Magnesium	**17200**		**15800**		**14700**	
Manganese	**61.4**		**45.4**		**5.8**	B
Nickel	**2.7**	B	**3.1**	B	**2.5**	B
Potassium	**2730**	B	**1760**	B	**1780**	B
Selenium	**3**	B	2.2	U	**2.6**	B
Thallium	3.5	U	3.5	U	**3.9**	B
Vanadium	0.7	U	**2.1**	B	0.7	U
Zinc	**4.9**	B	**7.9**	B	**4**	B
Cyanide	**2.1**	BJ	**1.9**	BJ	**1.8**	BJ

Notes:
Hexavalent chromium was not detected in the upgradient groundwater samples
All units in ug/l
Please refer to Table 4-1A for an explanation of data qualifers
All Detections are bolded.

Table 4-11

Surface and Subsurface Soil Background Sample Detections
Hiteman Leather Site
West Winfield, New York

Chemical Name	Surface Soil			Subsurface Soil			
	RSB-35-0-2	RSB-36-0-2	RSB-36-0-2-DUP	RSB-35-2-4	RSB-35-4-6	RSB-36-2-4	RSB-36-4-6
Inorganic Analytes							
Aluminum	**3340**	**16200**	**15800**	**12300**	**7140**	**11100**	**7630**
Antimony	0.33 UJ	0.36 UJ	0.36 UJ	**0.43 BJ**	**0.48 BJ**	0.36 UJ	0.33 UJ
Arsenic	**5.3**	**7.6**	7.7	**10.2**	**8.5**	**8.7**	**7.5**
Barium	**24.8 B**	**54.3**	53.8	**72.3**	**39.7 B**	**53.2**	**35 B**
Beryllium	**0.32 B**	**0.89 B**	0.85 B	**1 B**	**0.61 B**	**0.96 B**	**0.65 B**
Cadmium	0.04 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.04 U
Calcium	**153000**	**3380**	3280	**26200**	**70200**	**10200**	**55600**
Chromium	**5.7 J**	**17.4 J**	**17.3 J**	**18.8 J**	**11.4 J**	**17.8 J**	**13.4 J**
Cobalt	**3.2 B**	**9.8 B**	**10 B**	**8.6 B**	**5.5 B**	**7.3 B**	**5.8 B**
Copper	**11.9**	**13.2**	**13**	**13.7**	**15.3**	**14.7**	**13.9**
Iron	**9050**	**24600**	**24700**	**24600**	**18100**	**20600**	**16900**
Lead	**8.2**	**15.3**	**15.3**	**13.2**	**7.8**	**11.4**	**10.1**
Magnesium	**10600**	**2530**	**2560**	**3140**	**3550**	**2990**	**3540**
Manganese	**276**	**422**	**414**	**230**	**211**	**554**	**440**
Mercury	0.05 U	**0.11 BJ**	**0.08 BJ**	**0.16 J**	**0.09 B**	**0.15 J**	**0.08 BJ**
Nickel	**8.9 J**	**26.5 J**	**26.5 J**	**25.4 J**	**16.6 J**	**23.9 J**	**18.7 J**
Potassium	**767 B**	**564 B**	**509 B**	**674 B**	**813 B**	**625 B**	**686 B**
Selenium	0.59 U	**0.67 B**	**1.3**	0.74 U	0.78 UJ	**0.67 B**	**0.6 U**
Silver	0.14 U	0.16 U	0.16 U	0.18 U	0.19 U	0.16 U	0.14 U
Sodium	**208 B**	**86.9 B**	**87.3 B**	**110 B**	**172 B**	**54.8 B**	**112 B**
Thallium	0.53 U	0.94 R	1.4 R	1.3 R	0.7 U	1.5 R	1.1 R
Vanadium	**9.1 B**	**23.1**	**22.4**	**22**	**16**	**19.2**	**16**
Zinc	**35.7**	**62.7**	**63.2**	**60.3**	**46.3**	**53.2**	**50.4**
Cyanide	0.08 U	**0.11 B**	**0.11 B**	0.1 U	0.1 U	**0.23 B**	**0.08 B**

Notes:
All units in mg/kg
Please refer to Table 4-1A for an explantion of data qualifiers.
All detections are bolded.

Table 4-12

Lagoon Boring Surface and Subsurface Soil Statistical Data Results
Hiteman Leather Site
West Winfield, New York

Surface Soil

COPC Designation	Contaminant	Range of Detection		# Hits/ Total Samples	Location of Highest Hit	Screening Criteria: NYSDEC-RSCO: Criteria	NYSDEC-RSCO: # of Exceedances/ # of Hits	NYSDEC-RSCO: Magnitude of Highest Exceedance	BKGD-SURF: Criteria	BKGD-SURF: # of Exceedances/ # of Hits	BKGD-SURF: Magnitude of Highest Exceedance
Primary	Antimony	5.7 B - 22.8	mg/kg	2 / 3	LSB-03-0-2	NA	NA	NA	**0.69**	2/2	33
	Arsenic	5.7 - 8.2	mg/kg	3 / 3	LSB-03-0-2	**7.5**	1/3	1	12.9	0/3	NA
	Cadmium	0.5 B - 2.9	mg/kg	3 / 3	LSB-03-0-2	**1**	2/3	3	**0.09**	3/3	32
	Chromium (Total)	1670 - 8550	mg/kg	3 / 3	LSB-03-0-2	**10**	3/3	855	23.1	3/3	370
	Chromium (Hexavalent)	6 - 9	mg/kg	2 / 3	LSB-02-0-2	NA	NA	NA	NA	NA	NA
	Cyanide	0.2 B - 0.81	mg/kg	3 / 3	LSB-03-0-2	NA	NA	NA	**0.15**	3/3	5
	Lead	33.5 - 106	mg/kg	3 / 3	LSB-03-0-2	NA	NA	NA	**23.5**	3/3	5
	Mercury	0.06 BJ - 0.11 B	mg/kg	2 / 3	LSB-01-0-2	**0.1**	1/2	1	0.14	0/2	NA
	Nickel	18 - 33.8	mg/kg	3 / 3	LSB-01-0-2	**13**	3/3	3	35.4	0/3	NA
Non-COPC	Barium	45.9 - 80	mg/kg	3 / 3	LSB-03-0-2	300	0/3	NA	**79.1**	1/3	1
	Beryllium	0.41 B - 0.71 B	mg/kg	3 / 3	LSB-01-0-2	**0.16**	3/3	4	1.21	0/3	NA
	Copper	16.6 - 34.8	mg/kg	3 / 3	LSB-03-0-2	**25**	1/3	1	25.1	1/3	NA
	Iron	17900 - 27100	mg/kg	3 / 3	LSB-01-0-2	**2000**	3/3	14	33650	0/3	NA
	Selenium	0.73 B - 2.2	mg/kg	2 / 3	LSB-03-0-2	2	1/2	1	**0.98**	1/2	2
	Silver	0.6 B - 0.6 B	mg/kg	1 / 3	LSB-01-0-2	NA	NA	NA	**0.3**	1/1	2
	Sodium	124 B - 600 BJ	mg/kg	3 / 3	LSB-01-0-2	NA	NA	NA	**294.9**	1/3	2
	Thallium	2.4 B - 2.4 B	mg/kg	1 / 3	LSB-01-0-2	NA	NA	NA	**1.06**	1/1	2
	Zinc	57 J - 84.3 J	mg/kg	3 / 3	LSB-03-0-2	**20**	3/3	4	98.4	0/3	NA

Table 4-12

Lagoon Boring Surface and Subsurface Soil Statistical Data Results
Hiteman Leather Site
West Winfield, New York

Subsurface Soil

COPC Designation	Contaminant	Range of Detection	# Hits/ Total Samples	Location of Highest Hit	Screening Criteria: NYSDEC-RSCO Criteria	NYSDEC-RSCO # of Exceedances/ # of Hits	NYSDEC-RSCO Magnitude of Highest Exceedance	BKGD-SUBSURF Criteria	BKGD-SUBSURF # of Exceedances/ # of Hits	BKGD-SUBSURF Magnitude of Highest Exceedance
Primary*	Antimony	0.56 B - 29.8 mg/kg	3 / 11	LSB-03-4-6	NA	NA	NA	**0.62**	2/3	48
	Arsenic	0.98 B - 9.1 mg/kg	11 / 11	LSB-03-4-6-DUP	**7.5**	2/11	1	17.45	0/11	NA
	Cadmium	0.11 B - 2.8 mg/kg	9 / 11	LSB-03-4-6-DUP	1	1/9	3	**0.095**	9/9	29
	Chromium (Total)	5.4 - 11100 mg/kg	11 / 11	LSB-03-4-6	**10**	5/11	1110	30.7	5/11	362
	Chromium (Hexavalent)	6 - 6 mg/kg	1 / 11	LSB-01-2-4	NA	NA	NA	NA	NA	NA
	Cyanide	0.03 B - 1.2 mg/kg	8 / 11	LSB-03-4-6	NA	NA	NA	**0.2**	2/8	6
	Lead	1.9 J - 118 mg/kg	11 / 11	LSB-03-4-6	NA	NA	NA	**21.25**	2/11	6
	Nickel	4.2 B - 15.6 mg/kg	11 / 11	LSB-02-4-6	**13**	2/11	1	42.3		
Non-COPC	Beryllium	0.08 B - 0.48 B mg/kg	11 / 11	LSB-02-4-6	**0.16**	5/11	3	1.61	0/11	NA
	Calcium	52500 J - 297000 J mg/kg	11 / 11	LSB-02-14-16	NA	NA	NA	**81100**	8/11	4
	Copper	4.4 B - 29.2 mg/kg	11 / 11	LSB-03-4-6-DUP	**25**	2/11	1	28.8	2/11	1
	Iron	4180 - 18300 mg/kg	11 / 11	LSB-03-4-6-DUP	**2000**	11/11	9	40150	0/11	NA
	Magnesium	2240 - 9330 mg/kg	11 / 11	LSB-02-14-16	NA	NA	NA	**6610**	2/11	1
	Selenium	0.68 B - 1.9 mg/kg	3 / 11	LSB-03-4-6	2	0/3	NA	**0.86**	2/3	2
	Sodium	141 B - 288 B mg/kg	11 / 11	LSB-03-4-6	NA	NA	NA	**224.4**	4/11	1
	Thallium	1 B - 1.1 B mg/kg	3 / 11	LSB-03-4-6-DUP	NA	NA	NA	**0.7**	3/3	2
	Zinc	13.6 J - 86.9 J mg/kg	11 / 11	LSB-03-4-6-DUP	**20**	4/11	4	105.1	0/11	NA
	Pentachlorophenol	440 J - 8000 J ug/kg	4 / 11	LSB-01-2-4	**5240**	1/4	2	NA	NA	NA

Notes:
NYSDEC-RSCO : NYSDEC Recommended Soil Cleanup Objectives, adjusted for Site TOC of 5.24%
BKGD-SURF: Hiteman Background Criteria for Inorganics - Surface Soil
BKGD-SUBSURF: Hiteman Background Criteria for Inorganics - Subsurface Soil
ug/kg : micrograms per kilogram
mg/kg : milligrams per kilogram
"Number of Exceedances" and "Magnitude of Highest Exceedance" are based on exceedances of the most stringent criteria, which is bolded
There is no soil screening criteria for hexavalent chromium; however, it is considered a primary COPC.
NA: Not Available
Please refer to Table 4-1A for an explanation of data qualifiers.
*The Primary COPC mercury was not detected at levels exceeding any screening criteria.

Table 4-13

Building Boring Subsurface Soil Statistical Data Results
Hiteman Leather Site
West Winfield, New York

COPC Designation	Contaminant	Range of Detection		Location of Highest Hit	# Hits/ Total Samples	Screening Criteria: NYSDEC-RSCO Criteria	NYSDEC-RSCO # of Exceedences/ # of Hits	NYSDEC-RSCO Magnitude of Highest Exceedance	BKGD-SUBSURF Criteria	BKGD-SUBSURF # of Exceedences/ # of Hits	BKGD-SUBSURF Magnitude of Highest Exceedance
Primary	Antimony	1.1 BJ - 7 BJ	mg/kg	BSB-04-0-2	2 / 13	NA	NA	NA	**0.62**	2/2	11
	Arsenic	1.7 B - 9.9	mg/kg	BSB-05-0-2-DUP	10 / 10	**7.5**	4/10	1	17.45	0/10	NA
	Cadmium	0.14 B - 0.77 B	mg/kg	BSB-04-2-4	13 / 13	1	0/13	NA	**0.095**	13/13	8
	Chromium (Total)	4.5 J - 2210 J	mg/kg	BSB-04-0-2	13 / 13	**10**	11/13	221	30.7	9/11	72
	Chromium (Hexavalent)	4 J - 4 J	mg/kg	BSB-05-0-2-DUP	3 / 13	NA	NA	NA	NA	NA	NA
	Cyanide	0.07 B - 1	mg/kg	BSB-02-0-2	13 / 13	NA	NA	NA	**0.2**	5/13	5
	Lead	2.6 - 141 J	mg/kg	BSB-02-0-2	13 / 13	NA	NA	NA	**21.25**	5/13	7
	Mercury	0.06 B - 0.23	mg/kg	BSB-02-0-2	8 / 13	**0.1**	2/8	2	0.24	0/8	NA
	Nickel	4.4 B - 30.7 J	mg/kg	BSB-01-0-2	13 / 13	**13**	5/13	2	42.3	0/13	NA
Non-COPC	Barium	8.5 B - 140 J	mg/kg	BSB-02-0-2	13 / 13	300	0/13	NA	**100.1**	2/13	1
	Beryllium	0.13 B - 0.8 B	mg/kg	BSB-03-0-2	13 / 13	**0.16**	10/13	5	1.61	0/13	NA
	Calcium	8210 J - 258000 J	mg/kg	BSB-02-8-10	13 / 13	NA	NA	NA	**81100**	7/13	3
	Copper	4.5 B - 32.7	mg/kg	BSB-01-0-2	13 / 13	**25**	3/13	1	28.8	3/13	1
	Iron	4540 J - 23900 J	mg/kg	BSB-04-2-4	13 / 13	**2000**	13/13	12	40150	0/13	NA
	Magnesium	2150 BJ - 29900 J	mg/kg	BSB-05-0-2-DUP	13 / 13	NA	NA	NA	**6610**	4/13	5
	Manganese	114 J - 956 J	mg/kg	BSB-02-0-2	13 / 13	NA	NA	NA	**717.5**	2/13	1
	Potassium	630 B - 1580	mg/kg	BSB-03-0-2	13 / 13	NA	NA	NA	**1399**	3/13	1
	Selenium	1.2 B - 1.2 B	mg/kg	BSB-02-0-2	1 / 13	2	0/1	NA	**0.86**	1/1	1
	Sodium	171 B - 6640 J	mg/kg	BSB-04-0-2	13 / 13	NA	NA	NA	**224.4**	6/13	30
	Zinc	17.8 J - 219 J	mg/kg	BSB-02-0-2	13 / 13	**20**	11/13	11	105.1	1/13	2

Notes:
BKGD-SUBSURF : Hiteman Background Criteria for Inorganics - Subsurface Soil
NYSDEC-RSCO : NYSDEC Recommended Soil Cleanup Objectives, adjusted for Site TOC of 5.24%
mg/kg = milligrams per kilogram
There is no soil screening criteria available for hexavalent chromium; however, it is considered a primary COPC.
NA = Not Available
Please refer to Table 4-1A for an explanation of data qualifiers.
"Number of Exceedances" and "Magnitude of Highest Exceedance" are based on exceedances of the most stringent criteria, which is bolded.

Table 4-14

Onsite Soil Boring Surface and Subsurface Soil Statistical Data Results
Hiteman Leather Site
West Winfield, New York

Surface Soil

COPC Designation	Contaminant	Range of Detection				Location of Highest Hit	# Hits/ Total Samples	Screening Criteria: NYSDEC-RSCO Criteria	NYSDEC-RSCO # of Exceedences/ # of Hits	NYSDEC-RSCO Magnitude of Highest Exceedance	BKGD-SURF Criteria	BKGD-SURF # of Exceedences/ # of Hits	BKGD-SURF Magnitude of Highest Exceedance
Primary	Antimony	1.3 BJ	-	260 J	mg/kg	RSB-08-0-2	10 / 23	NA	NA	NA	**0.69**	10/10	377
	Arsenic	3.1 J	-	41	mg/kg	RSB-02-0-2	14 / 14	**7.5**	9/14	5	12.9	5/14	3
	Cadmium	0.32 B	-	4.1	mg/kg	RSB-17-0-2	21 / 23	1	8/21	4	**0.09**	21/21	46
	Chromium (Total)	5.2 J	-	75800 J	mg/kg	RSB-08-0-2	23 / 23	**10**	19/23	7580	23.1	16/23	3281
	Chromium (Hexavalent)	6	-	36 J	mg/kg	RSB-02-0-2	3 / 23	NA	NA	NA	NA	NA	NA
	Cyanide	0.06 B	-	3.1	mg/kg	RSB-01-0-2	23 / 23	NA	NA	NA	**0.15**	16/23	21
	Lead	5.8 J	-	319	mg/kg	RSB-16-0-2	23 / 23	NA	NA	NA	**23.5**	20/23	14
	Mercury	0.07 BJ	-	0.8	mg/kg	RSB-07-0-2	17 / 21	**0.1**	14/17	8	0.14	13/17	6
	Nickel	6.3 B	-	43.1	mg/kg	RSB-01-0-2	23 / 23	**13**	17/23	3	35.4	2/23	1
Secondary	Benzo(a)anthracene	43 J	-	15000 J	ug/kg	RSB-07-0-2	13 / 18	**1174**	5/13	13	NA	NA	NA
	Benzo(a)pyrene	45 J	-	14000 J	ug/kg	RSB-07-0-2	13 / 18	**320**	6/13	44	NA	NA	NA
	Chrysene	44 J	-	14000 J	ug/kg	RSB-07-0-2	14 / 18	**2096**	4/14	7	NA	NA	NA
	Dibenz(a,h)anthracene	53 J	-	2300 J	ug/kg	RSB-07-0-2	3 / 18	**73**	2/3	32	NA	NA	NA
Non-COPC	Benzo(b)fluoranthene	37 J	-	13000 J	ug/kg	RSB-07-0-2	14 / 18	**5764**	1/14	2	NA	NA	NA
	Benzo(k)fluoranthene	130 J	-	9300 J	ug/kg	RSB-07-0-2	12 / 18	**5764**	1/12	2	NA	NA	NA
	Barium	51.8 B	-	400	mg/kg	RSB-04-0-2	23 / 23	300	1/23	1	**79.1**	14/23	5
	Beryllium	0.21 B	-	0.84	mg/kg	RSB-01-0-2	22 / 23	**0.16**	22/22	5	1.21	0/22	NA
	Calcium	5250	-	16500 J	mg/kg	RSB-8-0-2	23 / 23	NA	NA	NA	**156380**	3/23	2
	Cobalt	2.3 B	-	23.8	mg/kg	RSB-01-0-2	23 / 23	30	0/23	NA	**13**	3/23	2
	Copper	17.8	-	123	mg/kg	RSB-01-0-2	22 / 22	**25**	16/22	5	25.1	16/22	5
	Iron	5360 J	-	128000	mg/kg	RSB-04-0-2	23 / 23	**2000**	23/23	64	33650	1/23	4
	Selenium	0.56 B	-	8.1	mg/kg	RSB-16-0-2	18 / 23	2	8/18	4	**0.98**	15/18	8
	Silver	0.36 B		0.36 B	mg/kg	RSB-08-0-2	1 / 23	NA	NA	NA	**0.3**	1/1	1
	Sodium	150 B	-	718 BJ	mg/kg	RSB-08-0-2	21 / 23	NA	NA	NA	**294.9**	8/21	2
	Thallium	1.2 B	-	17.2 J	mg/kg	RSB-08-0-2	4 / 23	NA	NA	NA	**1.06**	4/4	16
	Vanadium	9 B	-	57.1 J	mg/kg	RSB-08-0-2	23 / 23	150	0/23	NA	**32.2**	1/23	2
	Zinc	28.2	-	248	mg/kg	RSB-01-0-2	23 / 23	**20**	23/23	12	98.4	3/23	12

Table 4-14

Onsite Soil Boring Surface and Subsurface Soil Statistical Data Results
Hiteman Leather Site
West Winfield, New York

Subsurface Soil

COPC Designation	Contaminant	Range of Detection	Location of Highest Hit	# Hits/ Total Samples	Screening Criteria: NYSDEC-RSCO Criteria	NYSDEC-RSCO # of Exceedences/ # of Hits	NYSDEC-RSCO Magnitude of Highest Exceedance	BKGD-SUBSURF Criteria	BKGD-SUBSURF # of Exceedences/ # of Hits	BKGD-SUBSURF Magnitude of Highest Exceedance
Primary	Antimony	0.55 B - 225 J mg/kg	RSB-01-2-4	20 / 52	NA	NA	NA	**0.62**	19/20	363
	Arsenic	1.4 B - 45 mg/kg	RSB-15-4-6	34 / 34	**7.5**	13/34	6	17.45	6/34	43
	Cadmium	0.15 B - 11.8 J mg/kg	RSB-16-2-4-DUP	47 / 52	1	11/47	12	**0.095**	47/47	124
	Chromium (Total)	4.8 - 74600 J mg/kg	RSB-01-2-4	53 / 53	**10**	45/53	7460	30.7	31/53	2430
	Chromium (Hexavalent)	4 - 86 mg/kg	RSB-06-4-6	8 / 52	NA	NA	NA	NA	NA	NA
	Cyanide	0.03 B - 6.8 J mg/kg	RSB-01-2-4	41 / 52	NA	NA	NA	**0.2**	19/41	34
	Lead	2.5 - 849 mg/kg	RSB-15-2-4	52 / 52	NA	NA	NA	**21.25**	23/52	40
	Mercury	0.05 BJ - 0.86 mg/kg	RSB-15-2-4	30 / 47	**0.1**	23/30	9	0.24	12/30	4
	Nickel	4.3 B - 60.8 J mg/kg	RSB-16-2-4-DUP	52 / 52	**13**	26/52	5	42.3	1/52	1
Secondary	Benzo(a)anthracene	68 J - 8200 ug/kg	RSB-16-2-4-DUP	19 / 43	**1174**	8/19	7	NA	NA	NA
	Benzo(a)pyrene	60 J - 8000 ug/kg	RSB-16-2-4-DUP	20 / 42	**320**	11/20	25	NA	NA	NA
	Chrysene	86 J - 8400 ug/kg	RSB-16-2-4-DUP	21 / 43	**2096**	6/21	4	NA	NA	NA
	Dibenz(a,h)anthracene	91 J - 1400 J ug/kg	RSB-09-2-4	7 / 42	**73**	7/7	19	NA	NA	NA
Non-COPC	Benzo(b)fluoranthene	59 J - 7900 ug/kg	RSB-16-2-4-DUP	19 / 42	**5764**	1/19	1	NA	NA	NA
	Benzo(k)fluoranthene	50 J - 6300 ug/kg	RSB-16-2-4-DUP	17 / 42	**5764**	1/17	1	NA	NA	NA
	Barium	9 B - 667 mg/kg	RSB-15-2-4	52 / 52	300	1/52	2	**100.1**	10/52	7
	Beryllium	0.08 B - 1.5 mg/kg	RSB-16-2-4	51 / 52	**0.16**	42/51	9	1.61	0/51	NA
	Calcium	1510 J - 249000 J mg/kg	RSB-6-8-10	52 / 52	NA	NA	NA	**81100**	29/52	3
	Cobalt	0.7 B - 49.5 mg/kg	RSB-16-2-4-DUP	52 / 52	30	1/52	2	**13.6**	5/52	4
	Copper	3.8 B - 426 mg/kg	RSB-16-2-4	49 / 49	**25**	17/49	17	28.8	16/17	15
	Iron	4080 - 189000 J mg/kg	RSB-16-2-4-DUP	52 / 52	**2000**	52/52	95	40150	2/52	5
	Magnesium	885 B - 20700 mg/kg	RSB-07-2-4	52 / 52	NA	NA	NA	**6610**	7/52	3
	Manganese	73.2 J - 1090 mg/kg	RSB-04-2-4	52 / 52	NA	NA	NA	**717.5**	1/52	2
	Selenium	0.5 B - 8 J mg/kg	RSB-16-2-4-DUP	29 / 52	2	8/29	4	**0.86**	22/29	9
	Silver	0.21 BJ - 2.1 mg/kg	RSB-07-10-12	5 / 52	NA	NA	NA	**0.335**	4/5	6
	Sodium	135 B - 1040 B mg/kg	RSB-16-2-4-DUP	49 / 52	NA	NA	NA	**224.4**	16/49	5
	Thallium	1.1 B - 17.1 J mg/kg	RSB-01-2-4	6 / 52	NA	NA	NA	**0.7**	6/6	24
	Zinc	13.3 J - 723 J mg/kg	RSB-16-2-4-DUP	52 / 52	**20**	47/52	36	105.1	14/47	7

Notes:
NYSDEC-RSCO : NYSDEC Recommended Soil Cleanup Objectives, adjusted for Site TOC of 5.24%
BKGD-SURF : Hiteman Background Criteria for Inorganics - Surface Soil
BKGD-SUBSURF: Hiteman Background Criteria for Inorganics - Subsurface Soil
mg/kg : milligrams per kilogram
ug/kg : micrograms per kilogram
There is no soil screening criteria for hexavalent chromium; however, it is considered a primary COPC.
NA : Not Available
Please refer to Table 4-1A for an explanation of data qualifiers.
"Number of Exceedances" and "Magnitude of Highest Exceedance" are based on exceedances of the most stringent criteria, which is bolded.

Table 4-15

Off Site Soil Boring Surface and Subsurface Soil Statistical Data Results
Hiteman Leather Site
West Winfield, New York

Surface Soil

COPC Designation	Contaminant	Range of Detection					Location of Highest Hit	# Hits/ Total Samples	Screening Criteria					
									NYSDEC-RSCO			BKGD-SURF		
									Criteria	# of Exceedances/ # of Hits	Magnitude of Highest Exceedance	Criteria	# of Exceedances/ # of Hits	Magnitude of Highest Exceedance
Primary	Antimony	1 BJ	-	9.9 B		mg/kg	RSB-41-0-2	5 / 14	NA	NA	NA	**0.69**	5/5	14
	Arsenic	2.7	-	80.9		mg/kg	RSB-41-0-2	11 / 11	**7.5**	4/11	11	12.9	4/11	6
	Cadmium	0.19 B	-	5		mg/kg	RSB-43-0-2	14 / 14	1	5/14	5	**0.09**	14/14	56
	Chromium (Total)	6.7	-	1430		mg/kg	RSB-41-0-2	14 / 14	**10**	13/14	143	23.1	8/14	62
	Chromium (Hexavalent)	17 J	-	17 J		mg/kg	RSB-22-0-2	1 / 14	NA	NA	NA	NA	NA	NA
	Cyanide	0.08 B	-	1.7		mg/kg	RSB-22-0-2	14 / 14	NA	NA	NA	**0.15**	11/14	11
	Lead	13.7 J	-	1820 *		mg/kg	RSB-43-0-2	14 / 14	NA	NA	NA	**23.5**	10/14	77
	Mercury	0.09	-	1.1		mg/kg	RSB-41-0-2	10 / 10	**0.1**	9/10	11	0.14	8/10	8
	Nickel	6.7 B	-	33.6		mg/kg	RSB-43-0-2	14 / 14	**13**	8/14	3	35.4	0/14	NA
Non-COPC	Barium	12.5 B	-	349		mg/kg	RSB-43-0-2	14 / 14	300	1/14	1	**79.1**	5/14	4
	Beryllium	0.14 B	-	0.56 B		mg/kg	RSB-48-0-2	14 / 14	**0.16**	13/14	3	1.21	0/14	NA
	Calcium	3940 J	-	276000 EJ		mg/kg	RSB-40-0-2	14 / 14	NA	NA	NA	**156380**	2/14	2
	Copper	7.1 *	-	634 *		mg/kg	RSB-43-0-2	14 / 14	**25**	6/14	25	25.1	6/14	25
	Iron	5330 EJ	-	47400 *		mg/kg	RSB-43-0-2	14 / 14	**2000**	14/14	24	33650	2/14	1
	Manganese	179	-	820		mg/kg	RSB-45-0-2	14 / 14	NA	NA	NA	**699**	2/14	1
	Selenium	0.59 B	-	16		mg/kg	RSB-22-0-2	8 / 14	2	2/8	8	**0.98**	7/8	16
	Silver	0.33 B	-	4		mg/kg	RSB-45-0-2	8 / 14	NA	NA	NA	**0.3**	8/8	13
	Sodium	96 B	-	975 B		mg/kg	RSB-22-0-2	11 / 14	NA	NA	NA	**294.9**	2/11	3
	Thallium	1.6 B	-	3.2		mg/kg	RSB-43-0-2	2 / 14	NA	NA	NA	**1.06**	2/2	3
	Zinc	31.4 J	-	1170 *		mg/kg	RSB-43-0-2	14 / 14	**20**	14/14	59	98.4	6/14	12

Table 4-15

Off Site Soil Boring Surface and Subsurface Soil Statistical Data Results
Hiteman Leather Site
West Winfield, New York

Subsurface Soil

COPC Designation	Contaminant	Range of Detection		Location of Highest Hit	# Hits/ Total Samples	Screening Criteria: NYSDEC-RSCO Criteria	NYSDEC-RSCO # of Exceedances/ # of Hits	NYSDEC-RSCO Magnitude of Highest Exceedance	BKGD-SUBSURF Criteria	BKGD-SUBSURF # of Exceedances/ # of Hits	BKGD-SUBSURF Magnitude of Highest Exceedance
Primary	Antimony	0.65 B - 5.8 BJ	mg/kg	RSB-22-2-4	10 / 38	NA	NA	NA	**0.62**	10/10	9
	Arsenic	2.1 - 26.7	mg/kg	RSB-21-2-4	30 / 30	**7.5**	11/30	4	17.45	3/30	2
	Cadmium	0.15 B - 6.7	mg/kg	RSB-45-2-4	28 / 38	1	9/28	7	**0.095**	28/28	71
	Chromium (Total)	3.8 - 1190 J	mg/kg	RSB-21-2-4	38 / 38	**10**	20/38	119	30.7	11/38	39
	Chromium (Hexavalent)	4 J - 15 J	mg/kg	RSB-22-2-4	5 / 38	NA	NA	NA	NA	NA	NA
	Cyanide	0.04 B - 1.5	mg/kg	RSB-21-2-4	37 / 38	NA	NA	NA	**0.2**	11/37	8
	Lead	3.7 - 1490 *	mg/kg	RSB-43-2-4	38 / 38	NA	NA	NA	**21.25**	19/38	70
	Mercury	0.05 B - 30.3 N*J	mg/kg	RSB-42-4-6	16 / 21	**0.1**	9/16	303	0.24	8/16	126
	Nickel	4.6 B - 68.8 J	mg/kg	RSB-41-4-6	38 / 38	**13**	14/38	5	42.3	3/38	2
Non-COPC	Barium	12.3 B - 2600	mg/kg	RSB-45-2-4	31 / 31	300	3/31	9	**100.1**	8/31	26
	Beryllium	0.11 B - 0.05 B	mg/kg	RSB-48-2-4	29 / 31	**0.16**	26/29	3	1.61	0/29	NA
	Calcium	21600 EJ - 242000	mg/kg	RSB-49-8-10	31 / 31	NA	NA	NA	**81100**	23/31	3
	Copper	4.5 B* - 643 J	mg/kg	RSB-41-4-6	31 / 31	**25**	11/31	26	28.8	11/31	22
	Iron	4950 - 95700 *	mg/kg	RSB-42-4-6	31 / 31	**2000**	31/31	48	40150	5/31	3
	Magnesium	2050 - 17400	mg/kg	RSB-44-8-10	31 / 31	NA	NA	NA	**6610**	4/31	3
	Potassium	298 BE - 1410 J	mg/kg	RSB-41-4-6	31 / 31	NA	NA	NA	**1399**	1/31	1
	Selenium	0.513 BJ - 9.1	mg/kg	RSB-21-2-4	9 / 31	2	8/9	5	**0.86**	9/9	11
	Silver	0.29 B - 3.6	mg/kg	RSB-41-4-6	14 / 31	NA	NA	NA	**0.335**	11/14	11
	Sodium	103 B - 2110	mg/kg	RSB-22-2-4	28 / 31	NA	NA	NA	**224.4**	9/28	9
	Thallium	1 B - 6.6	mg/kg	RSB-42-4-6	6 / 31	NA	NA	NA	**0.7**	6/6	9
	Zinc	20.4 J - 5000 *	mg/kg	RSB-42-4-6	31 / 31	**20**	31/31	250	105.1	11/31	48

Notes:
NYSDEC-RSCO : NYSDEC Recommended Soil Cleanup Objectives, adjusted for Site TOC of 5.24%
BKGD-SURF : Hiteman Background Criteria for Inorganics - Surface Soil
BKGD-SUBSUR : Hiteman Background Criteria for Inorganics - Subsurface Soil
mg/kg : milligrams per kilogram
There is no soil screening criteria for hexavalent chromium; however, it is considered a primary COPC.
NA: Not Available
Please refer to Table 4-1A for explaination of data qualifiers.
"Number of Exceedances" and "Magnitude of Highest Exceedance" are based on exceedances of the most stringent criteria, which is bolded.

Table 4-16

South Bank Front Lot Surface Soil Statistical Data Results
Hiteman Leather Site
West Winfield, New York

COPC Designation	Contaminant	Range of Detection		Location of Highest Hit	# Hits/ Total Samples	Screening Criteria: NYSDEC-RSCO Criteria	NYSDEC-RSCO # of Exceedences/ # of Hits	NYSDEC-RSCO Magnitude of Highest Exceedance	BKGD-SURF Criteria	BKGD-SURF # of Exceedences/ # of Hits	BKGD-SURF Magnitude of Highest Exceedance
Primary *	Antimony	0.64 B - 1.6 B	mg/kg	RSS-01	3 / 7	NA	NA	NA	**0.69**	2/3	2
	Arsenic	5.3 - 16.5	mg/kg	RSS-06	7 / 7	**7.5**	5/7	2	12.9	1/7	1
	Cadmium	0.18 B - 0.92 B	mg/kg	RSS-03-Dup	7 / 7	1	0/7	NA	**0.09**	7/7	10
	Chromium (Total)	104 - 474	mg/kg	RSS-01	7 / 7	**10**	7/7	47	23.1	7/7	21
	Cyanide	0.1 B - 0.26 B	mg/kg	RSS-05	7 / 7	NA	NA	NA	**0.15**	4/7	2
	Lead	22.8 - 189	mg/kg	RSS-03-Dup	7 / 7	NA	NA	NA	**23.5**	6/7	8
	Nickel	8.8 B - 21.3 J	mg/kg	RSS-03-Dup	7 / 7	**13**	6/7	2	35.4	0/7	NA
Non-COPC	Barium	55.2 B - 216	mg/kg	RSS-03-Dup	7 / 7	300	0/7	NA	**79.1**	5/7	3
	Beryllium	0.2 B - 0.7 B	mg/kg	RSS-03	7 / 7	**0.16**	7/7	4	1.21	0/7	NA
	Copper	14.3 J - 28.7 J	mg/kg	RSS-03-Dup	7 / 7	**25**	1/7	1	25.1	1/7	1
	Iron	9630 EJ - 24700 EJ	mg/kg	RSS-03-Dup	7 / 7	**2000**	7/7	12	33650	0/7	NA
	Manganese	281 - 1360	mg/kg	RSS-03-Dup	7 / 7	NA	NA	NA	**699**	3/7	2
	Potassium	681 B - 1480 B	mg/kg	RSS-03-Dup	7 / 7	NA	NA	NA	**1331**	2/7	1
	Selenium	1.2 B - 3.2	mg/kg	RSS-03-Dup	7 / 7	2	1/7	2	**0.98**	7/7	3
	Silver	0.54 B - 2.3 B	mg/kg	RSS-03-Dup	7 / 7	NA	NA	NA	**0.3**	7/7	8
	Zinc	66.2 - 329	mg/kg	RSS-03-Dup	7 / 7	**20**	7/7	16	98.4	6/7	3

Notes:
BKGD-SURF : Hiteman Background Criteria for Inorganics - Surface Soil
NYSDEC-RSCO : NYSDEC Recommended Soil Cleanup Objectives, adjusted for Site TOC of 5.24%
mg/kg : milligrams per kilogram
NA: Not Available
SB = Use Site Background
Please refer to Table 4-1A for an explanation of data qualifiers.
* The Primary COPCs hexavalent chromium and mercury were not detected in Southbank Front Lot soil samples at levels exceeding any screening criteria.
soil samples at levels exceeding any screening criteria.
"Number of Exceedances" and "Magnitude of Highest Exceedance" are based on exceedances of the most stringent criteria, which is bolded.

Table 4-17

Onsite Wetland Sediment Statistical Data Results
Hiteman Leather Site
West Winfield, New York

COPC Designation	Contaminant	Range of Detection		Location of Highest Hit	# Hits/ Total Samples	Screening Criteria								
						NYSED-HFW			NYSED-AC-LELW*			NYSED-AC-SELW		
						Criteria	# of Exceedances/ # of Hits	Magnitude of Highest Exceedance	Criteria	# of Exceedances/ # of Hits	Magnitude of Highest Exceedance	Criteria	# of Exceedances/ # of Hits	Magnitude of Highest Exceedance
Primary*	Antimony	2.1 J - 795 J	mg/kg	WTSD-14-0-6	21 / 32	NA	NA	NA	**2**	21/21	398	25	10/21	32
	Arsenic	3.1 BJ - 188 J	mg/kg	WTSD-14-0-6	32 / 32	NA	NA	NA	**6**	27/32	31	33	6/32	6
	Cadmium	0.4 B - 6.2 J	mg/kg	WTSD-09-0-6	22 / 32	NA	NA	NA	**0.6**	19/22	10	9	0/22	NA
	Chromium (Total)	15.2 J - 89900 J	mg/kg	WTSD-14-0-6	32 / 32	NA	NA	NA	**26**	30/32	3458	110	26/32	82
	Chromium (Hexavalent)	19 J - 160 J	mg/kg	WTSD-17-0-6	10 / 32	NA	NA	NA	**26**	7/10	6	110	2/10	1
	Lead	16.1 - 316 J	mg/kg	WTSD-01-0-6	32 / 32	NA	NA	NA	**31**	26/32	10	110	14/32	3
	Mercury	0.18 - 0.82 J	mg/kg	WTSD-05-18-24	28 / 32	NA	NA	NA	**0.15**	28/28	5	1.3	0/28	NA
	Nickel	8.3 BJ - 37.3 J	mg/kg	WTSD-07-18-24	29 / 29	NA	NA	NA	**16**	19/29	2	50	0/29	NA
Secondary	Copper	9.8 J - 635 J	mg/kg	WTSD-06-0-6	32 / 32	NA	NA	NA	**16**	26/32	40	110	1/32	6
	alpha-Chlordane	0.44 J - 25 NJ	ug/kg	WTSD-13-0-6	15 / 32	**0.1105**	15/15	226	3.315	13/15	8	NA	NA	NA
	gamma-Chlordane	1.9 J - 22 NJ	ug/kg	WTSD-04-18-24	13 / 32	**0.1105**	13/13	199	**0.1105**	13/13	199	NA	NA	NA
Non-COPC	4'4'-DDD	5.9 J - 15 J	ug/kg	WTSD-04-18-24	3 / 32	**1.105**	3/3	14	110.5	0/3	NA	110.5	0/3	NA
	4,4'-DDE	2.3 J - 38 J	ug/kg	WTSD-10-18-24-DUP	6 / 32	**1.105**	6/6	34	NA	NA	NA	NA	NA	NA
	4,4'-DDT	4.8 J - 73 J	ug/kg	WTSD-09-0-6	2 / 32	**1.105**	2/2	66	NA	NA	NA	NA	NA	NA
	4-Methylphenol	250 J - 250 J	ug/kg	WTSD-06-0-6	1 / 32	NA	NA	NA	**55.25**	1/1	1/1	NA	NA	NA
	Aroclor-1254	130 J - 130 J	ug/kg	WTSD-02-18-24	1 / 32	**0.0884**	1/1	1471	2132.65	0/1	NA	NA	NA	NA
	Benzo(a)anthracene	45 J - 210 J	ug/kg	WTSD-01-0-6	5 / 32	**143.65**	2/5	1	1326	0/5	NA	NA	NA	NA
	Benzo(a)pyrene	20 J - 260 J	ug/kg	WTSD-01-0-6	9 / 32	**143.65**	2/9	2	NA	NA	NA	NA	NA	NA
	Benzo(b)fluoranthene	35 J - 430 J	ug/kg	WTSD-10-18-24-DUP	10 / 32	**143.65**	3/10	3	NA	NA	NA	NA	NA	NA
	Benzo(k)fluoranthene	39 J - 220 J	ug/kg	WTSD-01-0-6	7 / 32	**143.65**	3/17	2	NA	NA	NA	NA	NA	NA
	Chrysene	41 J - 240 J	ug/kg	WTSD-01-0-6	9 / 32	**143.65**	3/19	2	NA	NA	NA	NA	NA	NA
	Heptachlor	0.23 J - 0.23 J	ug/kg	WTSD-09-18-24	1 / 32	**0.0884**	1/1	3	11.05	0/1	NA	NA	NA	NA
	Indeno(1,2,3-cd)pyrene	36 J - 180 J	ug/kg	WTSD-1-0-6	7 / 32	**143.65**	2/7	1	NA	NA	NA	NA	NA	NA
	Iron	4110 J - 91300 J	mg/kg	WTSD-04-0-6	32 / 32	NA	NA	NA	**20000**	14/32	5	40000	4/32	2
	Manganese	82.7 J - 5880 J	mg/kg	WTSD-04-0-6	32 / 32	NA	NA	NA	**460**	0/32	13	1110	5/32	5
	Silver	0.4 J - 2.7 BJ	mg/kg	WTSD-06-0-6	10 / 32	NA	NA	NA	**1**	3/10	3	2.2	1/10	1
	Zinc	72.9 J - 1190 J	mg/kg	WTSD-01-0-6	32 / 32	NA	NA	NA	**120**	17/32	10	270	8/32	4

Notes:
NYSED-HFW : NYS Sediment Criteria for Human Health Bioaccumulation Freshwater - Sediment
NYSED-AC-LELW : NYS Sediment Wetland for Benthic Aquatic Life, LEL for Inorganics
NYSED-AC-SELW : NYS Sediment Wetland for Benthic Aquatic, SEL for Inorganics
mg/kg : milligrams per kilogram
ug/kg : micrograms per kilogram
NA : Not Available
Please refer to Table 4-1A for an explanation of data qualifiers.
*Please note that the criteria listed for organic compounds are not considered LEL thresholds. They are sediment criteria developed for the protection of benthic aquatic life.
* The primary COPC cyanide was not detected at levels exceeding any Screening Criteria.
"Number of Exceedances" and "Magnitude of Highest Exceedance" are based on exceedances of the most stringent criteria, which is bolded.

Table 4-18

Unadilla River Sediment Statistical Data Results
Hiteman Leather Site
West Winfield, New York

COPC Designation	Contaminant	Range of Detection		Location of Highest Hit	# Hits/ Total Samples	Screening Criteria: NYSED-HFW Criteria	NYSED-HFW #of Exceedances/ # of Hits	NYSED-HFW Magnitude of Highest Exceedance	NYSED-AC-LELR* Criteria	NYSED-AC-LELR* # of Exceedances/ # of Hits	NYSED-AC-LELR* Magnitude of Highest Exceedance	NYSED-AC-SELR Criteria	NYSED-AC-SELR # of Exceedances/ # of Hits	NYSED-AC-SELR Magnitude of Highest Exceedance
Primary**	Antimony	0.99 BJ - 15 BJ	mg/kg	URSD-5	8 / 11	NA	NA	NA	**2**	6/8	8	25	0/8	NA
	Arsenic	1.7 B - 7.2 J	mg/kg	URSD-5	10 / 11	NA	NA	NA	**6**	1/10	1	33	.0/10	NA
	Chromium (Total)	10.9 J - 1670	mg/kg	URSD-2	11 / 11	NA	NA	NA	**26**	7/11	64	110	4/11	15
	Lead	6.1 J - 58.3	mg/kg	URSD-6	11 / 11	NA	NA	NA	**31**	3/11	2	110	0/11	NA
	Mercury	0.09 BJ - 0.25 BJ	mg/kg	URSD-5	6 / 11	NA	NA	NA	**0.15**	4/6	2	1.3	0/6	NA
	Nickel	6.2 B - 18.8	mg/kg	URSD-7	11 / 11	NA	NA	NA	**16**	4/11	1	50	0/11	NA
Secondary	Benzo(a)anthracene	62 J - 450 J	ug/kg	URSD-2	8 / 11	**143.65**	3/8	3	274.8	1/8	2	NA	NA	NA
	gamma-Chlordane	1.1 J - 5.6 J	ug/kg	URSD-9	2 / 11	0.1105	1/2	51	**0.0229**	2/2	245	NA	NA	NA
Non-COPC	4-Methylphenol	79 J - 79 J	ug/kg	URSD-4	1 / 11	NA	NA	NA	**11.45**	1/1	7	NA	NA	NA
	Benzo(a)pyrene	64 J - 520	ug/kg	URSD-2-DUP	8 / 11	**143.65**	4/8	4	NA	NA	NA	NA	NA	NA
	Benzo(b)fluoranthene	67 J - 760 J	ug/kg	URSD-2-DUP	8 / 11	**143.65**	6/8	5	NA	NA	NA	NA	NA	NA
	Benzo(k)fluoranthene	62 J - 150 J	ug/kg	URSD-5	3 / 11	**143.65**	1/3	1	NA	NA	NA	NA	NA	NA
	Indeno(1,2,3-cd)pyrene	40 J - 280 J	ug/kg	URSD-2-DUP	7 / 11	**143.65**	3/7	2	NA	NA	NA	NA	NA	NA
	Endosulfan I	0.71 J - 0.71 J	ug/kg	URSD-2	1 / 11	NA	NA	NA	**0.687**	1/1	1	NA	NA	NA
	Chrysene	79 J - 540	ug/kg	URSD-2	8 / 11	**143.65**	6/8	4	NA	NA	NA	NA	NA	NA
	beta-BHC	4.3 J - 11	ug/kg	URSD-2-DUP	3 / 11	6.63	1/3	2	**1.374**	3/3	8	NA	NA	NA
	Copper	4.6 B - 22.7	mg/kg	URSD-2-DUP	7 / 7	NA	NA	NA	**16**	3/7	1	110	0/7	NA
	Iron	7140 - 20200	mg/kg	URSD-6	11 / 11	NA	NA	NA	**20000**	1/11	1	40000	0/11	NA
	Manganese	82.7 - 559 J	mg/kg	URSD-5	11 / 11	NA	NA	NA	**460**	1/11	1	1110	0/11	NA

Notes:
NYSED-HFW : NYS Sediment Criteria for Human Health Bioaccumulation Freshwater - Sediment
NYSED-AC-LELR :NYS Sediment River for Benthic Aquatic Life, LEL for Inorganics
NYSED-AC-SELR : NYS Sediment River for Benthic Aquatic Life, SEL for Inorganics
ug/kg : micrograms per kilogram
mg/kg : milligrams per kilogram
NA : Not Available
Please refer to Table 4-1A for an explanation of data qualifiers.
*Please note that the criteria listed for organic compounds are not considered LEL thresholds. They are sediment criteria developed for the protection of benthic aquatic life.
** The primary COPCs hexavalent chromium and cadmium were not detected at levels exceeding any screening criteria.
"Number of Exceedances" and "Magnitude of Highest Exceedance" are based on exceedances of the most stringent criteria, which is bolded.

Table 4-19

Unadilla River Surface Water Statistical Data Results
Hiteman Leather Site
West Winfield, New York

COPC Designation	Contaminant	Range of Detection	# Hits/ Total Samples	Location of Highest Hit	Screening Criteria EPASW-HHORG	EPASW-AFRESHCC	NYSW-C-HFC	NYSW-C-AC	# of Exceedances/ # of Hits	Magnitude of Highest Exceedance
Secondary	Aluminum	21.9 B - 150 B ug/l	9 / 11	URSW-10	0	**87**	0	100	5/9	2
Non-COPC	bis(2-Ethylhexyl)phthalate	3 J - 3 J ug/l	1 / 11	URSW-2	5.9	0	0	**0.6**	1/1	5
	Tetrachloroethene	6 J - 6 J ug/l	1 / 11	URSW-10	8.85	0	**1**	0	1/1	6

Notes:
EPASW-AFRESHCC :EPA Ambient Water Criteria - Aquatic Life Chronic Freshwater
EPASW-HHORG : EPA Ambient Water Criteria - Human Health for Consumption of Organisms
NYSW-C-AC : NYS Standards and Guidance Values for Class C Surface Water
NYSW-C-HFC : NYS Standards and Guidance Values for Class C Surface Water H(FC)
ug/l : micrograms per liter
"Number of Exceedances" and "Magnitude of Highest Exceedances" are based on exceedances of the most stringent criteria, which is bolded.
NA : Not Available
Please refer to Table 4-1A for an explanation of data qualifiers.
No primary COPCs were detected at levels exceeding any screening criteria.

Table 4-20

Fish Tissue Statistical Data Results
Hiteman Leather Site
West Winfield, New York

Forage Fish

COPC Designation	Contaminant	Range of Detection	# Hits / Total Samples	Location of Highest Hit	Screening Criteria		
					USEPA-FISH	# of Exceedances/ # of Hits	Magnitude of Exceedance
Secondary	Methylene Chloride	210 - 900 J ug/kg	8 / 8	URFF-3-B	400	5/8	2
Non-COPC	Benzene	4 J - 62 ug/kg	3 / 8	URFF-4-B	60	1/3	1
	Aldrin	5.7 JN - 7.6 J ug/kg	2 / 8	URFF-5-A	0.19	2/2	40
	Heptachlor epoxide	5.5 J - 5.5 J ug/kg	1 / 8	URFF-3-A	0.3	1/1	18

Notes:
USEPA-FISH: USEPA Region 3 Risk-Based Fish Screening Criteria for Human Health
ug/kg : micrograms per kilogram
No results from the sport fish tissue samples exceeded the screening criteria.
No primary COPCs were detected at levels exceeding any screening criteria.
Please refer to Table 4-1A for an explanation of data qualifiers.

Table 4-21

Shallow Groundwater Statistical Data Results
Hiteman Leather Site
West Winfield, New York

Shallow Overburden Monitoring Wells - Field Activity 1

COPC Designation	Contaminant	Range of Detection	Location of Highest Hit	# Hits/Total Samples	Screening Criteria			# of Exceedances/ # of Hits	Magnitude of Highest Exceedance
					EPAPDW-MCL	NYSDEC-GW-GA	NYSDOH-DW-MCLS		
Primary	Chromium (Total)	2.2 B - 610 J ug/l	MW-5S	13 / 15	100	**50**	100	4/13	12
	Nickel	1.3 B - 477 ug/l	MW-8S	14 / 15	NA	**100**	NA	7/14	5
Secondary	bis(2-Ethylhexyl)phthalate	2 J - 48 ug/l	MW-13S	4 / 15	6	**5**	6	1/4	10
Non-COPC	Iron	349 * - 10100 *J ug/l	MW-5S	13 / 13	NA	NA	**300**	13/13	34
	Magnesium	7370 - 62200 ug/l	MW-8S	15 / 15	NA	**35000**	NA	1/15	2
	Manganese	3.1 B - 1550 ug/l	MW-5S	15 / 15	NA	NA	**300**	9/15	5
	Sodium	10300 - 60200 ug/l	MW-14S	14 / 14	NA	**20000**	NA	6/14	3
	Thallium	3.3 B - 3.9 B ug/l	MW-8S	4 / 15	2	**0.5**	2	4/4	8
	Zinc	4.6 B*J - 19.6 B ug/l	MW-5S	6 / 15	NA	2000	**5**	5/6	4

Shallow Overburden Monitoring Wells - Field Activity 2

COPC Designation	Contaminant	Range of Detection	Location of Highest Hit	# Hits/Total Samples	Screening Criteria			# of Exceedances/ # of Hits	Magnitude of Highest Exceedance
					EPAPDW-MCL	NYSDEC-GW-GA	NYSDOH-DW-MCLS		
Primary**	Chromium (Hexavalent)	30 - 50 mg/l	MW-15S-R2	8 / 16	NA	50	NA	1/8	1
Secondary	bis(2-Ethylhexyl)phthalate	6 J - 140 D ug/l	MW-8S-R2	2 / 16	6	**5**	6	2/2	28
Non-COPC	Iron	26.6 B - 8710 ug/l	MW-12S-R2	13 / 16	NA	NA	**300**	11/13	29
	Magnesium	6970 - 137000 ug/l	RMW-17S-R1	16 / 16	NA	**35000**	NA	2/16	4
	Manganese	1.6 B - 1960 ug/l	MW-14S-R2	15 / 16	NA	NA	**300**	10/15	7
	Sodium	6860 - 86100 ug/l	RMW-17S-R1	16 / 16	NA	**20000**	NA	8/16	4
	Thallium	4 B - 6 B ug/l	MW-15S-R2	4 / 16	2	**0.5**	2	4/4	12
	Zinc	1.8 B - 57.7 ug/l	MW-12S-R2	10 / 16	NA	2000	**5**	4/10	12

Notes:
EPAPDW-MCL : EPA Primary Drinking Water Standards
NYSDEC-GW-GA : NYSDEC Standards/Guidance for Class GA groundwater H(WS)
NYSDOH-DW-MCLS : NYSDOH Drinking Water Quality Standards
ug/l = micrograms per liter
mg/l = milligrams per liter
NA = Not Available
"Number of Exceedances" and "Magnitude of Highest Exceedance" are based on exceedances of the most stringent criteria, which is bolded.
*The primary COPCs arsenic, antimony, cadmium, hexavalent chromium, cyanide, lead and mercury were not detected at levels exceeding any screening criteria during Field Activity 1.
**The primary COPCs arsenic, antimony, cadmium, total chromium, cyanide, lead, mercury, and nickel were not detected at levels exceeding any screeing critetria during Field Activity 2.
Please refer to Table 4-1A for an explanation of data qualifiers.

Table 4-22

Deep Groundwater Statistical Data Results
Hiteman Leather Site
West Winfield, New York

Deep Overburden Monitoring Wells - Field Activity 1

COPC Designation	Contaminant	Range of Detection		Location of Highest Hit	# Hits/ Total Samples	Screening Criteria			# of Exceedances/ # of Hits	Magnitude of Highest Exceedance
						EPAPDW-MCL	NYSDEC-GW-GA	NYSDOH-DW-MCLS		
Primary *	Arsenic	3.1 B - 12.5	ug/l	MW-11D	5 / 8	**10**	25	50	2/5	1
	Chromium (Total)	8.3 B - 304 J	ug/l	MW-11D-DUP	5 / 8	100	**50**	100	2/5	6
	Lead	18.2 - 19.5	ug/l	MW-11D-DUP	2 / 8	**15**	25	**15**	2/2	1
Non-COPC	Antimony	3.3 B - 6.9 B	ug/l	MW-13D	3 / 8	6	**3**	6	3/3	2
	Iron	151 - 41200 J	ug/l	MW-11D-DUP	8 / 8	NA	NA	**300**	7/8	137
	Magnesium	12400 - 40500 J	ug/l	MW-11D-DUP	8 / 8	NA	**35000**	NA	2/8	1
	Manganese	7.8 B - 799 J	ug/l	MW-11D-DUP	8 / 8	NA	NA	**300**	2/8	3
	Thallium	3 B - 5.4 B	ug/l	MW-13D	3 / 8	2	**0.5**	2	3/3	11
	Zinc	5.1 B - 126 J	ug/l	MW-11D-DUP	6 / 8	NA	2000	**5**	6/6	25

Deep Overburden Monitoring Wells - Field Activity 2

COPC Designation	Contaminant	Range of Detection		Location of Highest Hit	# Hits/ Total Samples	Screening Criteria			# of Exceedances/ # of Hits	Magnitude of Highest Exceedance
						EPAPDW-MCL	NYSDEC-GW-GA	NYSDOH-DW-MCLS		
Primary **	Arsenic	3.3 B - 184 J	ug/l	MW-13D-R2	6 / 8	**10**	25	50	2/6	18
	Chromium (Total)	1.5 B - 185 J	ug/l	MW-13D-R2	6 / 8	100	**50**	100	2/6	4
	Lead	6.3 J - 176 J	ug/l	MW-13D-R2	3 / 8	**15**	25	**15**	2/3	12
	Nickel	4.3 B - 323 J	ug/l	MW-13D-R2	6 / 8	NA	**100**	NA	2/6	3
Non-COPC	Beryllium	0.3 B - 9.7 J	ug/l	MW-13D-R2	3 / 8	4	**3**	4	2/3	3
	Copper	2.9 B - 452 J	ug/l	MW-13D-R2	6 / 8	1300	**200**	1300	1/6	2
	Iron	43.9 B - 293000 J	ug/l	MW-13D-R2	8 / 8	NA	NA	**300**	7/8	977
	Magnesium	8180 - 491000 J	ug/l	MW-13D-R2	8 / 8	NA	**35000**	NA	2/8	14
	Manganese	6.2 B - 9230 J	ug/l	MW-13D-R2	8 / 8	NA	NA	**300**	3/8	31
	Zinc	4.8 B - 760 J	ug/l	MW-13D-R2	6 / 8	NA	2000	**5**	5/6	152

Notes:
EPAPDW-MCL : EPA Primary Drinking Water Standards
NYSDEC-GW-GA : NYSDEC Standards/Guidance for Class GA groundwater H(WS)
NYSDOH-DW-MCLS : NYSDOH Drinking Water Quality Standards
ug/l = micrograms per liter
NA = Not Available
"Number of Exceedances" and "Magnitude of Highest Exceedance" are based on exceedances of the most stringent criteria, which is bolded.
*The primary COPCs antimony, cadmium, hexavalent chromium, cyanide, mercury, and nickel were not detected at levels exceeding any screening criteria during Field Activity 1.
**The primary COPCs antimony, cadmium, hexavalent chromium, cyanide, and mercury were not detected at levels exceeding

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LSB-2

Interval	Compound	Result	Eq
0-2 '	Antimony	5.7B	8
	Cadmium	1.1	12
	Chromium (Total)	2180	218
	Chromium (Hex)	9	NA
	Cyanide	0.26B	2
	Lead	47.7	2
	Nickel	18	1
4-6 '	Cadmium	0.51B	5
	Chromium (Total)	230	23
	Nickel	15.6	1
14-16 '	Cadmium	0.17B	2
16-18 '	Cadmium	0.22B	2

LSB-3

Interval	Compound	Result	Eq
0-2 '	Antimony	22.8	33
	Arsenic	8.2	1
	Cadmium	2.9	32
	Chromium (Total)	8550	855
	Cyanide	0.81	5
	Lead	106	5
	Nickel	19.8	2
4-6 '	Antimony	29.8	48
	Arsenic	9	1
	Cadmium	2.8	29
	Chromium (Total)	11100	1110
	Cyanide	1.2	6
	Lead	118	6
	Nickel	14.6	1
12-14 '	Cadmium	0.2B	2
14-16 '	Cadmium	0.23B	2
	Chromium (Total)	74.3	7

LSB-1

Interval	Compound	Result	Eq
0-2 '	Cadmium	0.5B	6
	Chromium (Total)	1670	167
	Chromium (Hex)	6	NA
	Cyanide	0.2B	1
	Lead	33.5	1
	Mercury	0.11B	1
	Nickel	33.8	3
2-4 '	Cadmium	0.14B	1
	Chromium (Total)	69.6	7
	Chromium (Hex)	6	NA
18-20 '	Cadmium	0.11B	1

Surface Soil Screening Criteria

Compound	NYSDEC-RSCO	BKGD
Antimony	NA	0.69
Arsenic	7.5	12.90
Cadmium	1.0	0.09
Chromium(Total)	10.0	23.10
Chromium (Hex)	NA	NA
Cyanide	NA	0.15
Lead	NA	23.50
Mercury	0.1	0.14
Nickel	13.0	35.40

Subsurface Soil Screening Criteria

Compound	NYSDEC-RSCO	BKGD
Antimony	NA	0.620
Arsenic	7.5	17.450
Cadmium	1.0	0.095
Chromium(Total)	10.0	30.700
Chromium (Hex)	NA	NA
Cyanide	NA	0.200
Lead	NA	21.250
Mercury	0.1	0.240
Nickel	13.0	42.300

50 0 50 100 150 Feet

Figure Created January, 2003

CDM

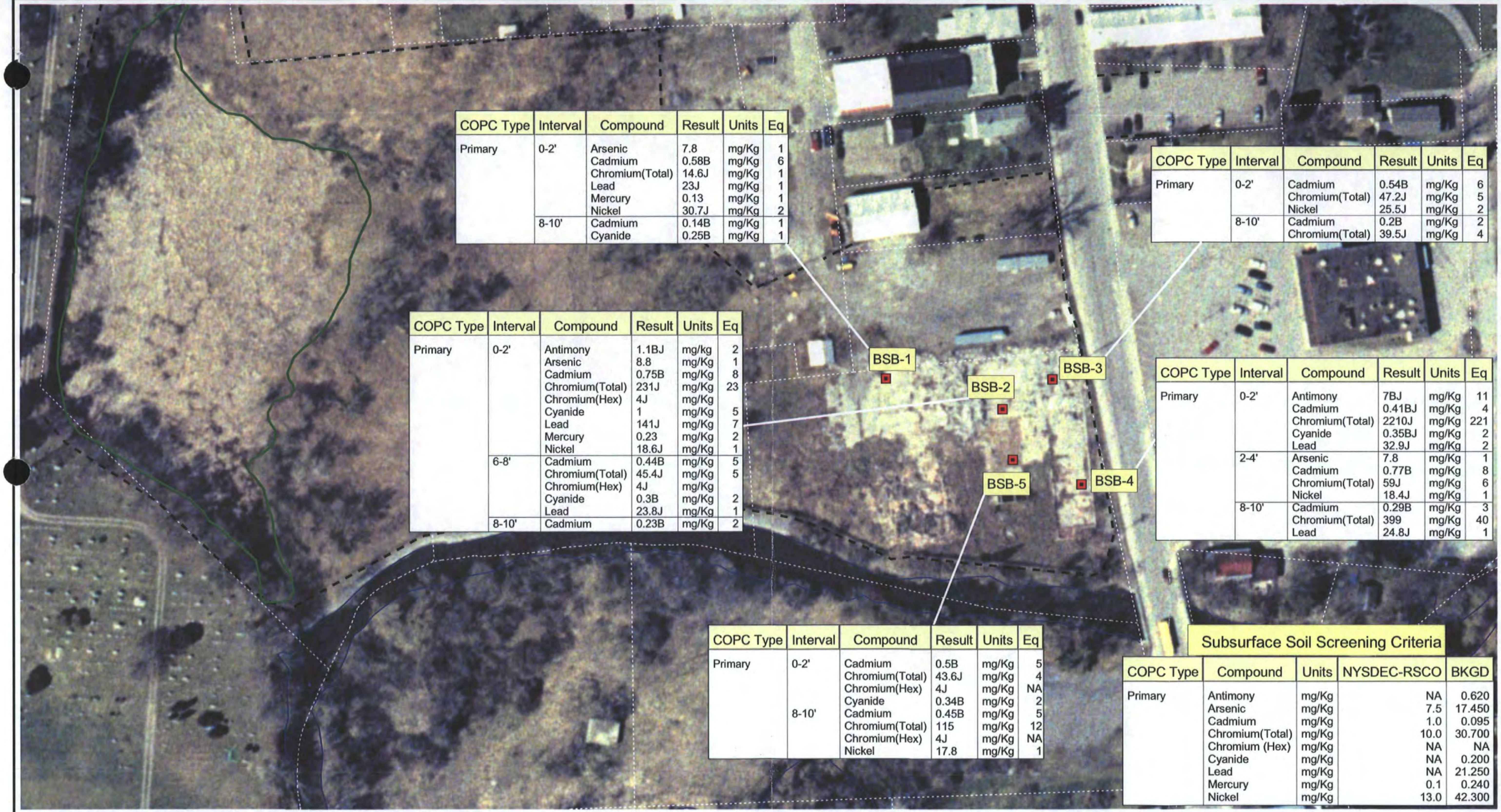
N W E S

- Lagoon Boring Location
- Fence Line
- Unadilla River
- Onsite Wetland
- Assumed Lagoon Boundary

**Aerial photograph dated April 26, 2001*

Notes: NA = Not Available
All values are reported in mg/kg
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
No secondary COPCs were designated for lagoon boring soils
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria

Figure 4-1
Summary of Lagoon Boring Results
Primary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY



BSB-1

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Arsenic	7.8	mg/Kg	1
		Cadmium	0.58B	mg/Kg	6
		Chromium(Total)	14.6J	mg/Kg	1
		Lead	23J	mg/Kg	1
		Mercury	0.13	mg/Kg	1
		Nickel	30.7J	mg/Kg	2
	8-10'	Cadmium	0.14B	mg/Kg	1
		Cyanide	0.25B	mg/Kg	1

BSB-3

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.54B	mg/Kg	6
		Chromium(Total)	47.2J	mg/Kg	5
		Nickel	25.5J	mg/Kg	2
	8-10'	Cadmium	0.2B	mg/Kg	2
		Chromium(Total)	39.5J	mg/Kg	4

BSB-2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	1.1BJ	mg/kg	2
		Arsenic	8.8	mg/Kg	1
		Cadmium	0.75B	mg/Kg	8
		Chromium(Total)	231J	mg/Kg	23
		Chromium(Hex)	4J	mg/Kg	
		Cyanide	1	mg/Kg	5
		Lead	141J	mg/Kg	7
		Mercury	0.23	mg/Kg	2
		Nickel	18.6J	mg/Kg	1
	6-8'	Cadmium	0.44B	mg/Kg	5
		Chromium(Total)	45.4J	mg/Kg	5
		Chromium(Hex)	4J	mg/Kg	
		Cyanide	0.3B	mg/Kg	2
		Lead	23.8J	mg/Kg	1
	8-10'	Cadmium	0.23B	mg/Kg	2

BSB-4

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	7BJ	mg/Kg	11
		Cadmium	0.41BJ	mg/Kg	4
		Chromium(Total)	2210J	mg/Kg	221
		Cyanide	0.35BJ	mg/Kg	2
		Lead	32.9J	mg/Kg	2
	2-4'	Arsenic	7.8	mg/Kg	1
		Cadmium	0.77B	mg/Kg	8
		Chromium(Total)	59J	mg/Kg	6
		Nickel	18.4J	mg/Kg	1
	8-10'	Cadmium	0.29B	mg/Kg	3
		Chromium(Total)	399	mg/Kg	40
		Lead	24.8J	mg/Kg	1

BSB-5

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.5B	mg/Kg	5
		Chromium(Total)	43.6J	mg/Kg	4
		Chromium(Hex)	4J	mg/Kg	NA
		Cyanide	0.34B	mg/Kg	2
	8-10'	Cadmium	0.45B	mg/Kg	5
		Chromium(Total)	115	mg/Kg	12
		Chromium(Hex)	4J	mg/Kg	NA
		Nickel	17.8	mg/Kg	1

Subsurface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/Kg	NA	0.620
	Arsenic	mg/Kg	7.5	17.450
	Cadmium	mg/Kg	1.0	0.095
	Chromium(Total)	mg/Kg	10.0	30.700
	Chromium (Hex)	mg/Kg	NA	NA
	Cyanide	mg/Kg	NA	0.200
	Lead	mg/Kg	NA	21.250
	Mercury	mg/Kg	0.1	0.240
	Nickel	mg/Kg	13.0	42.300

*aerial photograph dated April 26, 2001

40 0 40 80 120 Feet

Figure Created January, 2003

N W E S

CDM

Building Boring Location
Fence Line
Unadilla River
Onsite Wetland

Notes: NA = Not Available
All values are reported in mg/kg
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
No secondary COPCs were designated for building boring soils
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria

Figure 4-2
Summary of Building Boring Results
Primary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY

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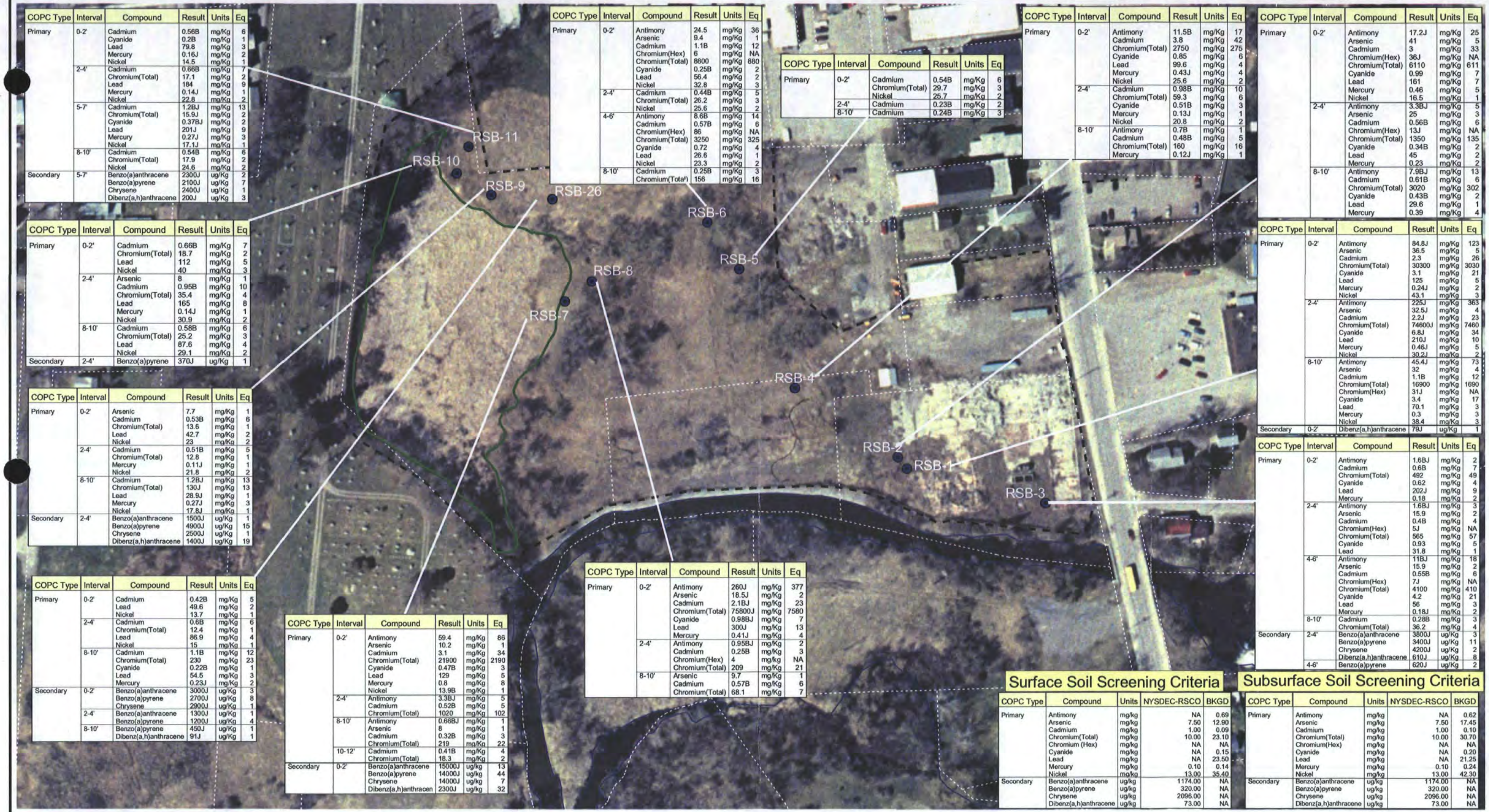

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.56B	mg/Kg	6
		Cyanide	0.2B	mg/Kg	1
		Lead	79.8	mg/Kg	3
		Mercury	0.16J	mg/Kg	2
		Nickel	14.5	mg/Kg	1
	2-4'	Cadmium	0.66B	mg/Kg	7
		Chromium(Total)	17.1	mg/Kg	2
		Lead	184	mg/Kg	9
		Mercury	0.14J	mg/Kg	1
		Nickel	22.8	mg/Kg	2
	5-7'	Cadmium	1.2BJ	mg/Kg	13
		Chromium(Total)	15.9J	mg/Kg	2
		Cyanide	0.37BJ	mg/Kg	2
		Lead	201J	mg/Kg	9
		Mercury	0.27J	mg/Kg	3
		Nickel	17.1J	mg/Kg	1
	8-10'	Cadmium	0.54B	mg/Kg	6
		Chromium(Total)	17.9	mg/Kg	2
		Nickel	24.6	mg/Kg	2
Secondary	5-7'	Benzo(a)anthracene	2300J	ug/Kg	2
		Benzo(a)pyrene	2100J	ug/Kg	7
		Chrysene	2400J	ug/Kg	1
		Dibenz(a,h)anthracene	200J	ug/Kg	3

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.66B	mg/Kg	7
		Chromium(Total)	18.7	mg/Kg	2
		Lead	112	mg/Kg	5
		Nickel	40	mg/Kg	3
	2-4'	Arsenic	8	mg/Kg	1
		Cadmium	0.95B	mg/Kg	10
		Chromium(Total)	35.4	mg/Kg	4
		Lead	165	mg/Kg	8
		Mercury	0.14J	mg/Kg	1
		Nickel	30.9	mg/Kg	2
	8-10'	Cadmium	0.58B	mg/Kg	6
		Chromium(Total)	25.2	mg/Kg	3
		Lead	87.6	mg/Kg	4
		Nickel	29.1	mg/Kg	2
Secondary	2-4'	Benzo(a)pyrene	370J	ug/Kg	1

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Arsenic	7.7	mg/Kg	1
		Cadmium	0.53B	mg/Kg	6
		Chromium(Total)	13.6	mg/Kg	1
		Lead	42.7	mg/Kg	2
		Nickel	23	mg/Kg	2
	2-4'	Cadmium	0.51B	mg/Kg	5
		Chromium(Total)	12.8	mg/Kg	1
		Mercury	0.11J	mg/Kg	1
		Nickel	21.8	mg/Kg	2
	8-10'	Cadmium	1.2BJ	mg/Kg	13
		Chromium(Total)	130J	mg/Kg	13
		Lead	28.9J	mg/Kg	1
		Mercury	0.27J	mg/Kg	3
		Nickel	17.8J	mg/Kg	1
Secondary	2-4'	Benzo(a)anthracene	1500J	ug/Kg	1
		Benzo(a)pyrene	4900J	ug/Kg	15
		Chrysene	2500J	ug/Kg	1
		Dibenz(a,h)anthracene	1400J	ug/Kg	19

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.42B	mg/Kg	5
		Lead	49.6	mg/Kg	2
		Nickel	13.7	mg/Kg	1
	2-4'	Cadmium	0.6B	mg/Kg	6
		Chromium(Total)	12.4	mg/Kg	1
		Lead	86.9	mg/Kg	4
		Nickel	15	mg/Kg	1
	8-10'	Cadmium	1.1B	mg/Kg	12
		Chromium(Total)	230	mg/Kg	23
		Cyanide	0.22B	mg/Kg	1
		Lead	54.5	mg/Kg	3
		Mercury	0.23J	mg/Kg	2
Secondary	0-2'	Benzo(a)anthracene	3000J	ug/Kg	3
		Benzo(a)pyrene	2700J	ug/Kg	8
		Chrysene	2900J	ug/Kg	1
	2-4'	Benzo(a)anthracene	1300J	ug/Kg	1
		Benzo(a)pyrene	1200J	ug/Kg	4
	8-10'	Benzo(a)pyrene	450J	ug/Kg	1
		Dibenz(a,h)anthracene	91J	ug/Kg	1

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	24.5	mg/Kg	36
		Arsenic	9.4	mg/Kg	1
		Cadmium	1.1B	mg/Kg	12
		Chromium(Hex)	6	mg/Kg	NA
		Chromium(Total)	8800	mg/Kg	880
		Cyanide	0.25B	mg/Kg	2
		Lead	56.4	mg/Kg	2
		Nickel	32.8	mg/Kg	3
	2-4'	Cadmium	0.44B	mg/Kg	5
		Chromium(Total)	26.2	mg/Kg	3
		Nickel	25.6	mg/Kg	2
	4-6'	Antimony	8.6B	mg/Kg	14
		Cadmium	0.57B	mg/Kg	6
		Chromium(Hex)	86	mg/Kg	NA
		Chromium(Total)	3250	mg/Kg	325
		Cyanide	0.72	mg/Kg	4
		Lead	26.6	mg/Kg	1
		Nickel	23.3	mg/Kg	2
	8-10'	Cadmium	0.25B	mg/Kg	3
		Chromium(Total)	156	mg/Kg	16

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.54B	mg/Kg	6
		Chromium(Total)	29.7	mg/Kg	3
		Nickel	25.7	mg/Kg	2
	2-4'	Cadmium	0.23B	mg/Kg	2
	8-10'	Cadmium	0.24B	mg/Kg	3

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	11.5B	mg/Kg	17
		Cadmium	3.8	mg/Kg	42
		Chromium(Total)	2750	mg/Kg	275
		Cyanide	0.85	mg/Kg	6
		Lead	99.6	mg/Kg	4
		Mercury	0.43J	mg/Kg	4
		Nickel	25.6	mg/Kg	2
	2-4'	Cadmium	0.98B	mg/Kg	10
		Chromium(Total)	59.3	mg/Kg	6
		Cyanide	0.51B	mg/Kg	3
		Mercury	0.13J	mg/Kg	1
		Nickel	20.8	mg/Kg	2
	8-10'	Antimony	0.7B	mg/Kg	1
		Cadmium	0.48B	mg/Kg	5
		Chromium(Total)	160	mg/Kg	16
		Mercury	0.12J	mg/Kg	1

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	17.2J	mg/Kg	25
		Arsenic	41	mg/Kg	5
		Cadmium	3	mg/Kg	33
		Chromium(Hex)	36J	mg/Kg	NA
		Chromium(Total)	6110	mg/Kg	611
		Cyanide	0.99	mg/Kg	7
		Lead	161	mg/Kg	7
		Mercury	0.46	mg/Kg	5
		Nickel	16.5	mg/Kg	1
	2-4'	Antimony	3.3BJ	mg/Kg	5
		Arsenic	25	mg/Kg	3
		Cadmium	0.56B	mg/Kg	6
		Chromium(Hex)	13J	mg/Kg	NA
		Chromium(Total)	1350	mg/Kg	135
		Cyanide	0.34B	mg/Kg	2
		Lead	45	mg/Kg	2
		Mercury	0.23	mg/Kg	2
	8-10'	Antimony	7.9BJ	mg/Kg	13
		Cadmium	0.61B	mg/Kg	6
		Chromium(Total)	3020	mg/Kg	302
		Cyanide	0.43B	mg/Kg	2
		Lead	29.6	mg/Kg	1
		Mercury	0.39	mg/Kg	4

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	84.8J	mg/Kg	123
		Arsenic	36.5	mg/Kg	5
		Cadmium	2.3	mg/Kg	26
		Chromium(Total)	30300	mg/Kg	3030
		Cyanide	3.1	mg/Kg	21
		Lead	125	mg/Kg	5
		Mercury	0.24J	mg/Kg	2
		Nickel	43.1	mg/Kg	3
	2-4'	Antimony	225J	mg/Kg	363
		Arsenic	32.5J	mg/Kg	4
		Cadmium	2.2J	mg/Kg	23
		Chromium(Total)	74600J	mg/Kg	7460
		Cyanide	6.8J	mg/Kg	34
		Lead	210J	mg/Kg	10
		Mercury	0.46J	mg/Kg	5
		Nickel	30.2J	mg/Kg	2
	8-10'	Antimony	45.4J	mg/Kg	73
		Arsenic	32	mg/Kg	4
		Cadmium	1.1B	mg/Kg	12
		Chromium(Total)	16900	mg/Kg	1690
		Chromium(Hex)	31J	mg/Kg	NA
		Cyanide	3.4	mg/Kg	17
		Lead	70.1	mg/Kg	3
		Mercury	0.3	mg/Kg	3
		Nickel	38.4	mg/Kg	3
Secondary	0-2'	Dibenz(a,h)anthracene	79J	ug/Kg	1

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	1.6BJ	mg/Kg	2
		Cadmium	0.6B	mg/Kg	7
		Chromium(Total)	492	mg/Kg	49
		Cyanide	0.62	mg/Kg	4
		Lead	202J	mg/Kg	9
		Mercury	0.18	mg/Kg	2
	2-4'	Antimony	1.6BJ	mg/Kg	3
		Arsenic	15.9	mg/Kg	2
		Cadmium	0.4B	mg/Kg	4
		Chromium(Hex)	5J	mg/Kg	NA
		Chromium(Total)	565	mg/Kg	57
		Cyanide	0.93	mg/Kg	5
		Lead	31.8	mg/Kg	1
	4-6'	Antimony	11BJ	mg/Kg	18
		Arsenic	15.9	mg/Kg	2
		Cadmium	0.55B	mg/Kg	6
		Chromium(Hex)	7J	mg/Kg	NA
		Chromium(Total)	4100	mg/Kg	410
		Cyanide	4.2	mg/Kg	21
		Lead	56	mg/Kg	3
		Mercury	0.18J	mg/Kg	2
	8-10'	Cadmium	0.28B	mg/Kg	3
		Chromium(Total)	36.2	mg/Kg	4
Secondary	2-4'	Benzo(a)anthracene	3800J	ug/Kg	3
		Benzo(a)pyrene	3400J	ug/Kg	11
		Chrysene	4200J	ug/Kg	2
		Dibenz(a,h)anthracene	610J	ug/Kg	8
	4-6'	Benzo(a)pyrene	620J	ug/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	59.4	mg/Kg	86
		Arsenic	10.2	mg/Kg	1
		Cadmium	3.1	mg/Kg	34
		Chromium(Total)	21900	mg/Kg	2190
		Cyanide	0.47B	mg/Kg	3
		Lead	129	mg/Kg	5
		Mercury	0.8	mg/Kg	8
		Nickel	13.9B	mg/Kg	1
	2-4'	Antimony	3.3BJ	mg/Kg	5
		Cadmium	0.52B	mg/Kg	5
		Chromium(Total)	1020	mg/Kg	102
	8-10'	Antimony	0.66BJ	mg/Kg	1
		Arsenic	8	mg/Kg	1
		Cadmium	0.32B	mg/Kg	3
		Chromium(Total)	219	mg/Kg	22
	10-12'	Cadmium	0.41B	mg/Kg	4
		Chromium(Total)	18.3	mg/Kg	2
Secondary	0-2'	Benzo(a)anthracene	15000J	ug/kg	13
		Benzo(a)pyrene	14000J	ug/kg	44
		Chrysene	14000J	ug/kg	7
		Dibenz(a,h)anthracen	2300J	ug/kg	32

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	260J	mg/Kg	377
		Arsenic	18.5J	mg/Kg	2
		Cadmium	2.1BJ	mg/Kg	23
		Chromium(Total)	75800J	mg/Kg	7580
		Cyanide	0.98BJ	mg/Kg	7
		Lead	300J	mg/Kg	13
		Mercury	0.41J	mg/Kg	4
	2-4'	Antimony	0.95BJ	mg/Kg	2
		Cadmium	0.25B	mg/Kg	3
		Chromium(Hex)	4	mg/kg	NA
		Chromium(Total)	209	mg/Kg	21
	8-10'	Arsenic	9.7	mg/Kg	1
		Cadmium	0.57B	mg/Kg	6
		Chromium(Total)	68.1	mg/Kg	7

Surface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/kg	NA	0.69
	Arsenic	mg/kg	7.50	12.90
	Cadmium	mg/kg	1.00	0.09
	Chromium(Total)	mg/kg	10.00	23.10
	Chromium (Hex)	mg/kg	NA	NA
	Cyanide	mg/kg	NA	0.15
	Lead	mg/kg	NA	23.50
	Mercury	mg/kg	0.10	0.14
	Nickel	mg/kg	13.00	35.40
Secondary	Benzo(a)anthracene	ug/kg	1174.00	NA
	Benzo(a)pyrene	ug/kg	320.00	NA
	Chrysene	ug/kg	2096.00	NA
	Dibenz(a,h)anthracene	ug/kg	73.00	NA

Subsurface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/kg	NA	0.62
	Arsenic	mg/kg	7.50	17.45
	Cadmium	mg/kg	1.00	0.10
	Chromium(Total)	mg/kg	10.00	30.70
	Chromium(Hex)	mg/kg	NA	NA
	Cyanide	mg/kg	NA	0.20
	Lead	mg/kg	NA	21.25
	Mercury	mg/kg	0.10	0.24
	Nickel	mg/kg	13.00	42.30
Secondary	Benzo(a)anthracene	ug/kg	1174.00	NA
	Benzo(a)pyrene	ug/kg	320.00	NA
	Chrysene	ug/kg	2096.00	NA
	Dibenz(a,h)anthracene	ug/kg	73.00	NA

40 0 40 80 120 Feet

Figure Created January, 2003

CDM

N W E S

- Onsite Soil Boring Location
- Fence Line
- Unadilla River
- Onsite Wetland

*aerial photograph dated April 26, 2001

Notes: NA = Not Available
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
No soil screening criteria is available for hexavalent chromium
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria

Figure 4-3a
Summary of Onsite Soil Boring Results
Primary and Secondary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY

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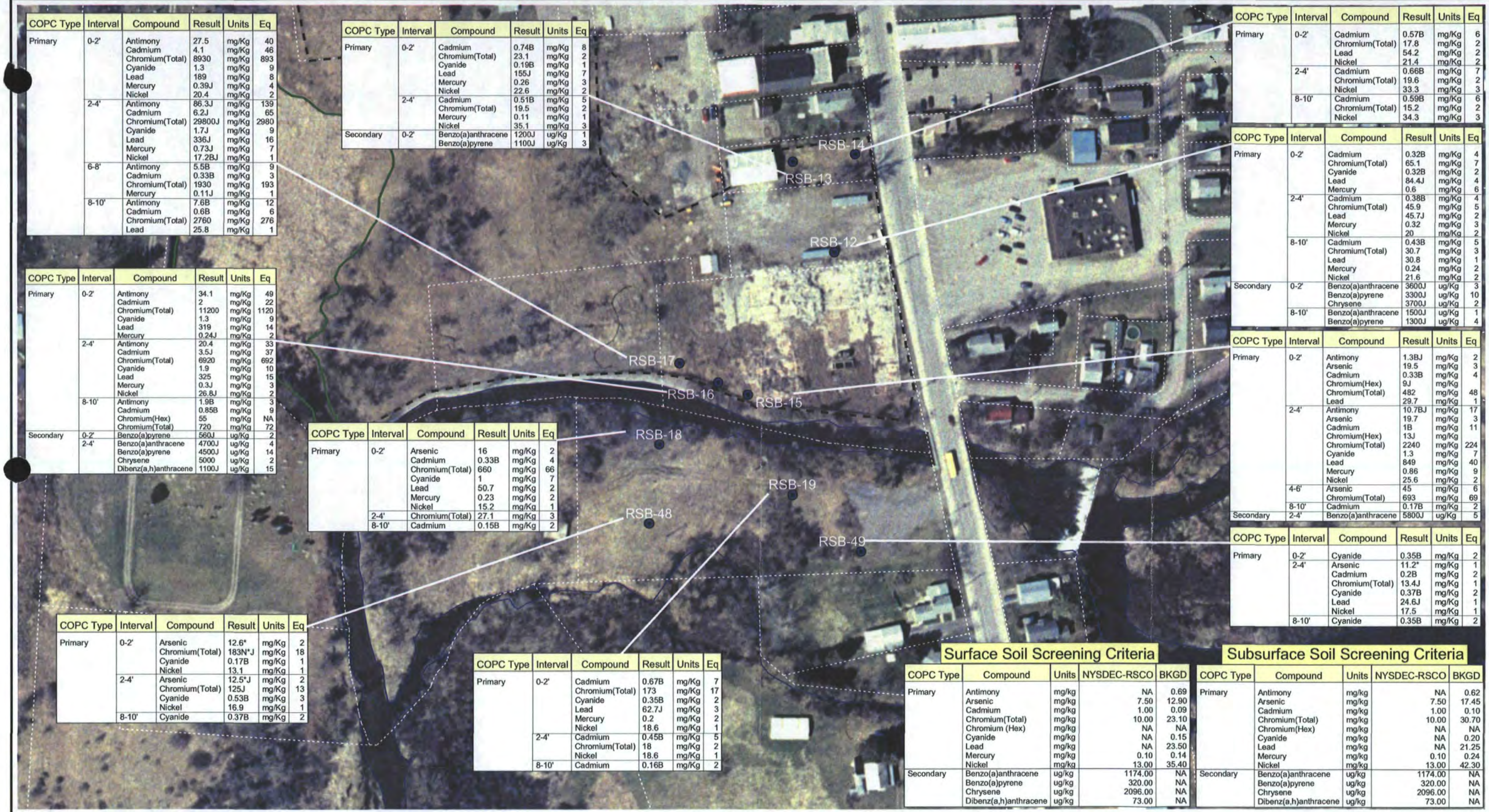


COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	27.5	mg/Kg	40
		Cadmium	4.1	mg/Kg	46
		Chromium(Total)	8930	mg/Kg	893
		Cyanide	1.3	mg/Kg	9
		Lead	189	mg/Kg	8
		Mercury	0.39J	mg/Kg	4
		Nickel	20.4	mg/Kg	2
	2-4'	Antimony	86.3J	mg/Kg	139
		Cadmium	6.2J	mg/Kg	65
		Chromium(Total)	29800J	mg/Kg	2980
		Cyanide	1.7J	mg/Kg	9
		Lead	336J	mg/Kg	16
		Mercury	0.73J	mg/Kg	7
		Nickel	17.2BJ	mg/Kg	1
	6-8'	Antimony	5.5B	mg/Kg	9
		Cadmium	0.33B	mg/Kg	3
		Chromium(Total)	1930	mg/Kg	193
		Mercury	0.11J	mg/Kg	1
	8-10'	Antimony	7.6B	mg/Kg	12
		Cadmium	0.6B	mg/Kg	6
		Chromium(Total)	2760	mg/Kg	276
		Lead	25.8	mg/Kg	1

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.74B	mg/Kg	8
		Chromium(Total)	23.1	mg/Kg	2
		Cyanide	0.19B	mg/Kg	1
		Lead	155J	mg/Kg	7
		Mercury	0.26	mg/Kg	3
		Nickel	22.6	mg/Kg	2
	2-4'	Cadmium	0.51B	mg/Kg	5
		Chromium(Total)	19.5	mg/Kg	2
		Mercury	0.11	mg/Kg	1
		Nickel	35.1	mg/Kg	3
Secondary	0-2'	Benzo(a)anthracene	1200J	ug/Kg	1
		Benzo(a)pyrene	1100J	ug/Kg	3

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.57B	mg/Kg	6
		Chromium(Total)	17.8	mg/Kg	2
		Lead	54.2	mg/Kg	2
		Nickel	21.4	mg/Kg	2
	2-4'	Cadmium	0.66B	mg/Kg	7
		Chromium(Total)	19.6	mg/Kg	2
		Nickel	33.3	mg/Kg	3
	8-10'	Cadmium	0.59B	mg/Kg	6
		Chromium(Total)	15.2	mg/Kg	2
		Nickel	34.3	mg/Kg	3

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.32B	mg/Kg	4
		Chromium(Total)	65.1	mg/Kg	7
		Cyanide	0.32B	mg/Kg	2
		Lead	84.4J	mg/Kg	4
		Mercury	0.6	mg/Kg	6
	2-4'	Cadmium	0.38B	mg/Kg	4
		Chromium(Total)	45.9	mg/Kg	5
		Lead	45.7J	mg/Kg	2
		Mercury	0.32	mg/Kg	3
		Nickel	20	mg/Kg	2
	8-10'	Cadmium	0.43B	mg/Kg	5
		Chromium(Total)	30.7	mg/Kg	3
		Lead	30.8	mg/Kg	1
		Mercury	0.24	mg/Kg	2
		Nickel	21.6	mg/Kg	2
Secondary	0-2'	Benzo(a)anthracene	3600J	ug/Kg	3
		Benzo(a)pyrene	3300J	ug/Kg	10
		Chrysene	3700J	ug/Kg	2
	8-10'	Benzo(a)anthracene	1500J	ug/Kg	1
		Benzo(a)pyrene	1300J	ug/Kg	4

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	34.1	mg/Kg	49
		Cadmium	2	mg/Kg	22
		Chromium(Total)	11200	mg/Kg	1120
		Cyanide	1.3	mg/Kg	9
		Lead	319	mg/Kg	14
		Mercury	0.24J	mg/Kg	2
	2-4'	Antimony	20.4	mg/Kg	33
		Cadmium	3.5J	mg/Kg	37
		Chromium(Total)	6920	mg/Kg	692
		Cyanide	1.9	mg/Kg	10
		Lead	325	mg/Kg	15
		Mercury	0.3J	mg/Kg	3
		Nickel	26.8J	mg/Kg	2
	8-10'	Antimony	1.9B	mg/Kg	3
		Cadmium	0.85B	mg/Kg	9
		Chromium(Hex)	55	mg/Kg	NA
		Chromium(Total)	720	mg/Kg	72
Secondary	0-2'	Benzo(a)pyrene	560J	ug/Kg	2
	2-4'	Benzo(a)anthracene	4700J	ug/Kg	4
		Benzo(a)pyrene	4500J	ug/Kg	14
		Chrysene	5000	ug/Kg	2
		Dibenz(a,h)anthracene	1100J	ug/Kg	15

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	1.3BJ	mg/Kg	2
		Arsenic	19.5	mg/Kg	3
		Cadmium	0.33B	mg/Kg	4
		Chromium(Hex)	9J	mg/Kg	
		Chromium(Total)	482	mg/Kg	48
		Lead	29.7	mg/Kg	1
	2-4'	Antimony	10.7BJ	mg/Kg	17
		Arsenic	19.7	mg/Kg	3
		Cadmium	1B	mg/Kg	11
		Chromium(Hex)	13J	mg/Kg	
		Chromium(Total)	2240	mg/Kg	224
		Cyanide	1.3	mg/Kg	7
		Lead	849	mg/Kg	40
		Mercury	0.86	mg/Kg	9
		Nickel	25.6	mg/Kg	2
	4-6'	Arsenic	45	mg/Kg	6
		Chromium(Total)	693	mg/Kg	69
	8-10'	Cadmium	0.17B	mg/Kg	2
Secondary	2-4'	Benzo(a)anthracene	5800J	ug/Kg	5

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Arsenic	16	mg/Kg	2
		Cadmium	0.33B	mg/Kg	4
		Chromium(Total)	660	mg/Kg	66
		Cyanide	1	mg/Kg	7
		Lead	50.7	mg/Kg	2
		Mercury	0.23	mg/Kg	2
		Nickel	15.2	mg/Kg	1
	2-4'	Chromium(Total)	27.1	mg/Kg	3
	8-10'	Cadmium	0.15B	mg/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cyanide	0.35B	mg/Kg	2
	2-4'	Arsenic	11.2*	mg/Kg	1
		Cadmium	0.2B	mg/Kg	2
		Chromium(Total)	13.4J	mg/Kg	1
		Cyanide	0.37B	mg/Kg	2
		Lead	24.6J	mg/Kg	1
		Nickel	17.5	mg/Kg	1
	8-10'	Cyanide	0.35B	mg/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Arsenic	12.6*	mg/Kg	2
		Chromium(Total)	183N*J	mg/Kg	18
		Cyanide	0.17B	mg/Kg	1
		Nickel	13.1	mg/Kg	1
	2-4'	Arsenic	12.5*J	mg/Kg	2
		Chromium(Total)	125J	mg/Kg	13
		Cyanide	0.53B	mg/Kg	3
		Nickel	16.9	mg/Kg	1
	8-10'	Cyanide	0.37B	mg/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.67B	mg/Kg	7
		Chromium(Total)	173	mg/Kg	17
		Cyanide	0.35B	mg/Kg	2
		Lead	62.7J	mg/Kg	3
		Mercury	0.2	mg/Kg	2
		Nickel	18.6	mg/Kg	1
	2-4'	Cadmium	0.45B	mg/Kg	5
		Chromium(Total)	18	mg/Kg	2
		Nickel	18.6	mg/Kg	1
	8-10'	Cadmium	0.16B	mg/Kg	2

Surface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/kg	NA	0.69
	Arsenic	mg/kg	7.50	12.90
	Cadmium	mg/kg	1.00	0.09
	Chromium(Total)	mg/kg	10.00	23.10
	Chromium (Hex)	mg/kg	NA	NA
	Cyanide	mg/kg	NA	0.15
	Lead	mg/kg	NA	23.50
	Mercury	mg/kg	0.10	0.14
	Nickel	mg/kg	13.00	35.40
Secondary	Benzo(a)anthracene	ug/kg	1174.00	NA
	Benzo(a)pyrene	ug/kg	320.00	NA
	Chrysene	ug/kg	2096.00	NA
	Dibenz(a,h)anthracene	ug/kg	73.00	NA

Subsurface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/kg	NA	0.62
	Arsenic	mg/kg	7.50	17.45
	Cadmium	mg/kg	1.00	0.10
	Chromium(Total)	mg/kg	10.00	30.70
	Chromium(Hex)	mg/kg	NA	NA
	Cyanide	mg/kg	NA	0.20
	Lead	mg/kg	NA	21.25
	Mercury	mg/kg	0.10	0.24
	Nickel	mg/kg	13.00	42.30
Secondary	Benzo(a)anthracene	ug/kg	1174.00	NA
	Benzo(a)pyrene	ug/kg	320.00	NA
	Chrysene	ug/kg	2096.00	NA
	Dibenz(a,h)anthracene	ug/kg	73.00	NA

50 0 50 100 150 Feet

N W E S

Figure Created January, 2003

CDM

Onsite Soil Boring Location

Fence Line

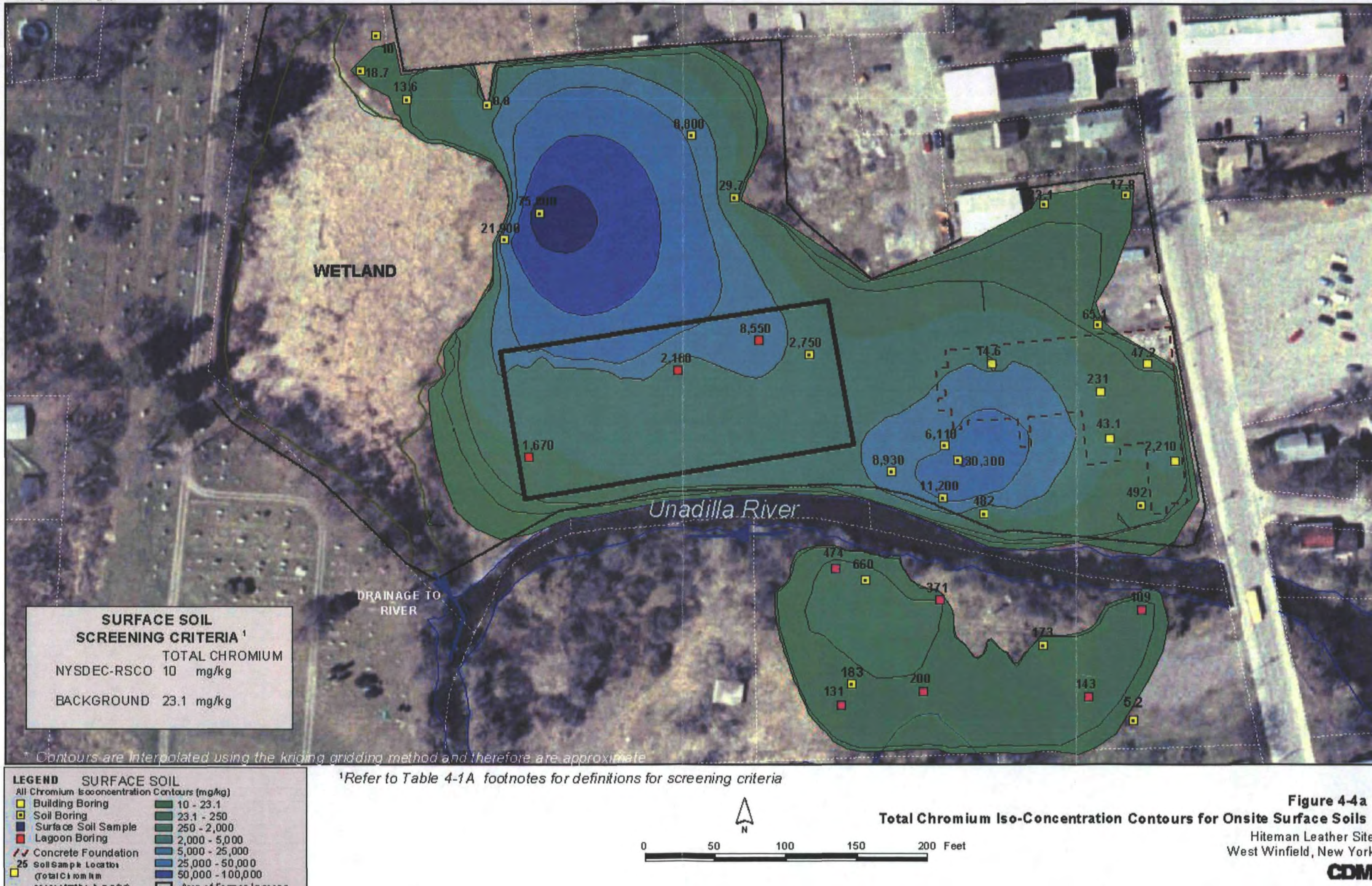
Unadilla River

Onsite Wetland

*Aerial photograph dated April 26, 2001

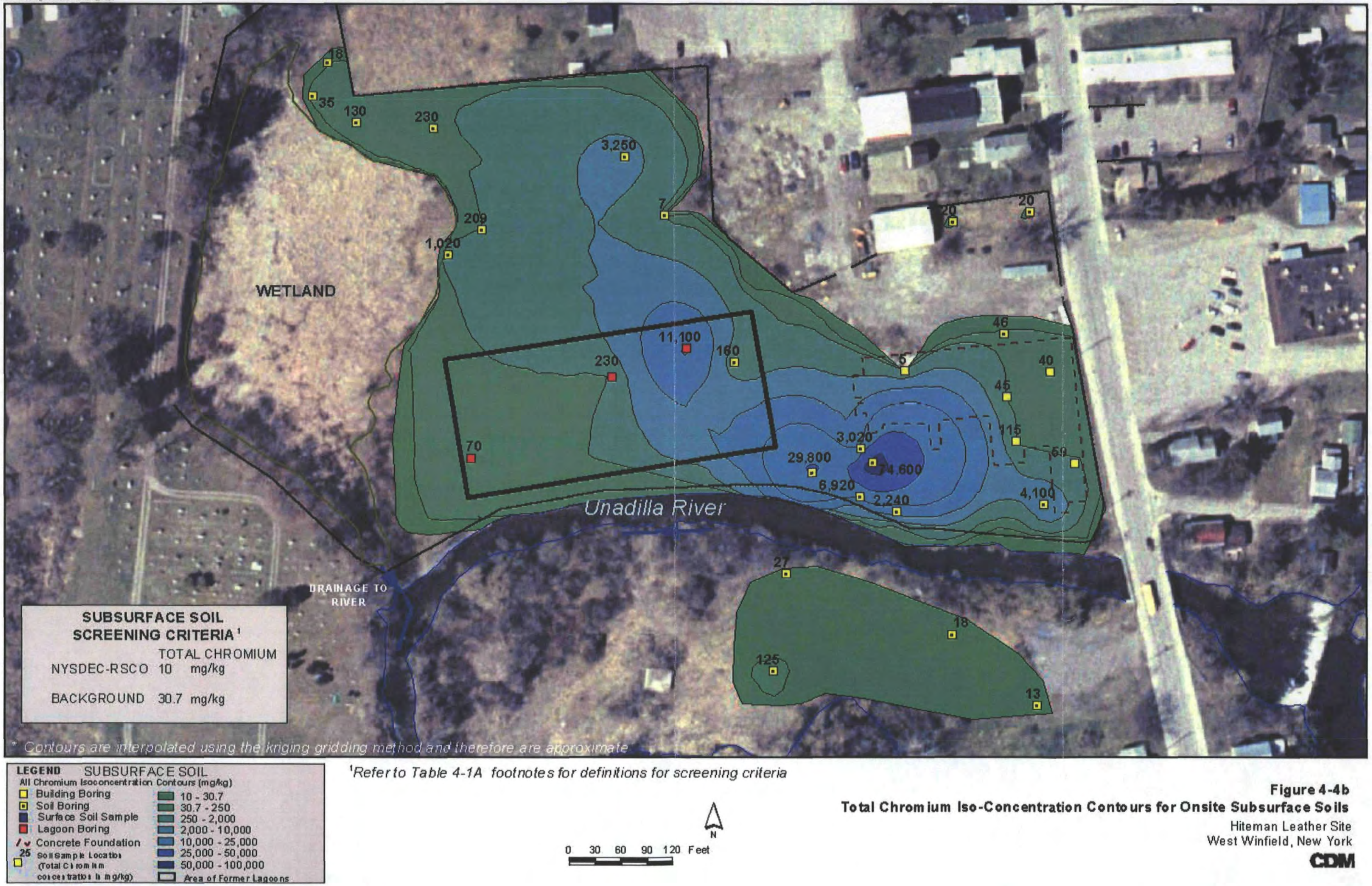
Notes: NA = Not Available
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
No soil screening criteria is available for hexavalent chromium
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria

Figure 4-3b
Summary of Onsite Soil Boring Results
Primary and Secondary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY



[1]Refer to Table 4-1A footnotes for definitions for screening criteria

Figure 4-4a
Total Chromium Iso-Concentration Contours for Onsite Surface Soils
Hiteman Leather Site
West Winfield, New York
CDM



[1]Refer to Table 4-1A footnotes for definitions for screening criteria

Figure 4-4b
Total Chromium Iso-Concentration Contours for Onsite Subsurface Soils
Hiteman Leather Site
West Winfield, New York
CDM

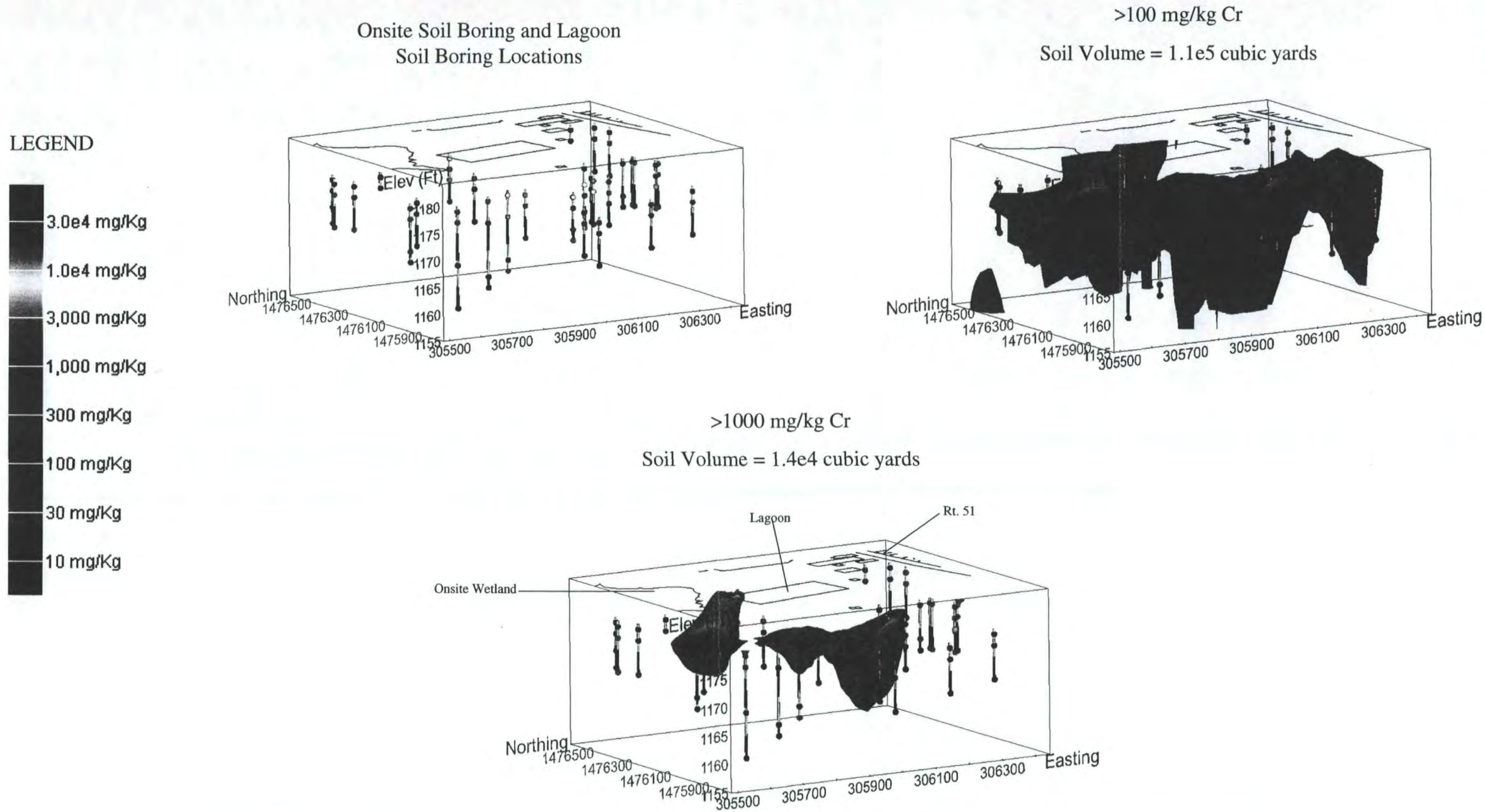


Figure Created January, 2003

CDM

Note: Vertical Exaggeration = 15

Distribution of contamination is based on interpolation of data.

Figure 4-5a

Three Dimensional Distribution of Total Chromium in Onsite Subsurface Soil

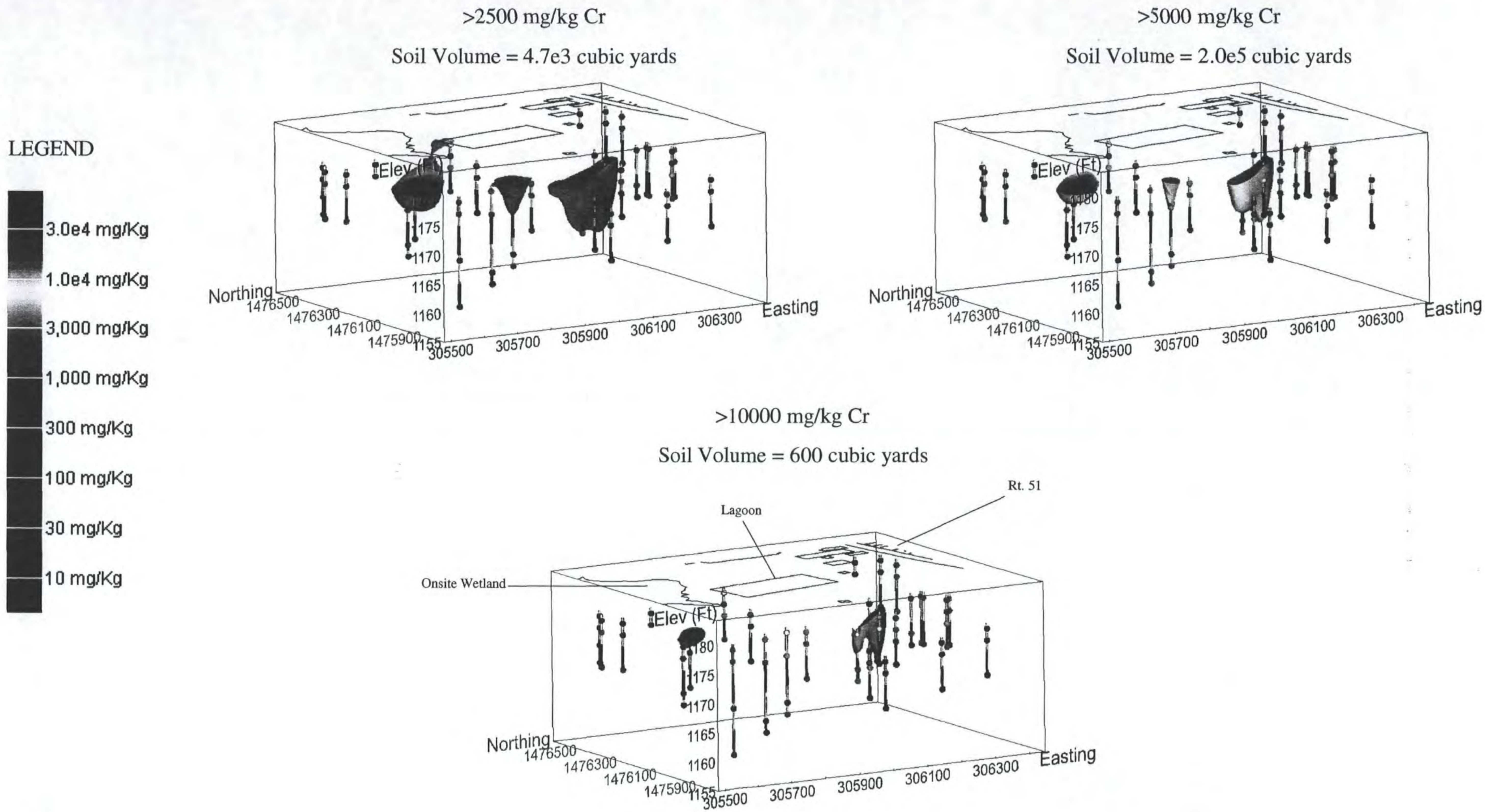


Figure Created January, 2003

CDM

Note: Vertical Exaggeration = 15

Distribution of contamination is based on interpolation of data.

Figure 4-5b

Three Dimensional Distribution of Total Chromium in Onsite Subsurface Soil

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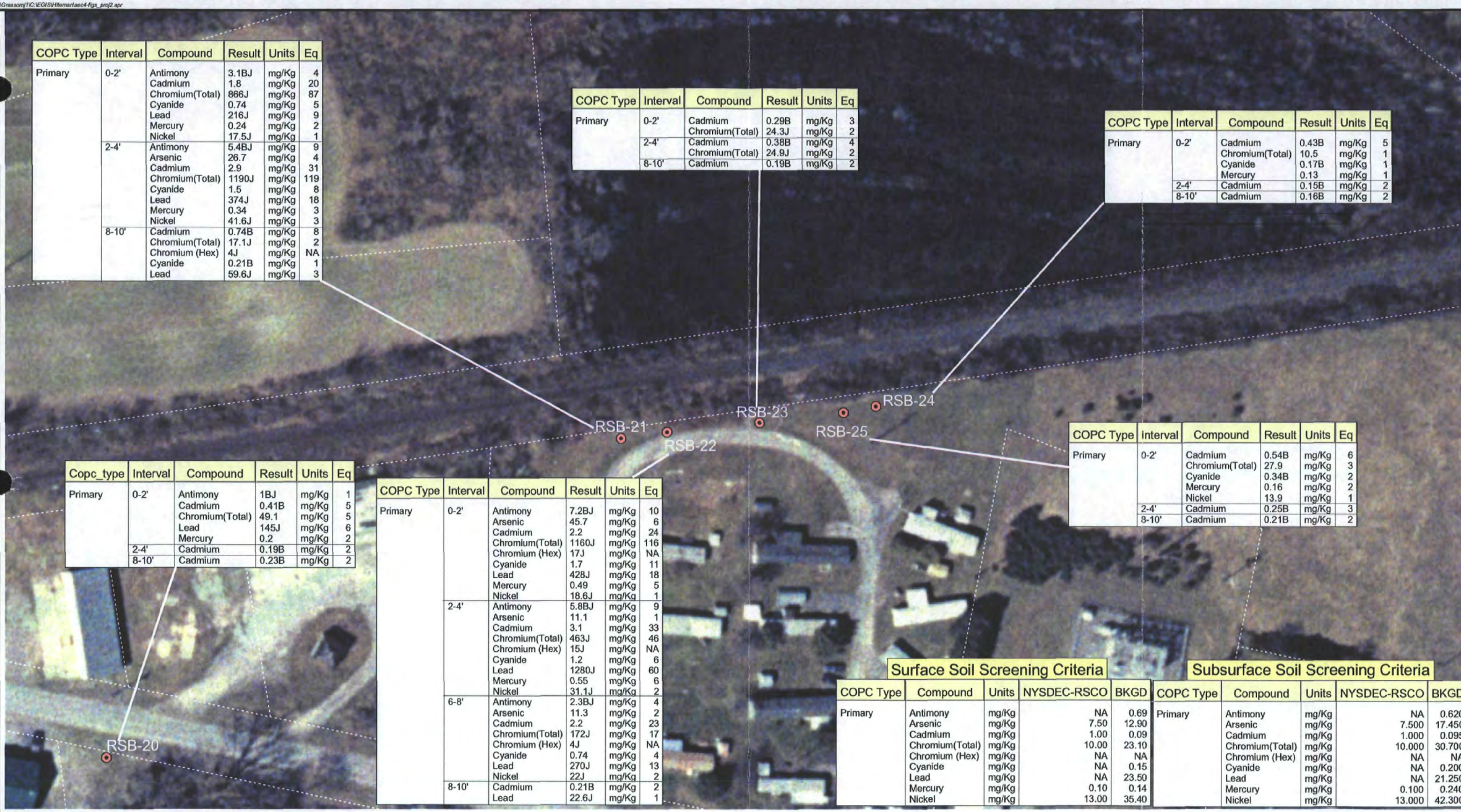

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	3.1BJ	mg/Kg	4
		Cadmium	1.8	mg/Kg	20
		Chromium(Total)	866J	mg/Kg	87
		Cyanide	0.74	mg/Kg	5
		Lead	216J	mg/Kg	9
		Mercury	0.24	mg/Kg	2
		Nickel	17.5J	mg/Kg	1
	2-4'	Antimony	5.4BJ	mg/Kg	9
		Arsenic	26.7	mg/Kg	4
		Cadmium	2.9	mg/Kg	31
		Chromium(Total)	1190J	mg/Kg	119
		Cyanide	1.5	mg/Kg	8
		Lead	374J	mg/Kg	18
		Mercury	0.34	mg/Kg	3
		Nickel	41.6J	mg/Kg	3
	8-10'	Cadmium	0.74B	mg/Kg	8
		Chromium(Total)	17.1J	mg/Kg	2
		Chromium (Hex)	4J	mg/Kg	NA
		Cyanide	0.21B	mg/Kg	1
		Lead	59.6J	mg/Kg	3

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.29B	mg/Kg	3
		Chromium(Total)	24.3J	mg/Kg	2
	2-4'	Cadmium	0.38B	mg/Kg	4
		Chromium(Total)	24.9J	mg/Kg	2
	8-10'	Cadmium	0.19B	mg/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.43B	mg/Kg	5
		Chromium(Total)	10.5	mg/Kg	1
		Cyanide	0.17B	mg/Kg	1
		Mercury	0.13	mg/Kg	1
	2-4'	Cadmium	0.15B	mg/Kg	2
	8-10'	Cadmium	0.16B	mg/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.54B	mg/Kg	6
		Chromium(Total)	27.9	mg/Kg	3
		Cyanide	0.34B	mg/Kg	2
		Mercury	0.16	mg/Kg	2
		Nickel	13.9	mg/Kg	1
	2-4'	Cadmium	0.25B	mg/Kg	3
	8-10'	Cadmium	0.21B	mg/Kg	2

Copc_type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	1BJ	mg/Kg	1
		Cadmium	0.41B	mg/Kg	5
		Chromium(Total)	49.1	mg/Kg	5
		Lead	145J	mg/Kg	6
		Mercury	0.2	mg/Kg	2
	2-4'	Cadmium	0.19B	mg/Kg	2
	8-10'	Cadmium	0.23B	mg/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	7.2BJ	mg/Kg	10
		Arsenic	45.7	mg/Kg	6
		Cadmium	2.2	mg/Kg	24
		Chromium(Total)	1160J	mg/Kg	116
		Chromium (Hex)	17J	mg/Kg	NA
		Cyanide	1.7	mg/Kg	11
		Lead	428J	mg/Kg	18
		Mercury	0.49	mg/Kg	5
		Nickel	18.6J	mg/Kg	1
	2-4'	Antimony	5.8BJ	mg/Kg	9
		Arsenic	11.1	mg/Kg	1
		Cadmium	3.1	mg/Kg	33
		Chromium(Total)	463J	mg/Kg	46
		Chromium (Hex)	15J	mg/Kg	NA
		Cyanide	1.2	mg/Kg	6
		Lead	1280J	mg/Kg	60
		Mercury	0.55	mg/Kg	6
		Nickel	31.1J	mg/Kg	2
	6-8'	Antimony	2.3BJ	mg/Kg	4
		Arsenic	11.3	mg/Kg	2
		Cadmium	2.2	mg/Kg	23
		Chromium(Total)	172J	mg/Kg	17
		Chromium (Hex)	4J	mg/Kg	NA
		Cyanide	0.74	mg/Kg	4
		Lead	270J	mg/Kg	13
		Nickel	22J	mg/Kg	2
	8-10'	Cadmium	0.21B	mg/Kg	2
		Lead	22.6J	mg/Kg	1

Surface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/Kg	NA	0.69
	Arsenic	mg/Kg	7.50	12.90
	Cadmium	mg/Kg	1.00	0.09
	Chromium(Total)	mg/Kg	10.00	23.10
	Chromium (Hex)	mg/Kg	NA	NA
	Cyanide	mg/Kg	NA	0.15
	Lead	mg/Kg	NA	23.50
	Mercury	mg/Kg	0.10	0.14
	Nickel	mg/Kg	13.00	35.40

Subsurface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/Kg	NA	0.620
	Arsenic	mg/Kg	7.500	17.450
	Cadmium	mg/Kg	1.000	0.095
	Chromium(Total)	mg/Kg	10.000	30.700
	Chromium (Hex)	mg/Kg	NA	NA
	Cyanide	mg/Kg	NA	0.200
	Lead	mg/Kg	NA	21.250
	Mercury	mg/Kg	0.100	0.240
	Nickel	mg/Kg	13.000	42.300

40 0 40 80 120 Feet

N W E S

Figure Created January, 2003

CDM

Off Site Soil Boring Location

* Aerial photograph dated April 26, 2001

Notes: NA = Not Available
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
No soil screening criteria is available for hexavalent chromium
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria

Figure 4-6a
Summary of Off Site Soil Boring Results
Primary COPCs Above Screeing Criteria
Hiteman Leather Site
West Winfield, NY

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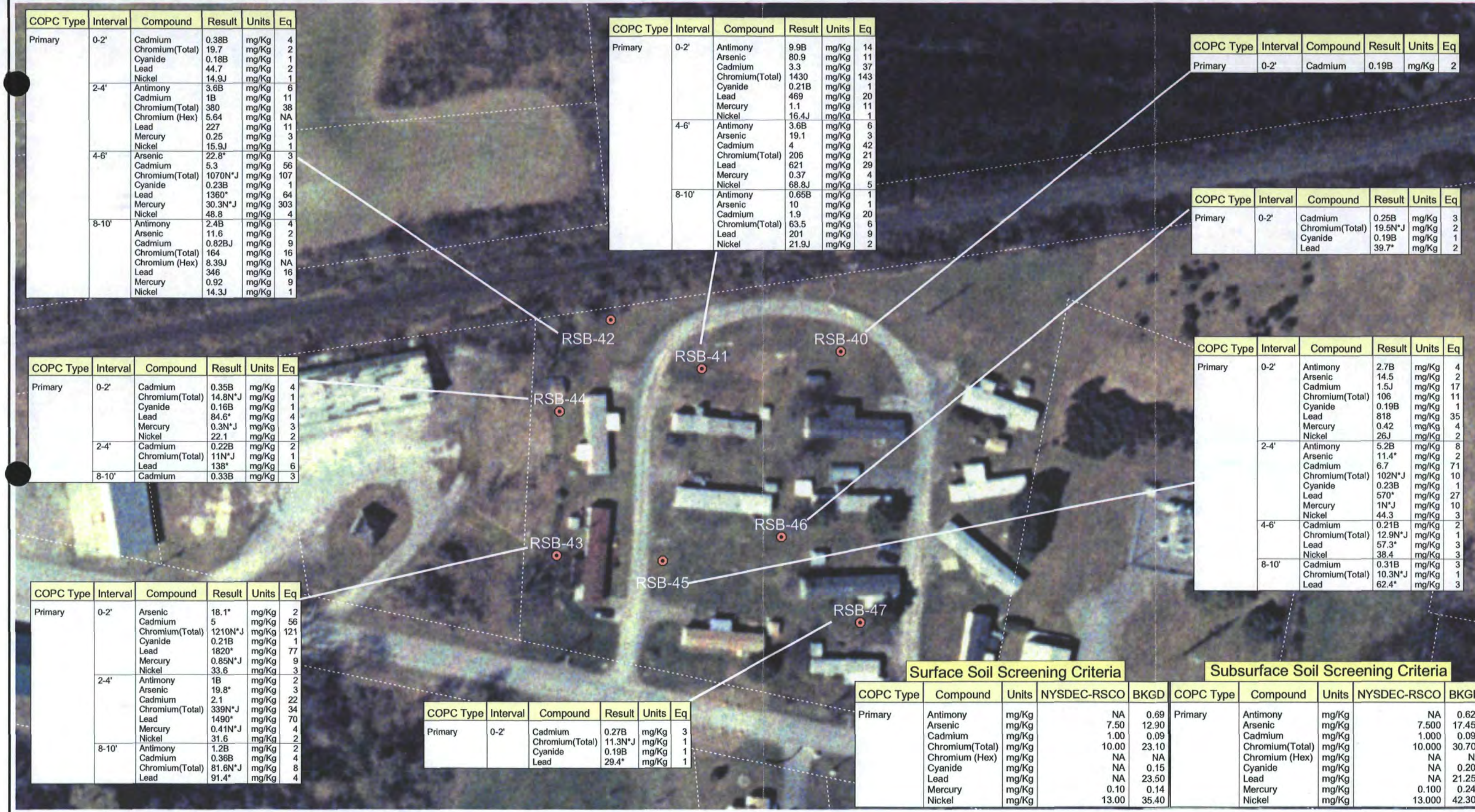


COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.38B	mg/Kg	4
		Chromium(Total)	19.7	mg/Kg	2
		Cyanide	0.18B	mg/Kg	1
		Lead	44.7	mg/Kg	2
		Nickel	14.9J	mg/Kg	1
	2-4'	Antimony	3.6B	mg/Kg	6
		Cadmium	1B	mg/Kg	11
		Chromium(Total)	380	mg/Kg	38
		Chromium (Hex)	5.64	mg/Kg	NA
		Lead	227	mg/Kg	11
		Mercury	0.25	mg/Kg	3
		Nickel	15.9J	mg/Kg	1
	4-6'	Arsenic	22.8*	mg/Kg	3
		Cadmium	5.3	mg/Kg	56
		Chromium(Total)	1070N*J	mg/Kg	107
		Cyanide	0.23B	mg/Kg	1
		Lead	1360*	mg/Kg	64
		Mercury	30.3N*J	mg/Kg	303
		Nickel	48.8	mg/Kg	4
	8-10'	Antimony	2.4B	mg/Kg	4
		Arsenic	11.6	mg/Kg	2
		Cadmium	0.82BJ	mg/Kg	9
		Chromium(Total)	164	mg/Kg	16
		Chromium (Hex)	8.39J	mg/Kg	NA
		Lead	346	mg/Kg	16
		Mercury	0.92	mg/Kg	9
		Nickel	14.3J	mg/Kg	1

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	9.9B	mg/Kg	14
		Arsenic	80.9	mg/Kg	11
		Cadmium	3.3	mg/Kg	37
		Chromium(Total)	1430	mg/Kg	143
		Cyanide	0.21B	mg/Kg	1
		Lead	469	mg/Kg	20
		Mercury	1.1	mg/Kg	11
		Nickel	16.4J	mg/Kg	1
	4-6'	Antimony	3.6B	mg/Kg	6
		Arsenic	19.1	mg/Kg	3
		Cadmium	4	mg/Kg	42
		Chromium(Total)	206	mg/Kg	21
		Lead	621	mg/Kg	29
		Mercury	0.37	mg/Kg	4
		Nickel	68.8J	mg/Kg	5
	8-10'	Antimony	0.65B	mg/Kg	1
		Arsenic	10	mg/Kg	1
		Cadmium	1.9	mg/Kg	20
		Chromium(Total)	63.5	mg/Kg	6
		Lead	201	mg/Kg	9
		Nickel	21.9J	mg/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.19B	mg/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.25B	mg/Kg	3
		Chromium(Total)	19.5N*J	mg/Kg	2
		Cyanide	0.19B	mg/Kg	1
		Lead	39.7*	mg/Kg	2

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.35B	mg/Kg	4
		Chromium(Total)	14.8N*J	mg/Kg	1
		Cyanide	0.16B	mg/Kg	1
		Lead	84.6*	mg/Kg	4
		Mercury	0.3N*J	mg/Kg	3
		Nickel	22.1	mg/Kg	2
	2-4'	Cadmium	0.22B	mg/Kg	2
		Chromium(Total)	11N*J	mg/Kg	1
		Lead	138*	mg/Kg	6
	8-10'	Cadmium	0.33B	mg/Kg	3

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Antimony	2.7B	mg/Kg	4
		Arsenic	14.5	mg/Kg	2
		Cadmium	1.5J	mg/Kg	17
		Chromium(Total)	106	mg/Kg	11
		Cyanide	0.19B	mg/Kg	1
		Lead	818	mg/Kg	35
		Mercury	0.42	mg/Kg	4
		Nickel	26J	mg/Kg	2
	2-4'	Antimony	5.2B	mg/Kg	8
		Arsenic	11.4*	mg/Kg	2
		Cadmium	6.7	mg/Kg	71
		Chromium(Total)	102N*J	mg/Kg	10
		Cyanide	0.23B	mg/Kg	1
		Lead	570*	mg/Kg	27
		Mercury	1N*J	mg/Kg	10
		Nickel	44.3	mg/Kg	3
	4-6'	Cadmium	0.21B	mg/Kg	2
		Chromium(Total)	12.9N*J	mg/Kg	1
		Lead	57.3*	mg/Kg	3
		Nickel	38.4	mg/Kg	3
	8-10'	Cadmium	0.31B	mg/Kg	3
		Chromium(Total)	10.3N*J	mg/Kg	1
		Lead	62.4*	mg/Kg	3

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Arsenic	18.1*	mg/Kg	2
		Cadmium	5	mg/Kg	56
		Chromium(Total)	1210N*J	mg/Kg	121
		Cyanide	0.21B	mg/Kg	1
		Lead	1820*	mg/Kg	77
		Mercury	0.85N*J	mg/Kg	9
		Nickel	33.6	mg/Kg	3
	2-4'	Antimony	1B	mg/Kg	2
		Arsenic	19.8*	mg/Kg	3
		Cadmium	2.1	mg/Kg	22
		Chromium(Total)	339N*J	mg/Kg	34
		Lead	1490*	mg/Kg	70
		Mercury	0.41N*J	mg/Kg	4
		Nickel	31.6	mg/Kg	2
	8-10'	Antimony	1.2B	mg/Kg	2
		Cadmium	0.36B	mg/Kg	4
		Chromium(Total)	81.6N*J	mg/Kg	8
		Lead	91.4*	mg/Kg	4

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-2'	Cadmium	0.27B	mg/Kg	3
		Chromium(Total)	11.3N*J	mg/Kg	1
		Cyanide	0.19B	mg/Kg	1
		Lead	29.4*	mg/Kg	1

Surface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/Kg	NA	0.69
	Arsenic	mg/Kg	7.50	12.90
	Cadmium	mg/Kg	1.00	0.09
	Chromium(Total)	mg/Kg	10.00	23.10
	Chromium (Hex)	mg/Kg	NA	NA
	Cyanide	mg/Kg	NA	0.15
	Lead	mg/Kg	NA	23.50
	Mercury	mg/Kg	0.10	0.14
	Nickel	mg/Kg	13.00	35.40

Subsurface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/Kg	NA	0.620
	Arsenic	mg/Kg	7.500	17.450
	Cadmium	mg/Kg	1.000	0.095
	Chromium(Total)	mg/Kg	10.000	30.700
	Chromium (Hex)	mg/Kg	NA	NA
	Cyanide	mg/Kg	NA	0.200
	Lead	mg/Kg	NA	21.250
	Mercury	mg/Kg	0.100	0.240
	Nickel	mg/Kg	13.000	42.300

40 0 40 80 120 Feet

N W E S

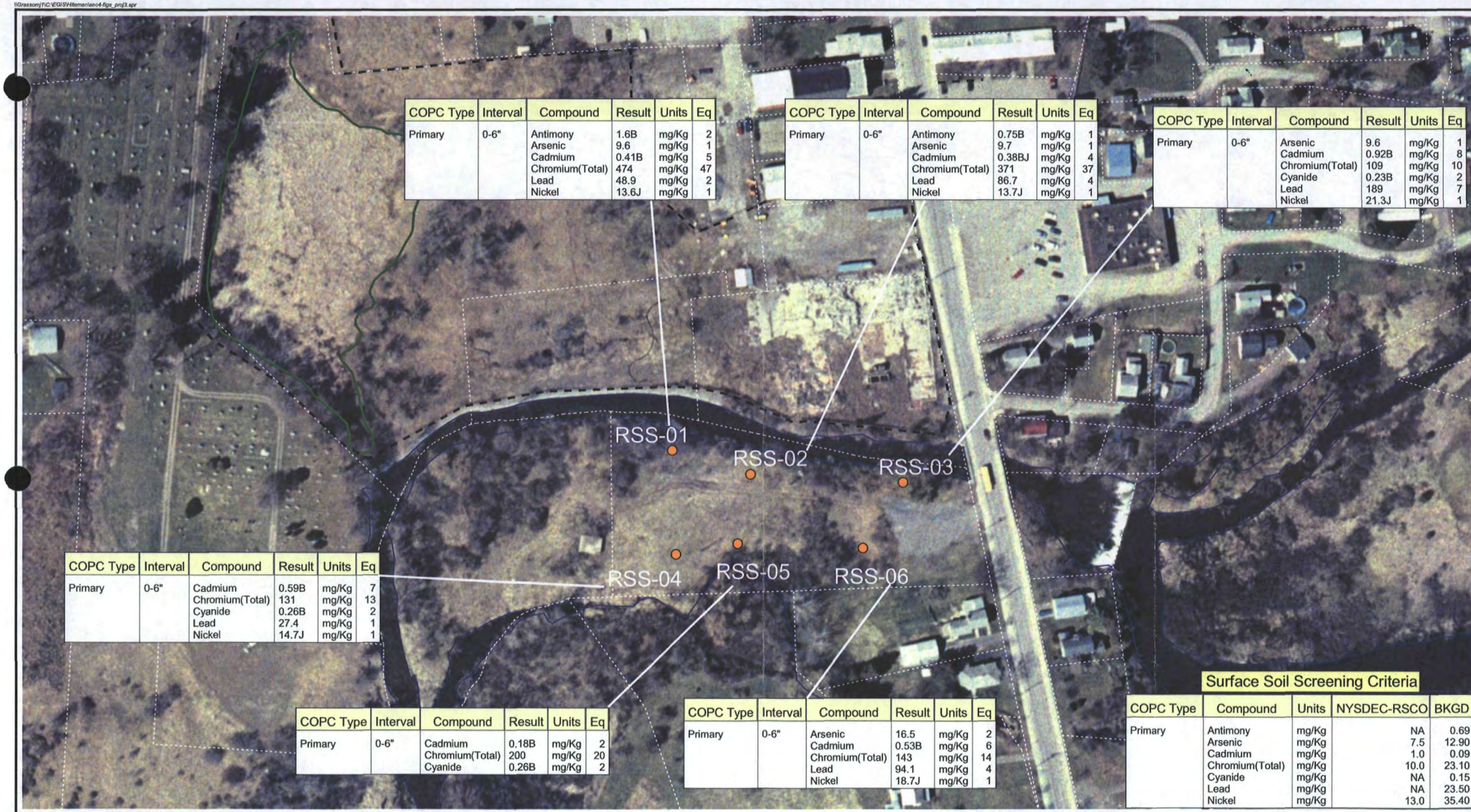
CDM

Off Site Soil Boring Location

aerial photograph dated April 26, 2001

Notes: NA = Not Available
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
No soil screening criteria is available for hexavalent chromium
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria

Figure 4-6b
Summary of Off Site Soil Boring Results
Primary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY



RSS-01

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-6"	Antimony	1.6B	mg/Kg	2
		Arsenic	9.6	mg/Kg	1
		Cadmium	0.41B	mg/Kg	5
		Chromium(Total)	474	mg/Kg	47
		Lead	48.9	mg/Kg	2
		Nickel	13.6J	mg/Kg	1

RSS-02

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-6"	Antimony	0.75B	mg/Kg	1
		Arsenic	9.7	mg/Kg	1
		Cadmium	0.38BJ	mg/Kg	4
		Chromium(Total)	371	mg/Kg	37
		Lead	86.7	mg/Kg	4
		Nickel	13.7J	mg/Kg	1

RSS-03

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-6"	Arsenic	9.6	mg/Kg	1
		Cadmium	0.92B	mg/Kg	8
		Chromium(Total)	109	mg/Kg	10
		Cyanide	0.23B	mg/Kg	2
		Lead	189	mg/Kg	7
		Nickel	21.3J	mg/Kg	1

RSS-04

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-6"	Cadmium	0.59B	mg/Kg	7
		Chromium(Total)	131	mg/Kg	13
		Cyanide	0.26B	mg/Kg	2
		Lead	27.4	mg/Kg	1
		Nickel	14.7J	mg/Kg	1

RSS-05

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-6"	Cadmium	0.18B	mg/Kg	2
		Chromium(Total)	200	mg/Kg	20
		Cyanide	0.26B	mg/Kg	2

RSS-06

COPC Type	Interval	Compound	Result	Units	Eq
Primary	0-6"	Arsenic	16.5	mg/Kg	2
		Cadmium	0.53B	mg/Kg	6
		Chromium(Total)	143	mg/Kg	14
		Lead	94.1	mg/Kg	4
		Nickel	18.7J	mg/Kg	1

Surface Soil Screening Criteria

COPC Type	Compound	Units	NYSDEC-RSCO	BKGD
Primary	Antimony	mg/Kg	NA	0.69
	Arsenic	mg/Kg	7.5	12.90
	Cadmium	mg/Kg	1.0	0.09
	Chromium(Total)	mg/Kg	10.0	23.10
	Cyanide	mg/Kg	NA	0.15
	Lead	mg/Kg	NA	23.50
	Nickel	mg/Kg	13.0	35.40

40 0 40 80 120 Feet

Figure Created January, 2003

CDM

N W E S

- Southbank Front Lot Surface Soil Sample Location
- Fence Line
- Unadilla River
- Onsite Wetland

*Aerial photograph dated April 26, 2001

Notes: NA = Not Available
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
No secondary COPCs were designated for Southbank Front Lot Surface Soils
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria

Figure 4-7
Summary of Southbank Front Lot Surface Soil Results
Primary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY

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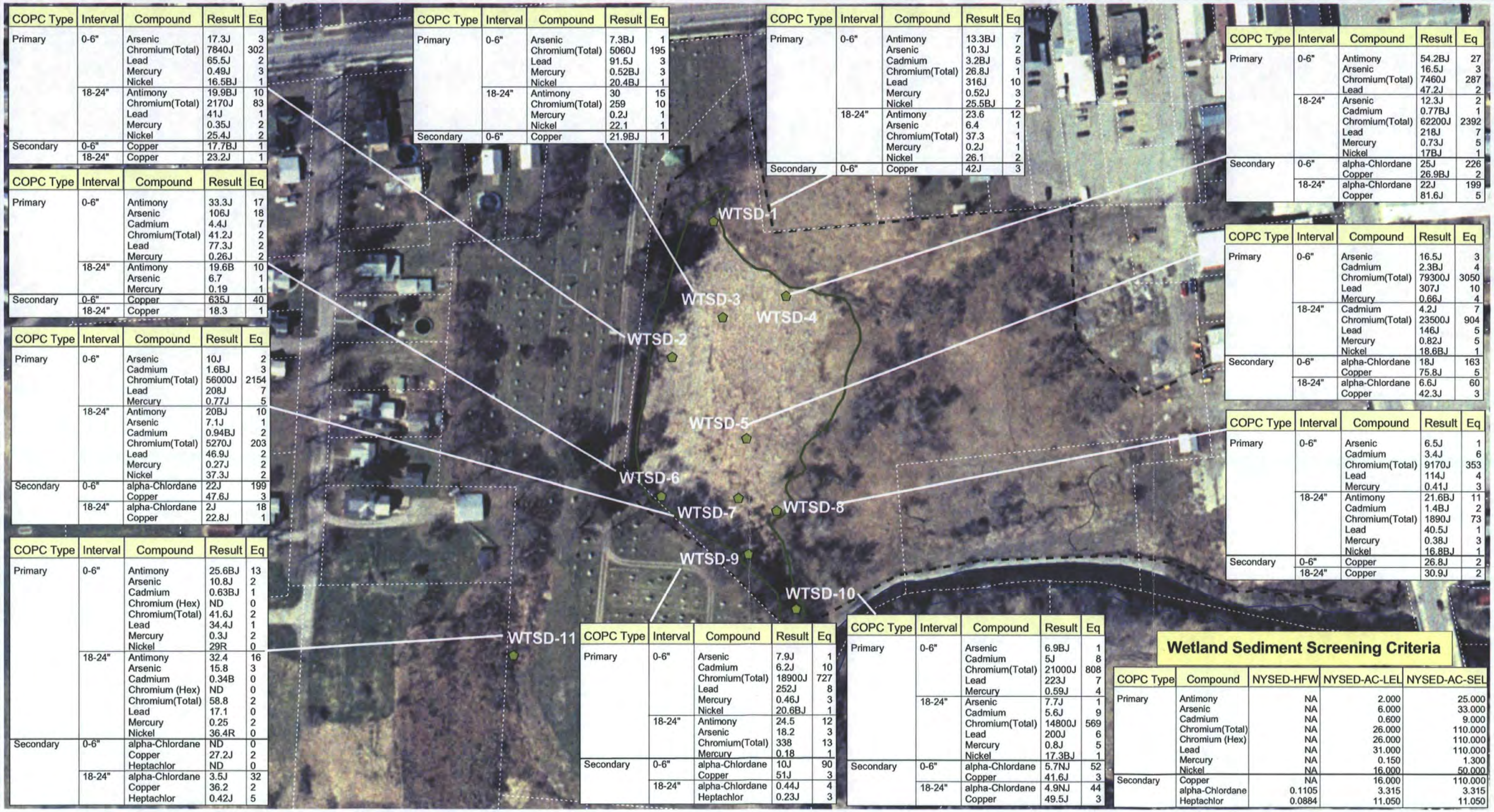


COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Arsenic	17.3J	3
		Chromium(Total)	7840J	302
		Lead	65.5J	2
		Mercury	0.49J	3
		Nickel	16.5BJ	1
	18-24"	Antimony	19.9BJ	10
		Chromium(Total)	2170J	83
		Lead	41J	1
		Mercury	0.35J	2
		Nickel	25.4J	2
Secondary	0-6"	Copper	17.7BJ	1
	18-24"	Copper	23.2J	1

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Arsenic	7.3BJ	1
		Chromium(Total)	5060J	195
		Lead	91.5J	3
		Mercury	0.52BJ	3
		Nickel	20.4BJ	1
	18-24"	Antimony	30	15
		Chromium(Total)	259	10
		Mercury	0.2J	1
		Nickel	22.1	1
Secondary	0-6"	Copper	21.9BJ	1

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	13.3BJ	7
		Arsenic	10.3J	2
		Cadmium	3.2BJ	5
		Chromium(Total)	26.8J	1
		Lead	316J	10
		Mercury	0.52J	3
		Nickel	25.5BJ	2
	18-24"	Antimony	23.6	12
		Arsenic	6.4	1
		Chromium(Total)	37.3	1
		Mercury	0.2J	1
		Nickel	26.1	2
Secondary	0-6"	Copper	42J	3

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	54.2BJ	27
		Arsenic	16.5J	3
		Chromium(Total)	7460J	287
		Lead	47.2J	2
	18-24"	Arsenic	12.3J	2
		Cadmium	0.77BJ	1
		Chromium(Total)	62200J	2392
		Lead	218J	7
		Mercury	0.73J	5
		Nickel	17BJ	1
Secondary	0-6"	alpha-Chlordane	25J	226
		Copper	26.9BJ	2
	18-24"	alpha-Chlordane	22J	199
		Copper	81.6J	5

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	33.3J	17
		Arsenic	106J	18
		Cadmium	4.4J	7
		Chromium(Total)	41.2J	2
		Lead	77.3J	2
		Mercury	0.26J	2
	18-24"	Antimony	19.6B	10
		Arsenic	6.7	1
		Mercury	0.19	1
Secondary	0-6"	Copper	635J	40
	18-24"	Copper	18.3	1

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Arsenic	16.5J	3
		Cadmium	2.3BJ	4
		Chromium(Total)	79300J	3050
		Lead	307J	10
		Mercury	0.66J	4
	18-24"	Cadmium	4.2J	7
		Chromium(Total)	23500J	904
		Lead	146J	5
		Mercury	0.82J	5
		Nickel	18.6BJ	1
Secondary	0-6"	alpha-Chlordane	18J	163
		Copper	75.8J	5
	18-24"	alpha-Chlordane	6.6J	60
		Copper	42.3J	3

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Arsenic	10J	2
		Cadmium	1.6BJ	3
		Chromium(Total)	56000J	2154
		Lead	208J	7
		Mercury	0.77J	5
	18-24"	Antimony	20BJ	10
		Arsenic	7.1J	1
		Cadmium	0.94BJ	2
		Chromium(Total)	5270J	203
		Lead	46.9J	2
		Mercury	0.27J	2
		Nickel	37.3J	2
Secondary	0-6"	alpha-Chlordane	22J	199
		Copper	47.6J	3
	18-24"	alpha-Chlordane	2J	18
		Copper	22.8J	1

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Arsenic	6.5J	1
		Cadmium	3.4J	6
		Chromium(Total)	9170J	353
		Lead	114J	4
		Mercury	0.41J	3
	18-24"	Antimony	21.6BJ	11
		Cadmium	1.4BJ	2
		Chromium(Total)	1890J	73
		Lead	40.5J	1
		Mercury	0.38J	3
		Nickel	16.8BJ	1
Secondary	0-6"	Copper	26.8J	2
	18-24"	Copper	30.9J	2

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	25.6BJ	13
		Arsenic	10.8J	2
		Cadmium	0.63BJ	1
		Chromium (Hex)	ND	0
		Chromium(Total)	41.6J	2
		Lead	34.4J	1
		Mercury	0.3J	2
		Nickel	29R	0
	18-24"	Antimony	32.4	16
		Arsenic	15.8	3
		Cadmium	0.34B	0
		Chromium (Hex)	ND	0
		Chromium(Total)	58.8	2
		Lead	17.1	0
		Mercury	0.25	2
		Nickel	36.4R	0
Secondary	0-6"	alpha-Chlordane	ND	0
		Copper	27.2J	2
		Heptachlor	ND	0
	18-24"	alpha-Chlordane	3.5J	32
		Copper	36.2	2
		Heptachlor	0.42J	5

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Arsenic	7.9J	1
		Cadmium	6.2J	10
		Chromium(Total)	18900J	727
		Lead	252J	8
		Mercury	0.46J	3
		Nickel	20.6BJ	1
	18-24"	Antimony	24.5	12
		Arsenic	18.2	3
		Chromium(Total)	338	13
		Mercury	0.18	1
Secondary	0-6"	alpha-Chlordane	10J	90
		Copper	51J	3
	18-24"	alpha-Chlordane	0.44J	4
		Heptachlor	0.23J	3

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Arsenic	6.9BJ	1
		Cadmium	5J	8
		Chromium(Total)	21000J	808
		Lead	223J	7
		Mercury	0.59J	4
	18-24"	Arsenic	7.7J	1
		Cadmium	5.6J	9
		Chromium(Total)	14800J	569
		Lead	200J	6
		Mercury	0.8J	5
		Nickel	17.3BJ	1
Secondary	0-6"	alpha-Chlordane	5.7NJ	52
		Copper	41.6J	3
	18-24"	alpha-Chlordane	4.9NJ	44
		Copper	49.5J	3

Wetland Sediment Screening Criteria

COPC Type	Compound	NYSED-HFW	NYSED-AC-LEL	NYSED-AC-SEL
Primary	Antimony	NA	2.000	25.000
	Arsenic	NA	6.000	33.000
	Cadmium	NA	0.600	9.000
	Chromium(Total)	NA	26.000	110.000
	Chromium (Hex)	NA	26.000	110.000
	Lead	NA	31.000	110.000
	Mercury	NA	0.150	1.300
	Nickel	NA	16.000	50.000
Secondary	Copper	NA	16.000	110.000
	alpha-Chlordane	0.1105	3.315	3.315
	Heptachlor	0.0884	11.050	11.050

50 0 50 100 150 Feet

Figure Created January, 2003

N W E S

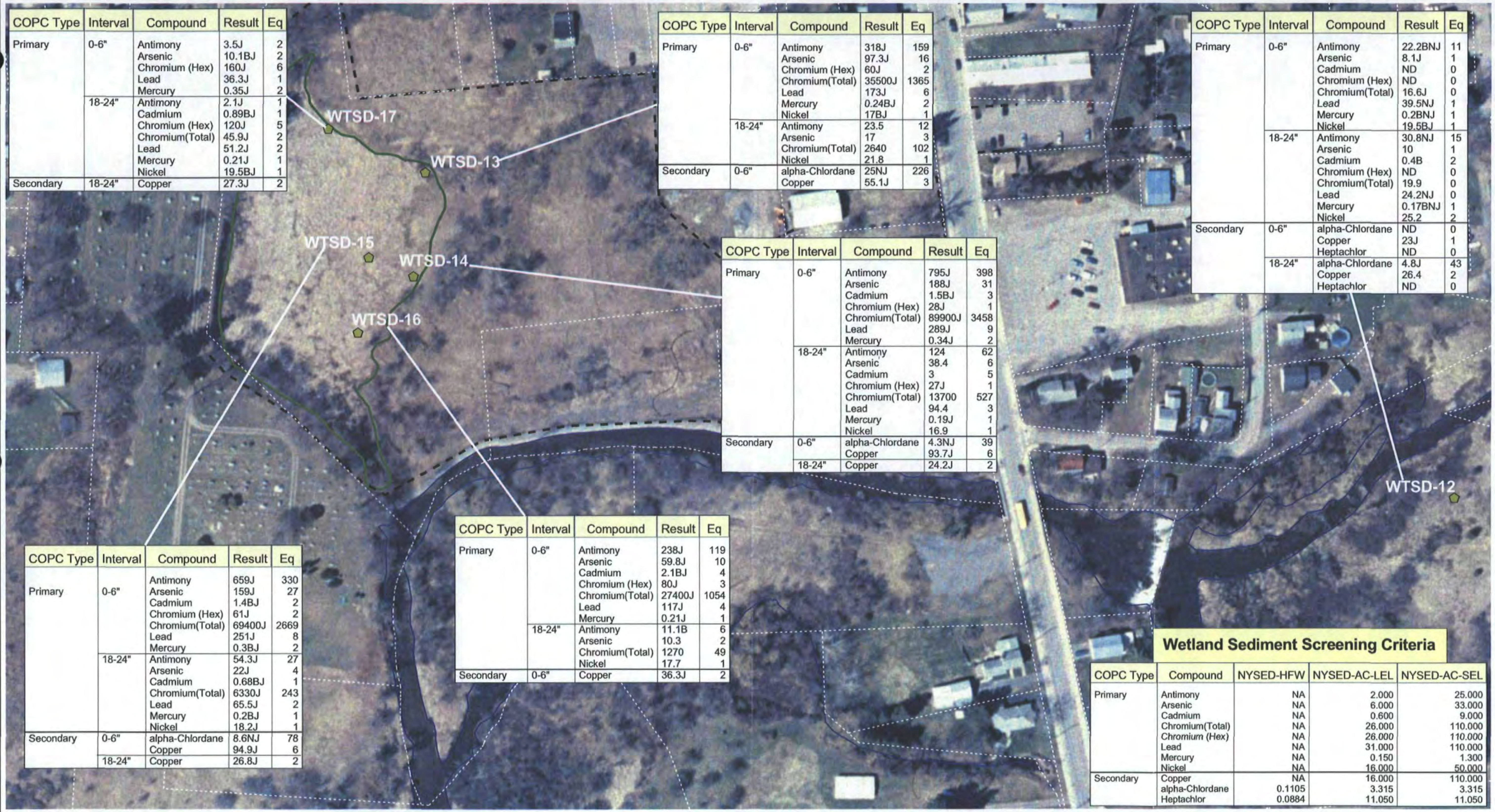
CDM

Onsite Wetland Sediment Sampling Location
Fence Line
Unadilla River
Onsite Wetland

*Aerial photograph dated April 26, 2001

Notes: NA = Not Available
ND = Not detected above detection limit
WTSD-11 is an upstream/background location
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria
alpha-Chlordane and Heptachlor values are reported in ug/kg. All other values are reported in mg/kg.

Figure 4-8a
Summary of Onsite Wetland Sediment Results
Primary and Secondary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY



COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	3.5J	2
		Arsenic	10.1BJ	2
		Chromium (Hex)	160J	6
		Lead	36.3J	1
		Mercury	0.35J	2
	18-24"	Antimony	2.1J	1
		Cadmium	0.89BJ	1
		Chromium (Hex)	120J	5
		Chromium(Total)	45.9J	2
		Lead	51.2J	2
		Mercury	0.21J	1
		Nickel	19.5BJ	1
Secondary	18-24"	Copper	27.3J	2

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	318J	159
		Arsenic	97.3J	16
		Chromium (Hex)	60J	2
		Chromium(Total)	35500J	1365
		Lead	173J	6
		Mercury	0.24BJ	2
		Nickel	17BJ	1
	18-24"	Antimony	23.5	12
		Arsenic	17	3
		Chromium(Total)	2640	102
		Nickel	21.8	1
Secondary	0-6"	alpha-Chlordane	25NJ	226
		Copper	55.1J	3

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	22.2BNJ	11
		Arsenic	8.1J	1
		Cadmium	ND	0
		Chromium (Hex)	ND	0
		Chromium(Total)	16.6J	0
		Lead	39.5NJ	1
		Mercury	0.2BNJ	1
		Nickel	19.5BJ	1
	18-24"	Antimony	30.8NJ	15
		Arsenic	10	1
		Cadmium	0.4B	2
		Chromium (Hex)	ND	0
		Chromium(Total)	19.9	0
		Lead	24.2NJ	0
		Mercury	0.17BNJ	1
		Nickel	25.2	2
Secondary	0-6"	alpha-Chlordane	ND	0
		Copper	23J	1
		Heptachlor	ND	0
	18-24"	alpha-Chlordane	4.8J	43
		Copper	26.4	2
		Heptachlor	ND	0

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	795J	398
		Arsenic	188J	31
		Cadmium	1.5BJ	3
		Chromium (Hex)	28J	1
		Chromium(Total)	89900J	3458
		Lead	289J	9
		Mercury	0.34J	2
	18-24"	Antimony	124	62
		Arsenic	38.4	6
		Cadmium	3	5
		Chromium (Hex)	27J	1
		Chromium(Total)	13700	527
		Lead	94.4	3
		Mercury	0.19J	1
		Nickel	16.9	1
Secondary	0-6"	alpha-Chlordane	4.3NJ	39
		Copper	93.7J	6
	18-24"	Copper	24.2J	2

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	238J	119
		Arsenic	59.8J	10
		Cadmium	2.1BJ	4
		Chromium (Hex)	80J	3
		Chromium(Total)	27400J	1054
		Lead	117J	4
		Mercury	0.21J	1
	18-24"	Antimony	11.1B	6
		Arsenic	10.3	2
		Chromium(Total)	1270	49
		Nickel	17.7	1
Secondary	0-6"	Copper	36.3J	2

COPC Type	Interval	Compound	Result	Eq
Primary	0-6"	Antimony	659J	330
		Arsenic	159J	27
		Cadmium	1.4BJ	2
		Chromium (Hex)	61J	2
		Chromium(Total)	69400J	2669
		Lead	251J	8
		Mercury	0.3BJ	2
	18-24"	Antimony	54.3J	27
		Arsenic	22J	4
		Cadmium	0.68BJ	1
		Chromium(Total)	6330J	243
		Lead	65.5J	2
		Mercury	0.2BJ	1
		Nickel	18.2J	1
Secondary	0-6"	alpha-Chlordane	8.6NJ	78
		Copper	94.9J	6
	18-24"	Copper	26.8J	2

Wetland Sediment Screening Criteria

COPC Type	Compound	NYSED-HFW	NYSED-AC-LEL	NYSED-AC-SEL
Primary	Antimony	NA	2.000	25.000
	Arsenic	NA	6.000	33.000
	Cadmium	NA	0.600	9.000
	Chromium(Total)	NA	26.000	110.000
	Chromium (Hex)	NA	26.000	110.000
	Lead	NA	31.000	110.000
	Mercury	NA	0.150	1.300
	Nickel	NA	16.000	50.000
Secondary	Copper	NA	16.000	110.000
	alpha-Chlordane	0.1105	3.315	3.315
	Heptachlor	0.0884	11.050	11.050

50 0 50 100 150 200 Feet

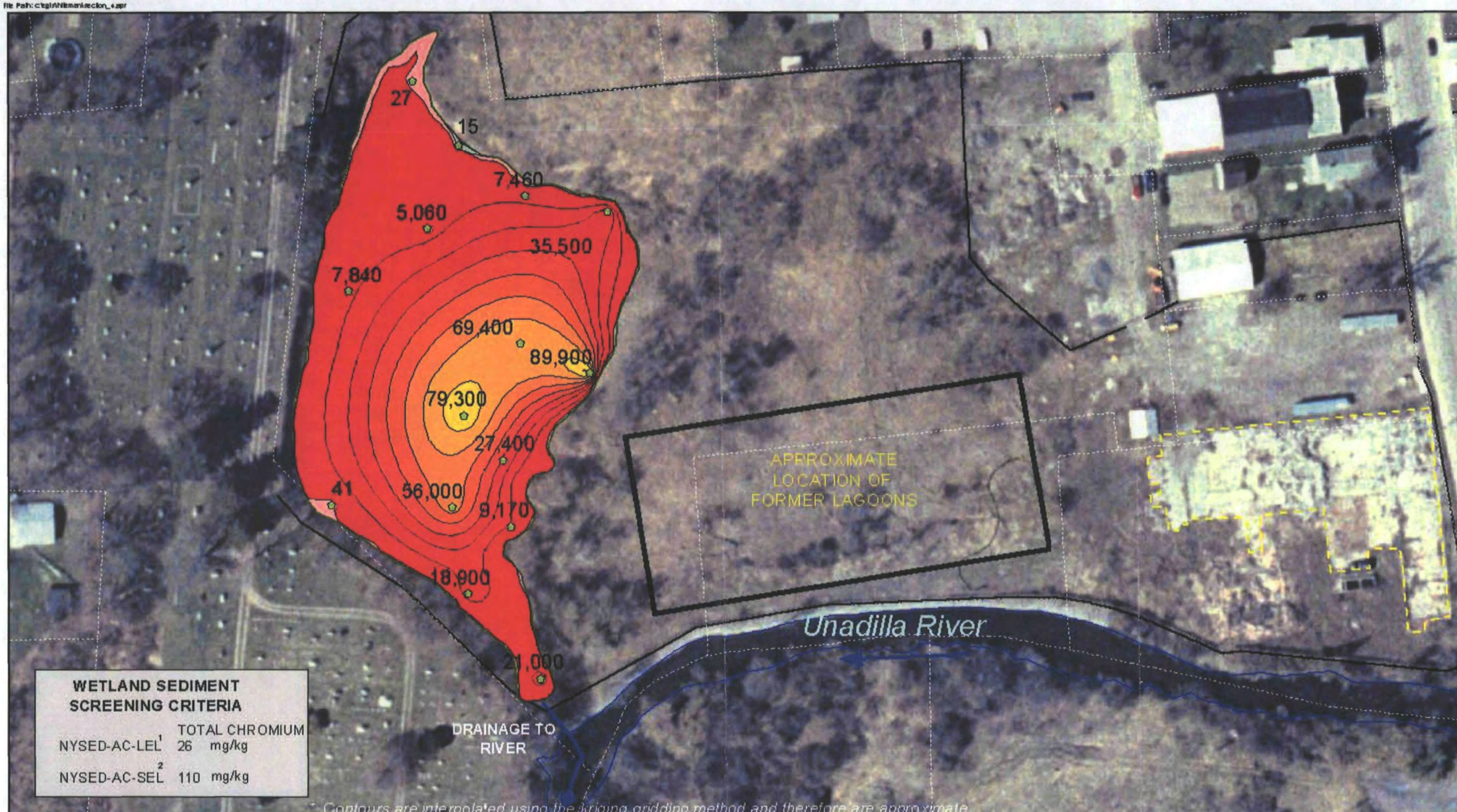
Figure Created January, 2003

Onsite Wetland Sediment Location
Fence Line
Unadilla River
Onsite Wetland

*Aerial photograph dated April 26, 2001

Notes: *NA = Not Available*
ND = Not detected above detection limit
WTSD-12 is an upstream/background location
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria
alpha-Chlordane and Heptachlor values are reported in ug/kg. All other values are reported in mg/kg.

Figure 4-8b
Summary of Onsite Wetland Sediment Results
Primary and Secondary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY



LEGEND

Chromium Isoconcentration Contours (mg/kg)

- < 26
- 26 - 110
- 110 - 10,000
- 10,000 - 20,000
- 20,000 - 30,000
- 30,000 - 40,000
- 40,000 - 50,000
- 50,000 - 60,000
- 60,000 - 70,000
- 70,000 - 90,000
- Wetland Limit
- 25 Sediment Sample Location (Total Chromium concentration in mg/kg)

[1] *NYS Sediment Wetland for Benthic Aquatic Life, Lowest Effect Level*
[2] *NYS Sediment Wetland for Benthic Aquatic Life, Severe Effect Level*

N

0 50 100 150 200 Feet

Figure 4-9a
Total Chromium Isoconcentration Contours for Wetland Sediments (0 - 6 inches bgs)
Hiteman Leather Site
West Winfield, New York

CDM

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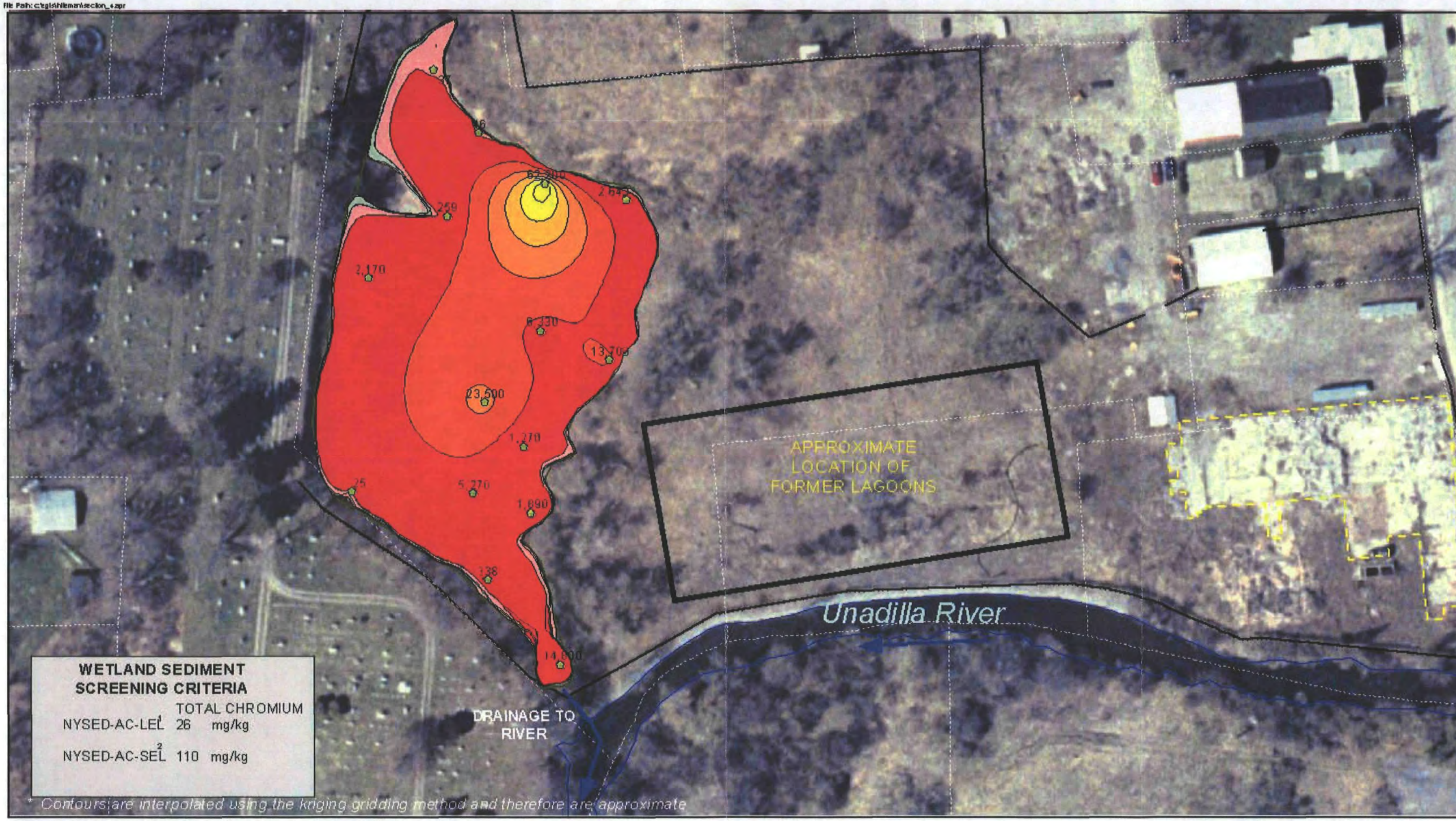


LEGEND

Chromium Isoconcentration Contours (mg/kg)

- < 26
- 26 - 110
- 110 - 10,000
- 10,000 - 20,000
- 20,000 - 30,000
- 30,000 - 40,000
- 40,000 - 50,000
- Wetland Limit
- 25 Sediment Sample Location (Total Chromium concentration in mg/kg)

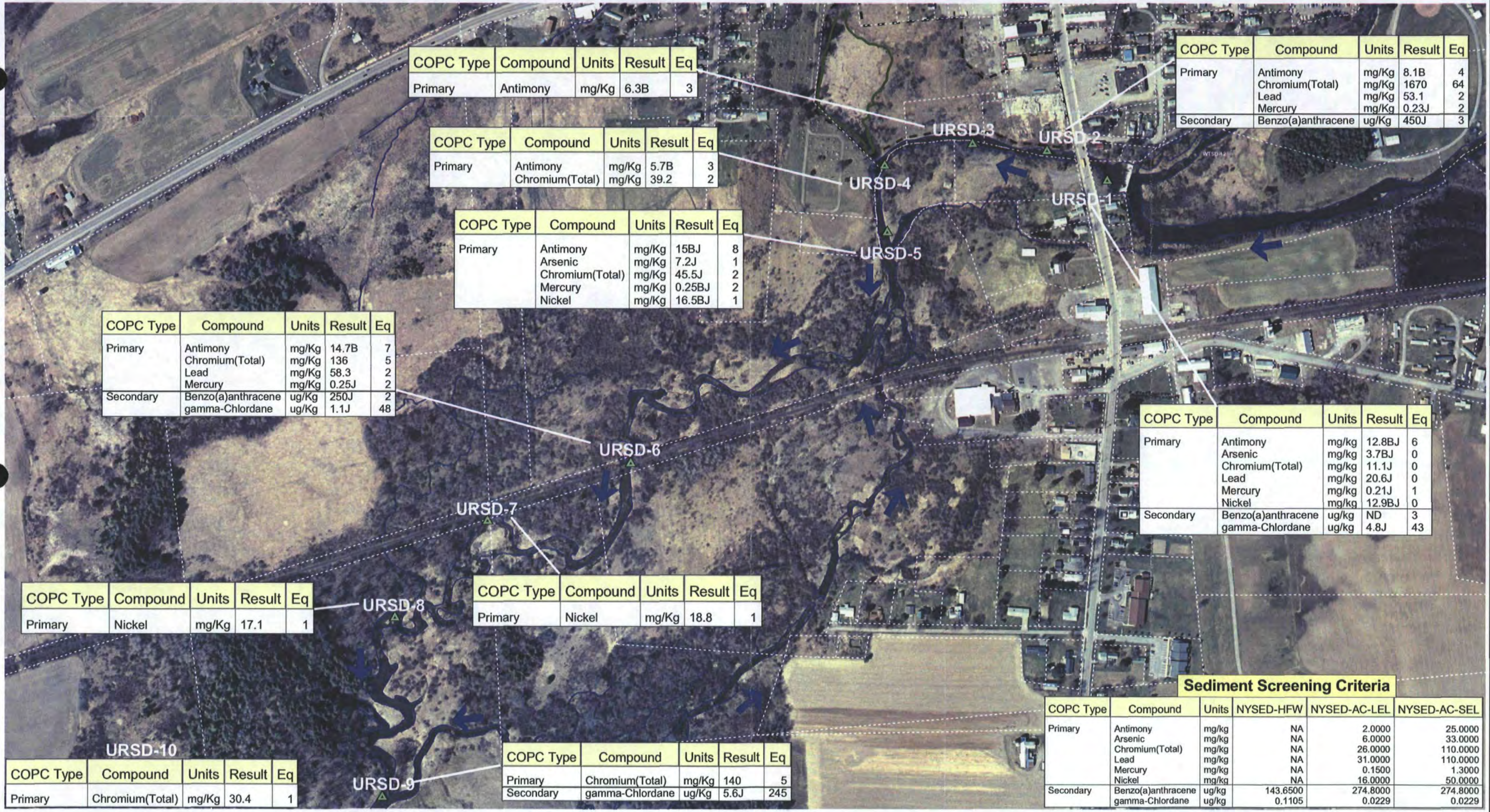
[1] *NYS Sediment Wetland for Benthic Aquatic Life, Lowest Effect Level*
[2] *NYS Sediment Wetland for Benthic Aquatic Life, Severe Effect Level*

N

0 50 100 150 200 Feet

Figure 4-9b
Total Chromium Isoconcentration Contours for Wetland Sediments (18-24 inches bgs)
Hiteman Leather Site
West Winfield, New York

CDM



COPC Type	Compound	Units	Result	Eq
Primary	Antimony	mg/Kg	8.1B	4
	Chromium(Total)	mg/Kg	1670	64
	Lead	mg/Kg	53.1	2
	Mercury	mg/Kg	0.23J	2
Secondary	Benzo(a)anthracene	ug/Kg	450J	3

COPC Type	Compound	Units	Result	Eq
Primary	Antimony	mg/Kg	6.3B	3

COPC Type	Compound	Units	Result	Eq
Primary	Antimony	mg/Kg	5.7B	3
	Chromium(Total)	mg/Kg	39.2	2

COPC Type	Compound	Units	Result	Eq
Primary	Antimony	mg/Kg	15BJ	8
	Arsenic	mg/Kg	7.2J	1
	Chromium(Total)	mg/Kg	45.5J	2
	Mercury	mg/Kg	0.25BJ	2
	Nickel	mg/Kg	16.5BJ	1

COPC Type	Compound	Units	Result	Eq
Primary	Antimony	mg/Kg	14.7B	7
	Chromium(Total)	mg/Kg	136	5
	Lead	mg/Kg	58.3	2
	Mercury	mg/Kg	0.25J	2
Secondary	Benzo(a)anthracene	ug/Kg	250J	2
	gamma-Chlordane	ug/Kg	1.1J	48

COPC Type	Compound	Units	Result	Eq
Primary	Antimony	mg/kg	12.8BJ	6
	Arsenic	mg/kg	3.7BJ	0
	Chromium(Total)	mg/kg	11.1J	0
	Lead	mg/kg	20.6J	0
	Mercury	mg/kg	0.21J	1
	Nickel	mg/kg	12.9BJ	0
Secondary	Benzo(a)anthracene	ug/kg	ND	3
	gamma-Chlordane	ug/kg	4.8J	43

COPC Type	Compound	Units	Result	Eq
Primary	Nickel	mg/Kg	18.8	1

COPC Type	Compound	Units	Result	Eq
Primary	Nickel	mg/Kg	17.1	1

COPC Type	Compound	Units	Result	Eq
Primary	Chromium(Total)	mg/Kg	140	5
Secondary	gamma-Chlordane	ug/Kg	5.6J	245

COPC Type	Compound	Units	Result	Eq
Primary	Chromium(Total)	mg/Kg	30.4	1

Sediment Screening Criteria

COPC Type	Compound	Units	NYSED-HFW	NYSED-AC-LEL	NYSED-AC-SEL
Primary	Antimony	mg/kg	NA	2.0000	25.0000
	Arsenic	mg/kg	NA	6.0000	33.0000
	Chromium(Total)	mg/kg	NA	26.0000	110.0000
	Lead	mg/kg	NA	31.0000	110.0000
	Mercury	mg/kg	NA	0.1500	1.3000
	Nickel	mg/kg	NA	16.0000	50.0000
Secondary	Benzo(a)anthracene	ug/kg	143.6500	274.8000	274.8000
	gamma-Chlordane	ug/kg	0.1105	0.0229	0.0229

200 0 200 400 Feet

Figure Created January, 2003

CDM

N W E S

Unadilla River Sediment Sample Location

Fence Line

Unadilla River

River Flow Direction

**Aerial photograph dated April 26, 2001*

Notes: NA = Not Available
ND = Not detected above detection limit
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria
Sample Location URSD-10 lies approximately 1.1 miles downstream from URSD-9, and does not fall within the current spatial data set

Figure 4-10
Summary of Unadilla River Sediment Results
Primary and Secondary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY

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COPC Type	FA	Compound	Results	Eq
Primary	1	Nickel	164	2

COPC Type	FA	Compound	Results	Eq
Primary	1	Nickel	123	1
Secondary	1	bis(2-Ethylhexyl)phthalate	48	10

COPC Type	FA	Compound	Results	Eq
Primary	1	Nickel	111	1

COPC Type	FA	Compound	Result	Eq
Primary	2	Chromium(Total)	ND	0
	2	Nickel	2.7B	0
Secondary	2	bis(2-Ethylhexyl)phthalate	ND	0

COPC Type	FA	Compound	Results	Eq
Primary	1	Chromium(Total)	88.2	2

COPC Type	FA	Compound	Results	Eq
Primary	1	Nickel	120	1

COPC Type	FA	Compound	Results	Eq
Primary	1	Chromium(Total)	610J	12
	1	Nickel	450J	5
Secondary	2	bis(2-Ethylhexyl)phthalate	6J	1

COPC Type	FA	Compound	Results	Eq
Primary	1	Chromium(Total)	469	9
	1	Nickel	477	5
Secondary	2	bis(2-Ethylhexyl)phthalate	140D	28

Groundwater Regulatory Standards and Criteria

COPC Type	Compound	EPAPDW-MCL	NYSDEC-GW-GA	NYSDOH-DW-MCLS
Primary	Chromium(Total)	100	50	100
	Nickel	NA	100	NA
Secondary	bis(2-Ethylhexyl)phthate	6	5	6

40 0 40 80 120 Feet

Figure Created January, 2003

N W E S

- Monitoring Well Location
- Fence Line
- Unadilla River
- Onsite Wetland

** Aerial photograph dated April 26, 2001*

Notes: NA = Not Available
ND = Not detected above detection limit
FA = Field Activity
All values are reported in mg/L
RMW-16S was not sampled during FA1
RMW-16S is the upgradient/background shallow monitoring well
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria

Figure 4-11a
Summary of Shallow Monitoring Well Results
Primary and Secondary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY

c:/ms/gis/egis/hiteman/gisprojectfile/HitemanRI_Fig4-11ab_fixeswj_102604.apr

COPC Type	FA	Compound	Result	Eq
Primary	2	Arsenic	184J	18
	2	Chromium(Total)	185J	4
	2	Lead	176J	12
	2	Nickel	323J	3

COPC Type	FA	Compound	Result	Eq
Primary	2	Arsenic	ND	0
	2	Chromium(Total)	3.3B	0
	2	Lead	ND	0
	2	Nickel	3.1B	0

COPC Type	FA	Compound	Result	Eq
Primary	1	Arsenic	12.5	1
	1	Chromium(Total)	304J	6
	1	Lead	19.5	1

COPC Type	FA	Compound	Result	Eq
Primary	2	Arsenic	48.2J	5
	2	Chromium(Total)	139J	3
	2	Lead	53.1J	4
	2	Nickel	154J	2

Groundwater Regulatory Standards and Criteria

COPC Type	Compound	EPAPDW-MCL	NYSDEC-GW-GA	NYSDOH-DW-MCLS
Primary	Arsenic	10	25	50
	Chromium(Total)	100	50	100
	Lead	15	25	15
	Nickel	NA	100	NA

40 0 40 80 120 Feet

Figure Created January, 2003

CDM

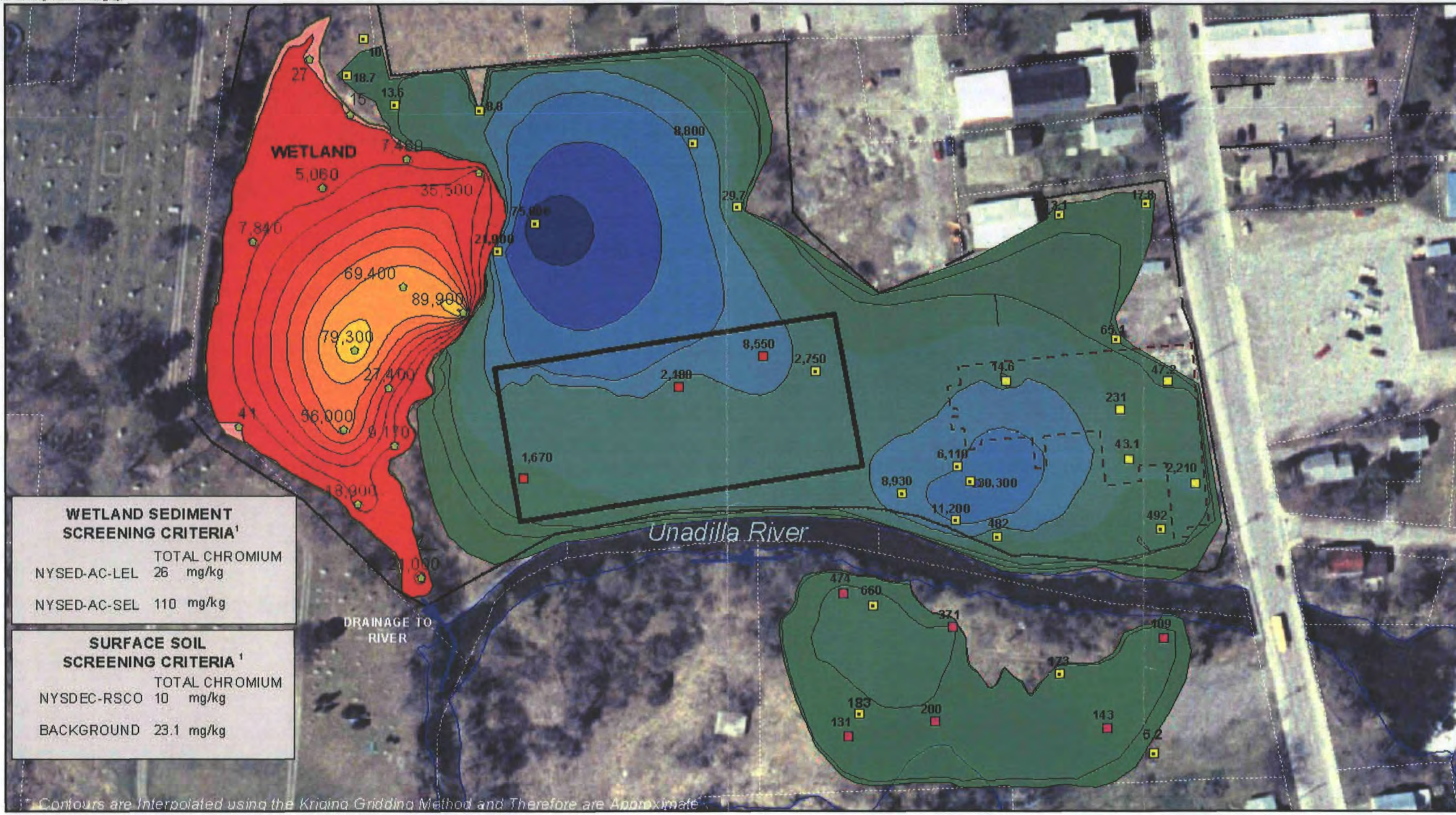
N E S W

- Monitoring Well Location
- Fence Line
- Unadilla River
- Onsite Wetland

** Aerial photograph dated April 26, 2001*

Notes: NA = Not Available
ND = Not detected above detection limit
FA = Field Activity
All values are reported in mg/L
RMW-16D and RMW-9D were not sampled during FA1
RMW-16D is the upgradient/background deep monitoring well
Eq = exceedance quotient based on the most stringent screening criteria; value is rounded to the nearest whole number
Refer to Table 4-1A for an explanation of data qualifiers and definitions of screening criteria

Figure 4-11b
Summary of Deep Monitoring Well Results
Primary COPCs Above Screening Criteria
Hiteman Leather Site
West Winfield, NY



LEGEND SURFACE SOIL

All Chromium Isoconcentration Contours (mg/kg)

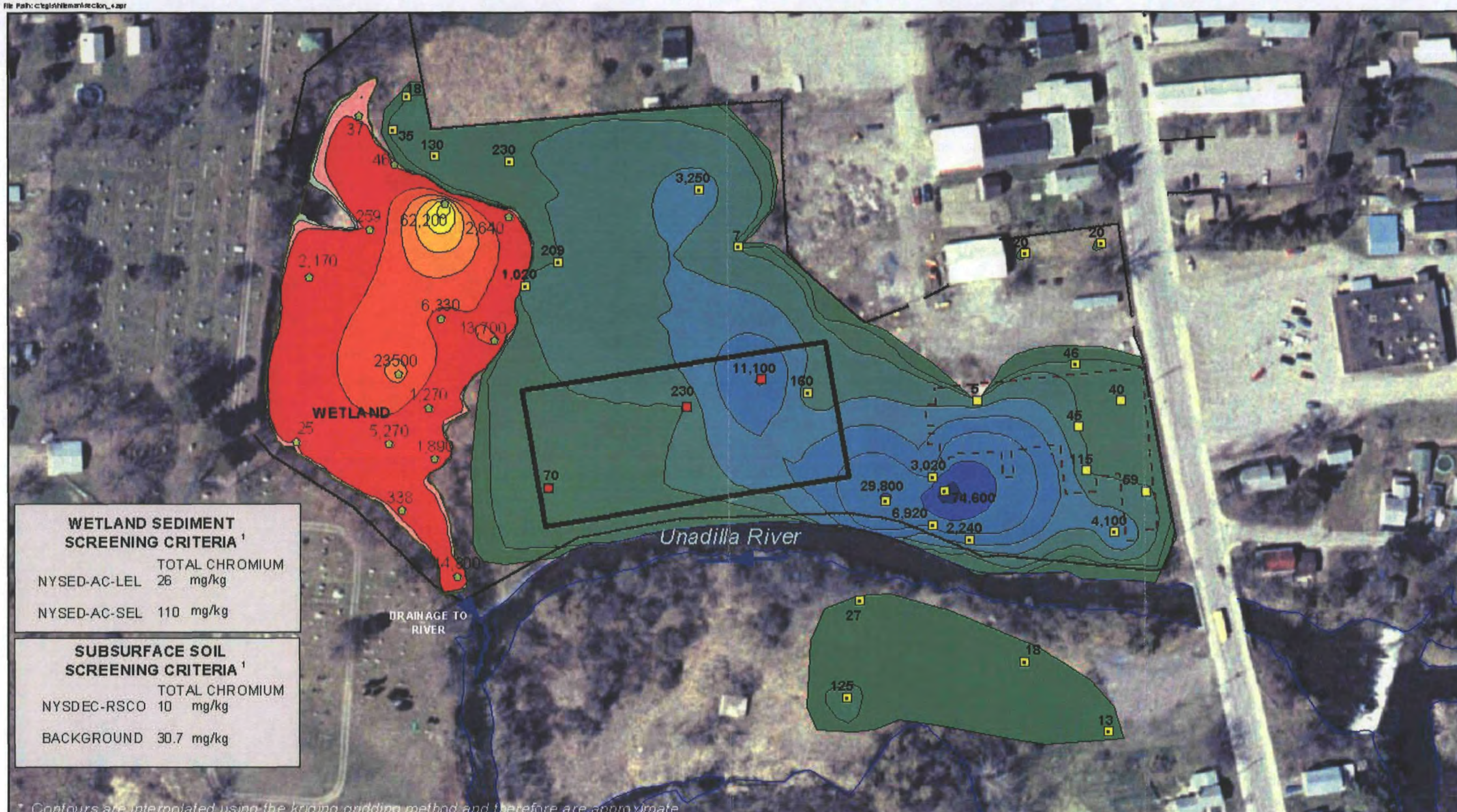
- Building Boring
- Soil Boring
- Surface Soil Sample
- Lagoon Boring
- Concrete Foundation
- 25 Soil Sample Location (Total Chromium concentration in mg/kg)
- 10 - 23.1
- 23.1 - 250
- 250 - 2,000
- 2,000 - 5,000
- 5,000 - 25,000
- 25,000 - 50,000
- 50,000 - 100,000

WETLAND

- < 26
- 26 - 110
- 110 - 10,000
- 10,000 - 20,000
- 20,000 - 30,000
- 30 000 - 40,000
- 40 000 - 50,000
- 50 000 - 60,000
- 60 000 - 70,000
- 70 000 - 90,000
- Wetland Limit
- Area of Former Lagoons
- 25 Sediment Sample Location (Total Chromium concentration in mg/kg)

Figure 4-12a
Total Chromium Iso-Concentration Contours for Onsite Surface Soils and Onsite Wetland Surface Sediments
Hiteman Leather Site
West Winfield, New York
CDM

[1] *Refer to Table 4-1A footnotes for definitions for screening criteria*



LEGEND SUBSURFACE SOIL

All Chromium Isoconcentration Contours (mg/kg)

- Building Boring
- Soil Boring
- Surface Soil Sample
- Lagoon Boring
- Concrete Foundation
- 25 Soil Sample Location (Total Chromium concentration in mg/kg)

- 10 - 30.7
- 30.7 - 250
- 250 - 2,000
- 2,000 - 10,000
- 10,000 - 25,000
- 25,000 - 50,000
- 50,000 - 100,000

WETLAND

- < 26
- 26 - 110
- 110 - 10,000
- 10,000 - 20,000
- 20,000 - 30,000
- Wetland Limit
- Area of Former Lagoons

- 30,000 - 40,000
- 40,000 - 50,000
- 50,000 - 60,000
- 60,000 - 70,000
- 70,000 - 90,000
- 25 Sediment Sample Location (Total Chromium concentration in mg/kg)

N

0 50 100 150 200 Feet

[1] *Refer to Table 4-1A footnotes for definitions for screening criteria*

Figure 4-12b

Total Chromium Iso-Concentration Contours for Onsite Subsurface Soils and Onsite Wetland Subsurface Sediments

Hiteman Leather Site

West Winfield, New York

CDM

5
Section Five

Section 5
Contaminant Fate and Transport

This section examines the chemical and physical processes that affect the fate and transport of contaminants in the soils, sediments, groundwater, and surface water at the Hiteman Site and impacted areas. The focus will be on the primary COPCs discharged at the Site, as described in Section 4. An understanding of the fate and transport of contaminants aids the evaluation of current and future potential exposure risks and the evaluation of remedial technologies in the feasibility study. This section provides the following:

- A listing of the contaminants of interest at the Site
- A summary of the relevant physical-chemical and mobility-related properties of the primary COPCs, as needed for describing their fate and transport
- A listing of potential transport pathways as presented or identified in the Site conceptual model, and a description of the conceptual model for current transport conditions
- Discussion and summary of conclusions from this fate and transport evaluation

5.1 Contaminants of Interest

Section 4 identified a total of nine primary COPCs, as shown in Table 5-1. The primary COPCs consist of eight metals, antimony, arsenic, cadmium, total chromium, hexavalent chromium, lead, mercury, and nickel, and cyanide. Table 5-1 summarizes the discussions and evaluations presented in Section 4, which focuses on comparing concentrations measured in different media and locations to state and federal standards and criteria, as well as background or upgradient/upstream concentrations. Table 5-1 provides an indication of which primary COPCs are likely to be of greater concern, based on the level of exceedances and the spread of contamination. The table also helps show the current conditions in terms of contaminant transport pathways. The following paragraphs describe the basis for assigning the level of concern to each of the primary COPCs, based on the evaluation in Section 4.

<u>Total chromium</u> is of significant concern in the fate and transport assessment because of the high concentrations, relative to screening criteria and background concentrations, measured in the Site soil and sediment. Chromium was discharged in large quantities from the manufacturing operations historically, and thus the residual total chromium concentrations are the highest of any of the primary COPCs. There is also the concern that geochemical changes, while unlikely, could cause conversion of trivalent chromium to hexavalent chromium, a more toxic and mobile form of this metal COPC. This COPC is considered to be of high priority.

<u>Hexavalent chromium</u> is also of concern due to its mobility in the dissolved phase and its toxicity. Hexavalent chromium is not considered to be as much a concern as total chromium since it was sporadically detected, and at much lower concentrations. Hexavalent chromium was detected in bedrock groundwater at levels below standards and screening criteria. Therefore some concern exists with respect to the potential

threat to water supply wells; however, hexavalent chromium has not been detected in residential/private or municipal water supply wells nearby. Because of the potential threat and the significantly high concentrations of trivalent/total chromium in most impacted media onsite and off site, hexavalent chromium is considered to be of high priority.

Arsenic - Arsenic is a known component of tannery processes, and its drinking water standard has been lowered recently due to increased concern about its toxicity and health impacts. Arsenic is found in onsite and off site soils, deep (confining layer) monitoring wells, and sediments, including wetland and river sediments, at concentrations that are high enough to trigger its selection as a primary COPC for those media. Arsenic is considered to be of medium priority.

Antimony - Antimony was detected at relatively high concentrations in RI soils and sediment samples. However, antimony was not detected above screening criteria in Unadilla River surface water, sediment or fish tissue, or in groundwater. Its potential for migration is thus shown to be limited based on the evaluation of RI and SI data. It is considered to be of low priority.

Cadmium - This metal was not detected at levels exceeding screening level criteria in Unadilla River surface water, sediment or fish tissue, or in groundwater. Its potential for migration is thus shown to be limited, based on the evaluation of RI and SI data. It is considered to be of low priority.

Lead - Although lead was measured at concentrations in soils above background, the concentrations in wetland and stream sediments were just above background. Site impacts are evident in the onsite and off site soils, but definitive impact to wetlands and the river could be difficult to demonstrate. In addition, lead was not selected as a primary COPC for the river water and fish tissue, or for shallow groundwater and bedrock groundwater. Lead is considered, therefore, to be of low priority.

Mercury - This COPC was found below background concentrations in lagoon and building area soils, but above background in soils onsite (north of the river), South Bank Front Lot soils, and offsite soils. However, it was not detected at levels exceeding screening criteria in lagoon subsurface soils, South Bank Front Lot surface soils, or in groundwater. Mercury is, therefore, assigned a low priority for fate and transport assessment.

Nickel - Below background concentrations were detected in soils in most locations, including lagoon, building area, South Bank Front Lot, and off site subsurface samples. Where it was measured above background concentrations, nickel was not significantly above those levels. Although it appears as a primary COPC for shallow and deep groundwater units, this designation was based on exceedances at only one or two monitoring wells. Nickel was not detected at levels exceeding screening criteria in Unadilla River surface water, fish tissue, or bedrock groundwater, which is the only water supply aquifer unit under evaluation in the Site vicinity. Because the exceedances are not extensive or significant, nickel was assigned a low priority.

Cyanide - It is not known whether the detected cyanide is in a free and/or bioavailable form. Determining this is essential for evaluation of its fate and transport, and the significance of the sampling results for pathway-risk assessment purposes. To be conservative, it is recommend that cyanide remain a primary COPC, but that it be designated as a lower concern for fate and transport evaluation purposes at this time. In general, its concentrations are relatively low and significantly above background concentrations only in onsite and off site soils. It does not exhibit a high degree of mobility or transport in wetland sediments, river sediments, the river water, fish tissue, or groundwater. It is designated as a low priority COPC even though its form is not known.

Based on Section 4 and the discussion above, the ranking of primary COPCs for evaluation and discussion is summarized below:

- High priority - total and hexavalent chromium
- Medium priority -arsenic
- Low priority - antimony, cadmium, lead, mercury, and nickel
- Low priority, but need further information - cyanide

Organic contaminants appear only as secondary COPCs in Section 4, and will, therefore, not be evaluated for their fate and transport characteristics.

5.2 Current Transport Conditions

This section discussed the potential transport mechanisms and pathways that may transport contaminated soils, sediments, and water toward possible receptors.

5.2.1 General Transport Mechanisms

The major processes that affect the transport, or mobility, of the primary COPCs in soils and groundwater are advection, dissolution/precipitation, adsorption, and bioaccumulation and bioconcentration. The following discussion applies to the COPC metals, noting that further evaluation of cyanide requires additional information on its form(s) in the environment at the Site.

Advection. The physical transport of adsorbed or precipitated metals is with groundwater flow, stormwater runoff, river/stream flow, or wind blown dust. The rate of transport, on average, is equal to the flow rate of the water or wind. Dispersion and subsequent related dilution of concentrations occurs and is directly related to the advective flow rate.

Dissolution/precipitation. Whether a chemical is transported in a dissolved state in infiltrating water or precipitated out of solution depends on the solubility of that chemical in water, and competition or interference with other chemicals being transported. Most metals are relatively insoluble, but metal solubility is highly dependent upon oxidation/reduction (redox) conditions and pH, which are discussed further below.

Adsorption. Metals become mobilized in surface soils by forming solutes, which may react with surfaces of soil solids, especially clays, and create chemical bonds between the soil particle's surface and metal ions. Most clay minerals have an excess of imbalanced negative charges in their crystal lattice. Adsorptive processes in soils thus favor the adsorption of cations. Divalent cations are usually more strongly adsorbed than monovalent ions. Attenuation of metals through adsorption varies from those that are weakly attenuated, such as sodium, potassium, and magnesium; those that are moderately attenuated, including iron; and those that are strongly adsorbed, such as lead, cadmium, and mercury.

Bioaccumulation and bioconcentration. Some chemicals, such as lead and mercury, tend to bioaccumulate or bioconcentrate in animal or plant tissue. In fact, plant uptake is sometimes used as a remedial strategy to remove these contaminants from soils and sediments. Bioaccumulation represents an uptake and buildup rate in a species that ingests or uptakes the contaminant that is faster than its elimination rate. This can be a concern for higher-level biota, including the human population, for contaminants such as mercury. However, given the relatively low concentrations of COPC primary metals that would be subject to bioaccumulation, bioaccumulation/bioconcentration is not considered a factor of significant concern for this fate and transport evaluation.

5.2.2 Mobility of Metals

A variety of factors affect the mobility of metals in soil-water systems, including: the presence of water (e.g., soil moisture content); the presence of other complexing chemicals in solution; the pH and redox potential, which affect the speciation of all metals and complexing agents; the temperature; and soil properties, such as cation exchange capacity, the presence of hydrous oxides of iron and magnesium, the amount of organic matter present in the soil, and the distribution of soil particles. Table 5-2 summarizes the field readings of pH, TOC, and redox potential in the media and locations sampled.

The pH of soils and groundwater affects the hydrolysis rate, partitioning equilibrium, and contaminant solubility. Soil pH values collected during the RI varied from 5.5 to 11. Groundwater pH values ranged from 5.6 to 9.2. Surface water pH values ranged from 5.6 to 8.

Redox potential determines the chemical species that predominate and, therefore, the mobility and fate in the environment. High redox potential values favor the existence of oxidized species, whereas, low redox favors reduced species and those compounds without oxygen or multiple bonds. The Site redox values in surface water ranged from about -0.05 to 62 millivolts (mV), indicating low but oxidizing conditions. The groundwater redox values had a much wider range, from -433 to 223 mV. In general, these pH and redox ranges indicate that the primary COPC metals should be relatively immobile in surface water. This is confirmed by the presence of metals on sediments but not in appreciable concentrations in the water column.

In groundwater, the conditions range from reducing to oxidizing, indicative of a range of metals mobility. This is demonstrated by the presence of mobile hexavalent chromium in at least some of the groundwater samples, as well as a greater distribution of arsenic than some of the other metal COPCs.

High organic content in soil increases contaminant absorption and hinders the movement of contaminants through the soil. Most areas of the Site contain native or reworked soils and sediments. The TOC values ranged from 2,400 to 211,000 mg/kg (0.24 to 21.1 percent) in the surface soils, wetland sediments, and subsurface soils. An average value of 5.24 percent was selected for the contaminant criteria calculations performed in support of the Section 4 evaluation of COPCs. This is a relatively high value, which is indicative of strong sorption capacity.

In a study of metals retention in soils, the relative mobility of several metals in various soil types was assessed (EPA 1987). The study indicated that hexavalent chromium, mercury, and nickel are among the most mobile, while cadmium, lead, and trivalent chromium are among the least mobile. For the metals studied, mobility varies with location and media, although the order of mobility was generally:

Most Mobile - Cr(6) > Hg > Ni >As> Cd> Pb > Cr(3) -- Least Mobile

Antimony is not included in this sequence but is assumed to fall in the middle portion of the sequence, based on its distribution onsite and off site.

The above order was based on the anticipated speciation of the chemicals in fresh water, general solubility patterns, and general soil sorption patterns. Guidelines used to assign metals to this mobility sequence were:

- Metals whose predominant species in freshwater are anions (e.g., arsenic), which are only minimally retarded in soils, are among the most mobile.
- Metals that are fairly strongly sorbed to most soils under normal environmental conditions (i.e., pH 6 to 8 near neutral redox potential) are among the least mobile.
- Metals whose predominant freshwater species are cations, especially divalent heavy metals (i.e., lead), are subject to sorption via cation exchange, and are thus among the least mobile

5.3 Physical-Chemical and Mobility Related Properties - Primary COPCs

This section presents the physical-chemical and mobility related properties of the primary metals COPCs. This information was used to help evaluate the priority for concern, in terms of fate and transport potential. Table 5-1 lists all of the primary

COPCs and the location-media combinations in which they exceeded regulatory criteria or background concentrations. Section 5.1, Contaminants of Interest, concluded with a priority listing of the COPCs, as shown below:

- High priority - total and hexavalent chromium
- Medium priority - arsenic
- Low priority - antimony, cadmium, lead, mercury, and nickel
- Low priority, but needs further information - cyanide

Table 5-3 provides information on the fate and transport properties of the primary COPC metals.

5.3.1 Factors Determining Contaminant Mobility

Metal solubility is important because it affects the behavior of the metal, determining whether it will form a solute, and thereby allowing it to be mobile under aqueous conditions. If insoluble, it will show tendencies to precipitate and sorb to particulate material.

The persistence of metals depends on the leaching rates from soils, the groundwater flow rate in saturated sediments and rock, and individual metal properties. The persistence of metals is complicated by processes such as precipitation and dissolution, which are dependent upon pH, the presence of certain ions or complexing agents, and concentrations of the metals in solution. The COPC metals will be strongly affected by adsorption onto solid-phase organic matter and metal oxides/hydroxides, particularly of iron and manganese. Because the Site has high concentrations of iron, and perhaps manganese, this latter effect could be significant. The possible presence of carbonates in the soil, sediments, and bedrock also has an influence on the retention of COPC metals (Deutsche 1997).

The following paragraphs describe the mobility of the primary metals COPCs. More information is provided for the high priority (total/trivalent and hexavalent chromium) and medium priority (arsenic) COPC metals. Brief descriptions are presented for the low priority COPC metals (antimony, cadmium, lead, mercury, and nickel). Cyanide is not discussed in this section.

<u>High priority - Total chromium and hexavalent chromium.</u> Deutsche (1997) provides an indication of contaminant mobility findings from several research and field investigation studies. He says: "In the range of natural groundwater pH (6.5 to 8.5) under reducing to slightly oxidizing redox potential, cationic and neutral species of trivalent chromium ... dominate with the solid Cr $(OH)_3$ over a large portion of the pH/[redox] region. Under more oxidizing conditions, the hexavalent anionic species ... are dominant." He also indicates that trivalent chromium can complex "with organic acids and water-soluble organic matter thereby enhancing the mobility of chromium." Deutsche also says, "Oxidation-reduction processes play a major role in affecting the mobility of chromium because it is relatively mobile as hexavalent

chromium and immobile as trivalent chromium." He summarizes the important processes controlling chromium mobility as follows:

"... the movement of hexavalent chromium contamination in the subsurface will be initially retarded by adsorption reactions with exchangeable sites on clay minerals and specific adsorption sites on metal oxide and oxyhydroxides. Other anions in solutions will compete for these adsorption sites. If the adsorption capacity is consumed by a high degree of contamination, hexavalent chromium will be mobile. Under typical subsurface conditions with slightly reduced Eh (<250 mV), hexavalent chromium will be reduced to trivalent chromium, which will precipitate as the insoluble mineral $Cr(OH)_3$ or $(Fe,Cr)(OH)_3$. The rate of reduction will be dependent on the pH of the environment and the presence of reductants such as organic matter, Fe^{+2}, and sulfide. If the oxidizing capacity of the chromium contamination exceeds the reducing capacity of the subsurface, hexavalent chromium will be relatively stable and mobile. Oxidized manganese minerals may also enhance the stability of hexavalent chromium in the environment."

Throughout all of the media at the Site and in off site areas, geochemical conditions appear to be typical as per Deutsch's description above, and therefore trivalent chromium is the predominant species. The presence of hexavalent chromium at elevated concentrations in bedrock groundwater samples may be the result of different geochemical conditions in the aquifer. The reasons for the difference are not fully known at this time.

Medium priority -- Arsenic. Arsenic is generally mobile and is known to volatilize when biological activity or highly reducing conditions produce arsine or methyl-arsines. Iron oxide, pH, and, redox control the extent of soil sorption. At high redox levels, arsenate predominates and has low mobility. As the pH increases and the redox level decreases, arsenite predominates and is more subject to leaching. Deutsche (1997) summarizes the geochemical mobility of arsenic as follows:

"... the mobility of arsenic under oxidizing conditions is primarily affected by the adsorption of As(V) onto metal oxyhydroxides surfaces. If the appreciable adsorption capacity of these surfaces is not surpassed, then arsenic movement will be strongly retarded because of the high affinity of these surfaces for As(V). Under reducing conditions, the dominant arsenic redox species will be As(III), which is not as strongly adsorbed. Furthermore, the primary adsorbing solids may not be stable if the redox potential is low enough. As a consequence, arsenic is expected to be much more mobile under reducing conditions. This mobility may be significantly reduced if arsenic sulfide minerals become saturated and precipitate."

Conditions in the Site media indicate that arsenic may be somewhat mobile in some areas/media, but relatively retarded in others. This is supported by the identification of arsenic as a primary COPC in several of the media sampled, and the general sequence of mobility presented in Section 5.2.2.

Low Priority - Lead. Lead is virtually immobile in all but sandy soils. Its predominant fate in the environment is sorption to soils and sediments. The adsorption of lead is pH dependent, decreasing with decreasing pH. Below pH 7, lead becomes progressively more mobile. Above pH 6, lead is adsorbed to clays or forms lead carbonate, an insoluble compound. In natural water, lead concentrations decrease over time; sorption of lead to both sediments and suspended particulates is the favored process with clay, hydrous metal oxides, and organic matter influencing this sorption. At the Site and vicinity, the values of pH are generally above 6 but there are some readings as low as 5.5, indicating that lead will most likely tend toward low, or very low, mobility.

Other Low Priority COPCs. The remaining metal COPCs are expected to be somewhat more mobile than lead, but less than hexavalent chromium. Because their concentrations and spatial distribution are more limited than chromium and arsenic, the mobility of cadmium, mercury, and nickel is relatively low, compared to potential mobility under different geochemical conditions. It is also possible that the original discharges of these COPCs may have been significantly lower than for chromium and arsenic, and thus their residual concentrations would also be lower.

5.4 Discussion of Conceptual Models

5.4.1 Summary of Historical Conditions and Comparison to Current Conditions

Section 1 included discussion of a conceptual model of historical conditions at the Site and surrounding area. That model demonstrates how contaminant discharges may have caused the COPC concentrations that have been documented at the Site.

During operations, major changes occurred in the Site's hydraulic/hydrologic conditions, which caused contaminant pathways to differ significantly from what is observed today. These changes include:

- The wastewater lagoons were taken out of operation in 1968. When in operation, the lagoons could have raised the water table high enough to hydraulically drive contaminants downward through the shallow outwash unit and into the semi-confining lacustrine (clay-silt) layer. The head may have been sufficient to push contaminated water into the bedrock aquifer layer. Currently, the bedrock aquifer has artesian heads that cause bedrock groundwater levels to rise above the ground surface. Upward groundwater flow, through the confining layer, has probably prevailed since the lagoons were taken out of operation and drained.

- During plant operations, the discharged wastewater probably had sufficient concentrations of contaminants and other constituents to make the wastewater significantly denser than fresh groundwater and surface water. The density difference could have promoted downward migration of the contaminated wastewater, as well as lateral flow, directed according to the slope of the contact, along the confining layer and the shallow outwash unit. Following plant shutdown, any dense liquids that may have existed would have mixed and dispersed into the ambient groundwater. Currently, the highest measured groundwater concentrations do not appear to indicate density differences, and so this mechanism, if it existed in the past, no longer exists and has probably not been an important factor for decades.

- During plant operations, unknown quantities of discharged materials reached the lagoons, wetland, and the river, and also seeped into the groundwater. Although the mass of discharged COPCs has not been estimated, it is presumed that it greatly exceeds the residual COPC mass currently found in soils, sediments, and water in the onsite and off site areas.

- When the plant was running, it is assumed that at times the river was mostly diverted for process water purposes. This was important to historical contaminant transport for two major reasons – transport into the South Bank area was not blocked hydraulically by the river, and transport into the wastewater lagoons and wetland areas was enhanced because of the relatively higher flows. This probably led to high water levels in the lagoons and a somewhat to significantly higher water table in the wetland discharge zone. Both overland and groundwater/subsurface flow would have thus been possible from north to south, allowing contaminated water to flow into the South Bank area in the groundwater. Overflows and surface runoff in this direction could also have occurred. Following plant shutdown, the river was maintained in its natural banks, forming a hydraulic barrier again, because the river likely acts as a "drain" for shallow outwash groundwater and upwelling artesian-induced flows. This river hydraulic barrier exists today.

- Another feature of plant operations was the presence of two "outfalls" – the first one at the building area where "tanning tank" discharges occurred, and the second one at the outlet from the wetland area. The building area outfall ceased operations when the plant was shut down. The wetland outfall may have continued during storm runoff events and possibly during seasonal or climatically wet conditions. However, the magnitude of outflow from the wetland outfall is likely to have dropped significantly when river diversions were stopped and plant discharges ceased.

5.4.2 Current Condition Conceptual Model

The current conditions conceptual model starts from the historical conditions version, and focuses on the likely pathways for contaminant transport under prevailing hydrologic and hydraulic conditions. In general, the conceptual model of current conditions shows that there are active transport pathways, but it is assumed that most of the contaminant mass is not migrating. Current transport pathways are depicted in Figure 5-1.

Media-location combinations were evaluated for the likelihood of contaminant migration, and priorities were assigned, as listed in Table 5-4. Some of the primary COPCs, based on the media and locations in which they occur, may represent risks to biota and human health. However, most of the surface and subsurface contamination is probably not being transported at rates that would represent a serious concern. Exceptions may exist, most notably the potential for river sediment transport and the possibility that hexavalent chromium may be migrating in bedrock groundwater.

Several of the location-media combinations still contain residual contamination that resulted from the original direct discharge of process wastewater, or indirect transport of the source contaminants. These locations/media include the former wastewater lagoon area surface and subsurface soils, the building area subsurface soils, onsite and off site surficial and subsurface soils, South Bank area surficial soils, wetland sediments, and river sediments. In general, the RI has determined that "hot spot" zones probably exist, supported by an evaluation of historical operating methods and structures. The sampling and analysis has shown a general trend of decreasing soil/sediment concentrations with depth, although some exceptions exist.

Some of the primary COPCs are dissolved in groundwater, which may transport contamination from one area and media to another. However, based on prior filtered and unfiltered sampling and analysis efforts (ERT 1996), and a correlation between turbidity and metals concentrations in the RI groundwater sampling results, it is likely that the high solids content influenced the RI sample concentrations for groundwater. Therefore, the transport of primary COPCs in shallow and deep groundwater may not be a significant transport mechanism.

COPCs were not found in the river water at concentrations of any concern, and the same is the case for fish tissue samples. This is an indication that partitioning from the contaminated sediments is not occurring at a significant rate. Discharge of contaminated groundwater and surface runoff is not happening at a high enough contaminant-loading rate to trigger violations in the water column or fish tissue. Either the river flow causes enough dilution to reduce concentrations below criteria, or the discharges to the river are already at low concentrations due to lack of partitioning into the groundwater and surface runoff.

The river continues to transport COPC-contaminated sediments downstream, and it is likely that some amount of COPC-contaminated sediment continues to be transported into the river from onsite areas, both north and south of the river. Such soil-to-river transport would be expected to occur during storm runoff events and during high water periods. Although the impact on the river water and fish tissue appears to be insignificant, benthic communities may be impacted. Separating the effects of current and recent sediment transport from historically caused transport could be very difficult.

Runoff from the onsite and building areas could be continuing to transport primary COPCs into the onsite wetlands. The wetland is in a low area, which may be acting as a hydraulic "bowl" trapping sediments, including contaminated sediments from storm runoff.

Soil/glacial sediment and soil-water concentrations generally decrease with depth, with some few exceptions. This could be the result of high concentrations existing in the shallow unit historically, as well as the natural upwelling of artesian pressure-driven groundwater flow, which has been the case since discharges and lagoon loadings were halted. This upward flow may have partially removed COPC metals contaminants from the confining clay-silt layer. Additionally, the concentration gradient may reflect the mixing of lower-concentration bedrock groundwater with higher concentrations in the shallower zones, as the groundwater from the bedrock aquifer migrates upwards. In effect, the groundwater flow system is helping to isolate the shallow contaminated sediments and groundwater from the regional water supply aquifer, and the upward flow may be acting, however slowly, to partially flush out the clay-silt layer.

Groundwater in the bedrock aquifer is under artesian pressure, which causes significant upward gradient throughout the area of interest. This upward gradient limits the threat of encroaching shallow contamination, and indicates that residual contaminants in the bedrock groundwater are the most likely source of continuing concentrations of COPCs in the aquifer. The bedrock aquifer has a different recharge-discharge pattern than shallow outwash unit. With the limited number of bedrock monitoring wells, it is difficult to evaluate the hydraulic influence of the river on bedrock groundwater flow patterns, and it is not possible at this time to determine whether contaminated bedrock groundwater could threaten any nearby private wells. This is because the groundwater flow pattern in the bedrock aquifer cannot be mapped over a wide enough area at this time.

The potential threat from the migration of bedrock groundwater from the Site is based solely on hexavalent chromium, which has been measured in bedrock groundwater at concentrations that are just below action levels. The hexavalent chromium is the most mobile form, and may not be associated with suspended solids in the samples. Therefore, this form of chromium may be able to migrate relatively effectively in the groundwater flow system.

Groundwater in the shallow outwash unit has a relatively flat gradient, which can be indicative of high hydraulic conductivity or low flow rate. Some transport of dissolved contaminants may be occurring, but this transport pathway is not likely to increase the concentrations in surface or subsurface soils. In addition, it is possible that the dissolved readings from RI sampling may be somewhat skewed toward higher concentrations due to high turbidity and suspended solids, which may be carrying most or all of the contamination measured in the groundwater samples.

Overall, it appears that there are location-media combinations that have some high concentrations of total chromium, and in some of these combinations other COPCs are at high enough concentrations to trigger some concern. However, "natural" transport of any significance is probably not occurring in the groundwater flow system or along with the surface water column. The only potentially significant "natural" means of transport are through river sediment transport and runoff/wash-off from onsite and off site COPC contaminated soils. It is possible that hexavalent chromium may represent a threat to bedrock groundwater supplies, but the concentrations are currently below standards.

5.5 Conclusions Regarding the Fate and Transport of High and Medium Priority Contaminants

This section summarizes the fate and transport of the high priority (total/trivalent and hexavalent chromium) and medium priority (arsenic) COPC metals.

Fate and Transport of Chromium

Chromium detected at the Hiteman Site is mainly in the trivalent form. Trivalent chromium has low solubility and reactivity and, therefore, will be chemically complexed or physically adsorbed, resulting in its retardation. Other factors such as pH, temperature, and the presence of manganese dioxide and oxidizing conditions may favor its conversion to hexavalent chromium.

The highest detections of total chromium, mainly trivalent chromium, found in the building boring samples, were mainly observed in the 0-2 foot intervals. The chromium discharged under the former building from process waste seepage have remained sorbed onto the surface soils. This is compatible with the low mobility of trivalent chromium and the insoluble nature of chromium oxides, the main species found in soils.

Hexavalent chromium, being highly mobile, was found at elevated concentrations in the deeper building boring soils at 6-8 feet and 8-10 feet. However, the soils in this area were disturbed and this most likely redistributed the contaminants, changing the vertical concentration profiles. The horizontal chromium distribution in the building boring area was irregular, with clusters of elevated concentrations. This may be due to more frequent disposal in those areas and also may be a function of the disturbed soils.

In the former wastewater lagoon areas, total (trivalent) chromium concentrations decrease from east to west in the surface soil (0-2 feet) samples (8,550 mg/kg to 1,670 mg/kg). Process wastewater entered the lagoons in the same east to westerly direction. This indicates that there is adsorption of chromium on the lagoon soils which have high ferrous iron and a high organic content (20,500 mg/kg to 78,700 mg/kg). These two factors, the presence of iron oxides and high organic content, are thought to facilitate sorption of chromium to soil.

The wetland sediments showed some of the highest levels of total chromium at the Site. In particular, the eastern boundary of the wetland areas show higher levels of chromium from overflow of process wastewater discharged from the former wastewater lagoons. The subsurface concentrations were also elevated. The high levels in the subsurface may be a result of variations in the water head which flushed contaminants down into the deeper sediments. Detections of hexavalent chromium did not directly correlate with the total chromium detections, so conclusions on the transformation in oxidation states cannot be made.

Historical deposition of chromium is shown along the bends of the Unadilla River. This explains the high levels at SD-2, the location nearest to the tannery building , and its non-detection in SD-3 and -4. Locations SD-3 and -4 in the Unadilla River were dry historically due to diversion of the river flow path. Higher concentrations downstream are indicative of historical flows into the river from the wetland sediments.

All sampled areas had elevated chromium levels. Section 5.4.2 explained how contaminated media, such as the former wastewater lagoon area surface and subsurface soils, the building area subsurface soils, onsite and off site surficial and subsurface soils, South Bank Front Lot area surficial soils, wetland sediments, and river sediments, are reflective of historical practices and transport pathways. Chromium levels typically decreased with depth; the generally higher levels of chromium in the upper areas of the soils and sediment are consistent with its tendency to sorb and its lack of mobility.

Physical mixing and advective flow in the former wastewater lagoons aided the transport of chromium across the lagoons. The diversion of the river and its flooding of the lagoon provided the mechanism for chromium transport into site soils and subsequently into the wetland sediments.

The fate of chromium in the Site soils and sediment is continued sorption onto the sediments and soils throughout the Site. Areas of high chromium content, especially in the wetland sediments and river sediments, will remain at high levels. These areas may act a source of continued contamination if transformation occurs to the more mobile hexavalent chromium and if transport occurs along the pathways shown in Figure 5-1. A significant portion of contamination remains sorbed to river sediments and smaller amounts of chromium may be transported via advective flows.

Fate and Transport of Arsenic

In soils, arsenic typically exists as the arsenate (As(V)) or the arsenite (As (III)). The chemical species is dependent on soil pH and redox potential. The fate of arsenic is affected by the iron content, and to some extent, the manganese content of the soil. Under oxidizing conditions, arsenic will remain sorbed to iron and manganese oxides in the soil. Whereas, under reducing conditions, such as exist in sediments or under flooding conditions, absorbed arsenic may be released and available for transport. Microbial action can also effect release of arsenic through reductive dissolution.

In the aqueous matrix, arsenic adsorption is the main controlling factor. The Kd value reflects the level of adsorption, and is affected by pH, temperature, and the arsenic oxidation state.

Elevated arsenic levels above criteria were mainly found in the onsite and off site soils, wetland and river sediments, and in the groundwater. The highest levels of arsenic were found in the wetland sediments, and are likely to remain elevated due to its low mobility and the relatively high levels in the surface (0-6 inches) areas of the sediment. The lower depths of the sediment also show arsenic contamination. The detections of arsenic in the groundwater, in areas below the highly contaminated wetland sediments, indicate that arsenic may exist in a more soluble form in the wetland sediment and nearby areas and facilitate its movement into the groundwater or the upward gradient of the groundwater may be flushing some contaminants out of the sediments.

Arsenic concentrations have not changed significantly when compared to the historical soil and sediment data. This indicates that arsenic has a low to moderate mobility at this area of the Site and that the current levels in onsite and off site soils will decrease slowly.

<u>Summary</u>

The major contaminants at the Site, chromium and arsenic, will remain at levels above their respective criteria if no remedial action is performed. Chromium will tend to remain sorbed to oxides in the soils, and under oxidizing conditions will convert to the hexavalent and more toxic form. The transformed hexavalent chromium will be attenuated by its transport to off site areas. Arsenic, being moderately mobile, will be slowly attenuated. Both contaminants are likely to remain at levels of concern.

Table 5-1

Media Contamination - Summary of Current Conditions
Hiteman Leather Site
West Winfield, New York

Report Section	4.2.2		4.2.3	4.2.4		4.2.5		4.2.6	4.2.7 *, ***	4.2.9 *, ***	4.2.8 *	4.2.10 *	4.2.11 *		
Location	Lagoon		Building	On-Site		Off-Site		South Bank	Wetland	River	River	Fish	Groundwater		
Media	Surface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Sediment	Sediment	Water	Tissue	Shallow Outwash	Deep Lacustrine	Bedrock
COPC															
Antimony	>>BKGD	>>BKGD	>BKGD	>>>BKGD	>>>BKGD	>>BKGD	>BKGD	>BKGD	>>>	NS & ND	NS & ND	NS & ND	NS & ND	NS	NS & ND
Arsenic	<BKGD>	<BKGD>	<BKGD>	>	>	>>	>	>	>>	>	NS & ND	NS & ND	NS	>>	NS & ND
Cadmium	>>	>>	>BKGD<	>>	>>>	>>	>>	>	>	NS & ND	NS & ND	NS & ND	NS & ND	NS	NS & ND
Total Chromium	>>>	>>>>	>>>	>>>>	>>>>	>>>	>>>	>>	>>>>	>>	NS & ND	NS & ND	>>	>	NS & ND
Hexavalent Chromium**	9 mg/kg NA	6 mg/kg NA	4 mg/kg NA	36 mg/kg NA	86 mg/kg NA	17 mg/kg NA	15 mg/kg NA	NS	>	NS & ND	NS & ND	NS & ND	NS	NS	NS
Cyanide	>BKGD	>BKGD	>BKGD	>>BKGD	>>BKGD	>>BKGD	>BKGD	>BKGD	NS & ND	NS & ND	NS & ND	NS & ND	NS	NS	NS & ND
Lead	>BKGD	>BKGD	>BKGD	>>BKGD	>>BKGD	>>BKGD	>>BKGD	>BKGD	>	>	NS & ND	NS & ND	NS	>>	NS & ND
Mercury	<BKGD>	NS	<BKGD	>	>	>>	>>>	NS	>	> ****	NS & ND	NS & ND	NS	NS & ND	NS & ND
Nickel	<BKGD>	<BKGD>	<BKGD	>	>	<BKGD>	>	<BKGD>	>	>	NS & ND	NS & ND	>	>	NS & ND

BKGD = Background
NA = Criterion Not Available
NS = Not Selected as primary COPC
ND = Not Detected

> Above Background and Above Criterion within 10X
>> Above Background and Above Criterion within 100X
>>> Above Background and Above Criterion within 1000X
>>>> Above Background and Above Criterion within 10,000X

*No Background Values presented.
**Hexavalent Chromium Concentrations are Maximum Values for the Locations/Media.
***Criteria only for Benthic Aquatic Life.
****Found in Background/Upstream Sample.
<BKGD> Less than Background but Above Criteria
>BKGD< Above Background but Less than Criteria
>BKGD Above Background but No Other Criterion

Table 5-2

Field Measured Physical Factors Affecting Contaminant Fate and Transport
Hiteman Leather Site
West Winfield, New York

Media	pH	TOC	Redox Potential (mV)
Soil	5.5-11.0	2,400-211,000 (mg/kg)	NA
Groundwater	5.6-9.17	10-250 (mg/l)	-433-223
Unadilla River Surface Water	5.64-7.97	NA	-0.046-62

Notes:
TOC - total organic carbon
redox - oxidation reduction
mg/kg - milligram/kilogram
mg/l- milligrams/liter
mV- millivolts
NA- Not Available

Table 5-3

Fate and Transport Properties for Site Contaminants
Hiteman Leather Site
West Winfield, New York

CONTAMINANT	Molec. Weight (g/mole)	Density (g/cm^3)	Water Solubility at 25° C (mg/l)	Vapor Pressure at 25° C (mm Hg)	Henry's Law Constant (atm-m ^3/mol)	Koc	log Kow	Kd (cc/gm)	Rf	Adsorption	Volatilization from Water	Mobility
TAL Inorganics												
Chromium	52	7.2	Insoluble	NA	NA	No data	No data	1.5E+01	6.0E+02	High	NA	Low
Hexavalent chromium	52				NA						NA	Moderate
Arsenic	75	4.7	Insoluble	NA	NA	No data	No data	3.0E+01	1.2E+03	High	NA	Low
Antimony	121.8	6.7	Insoluble	NA	NA	No data	No data	4.5E+01	1.8E+03	High	NA	Low
Cadmium	112.4	8.65	Insoluble	NA	NA	No data	No data	7.5E+01	3.0E+03	High	NA	Low
Lead	207	11.34 @ 20^{0}C	Insoluble	NA	NA	No data	No data	2.9E+00	1.2E+02	High	NA	Low
Mercury	200.6	13.5	0.28 umoles/L	2.00E-03	No data	No data	5.95	3.2E+02	1.3E+04	High	High	Low
Mercuric (II) Chloride	271.5	5.4	6.9E+04	1 (136.2^{0}C)	No data	No data	No data	NA	NA	High	NA	Low
Mercuric (II) Sulfide	232.7	7.7	Insoluble	No data	No data	No data	No data	NA	NA	High	NA	Low
Nickel	59	8.9	Insoluble	NA	NA	No data	No data	7.9E+01	3.2E+03	High	NA	Low

VARIABLES

Fraction Organic Carbon, foc =	5.000%		
Soil Bulk Density, Rho_b =	2	gm/cc	
Effective Porosity, Eta_e =	5%		
Adsorption is	"Low"	if Kd <	0.5
	"High"	if Kd >	2
	"Moderate"	if Kd is in-between	
Volatilization from Water is	"Low"	if H <	1.0E-07
	"High"	if H >	1.0E-03
	"Moderate"	if H is in-between	
Mobility is	"High"	if Rf <	1.0E+01
	"Low"	if Rf >	1.0E+03
	"Moderate"	if Rf is in-between	

NOTATION

Koc = Soil Organic Carbon/Water Partition Coefficient, cc/gm
Kow = n-Octanol/Water Partition Coefficient, dimensionless
Kd = Soil/Water Partition Coefficient [= Koc X foc for organics], cc/gm
Rf = Retardation Factor = 1 + (Rho_b X Kd / Eta_e), dimensionless

g/mole	grams per mole
g/cm^3	grams per cubic centimeter
mg/l	milligrams per liter
mm Hg	milliliter of mercury
atm-m ^3/mol	atmosphere per mole per cubic meter

Notes:
1 The Kd values for inorganics are based information provided in the EPA Soil Screening Guidance Document (EPA, 1994). The Kd values for barium, beryllium, cadmium, copper, mercury, nickel, and zinc were developed by EPA using an equilibrium geochemical speciation model (MINTEQ2), assuming a certain pore-water chemistry. The values for arsenic, chromium (6+), selenium, and thallium were based on empirical, pH-dependent relationships developed by EPA. Other physical properties were obtained from the Agency for Toxic Substances and Disease Registry (ATSDR)'s Toxicological Profiles.
g/mole = grams per mole
mg/l = milligrams per liter
mm HG = millimeters of mercury
cc/gm = per gram

Table 5-4

Current Transport Media/Pathways
Hiteman Leather Site
West Winfield, New York

Pathway/Media	Potentially Affected Organisms and Other Media/Pathways	Discussion
River Sediment	Benthic	Uncontrolled transport. Contaminated sediments probably extend downstream beyond sample locations.
Wetland Sediments	Benthic	Potential washoff and transport to river.
Surficial Soils Off Site	Human Health	Potentially uncontrolled access.
Surficial Soils - Onsite, Lagoon, South Bank Front Lot	Human Access, and Downgradient Media/Pathways	Potentially uncontrolled access. Potential for erosion and runoff to wetland and river.
Bedrock Groundwater	Human Ingestion	Hexavalent chromium near drinking water limit onsite. Potential for transport to water supply wells nearby.
Subsurface Soils -- Building, Lagoon, Onsite, Off Site	N/A - See Discussion Column	Significant transport unlikely.
River Water Column	N/A - See Discussion Column	Below all criteria.
Groundwater - Shallow	N/A - See Discussion Column	Transport not likely or signifcant for most COPCs.
Groundwater - Deep	N/A - See Discussion Column	Not discharging directly to surface media/pathways. Unlikely to reach water supplies, but potentially a residual source to bedrock aquifer.

Notes:
N/A = Not Applicable
COPC = Contaminant of Potential Concern

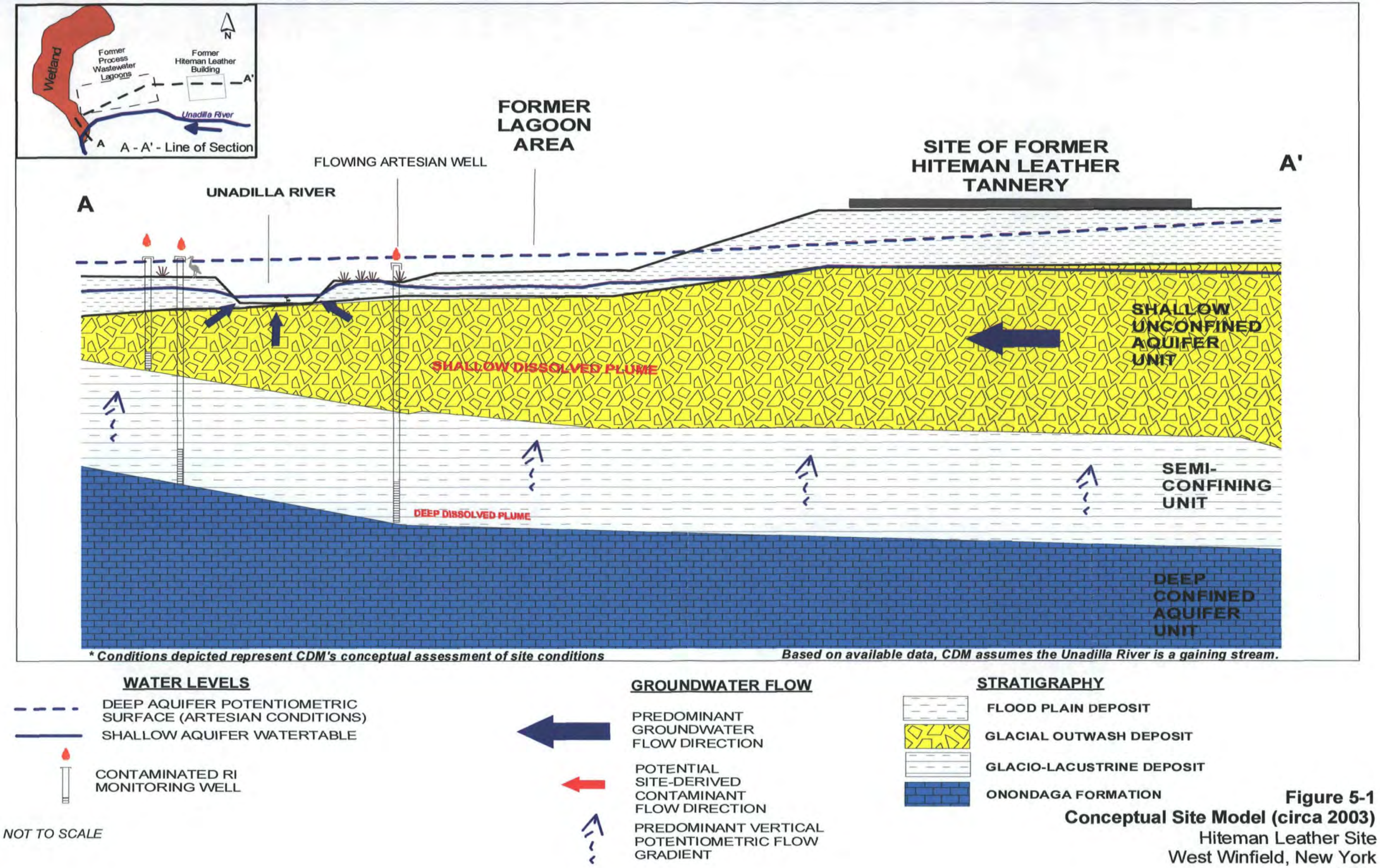


Figure 5-1
Conceptual Site Model (circa 2003)
Hiteman Leather Site
West Winfield, New York
CDM.

6 Section Six

Section 6
Risk Assessments

6.1 Human Health Risk Assessment

The results of the HHRA are summarized below.

6.1.1 Summary of Approach

In the HHRA, contaminants in various media at the Site were quantitatively evaluated for potential health threats to the following receptors:

Hiteman Property Area

- Current/Future Workers
- Current/Future Trespassers
- Future Residents
- Future Recreational Users
- Future Construction Workers

Crumb Trailer Park

- Current/Future Residents
- Future Construction Workers

Unadilla River

- Current/Future Recreational Users

The estimates of cancer risk and noncancer health hazard, and the greatest chemical contributors to these estimates were identified.

Chemicals of potential concern were selected based on criteria outlined in the RAGS (EPA 1989), primarily through comparison to risk-based screening levels. The chemicals of potential concern evaluated in the risk assessment were primarily inorganics and volatile organic compounds. The essential nutrients (i.e., calcium, magnesium, potassium, and sodium) were not quantitatively addressed as their potential toxicity is significantly lower than other inorganics at the Site, and most existing toxicological data pertain to dietary intake.

Exposure routes and human receptor groups were identified and quantitative estimates of the magnitude, frequency, and duration of exposure were made. Exposure points were estimated using the minimum of the 95 percent upper confidence limit (UCL) and the maximum concentration. Chronic daily intakes were calculated based on the reasonable maximum exposure (RME) scenario (the highest exposure reasonably expected to occur at a site). The intent is to estimate a conservative exposure case that is still within the range of possible exposures. Central tendency (CT) exposure assumptions were also developed, which reflect more typical exposures.

In the toxicity assessment, current toxicological human health data (i.e., reference doses and slope factors) were obtained from various sources and were utilized in the order as specified by RAGS (EPA 1989).

Risk characterization involved integrating the exposure and toxicity assessments into quantitative expressions of risks/health effects. Specifically, chronic daily intakes were compared with concentrations known or suspected to present health risks or hazards.

In general, the EPA recommends target values or ranges (i.e., cancer risk of 10^{-6} to 10^{-4} or hazard index of one) as threshold values for potential human health impacts (EPA 1989). These target values aid in determining whether additional response action is necessary at the site.

6.1.2 Summary of Site Risks

This section presents a summary of the carcinogenic risks and noncarcinogenic hazards for exposures to contaminants in various media at the Hiteman Leather Site that were quantitatively evaluated for potential health threats.

6.1.2.1 Risks at the Hiteman Property Area

Risks to Workers

Risks associated with workers at the Hiteman Property were estimated for adult workers, and based on exposure to contaminants in surface soil via dermal contact, incidental ingestion and through inhalation of fugitive dust from surface soil. The total estimated cancer risk for workers at the Hiteman property is within the range of 10^{-6} to 10^{-4} for both RME (5×10^{-5}) and CT exposures (4×10^{-6}). Cancer risks from the surface soil on the Hiteman property are predominately due to the presence of benzo(a)pyrene and dibenzo(a,h)anthracene.

The total hazard index for workers exposed to surface soil at the Hiteman property is below the threshold of 1 for both RME (0.5) and CT exposures (0.2), indicating that noncancer health effects are not expected to occur from the exposures to subsurface soil at the Hiteman property.

Risks to Trespassers

Risks associated with trespassers at the Hiteman Property were estimated for adolescents (12 to 18 years), based on potential exposure to contaminants in both the surface soil on the property as well as the sediment located in the wetland area. Estimated cancer risks for the trespasser were within the range of 10^{-6} to 10^{-4} for the RME (3×10^{-5}) and CT scenarios (8×10^{-6}). The cancer risk for the trespasser predominately comes from the arsenic in wetland sediment.

The total hazard index for adolescent (12 to 18 years) trespassers exposed to surface soil and wetland sediment at the Hiteman property exceeds the threshold of 1 for RME (3) and CT (0.7). This indicates that noncancer health effects could occur from exposures to the wetland sediment at the Hiteman property, primarily due to incidental ingestion and dermal contact of antimony. Exposure to elevated concentrations of antimony may alter the levels of blood glucose and cholesterol.

Risks to Residents

The highest estimated risks were associated with hypothetical future residential use of the Hiteman Property. Risks as a future residential area were estimated for adults and children (0 to 6 years), based on potential exposure to contaminants through dermal contact and ingestion of surface soil, wetland sediment, and groundwater. Inhalation was also considered for surface soil and groundwater vapors. The cancer risks for adult residents exceeded the range of 10^{-6} to 10^{-4} for RME (6×10^{-4}) and were at the upper end of the range for the CT scenario (1×10^{-4}). The cancer risks for child residents exceeded the range of 10^{-6} to 10^{-4} for both the RME (6×10^{-4}) and CT scenarios (3×10^{-4}). Cancer risks for adult and child residents are predominantly due to the presence of arsenic in both groundwater and wetland sediment.

The total hazard index for adult residents exceeds the threshold of 1 for both RME (20) and CT exposures (10). The total hazard index for child residents exceeds the threshold of 1 for both RME (80) and CT exposures (40). These hazard indices are primarily due to the presence of antimony and arsenic in sediment and iron and manganese in groundwater. Exposure to elevated concentrations of these inorganics may alter the levels of blood glucose and cholesterol, and adversely affect the gastrointestinal tract, nervous system, liver, and skin.

Risks to Recreational Users

Risks associated with the Hiteman Property as a future recreational area were estimated for adults and children (0 to 6 years), based on dermal contact, ingestion, and inhalation of surface soil and dermal contact and ingestion of wetland sediment. The cancer risks for adult recreational users are within the range of 10^{-6} to 10^{-4} for RME (1×10^{-4}) and CT scenarios (2×10^{-5}). The cancer risks for child (0 to 6 years) recreational user are just above the range of 10^{-6} to 10^{-4} for RME (2×10^{-4}) and within the range for the CT scenario (4×10^{-5}). Cancer risks for both adult and child recreational user are predominantly due to the presence of arsenic in the wetland sediment.

The total hazard index for adult recreational users exceeds the threshold of 1 for RME (2) but not CT exposures (0.6). The total hazard index for child recreational user exceeds the threshold of 1 for both RME (20) and CT exposures (5). These hazard indices are primarily due to the presence of antimony. Exposure to elevated concentrations of antimony may alter the levels of blood glucose and cholesterol.

Risks to Construction Workers

Risks associated with the Hiteman Property for adult construction workers, and based on exposure to contaminants through dermal contact and incidental ingestion of soil and through inhalation of fugitive dust generated by construction activities. The total estimated cancer risk for construction workers are at the low end of the range of 10^{-6} to 10^{-4} (2×10^{-6}).

The total hazard index for construction workers exposed to subsurface soil at the Hiteman property is 5, primarily from inhalation of manganese in dust, which can adversely affect the nervous system.

6.1.2.2 Risks at the Crumb Trailer Park

Risks to Residents

Risks associated with soil at the Crumb Trailer Park were estimated for adult and child (0 to 6 years) residents, based on potential exposure to contaminants through dermal contact, ingestion and inhalation of dust from vehicle traffic on the unpaved road. The cancer risks for adult residents are within the range of 10^{-6} to 10^{-4} for both RME (8×10^{-5}) and CT scenario (2×10^{-5}) as well as for child residents RME (1×10^{-4}) and CT scenario (6×10^{-5}). Cancer risks for residents are predominantly due to the presence of arsenic in the surface soil.

The total hazard index for adult residents exposed to surface soil at the Crumb Trailer Park is 7 for the RME and 5 for the CT scenario. The total hazard index for child residents also exceeds the threshold of 1 for both RME (40) and CT exposures (10). These hazard indices are primarily due to the presence of manganese, aluminum, and arsenic in surface soil. Inhalation risks are overestimated for current conditions because they are based on a model that does not account for the presence of gravel on the unpaved road.

Risks to Construction Workers

Risks associated with the Crumb Trailer Park were estimated for adult construction workers, based on exposure to contaminants in subsurface soil via dermal contact, incidental ingestion and through inhalation of fugitive dust from the soil. The total estimated cancer risk for construction workers at the Crumb Trailer Park is below the range of 10^{-6} to 10^{-4} (7×10^{-7}).

The total hazard index for construction workers exposed to subsurface soil at the Crumb Trailer Park is 5, primarily due to inhalation of manganese which can adversely affect the nervous system.

6.1.2.3 Risks at the Unadilla River

Risks to Recreational Users

Risks associated with recreational activities at the Unadilla River were estimated for adults and adolescents (12 to 18 years), and based on incidental ingestion and dermal contact with sediment and surface water. Total excess lifetime cancer risk for adult recreational users within the range of 10^{-6} to 10^{-4} for RME (1×10^{-5}) and CT exposures (3×10^{-6}). The total excess lifetime cancer risk for adolescent recreational were also within the range for the RME (2×10^{-6}) and CT scenarios (1×10^{-6}). Cancer risks for adult and adolescent recreational users were primarily associated with exposure to arsenic and benzo(a)pyrene in the sediment.

Total noncancer HI for recreational adults and adolescents was 0.1 for the RME scenario and 0.04 for the CT exposure scenario. These HIs are well below the threshold of 1, indicating that noncancer health effects are not expected to occur from exposures to sediment and surface water at the Unadilla River. The estimated cancer risks for adolescents was 0.1 for the RME scenario and 0.04 for the CT exposure scenario. These HIs are well below the threshold of 1, indicating that noncancer health effects are not expected to occur from exposures to sediment and surface water at the Unadilla River.

6.1.3 Summary of Uncertainties

As in any risk assessment, the estimates of potential health threats (carcinogenic risks and noncarcinogenic health effects) for the Site have associated uncertainties. In general, the main areas of uncertainty include the following:

- Environmental data
- Exposure parameter assumptions
- Toxicological data
- Risk characterization

As a result of the uncertainties, the risk assessment should not be construed as presenting absolute risks or hazards. Rather, it is a conservative analysis intended to indicate the potential for adverse impacts to occur based on reasonable maximum and central tendency exposures.

6.2 Ecological Risk Assessments

CDM conducted an abbreviated SLERA for the Hiteman Leather Site, which was submitted to EPA on June 19, 2003. The SLERA was streamlined, per discussion with the EPA Remedial Project Manager and EPA's Biological Technical Assistance Group, to omit specific Site receptors and their respective measurement endpoints. It was determined that a full SLERA evaluation was unnecessary, due to the Site's widespread and elevated contamination, in light of the obvious need for a Baseline Ecological Risk Assessment (BERA). The draft BERA is being conducted by CDM and will be submitted to EPA under separate cover. Receptor selection and subsequent evaluation were included as the first step of the BERA, Step 3 of the Ecological Risk Assessment Guidance for Superfund (ERAGS) process.

6.2.1 Screening Level Ecological Risk Assessment

The following text is taken from Section 3.3, Risk Summary, of the SLERA.

Contaminants of potential ecological concern are present in each media that were assessed. Chemicals found in Site surface soils, sediments, and surface water indicate the potential for adverse risks to aquatic and terrestrial receptors. Contaminants of potential ecological concern include both organic and inorganic chemicals. Contaminants of potential concern are found at the highest concentration and more frequently in Site surface soils and sediments, although Site-derived contaminants also are found in river sediments downstream of the Site.

Metal COPCs show the greatest number and greatest magnitude of screening value exceedances. In Site soils maximum concentrations of chromium and mercury generate the highest hazard quotient (HQ) values, exceeding their screening values by 189,500 and 1,568 times, respectively. Several organic compounds also generated high hazard quotients. PAHs detected in Site soils exceeded the screening criteria by 56 to 250 times. Metals were detected at lower concentrations in the offsite trailer park soils but still exceeded the screening values. Chromium and mercury detected in offsite soils exceeded their screening values by 3,575 and 2,156 times, respectively.

Maximum antimony, arsenic, chromium, and copper concentrations in Site wetland samples exceeded screening values by a magnitude of 397, 31, 3,475 and 39 times, respectively. Chromium concentrations in site sediment are higher than in Site soils, but generate a lower HQ because the sediment screening value for chromium is higher than the soil screening value. Concentrations of several pesticides detected in the onsite sediments also indicate the potential for risk.

Concentrations of chromium in Unadilla River sediments indicate the potential for risk to aquatic receptors when compared with screening values. Maximum chromium concentrations in the river sediment exceeded the LEL screening value for benthic receptors by 64 times. Chromium concentrations also exceeded the SEL screening value, indicating the potential for severe risk to aquatic receptors. The other Site-related metals indicated the potential for risk, slightly exceeding the screening criteria and generating HQ values between 1 and 2. Gamma-chlordane detected in the river sediments exceeded the wildlife bioaccumulation value by 62 times.

In summary, contaminant concentrations in Site soil and sediment and in offsite sediment exceed screening values by large margins and indicate significant potential for risk. The exact nature of this risk is unknown and additional data such as metal speciation and bioavailability are needed to confirm the exact level of risk and to develop preliminary remediation goals.

6.2.2 Baseline Ecological Risk Assessment

Based on results of the SLERA, CDM is currently conducting a BERA. CDM conducted BERA field activities in September 2004, to provide information to help establish remedial priorities and serve as a scientific basis for regulatory and remedial actions for the Site. BERA activities are described in Section 2.4.3. Results of these sampling activities will be discussed in the BERA, to be submitted under separate cover.

7 Section Seven

Section 7
Summary and Conclusions

This section provides a summary of the major findings of the RI. The conclusions drawn from the various investigations that were conducted concerning the nature and extent of contamination in Site media (onsite and off site surface and subsurface soil, onsite wetland, groundwater, and Unadilla River surface water, sediment, and fish tissue) and the fate and transport of contaminants are discussed below.

7.1 Sources of Contamination

Poor waste management practices and the disposal of contaminated tannery wastewater and other solid wastes into unlined wastewater lagoons, the onsite wetland, and onsite and off site soils have resulted in the contamination of onsite and off site soils, sediments in the onsite wetland and Unadilla River, and groundwater. Evaluation of samples collected from all media indicate concentrations of contaminants, primarily inorganics, that exceed applicable screening criteria. The primary Site-specific COPCs are antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide.

Contaminant patterns appear to be heavily influenced by the original processes and waste disposal practices that were in place during Site operations. Approximately 35 years after operations ceased, contamination from the Site continues to be released to the environment. Contaminated surface and subsurface soils in the former wastewater lagoon area and sediments in the onsite wetland currently act as sources of contamination to other media.

7.2 Summary of Nature and Extent of Contamination

A summary of the nature and extent of contamination delineated in the Site media is provided in the following sections.

7.2.1 Soils

Site-related contamination is present in surficial and subsurface soils located in the former wastewater lagoons, beneath the former facility, and in disposal areas located both onsite and off site.

7.2.1.1 Lagoon Soil Borings

The primary COPCs with the highest concentrations and greatest number of detections in lagoon soils during the CDM RI were antimony, cadmium, and chromium. The highest concentrations were located in the eastern-most boring at the inlet to the former wastewater lagoons. Contaminant levels generally tended to decrease with depth. However, cadmium and chromium were still detected at concentrations above screening criteria in the terminal interval of lagoon borings, indicating that the vertical extent of contamination beyond the depth of the lagoon soil borings is not known.

7.2.1.2 Building Soil Borings

During the CDM RI, the primary contaminants with the highest concentrations and greatest number of detections in soils underlying the former facility were cadmium, chromium, and lead. Arsenic, mercury, and nickel were also detected but were generally present only in the 0-2-foot interval directly below the building foundation; concentrations were detected at levels from 1 to 2 times NYSDEC-RSCO screening criteria, but below background screening criteria.

Contaminant concentrations generally tended to decrease with depth, with the exception of hexavalent chromium levels, which were elevated at depth. Cadmium, chromium, and lead were detected at the terminal interval at the majority of the soil borings, indicating that the vertical extent of chromium contamination in these locations is not defined.

7.2.1.3 Onsite Soil Borings

All primary COPCs were detected in onsite surface and subsurface soil samples. Screening criteria exceedances of inorganic chemicals were widespread across the Site, indicating that wastewater was in direct contact with many soil areas. Specific areas of the Site contain clusters of higher-magnitude inorganic chemical exceedances in both surface and subsurface soils indicating locations where inorganics might have been released more frequently or directly in conjunction with the handling and conveyance of the tannery processing/waste streams.

The most frequent occurrence of screening level exceedances of primary COPCs in both surface and subsurface soils was noted to the southwest of the former building footprint, between the former building location and the river where the former sluiceway and UST were located. Total chromium concentrations are most extensive in and below the areas of the former sluiceway and UST on the southwest side of the former building, in the area of the concrete dye tanks on the southeast side of the former building, and in the area of the former wastewater lagoon overflow to the north of the former lagoons. During the CDM RI, the highest concentrations and deepest extent of contamination are concentrated below the former sluiceway, around the UST, and along the drainage discharge path from lagoon overflow.

Other areas of elevated inorganic COPC contamination in surface and subsurface soil include the west-central portions of the Site where lagoon overflow was directed to the onsite wetland, the south side of the river where fill material was reportedly disposed, and the northwestern portion of the Site where waste materials reportedly were landfilled along the eastern bank of the onsite wetland.

7.2.1.4 Off Site Soil Borings

The highest levels of primary COPCs are found in the northwest corner of the Crumb Trailer Park in RSB-21, RSB-22, RSB-41, RSB-42, and RSB-44. In general, surface soils contained higher concentrations of antimony, arsenic, total and hexavalent chromium, cyanide and lead, whereas subsurface soils generally contained higher concentrations of cadmium, mercury, and nickel. Chromium and other primary COPC concentrations tended to decrease with depth, with the exception of RSB-21 and RSB-42, which increased with depth.

7.2.2 Onsite Wetland Sediment

The isoconcentration contours of chromium shown in Figures 4-9a and 4-9b indicate that the highest CDM RI concentrations of chromium in the 0-6 inch interval are located on the eastern side of the wetland, near the outfall from a reported weir box particularly around WTSD-14. The highest CDM RI concentrations of chromium in the 18-24 inch interval are located on the northeast edge of the wetland, near the outfall from a drainage ditch on the north side of the property. It is likely that these sample locations closely correspond to the two historic outfall points. At least three other primary COPCs, hexavalent chromium, lead, and mercury, have similar distributions, at much lower concentrations above their screening criteria.

Contaminant concentrations were generally greater in all surface sediment samples compared with deeper samples, with the exception of chromium, lead, and mercury; concentrations of these contaminants were higher in the deeper samples in the area of the northern outfall. Variations in the vertical distribution of these analytes may have been controlled by a combination of chemical and biochemical factors such as pH, competitive sorption between metals, organic carbon quantity, varying Kd, etc. Variation in the head of water across the wetland above the water-sediment interface also may have influenced downward contaminant migration rates.

7.2.3 Unadilla River Sediment, Surface Water, and Fish Tissue

The primary COPCs, antimony, arsenic, total chromium, lead, mercury, and nickel, are present in Unadilla River sediments adjacent to and downstream of the Site. With the exception of URSD-3, all downstream concentrations exceeded the upstream (background) sample. During the CDM RI, the highest concentrations of primary COPCs were found at the discharge from the "tan house" concrete dye tanks (URSD-2), approximately 2,500 feet downstream (URSD-6), and approximately 1.2 miles downstream (URSD-9). The lowest concentrations were detected in URSD-3. This suggests that impacted sediments are continuing to migrate downstream from the Site, and that contaminated upstream sediments adjacent to the Site are acting as a source that continues to impact the downstream locations. The downstream extent of chromium contamination in Unadilla River sediments is unknown at this time.

No primary COPCs were detected in Unadilla River surface water samples at levels exceeding screening criteria. Aluminum, a secondary COPC, was detected at the four furthest downstream locations at levels ranging from one to two times screening criteria. Although these downstream levels were greater than the aluminum level in the upstream background location, the absence of notable levels in the section of the river adjacent and directly downstream of the facility indicate that elevated aluminum levels are not be attributable to activities at the Hiteman Leather Site.

No primary COPCs were detected in fish tissue samples from the Unadilla River at levels exceeding human health fish tissue screening criteria. Methylene chloride, identified as a secondary COPC, was detected in all downstream forage fish samples. No detections were found in sport fish samples. Concentrations were detected at up to twice the USEPA Region 3 Risk-Based screening criteria in five samples.

7.2.4 Groundwater

Total chromium, hexavalent chromium, and nickel are the only primary COPCs detected in the shallow overburden monitoring wells. Total chromium and nickel exceeded their screening levels in samples collected during the first round of sampling, whereas, hexavalent chromium was detected at a concentration that exceeded screening criteria during the second round of sampling.

The primary COPCs arsenic, chromium, lead, and nickel exceeded groundwater quality standard screening levels in deep overburden monitoring well samples. During the first round of sampling, the COPCs were detected in only one well and during the second round of sampling they were detected at concentrations above screening levels in only two wells. No primary COPCs were detected in groundwater at concentrations that exceeded screening levels from bedrock monitoring wells; however, it should be noted that hexavalent chromium was detected below screening criteria levels in both downgradient bedrock monitoring wells.

Analytical results for primary COPCs in monitoring wells are relatively inconsistent between sampling rounds with some results varying by up to an order of magnitude between sampling events and in samples collected from monitoring wells in opposing hydrogeologic directions of the Site (i.e., hydraulically upgradient versus downgradient from the Site). Although past waste management practices may have artificially changed groundwater flow patterns sufficiently to spread groundwater contamination over a broad area in different directions from the Site, significant quantities of fine-grained material (turbidity) in groundwater samples may also have influenced sample results. It is suspected that high turbidity may be partly responsible for the inorganic exceedances. These elevated concentrations were detected in samples from wells where turbidity readings were greater than 999 NTUs. Therefore, future monitoring well sampling should include the collection of filtered groundwater samples for comparison purposes.

7.2.5 Summary of Overall Nature and Extent of Primary COPCs

Wastewater from the former tannery process included several chemicals, including the primary COPCs antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide. Total chromium levels outrank all other primary COPCs in screening criteria exceedances in all Site matrices.

During tannery operations, large amounts of contaminated wastewater were discharged to the wastewater lagoons. As a result of this process, surface and subsurface soils in the vicinity of the sluiceway, former UST, former wastewater lagoons, and overflow drainage areas north of the lagoons have been contaminated with elevated levels of primary COPCs. Soils underneath the former building also have been affected, indicating that contaminants migrated through the concrete structure, or through cracks, holes, or drains. Site-derived wastes that were transported and disposed at the Crumb Trailer Park (formerly the Town Dump) and the South Bank Front Lot have impacted surface and subsurface soils in those areas. However, the vertical extent of soil contamination in some of the most contaminated onsite and offsite areas has not been documented below 10 feet bgs.

Sediments in the wetland have been heavily impacted by site disposal practices. The majority of wastewater from the former lagoons eventually flowed through the onsite wetland, which drained into the Unadilla River at the southwest corner of the Site. Total chromium levels in the wetland indicate high levels, particularly in the areas of the two discharges from lagoon wastewater, on the eastern and northeastern borders of the wetland. However, the vertical extent of contamination has not been documented below the top two feet of sediments.

Sediments in the Unadilla River have also been impacted by Site disposal practices. Discharges to the Unadilla River were located on the southeast side of the Site by the concrete dye tanks, and on the southwest side of the Site at the discharge from the onsite wetland. During the CDM RI, the highest concentrations of primary COPCs are located at the discharge from the concrete dye tanks, and at locations downstream from the Site. Concentrations of primary COPCs in Unadilla River sediments are not found to be decreasing with distance from the Site, but rather peak and taper off in three areas. Primary COPCs are found in the furthest downstream sediment sample, indicating that the downstream extent of site-related contamination has not been documented. Spread of contaminated sediments probably occurs during storm events.

Unadilla River surface water samples indicate that Site contaminants have not heavily impacted this matrix, although low levels exist. Unadilla River fish tissue samples indicate that Site contaminants have not heavily impacted human health pathways, although impacts to ecological pathways will be evaluated in the BERA.

Groundwater in the shallow aquifer, the semi-confining unit and bedrock unit has been affected by Site contaminants, primarily total chromium. Shallow groundwater wells contain elevated levels of total chromium in the vicinity of the former wastewater lagoons, overflow areas, and sluiceway. Deep groundwater wells contain elevated levels of total chromium downgradient of the lagoons, by the onsite wetland, and north of the wastewater lagoons in the area of overflow drainage. Although total chromium concentrations in bedrock monitoring wells are below guidance and screening criteria, the presence of chromium at depth indicates that contamination has been able to migrate downward, despite the current upward vertical gradient.

7.3 Summary of Fate and Transport

The major contaminants at the Site, chromium and arsenic, will remain at levels above their respective criteria if no remedial action is performed. Chromium will tend to remain sorbed to oxides in the soils, and under oxidizing conditions will convert to the hexavalent and more toxic form. The transformed hexavalent chromium will be attenuated by its transport to off site areas. Arsenic, being moderately mobile, will be slowly attenuated. Both contaminants are likely to remain at levels of concern; however, contaminants are not mobile in non-oxidizing conditions.

7.4 Conclusions

The significant findings of the RI are as follows:

- The primary COPCs for Site media are: antimony, arsenic, cadmium, total and hexavalent chromium, lead, mercury, nickel, and cyanide.
- Onsite surface and subsurface soils have been contaminated from Site waste disposal practices, primarily in the vicinity of the sluiceway, UST, concrete dye tanks, former wastewater lagoons, and overflow drainage.
- Off site surface and subsurface soils have been contaminated from Site waste disposal practices, primarily in the northwest and southwest sides of the Crumb Trailer Park.
- Sediments in the onsite wetland have been contaminated from Site waste disposal practices.
- Sediments in the Unadilla River have been contaminated from Site waste disposal practices. The downstream extent of impacted sediments will be discussed in the BERA.
- Groundwater has also been impacted from Site waste disposal practices. Although impacts are low, contaminants have migrated through the semi-confining unit to the deep and bedrock monitoring wells, despite a present-day upward vertical gradient.

7.5 Recommendations

The vertical extent of Site-related contamination has not been fully defined in onsite soils, onsite wetland sediments, and off site soils. CDM recommends that these data gaps be addressed as pre-design investigations.

8

Section Eight

Section 8
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Appendix A

APPENDIX A

HISTORICAL AERIAL PHOTOGRAPHS

Figure A-1

HITEMAN LEATHER FACILITY,
WEST WINFIELD, NEW YORK
SOURCE: NATIONAL ARCHIVES
DATE: SEP. 19, 1936 FRAME: AJ-13-11
APPROX SCALE: 1 inch = 200 feet


Figure A-2
HITEMAN LEATHER FACILITY,
WEST WINFIELD, NEW YORK
SOURCE: NATIONAL ARCHIVES
DATE: SEP. 22, 1942 FRAME: CXG-8B-57
APPROX SCALE: 1 inch = 200 feet
N

Figure A-3

HITEMAN LEATHER FACILITY;
WEST WINFIELD, NEW YORK
SOURCE: SOIL CONSERVATION SERVICE
DATE: SEP. 23, 1955 FRAME: ARZ-5P-1
APPROX SCALE: 1 inch = 175 feet

Figure A-4

HITEMAN LEATHER FACILITY,
WEST WINFIELD, NEW YORK
SOURCE: SERVICE CONSERVATION SERVICE
DATE: OCT. 17, 1965 FRAME: ARZ-2EE-151
APPROX SCALE: 1 inch = 200 feet

Figure A-5

HITEMAN LEATHER FACILITY,
WEST WINFIELD, NEW YORK
SOURCE: SERVICE CONSERVATION SERVICE
DATE: May 26, 1977 FRAME: 177-57
APPROX SCALE: 1 inch = 200 feet

Appendix B

APPENDIX B

FIELD CHANGE REQUEST FORMS

HITEMAN LEATHER SITE
FIELD CHANGE REQUEST (FCR) FORM

REQUEST NO: 1 **DATE:** 05-2-01

FCR TITLE: Modification to Well Redevelopment Procedure

DESCRIPTION: Turbidity readings in monitoring wells redeveloped during this phase of the field investigation to date have been very high. Data has recently been found that indicates that the monitoring wells have historically had high turbidity readings. As a result, the requirement that turbidity readings be below 50 NTU is not a realistic goal. In order to redevelop the monitoring wells sufficiently and efficiently, the current well redevelopment will be modified to eliminate this requirement for well redevelopment criteria

REASON FOR DEVIATION: Due to current high turbidity readings and historical data regarding turbidity levels in the monitoring wells, the requirement that turbidity readings be below 50 NTU is not a realistic goal. In order to redevelop the monitoring wells sufficiently and efficiently, this will no longer be a requirement to determine the completion of well redevelopment.

RECOMMENDED MODIFICATION: Eliminate the requirement that turbidity levels be below 50 NTU. Stabilization of all other water quality parameters (pH, conductivity, temperature) will still be required to determine redevelopment criteria.

Signatures: CDM Federal FTL Lisa Campbell
Lisa Campbell Date 5.2.01

TAMS RI Task Manager Andrew Leung
Andrew Leung Date 5/2/01

CDM Federal SM Pamela J Philip
Pamela Philip Date 5/2/01

Distribution: Jack O'Dell, EPA Project Manager
Pam Philip, CDM Federal SM
Andrew Leung, TAMS RI Task Manager
Lisa Campbell, CDM Federal FTL
Jennifer Oxford, CDM Federal RQAC
Field Team
Project File

HITEMAN LEATHER SITE
FIELD CHANGE REQUEST (FCR) FORM

REQUEST NO: 2 **DATE:** 05-15-01

FCR TITLE: Modification to Decontamination Procedure

DESCRIPTION: The methanol/hexane rinse step described in the decontamination procedures in the QAPP will be replaced with an acetone rinse.

REASON FOR DEVIATION: The methanol/hexane rinse is more suitable for removing heavier organic contaminants (such as creosote) which are not a concern at the Hiteman Leather site. Acetone is a suitable substitute for the solvent rinse step because the acetone rinse will be sufficient to remove organic contaminants of concern from sampling equipment, and is not a contaminant of concern at the site. In addition, sampling equipment will be given a thorough rinse with deionized water after the acetone rinse and will be allowed to air dry to account for the lesser volatility of the acetone.

RECOMMENDED MODIFICATION: Replace the methanol/hexane decontamination rinse step with acetone rinse.

Signatures: CDM Federal FTL Lisa Campbell — 5·15·01 Date

TAMS RI Task Manager Andrew Leung — 5/20/2001 Date

CDM Federal SM Pamela Philip — 5/21/01 Date

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HITEMAN LEATHER SITE
FIELD CHANGE REQUEST (FCR) FORM

REQUEST NO: 3 **DATE:** 04-08-02

FCR TITLE: Modification of Drilling Method for Bedrock and Deep Overburden Monitoring Wells

DESCRIPTION: The drilling method for bedrock and deep overburden monitoring wells will be changed from hollow stem auger/air rotary to mud rotary.

REASON FOR DEVIATION: A shallow clay layer was discovered during drilling of the first bedrock monitoring well, MW-11B. The clay layer was encountered at a depth of 22 feet bgs, and is at least 8 feet in thickness. The lateral extent of the clay layer is unknown. In order to prevent the migration of contaminants to underlying units, carbon-steel casing will need to be installed at each location that the clay layer is encountered. At each bedrock monitoring well in which the clay layer is encountered, 12-inch diameter steel casing will need to be set into the clay layer (approximately 30 feet bgs); 8-inch diameter steel casing will still need to be set into bedrock, as originally planned. At each deep overburden monitoring well in which the clay layer is encountered, 8-inch diameter steel casing will need to be set into the clay layer (approximately 30 feet bgs). The current drilling methods of air rotary and hollow-stem auger are not appropriate for installation of 12-inch diameter steel casing. Mud rotary drilling will also be used for the installation of 8-inch casing for consistency and cost purposes. As a result, mud rotary drilling methods will now be used for drilling bedrock monitoring wells and deep overburden monitoring wells located in areas where the clay layer is encountered.

RECOMMENDED MODIFICATION: Use mud rotary drilling methods for drilling bedrock and deep overburden monitoring wells located in areas where the clay layer is encountered.

Signatures: CDM FTL ______________________ ______________
Lisa Campbell Date

CDM SM ______________________ 4/8/02
Pamela Philip Date

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HITEMAN LEATHER SITE
FIELD CHANGE REQUEST (FCR) FORM

REQUEST NO: 4 **DATE:** 04-15-02

FCR TITLE: Modification to Bedrock Coring Depth and Bedrock Monitoring Well Depth

DESCRIPTION: Bedrock monitoring wells will be cored and installed in the first 10 feet of heavily fractured areas, instead of 50 feet below the top of bedrock, as described in the QAPP

REASON FOR DEVIATION: Fractures from 48-66' bgs in the borehole for MW-11B, were found to produce substantial amounts of water and coring rates were extremely slow in the hard bedrock. Upon consultation with EPA and the CDM Project Manager, it was determined that it was not necessary to install bedrock monitoring wells 50' into the bedrock, but that coring and installation would be terminated after encountering the first 10 feet of heavily fractured areas. The depth to which each bedrock well is cored will be based on visual observations of fractures in the core, keeping in mind that the screened zone must be below the zone of influence at the contact with the overburden.

RECOMMENDED MODIFICATION: Core and install bedrock monitoring wells after encountering the first 10 feet of heavily fractured areas.

Signatures: CDM FTL Lisa Campbell 4-15-02
Lisa Campbell — Date

CDM SM Pamela Philip 4-15-02
Pamela Philip — Date

Distribution: Jack O'Dell, EPA Project Manager
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FIELD CHANGE REQUEST (FCR) FORM

REQUEST NO: 5 **DATE:** 04-26-02

FCR TITLE: Modification to Bedrock Drilling at RMW-16B

DESCRIPTION: The bedrock portion of the borehole for RMW-16B will not be cored; it will be drilled using air drilling with a down hole hammer.

REASON FOR DEVIATION: Due to the observations of water in nearby wells being affected during coring and air rotary drilling at the two recently installed bedrock wells, Corky raised concerns about the effect the coring and air rotary drilling at RMW-16D would have on the Village of West Winfield town water well #3. L. Cambpell and M. Adams checked out the Village of West Winfield town water well #3, located approximately 2/10 mile east of the site and RMW-16B. According to well construction and boring logs, the town water well #3 is constructed of 8-inch diameter stainless steel, with a total depth of 45 feet bgs. The well is screened from 33-45 feet bgs (12 feet) with 40-slot stainless steel screen. Boring logs from the well installation indicate that the well is screened in the overburden gravels and sands. Sand with silt and clay layers were encountered at 48 feet bgs. Nearby test borings were drilled to 59 and 120 feet bgs, in which silt and clay were encountered from 49.5 to 59 feet bgs. In the 120-foot boring, clay was observed from 49.5 to 120 feet bgs; bedrock was not encountered. Although it appears that the town well #3 is screened at depths shallow enough to not be affected by air coring at RMW-16B, precautions will be taken to ensure that the well is not affected.

RECOMMENDED MODIFICATION: As a result, the following precautions will be taken:

1. RMW-16B will not be cored due to the increased air pressure that is introduced into fractures within the bedrock formation during air coring. Instead, the bedrock portion of the borehole will be drilled using air rotary methods, which introduces air into the formation at a much lesser pressure.

2. CDM personnel will be stationed at the town well #3 during air rotary drilling at RMW-16B. If any change in water level or air is observed, CDM personnel will immediately radio the drill crew and drilling will be stopped, after which the CDM Project Manager will be contacted.

Signatures: CDM FTL Lisa Campbell 4-26-02
Lisa Campbell Date

CDM SM Pamela Philip 4-26-02
Pamela Philip Date

Distribution: Jack O'Dell, EPA Project Manager
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HITEMAN LEATHER SITE
FIELD CHANGE REQUEST (FCR) FORM

REQUEST NO: 6 **DATE:** 04-26-02

FCR TITLE: Modifications to Geotechnical Borings

DESCRIPTION: The following changes will be made to the geotechnical borings :

1. All geotechnical borings will be cased with 4-inch steel casing into the clay layer.

2. The drilling method will be changed from hollow stem auger/air rotary to mud rotary.

3. Geotechnical borings will be terminated at bedrock; no bedrock coring will be done.

REASON FOR DEVIATION: Rationale for the above changes are as follows, respectively:

1. A shallow clay layer was discovered during drilling of the first bedrock monitoring well, MW-11B. The clay layer was encountered at a depth of 22 feet bgs, and is at least 8 feet in thickness. The lateral extent of the clay layer is unknown. In order to prevent the migration of contaminants to underlying units, carbon- steel casing will need to be installed at geotechnical borings at each location that the clay layer is encountered.

2. In order to be able to drill through the carbon-steel casing, mud rotary drilling methods are required.

3. Due to the observations made during recent coring activities in the area (that imply that the bedrock and lower clay layers are hydrologically connected), further coring at geotechnical borings would likely impact the recently installed and soon to be developed monitoring wells.

RECOMMENDED MODIFICATION: Make changes to the geotechnical borings as described above.

Signatures: CDM FTL Lisa Campbell 4-26-02
Lisa Campbell — Date

CDM SM Pamela Philip 4-26-02
Pamela Philip — Date

Distribution: Jack O'Dell, EPA Project Manager
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Appendix C

APPENDIX C

DATA USABILITY REPORT

HITEMAN LEATHER SITE
DATA USABILITY ASSESSMENT

SUMMARY

Soil, sediment, surface water and groundwater samples were collected and analyzed in accordance with the Final Quality Assurance Project Plan (QAPP) for the Hiteman Leather Superfund site (CDM 2000). Table 1 contains a data quality assessment summary.

There were some deviations from the sampling procedures defined in the QAPP. All deviations were initiated by field change requests and submitted to EPA. Field changes and their potential affect on data quality are discussed in Field Change Requests section below.

Results from 17 semi-volatile and pesticide samples are considered to be biased low due to exceeded holding time. Hexavalent chromium results should be considered biased low due to consistent low spike recoveries. Some data were rejected due to holding time, blank contamination, poor matrix spike recovery and low instrument response.

Aluminum, iron, sodium, thallium, mercury, acetone, bis(2-ethylhexyl)phthalate, caprolactam, chloroform and methylene chloride were detected above reporting limit in field, trip and/or method blanks. Of these:

- Acetone, bis(2-ethylhexyl)phthalate and methylene chloride are generally viewed as common laboratory contaminants and are not contaminants of concern at the Hiteman Leather Site. The concentration level of acetone in some field blanks indicates that the sampling equipment was not adequately rinsed after acetone solvent wash.
- Aluminum, iron, magnesium, sodium, caprolactam and chloroform concentrations in the blanks were not detected at sufficient levels to affect data usage as relates to comparison to action level criteria.
- The concentration of thallium and mercury detected in the blanks is at sufficient levels to influence sample concentrations when compared to action level criteria.

The soil, sediment, surface water and groundwater sample data are usable as reported with the data validation qualifiers added.

FIELD CHANGE REQUESTS

Six field change requests (FCRs) were prepared and submitted to EPA for the Hiteman Leather Site.

#1 05/02/01 - Modification to Well Redevelopment Procedure: Turbidity readings in monitoring wells redeveloped during this phase of the field investigation to date have been very high.

Data has recently been found that indicated that the monitoring wells have historically had high turbidity readings. As a result, the requirement that turbidity readings be below 50 NTU is not a realistic goal. In order to redevelop the monitoring wells sufficiently and efficiently, the current well development will be modified to eliminate this requirement for well redevelopment criteria.

This FCR did not impact sample data quality since water quality sampling parameters were met prior to sample collection. Turbidity levels were minimized during sampling through the use of low stress sampling procedures.

#2 05/15/01 - Modification to Decontamination Procedure: The methanol/hexane rinse step described in the decontamination procedures in the QAPP will be replaced with an acetone rinse.

This FCR did not impact sample quality for the identification and measurement of site contaminant of concern. There was however some acetone contamination detected in the field rinse blanks and to a lesser extent some samples. The potential impact to the sample data quality has been addressed through data validation.

#3 04/08/02 - Modification of Drilling Method for Bedrock and Deep Overburden Monitoring Wells: The drilling method for bedrock and deep overburden monitoring wells will be changed from hollow stem auger/air rotary to mud rotary.

This FCR was enacted due to detection of a shallow clay layer. The change in drilling procedure allows for drilling a wider diameter bore hole. This will allow drillers to case off the boring where the clay layer is encountered impeding potential downward movement of contaminants along the well casing through the clay.

#4 04/15/02 - Modification to Bedrock Coring Depth and Bedrock Monitoring Well Depth: Bedrock monitoring wells will be cored and installed in the first 10 feet of heavily fractured areas, instead of 50 feet below the top of bedrock, as described in the QAPP.

This FCR did not impact sample quality and will enhance monitoring well recharge rates.

#5 04/26/02 - Modification to Bedrock Drilling at RMW-16B: The bedrock portion of the borehole for RMW-16B will not be cored; it will be drilled using air drilling with down hole hammer.

This FCR did not impact sample quality and was enacted to limit potential affect of drilling activities on nearby town well.

#6 04/26/02 - Modifications to Geotechnical Borings: 1) All geotechnical borings will be cased with 4-inch steel casing into the clay layer. 2) The drilling method will be changed from hollow stem auger/air rotary to mud rotary. 3) Geotechnical borings will be terminated at bedrock; no bedrock coring will be done.

This FCR did not impact sample quality and is in effect a combination of FCRs 4 and 5 with the addition of eliminating additional bedrock geotechnical borings.

DATA COMPLETENESS

No field samples were lost due to shipping. Some data were rejected due to holding time, blank contamination, poor matrix spike recovery and low instrument response. The total number of sample data rejected by data validation is 324 or 1.0% of the data. This represents a completeness of 99% which exceeds the data quality objective (DQO) of 90% completeness cited in the QAPP for the sampling event.

METHODS

Samples were analyzed using the following methods as listed in the QAPP:

- EPA CLP Statement of Work (SOW) OLM04.2 for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and pesticides and polychlorinated biphenyls (PCBs)
- EPA CLP SOW ILM04.2 for TAL metals and cyanide
- EPA CLP SOW OLC02.1 and OLC03.2: groundwater VOCs
- Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846 (SW) 7196A: water hexavalent chromium
- Methods for Chemical Analysis of Water and Wastes (EPA) 310.1: water alkalinity
- EPA 350.1: water ammonia
- EPA 405.1: water biochemical oxygen demand (BOD)
- EPA 410.1: water chemical oxygen demand (COD)
- EPA 325.3: water chloride
- EPA 353.2: water nitrate/nitrite (NO_3/NO_2)
- EPA 375.3: water sulfate
- EPA 160.1: water total dissolved solids (TDS)
- EPA 160.2: water total suspended solids (TSS)
- EPA 351.4: water total kjeldahl nitrogen (TKN)
- EPA 415.1: water total organic carbon (TOC)
- EPA 130.2: water Hardness
- SW 3060A followed by SW7196A: soil hexavalent chromium
- SW 9045C: soil pH
- Lloyd Kahn method: soil TOC
- American Society of Testing and Materials (ASTM) method D421: soil grain size distribution

Toxicity Characteristic Leaching Procedure (TCLP) Methods

- SW 1311: *TCLP extraction procedure*
- SW 9012B: cyanide (CN)
- SW 8270C: SVOCs
- SW 8260 B: VOCs
- SW 8151A: herbicides

- SW 8082: PCBs
- SW 8081A: pesticides
- SW 7470A: metals analysis by graphite furnace (GF)
- SW 6010B: metals analysis by inductively coupled argon plasma (ICP)

The VOC, SVOC, pesticide/PCB, TAL metals, and cyanide data were subsequently validated by EPA according to EPA Region 2 methodologies. The remaining general chemistry parameters were validated by CDM according to CDM Federal Programs Corporation SOP CDM-029A, dated July 2001, a modification of USEPA National Functional Guidelines for Inorganic Data Review, February 1994. The data validation narratives indicate that the sample analyses generally met the QC criteria cited in the methods. Results associated with quality control (QC) outliers were appropriately qualified by data validators.

ACCURACY

To assess analytical accuracy, CDM reviewed holding time, organic surrogates and matrix spike/matrix spike duplicate (MS/MSD) results reported by the laboratory. The data validator qualified sample data related to samples extracted or analyzed outside holding time or with spike recoveries outside QC criteria as required by EPA Region 2.

Several arsenic, chromium and mercury results were rejected "R" by data validation due to low spike recovery of batch QC samples. The remaining MS/MSD recovery data was within QC limits.

Spike recoveries for hexavalent chromium were either below QC limits or at the lower end of the QC limit range. Several hexavalent chromium results were qualified estimated "J" by data validation. Hexavalent chromium results should be considered biased low due to the low spike recoveries.

The extraction holding time for semi-volatile, pesticide and PCB analyses was exceeded for 17 samples. The sample results were qualified as estimated "J", additionally non-detect results were rejected "R" in samples RSB-16-8-10 and RSB-10-0-2. The semi-volatile and pesticide data are considered to be biased low for these samples. Due to their stability, PCB results for these samples are not considered biased low.

Field sampling accuracy was attained through strict adherence to the approved QAPP and by using EPA approved analytical methods for sample analyses. Based on this, the data should represent as near as possible the actual field conditions at the time of sampling.

PRECISION

The analytical precision was determined by reviewing MS/MSD and laboratory duplicate results. All laboratory duplicate data were within QC limits indicating good analytical precision.

Field sampling precision was evaluated using the field duplicate results. Attachment 1 reports the field duplicate data and relative percent difference (RPD) results for the soil and sediment samples.

Attachment 2 reports field duplicate data results and RPD results for the groundwater and surface water samples. RPD results are not calculated for compounds not detected in either duplicate pair. The duplicate samples were collected in the same manner as the original samples but were collected in separate, individual containers, given separate sample identifiers and treated as individual samples by the laboratory.

For the purpose of data evaluation:

An RPD of less than 100% indicates good precision for field duplicate soil samples.

An RPD of less than 50% indicates good precision for field duplicate water samples.

Result pairs greater than five times the reporting limit are the best indicators of precision.

Soil and sediment sampling precision between the field duplicate pairs was good with 90% of all calculable result pairs having an RPD of less than 100%.

Water sampling precision between field duplicate pairs was reasonable with 76% of all calculable result pairs having an RPD of less than 50. It is important to note that all unqualified result pairs reported above the reporting limit had RPDs less than 50.

With the exception of the sediment duplicate pair for manganese from sample URSD-7, all duplicate result pairs which have RPD results greater than 100 for soil or 50 for water are either below reporting limits or have been qualified as estimated by data validation.

All duplicate pairs greater than five times the reporting limit, with the exception of URSD-7 manganese duplicate pair, have RPDs less then the lower acceptance values of 100 for soil and 50 for water.

The sampling and analysis precision for this phase of the investigation is good and does not indicate any limitation on data usage.

BLANK CONTAMINATION

Attachment 3 contains the results of the field and trip blank samples. Data validators qualified data as required by EPA Region 2 Guidelines. The identification of contaminants above contract required detection limits in the field blank samples indicates potential cross contamination of samples and cause some false positive hits in sample results.

Aluminum, iron, sodium, thallium, mercury, acetone, bis(2-ethylhexyl)phthalate, caprolactam, chloroform and methylene chloride were detected above reporting limit. Acetone, bis(2-ethylhexyl)phthalate and methylene chloride are common laboratory contaminants. Aluminum, iron, sodium, caprolactam and chloroform concentrations in the blanks were not detected at sufficient levels to affect data usage. The concentration of thallium and mercury detected in the blanks is at sufficient levels to influence sample concentrations when compared to action level criteria.

The following is a summary of contaminants reported in field, trip and/or method blank samples by matrix type:

Groundwater sample blanks:

Aluminum (maximum blank detection of 83.5 ug/l), iron (maximum blank detection of 112 ug/l) and sodium (maximum blank detection of 578000 ug/l) were detected above contract required detection limits (CRDL) in some field blanks. Cyanide, aluminum, barium, calcium, chromium, iron, magnesium, manganese, nickel, potasium, selenium, sodium, zinc, chloroform, methylene chloride, benzaldehyde and bis(2-ethylhexyl)phthalate were detected below CRDLs in field, trip and/or method blanks.

Of the contaminants detected above CRDL:

Aluminum was detected in 32 of 46 samples with results ranging from 7 ug/l to 39100 ug/l.
Iron was detected in 48 of 56 samples with results ranging from 26.6 ug/l to 293000 ug/l.
Sodium was detected in 55 of 55 samples with results ranging from 4450 ug/l to 86100 ug/l.

Sediment sample blanks:

Mercury (maximum blank detection of 0.6 ug/l), acetone (maximum blank detection of 12 ug/l) and bis(2-ethylhexyl)phthalate (maximum blank detection of 12 ug/l) were detected above CRDLs in some field blanks. Cyanide, aluminum, calcium, cobalt, iron, potasium, sodium, thallium, zinc, 4-chloro-3-methyphenol, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-octylphthalate and acetone were detected below CRDLs in field, trip and/or method blanks.

Of the contaminants detected above CRDL:

Mercury was detected in 39 of 48 samples with results ranging from 0.09 mg/kg to 0.82 mg/kg.
Acetone was detected in 17 of 48 samples with results ranging from 70 ug/kg to 3600 ug/kg.
Bis(2-ethylhexyl)phthalate was detected in 13 of 48 samples with results ranging from 56 ug/kg to 330 ug/kg.

Soil sample blanks:

Iron (maximum blank detection of 401 ug/l), magnesium (maximum blank detection of 182 ug/l), thallium (maximum blank detection of 11.2 ug/l), bis(2-ethylhexyl)phthalate (maximum blank detection of 26 ug/l), caprolactam (maximum blank detection of 13 ug/l), acetone (maximum blank detection of 310 ug/l), chloroform (maximum blank detection of 36 ug/l) and methylene chloride (maximum blank detection of 40 ug/l) were detected above CRDLs in some field blanks. Cyanide, aluminum, antimony, barium, beryllium, calcium, chromium, iron, lead, manganese, nickel, potasium, silver, sodium, vanadium, zinc, acetophenone, benzaldehyde, bis(2-ethylhexyl)phthalate, caprolactam, di-n-octylphthalate, diethylphthalate, 1,2-dichloroethane, acetone, bromodichloromethane, chloroform, methylene chloride and methycyclohexane were detected below CRDLs in field, trip and/or method blanks.

Of the contaminants detected above CRDL:

Iron was detected in 161 of 161 samples with results ranging from 4080 mg/kg to 189000 mg/kg.
Magnesium was detected in 161 of 161 samples with results ranging from 105 mg/kg to 29900 mg/kg.
Thallium was detected in 22 of 156 samples with results ranging from 1 mg/kg to 17.2 mg/kg.
Bis(2-ethylhexyl)phthalate was detected in 9 of 89 samples with results ranging from 90 ug/kg to 2100 ug/kg.
Caprolactam was detected in 17 of 87 samples with results ranging from 40 ug/kg to 550 ug/kg.
Acetone was detected in 7 of 89 samples with results ranging from 3 ug/kg to 340 ug/kg,
Chloroform was not detected in any samples.
Methylene chloride was detected in 2 of 89 samples with results ranging from 150 ug/kg to 180 ug/kg.

Five thallium results were rejected "R" by data validation due to blank contamination.

Surface water sample blanks:

There are no field blank samples associated with surface water samples since they are collected directly into sample containers. Acetone, methylene chloride and bis(2-ethylhexyl)phthalate were detected below CRDLs in trip and/or method blanks.

REPRESENTATIVENESS AND COMPARABILITY

Representativeness and comparability are achieved by using EPA approved sampling procedures and analytical methodologies. By following approved QAPP procedures for groundwater, surface water, sediment, and soil sampling during these, and any future sampling events, results representative of environmental conditions at the time of sampling should be obtained. Similarly, reasonable comparability of analytical results for these, and any future sampling events, were, and can be, achieved if the approved EPA analytical methods and standardized reporting units are employed.

Data Qualifiers
Hiteman Leather Superfund Site
West Winfield, New York

Organic Qualifiers:

U	-	Compound was analyzed for but not detected. The associated numerical value is the sample quantitation limit.
J	-	Estimated data due to exceeded quality control criteria.
B	-	Analyte is found in the associated blank and in the sample.
E	-	Compound concentration exceeds the calibration range of the instrument for that specific analysis.
D	-	Compound is identified at a secondary dilution factor.
R	-	Data is rejected due to exceeded quality control criteria.

Inorganic Qualifiers:

B	-	Reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
J	-	Estimated data due to exceeded quality control criteria.
U	-	Analyte was analyzed for but not detected.
E	-	The reported value is estimated because of the presence of interference.
M	-	Duplicate injection precision not met.
N	-	Sample recovery is not within control limits.
S	-	The reported value was determined by the Method of Standard Additions (MSA).
W	-	Post-digestion spike for furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
R	-	Data is rejected.
*	-	Duplicate analysis not within control limits.
+	-	Correlation coefficient for the MSA is less than 0.995.

Table 1
Hiteman Leather Site
Data Quality Assessment Summary

QC Sample Type	Assessment of Results	Effect on Data Quality
Laboratory QC		
Method Blanks (See QAPP Table 4-2 for detection limits.)	Analytes were detected in Metals, VOC & BNA method blanks. Summarized in Blank Contamination section.	Some sample results were qualified "U" for laboratory blank contamination.
Matrix Spikes (See QAPP Table 6-1 for accuracy limits.)	Arsenic had some very low matrix spike recoveries. Aluminum and copper had one very low ICP serial dilution recovery. Chromium and mercury had one low spike recovery. Hexavalent chromium had some low matrix spike recoveries.	Arsenic results were rejected in 40 samples. Aluminum results were rejected in 7 samples, and copper results rejected in 4 samples. Chromium and mercury results qualified as estimated, undetermined bias. Hexavalent chromium data qualified as estimated, biased low.
Surrogate Spikes (See methods for QC limits.)	One sample had surrogate recoveries outside QC limits (organic data).	Non-detect results for this sample were rejected.
Laboratory Control Samples (See QAPP Table 6-1 for recovery limits.)	All laboratory control samples were within QC limits.	No adverse affect.
Matrix Spike Duplicates (See QAPP Table 6-1 for RPD limits.)	All matrix spike duplicates were within QC limits.	No adverse affect.
Laboratory Duplicates (See QAPP Table 6-1 for precision limits.)	All laboratory duplicates were within QC limits.	No adverse affect.
Sample Integrity (See QC Table 4-1 for holding times.)	17 samples were extracted outside holding time.	Semi-volatile organic and pesticide results qualified as estimated, biased low. Non-detect data results rejected in 2 of the samples due to excessive exceedance.

Table 1
Hiteman Leather Site
Data Quality Assessment Summary

QC Sample Type	Assessment of Results	Effect on Data Quality
Field QC		
Field Rinsate Blanks (See QAPP Table 4-2 for detection limits.)	Analytes were detected in Metals, VOC & BNA method blanks. Summarized in Blank Contamination section.	Affected analytes qualified as non-detect "U".
Rinsate Water Blank (See QAPP Table 4-2 for detection limits.)	Several metals and some VOC and BNA contaminants were detected.	Affected analytes qualified as non-detect "U" Thallium results rejected "R" in 5 samples.
Field Duplicates (See QAPP Table 6-1 for precision limits.)	RPDs found outside of project limits are summarized in Precision section of this report.	Affected data results have been qualified as estimated.

ATTACHMENT 1
SOIL AND SEDIMENT SAMPLE DUPLICATE PAIR DATA AND RELATIVE PERCENT DIFFERENCES

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	BSB-05-0-2 / / 4/3/2002 / 0 to 2 ft		BSB-05-0-2-DUP / BSB-07-0-2 / 4/3/2002 / 0 to 2 ft		RPD
(Group Cod	(Group Description)							
1-VOA-s	**Volatile Organic Compounds - OLM04.2**							
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/kg	10	U	25	R	NC
74-87-3	Chloromethane	OLM04-2-V	ug/kg	10	U	25	UJ	NC
75-01-4	Vinyl Chloride	OLM04-2-V	ug/kg	25	U	10	U	NC
74-83-9	Bromomethane	OLM04-2-V	ug/kg	10	U	25	U	NC
75-00-3	Chloroethane	OLM04-2-V	ug/kg	10	U	25	U	NC
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/kg	3	J	10	J	107.69
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/kg	10	U	25	U	NC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/kg	10	U	25	U	NC
67-64-1	Acetone	OLM04-2-V	ug/kg	10	UJ	25	UJ	NC
75-15-0	Carbon Disulfide	OLM04-2-V	ug/kg	10	U	25	U	NC
79-20-9	Methyl Acetate	OLM04-2-V	ug/kg	10	U	25	UJ	NC
75-09-2	Methylene Chloride	OLM04-2-V	ug/kg	48	UJ	150	J	NC
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/kg	10	U	25	U	NC
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/kg	10	U	25	U	NC
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/kg	10	U	25	U	NC
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/kg	10	U	25	U	NC
78-93-3	2-Butanone	OLM04-2-V	ug/kg	10	U	25	UJ	NC
67-66-3	Chloroform	OLM04-2-V	ug/kg	10	U	25	U	NC
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/kg	10	U	25	U	NC
110-82-7	Cyclohexane	OLM04-2-V	ug/kg	10	U	25	U	NC
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/kg	10	U	25	U	NC
71-43-2	Benzene	OLM04-2-V	ug/kg	10	U	25	U	NC
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/kg	10	U	25	U	NC
79-01-6	Trichloroethene	OLM04-2-V	ug/kg	10	U	25	U	NC
108-87-2	Metylcyclohexane	OLM04-2-V	ug/kg	10	U	25	U	NC
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/kg	10	U	25	U	NC
75-27-4	Bromodichloromethane	OLM04-2-V	ug/kg	10	U	25	U	NC
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/kg	10	U	25	U	NC
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/kg	10	U	25	U	NC
108-88-3	Toluene	OLM04-2-V	ug/kg	10	U	25	U	NC
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/kg	10	U	25	U	NC
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/kg	10	U	25	U	NC
127-18-4	Tetrachloroethene	OLM04-2-V	ug/kg	10	U	25	U	NC
591-78-6	2-Hexanone	OLM04-2-V	ug/kg	25	U	10	U	NC
124-48-1	Dibromochloromethane	OLM04-2-V	ug/kg	10	U	25	U	NC
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/kg	10	U	25	U	NC
108-90-7	Chlorobenzene	OLM04-2-V	ug/kg	10	U	25	U	NC
100-41-4	Ethylbenzene	OLM04-2-V	ug/kg	10	U	25	U	NC
1330-20-7	Xylenes (total)	OLM04-2-V	ug/kg	10	U	25	U	NC
100-42-5	Styrene	OLM04-2-V	ug/kg	10	U	25	U	NC
75-25-2	Bromoform	OLM04-2-V	ug/kg	10	U	25	U	NC
98-82-8	Isopropylbenzene	OLM04-2-V	ug/kg	10	U	25	U	NC
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/kg	10	U	25	U	NC
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/kg	10	U	25	U	NC
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/kg	10	U	25	U	NC
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/kg	10	U	25	U	NC
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/kg	10	R	25	U	NC
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/kg	10	U	25	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	BSB-05-0-2 / / 4/3/2002 / 0 to 2 ft		BSB-05-0-2-DUP / BSB-07-0-2 / 4/3/2002 / 0 to 2 ft		RPD
2-SV-1-s	**Semi-Volatile Organics -page 1 - OLM04.2**							
100-52-7	Benzaldehyde	OLM04-2-SV	ug/kg	380	UJ	150	J	NC
108-95-2	Phenol	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
95-48-7	2-Methylphenol	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
98-86-2	Acetophenone	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
106-44-5	4-Methylphenol	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
67-72-1	Hexachloroethane	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
98-95-3	Nitrobenzene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
78-59-1	Isophorone	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
91-20-3	Naphthalene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
105-60-2	Caprolactam	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/kg	960	UJ	1300	UJ	NC
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/kg	960	UJ	1300	UJ	NC
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
208-96-8	Acenaphthylene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/kg	960	UJ	1300	UJ	NC
83-32-9	Acenaphthene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	BSB-05-0-2 / / 4/3/2002 / 0 to 2 ft		BSB-05-0-2-DUP / BSB-07-0-2 / 4/3/2002 / 0 to 2 ft		RPD
3-SV-2-s	**Semi-Volatile Organics -page 2 - OLM04.2**							
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/kg	960	UJ	1300	UJ	NC
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/kg	960	UJ	1300	UJ	NC
132-64-9	Dibenzofuran	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
84-66-2	Diethylphthalate	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
86-73-7	Fluorene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/kg	960	UJ	1300	UJ	NC
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/kg	960	UJ	1300	UJ	NC
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
1912-24-9	Atrazine	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/kg	960	UJ	1300	UJ	NC
85-01-8	Phenanthrene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
120-12-7	Anthracene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
86-74-8	Carbazole	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
206-44-0	Fluoranthene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
129-00-0	Pyrene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
218-01-9	Chrysene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/kg	470	UJ	530	UJ	NC
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/kg	380	UJ	530	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	BSB-05-0-2 4/3/2002 0 to 2 ft		BSB-05-0-2-DUP BSB-07-0-2 4/3/2002 0 to 2 ft		RPD	
4-P/PCBs-s	**Pestcide/PCB Organics - OLM04.2**								
319-84-6	alpha-BHC	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
319-85-7	beta-BHC	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
319-86-8	delta-BHC	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
76-44-8	Heptachlor	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
309-00-2	Aldrin	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
959-98-8	Endosulfan I	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
60-57-1	Dieldrin	OLM04-2-PP	ug/kg	3.8	UJ	5.4	UJ	NC	
72-55-9	4,4'-DDE	OLM04-2-PP	ug/kg	3.8	UJ	5.4	UJ	NC	
72-20-8	Endrin	OLM04-2-PP	ug/kg	3.8	UJ	5.4	UJ	NC	
33213-65-9	Endosulfan II	OLM04-2-PP	ug/kg	3.8	UJ	5.4	UJ	NC	
72-54-8	4,4'-DDD	OLM04-2-PP	ug/kg	3.8	UJ	5.4	UJ	NC	
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/kg	3.8	UJ	5.4	UJ	NC	
50-29-3	4,4'-DDT	OLM04-2-PP	ug/kg	3.8	UJ	5.4	UJ	NC	
72-43-5	Methoxychlor	OLM04-2-PP	ug/kg	20	UJ	28	UJ	NC	
53494-70-5	Endrin ketone	OLM04-2-PP	ug/kg	3.8	UJ	5.4	UJ	NC	
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/kg	3.8	UJ	5.4	UJ	NC	
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/kg	2	UJ	2.8	UJ	NC	
8001-35-2	Toxaphene	OLM04-2-PP	ug/kg	200	UJ	280	UJ	NC	
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/kg	38	UJ	54	UJ	NC	
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/kg	77	UJ	110	UJ	NC	
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/kg	38	UJ	54	UJ	NC	
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/kg	38	UJ	54	UJ	NC	
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/kg	38	UJ	54	UJ	NC	
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/kg	38	UJ	54	UJ	NC	
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/kg	38	UJ	54	UJ	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	BSB-05-0-2 4/3/2002 0 to 2 ft		BSB-05-0-2-DUP BSB-07-0-2 4/3/2002 0 to 2 ft		RPD	
5-Inorg-s	**Inorganic Analytes - ILM04.1**								
7429-90-5	Aluminum	ILM04-1-M	mg/kg	5400		4860			10.53
7440-36-0	Antimony	ILM04-1-M	mg/kg	0.87	UJ	0.83	UJ	NC	
7440-38-2	Arsenic	ILM04-1-M	mg/kg	12.2	R	9.9			20.81
7440-39-3	Barium	ILM04-1-M	mg/kg	37.6	B	28.3	B		28.22
7440-41-7	Beryllium	ILM04-1-M	mg/kg	0.3	B	0.28	B		6.90
7440-43-9	Cadmium	ILM04-1-M	mg/kg	0.46	B	0.5	B		8.33
7440-70-2	Calcium	ILM04-1-M	mg/kg	95700	J	119000	J		21.70
7440-47-3	Chromium	ILM04-1-M	mg/kg	43.1		43.6	J		1.15
7440-48-4	Cobalt	ILM04-1-M	mg/kg	4.5	B	4.2	B		6.90
7440-50-8	Copper	ILM04-1-M	mg/kg	30		23.8			23.05
7439-89-6	Iron	ILM04-1-M	mg/kg	13400		11300	J		17.00
7439-92-1	Lead	ILM04-1-M	mg/kg	9.4	J	10	J		6.19
7439-95-4	Magnesium	ILM04-1-M	mg/kg	21600		29900	J		32.23
7439-96-5	Manganese	ILM04-1-M	mg/kg	381		344	J		10.21
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.08	B	0.07	B		13.33
7440-02-0	Nickel	ILM04-1-M	mg/kg	12.4		12.4	J		0.00
7440-09-7	Potassium	ILM04-1-M	mg/kg	1210		1400			14.56
7782-49-2	Selenium	ILM04-1-M	mg/kg	1	U	0.96	U	NC	
7440-22-4	Silver	ILM04-1-M	mg/kg	0.2	U	0.19	U	NC	
7440-23-5	Sodium	ILM04-1-M	mg/kg	206	B	245	B		17.29
7440-28-0	Thallium	ILM04-1-M	mg/kg	1.3	U	1.2	U	NC	
7440-62-2	Vanadium	ILM04-1-M	mg/kg	11		9.7	B		12.56
7440-66-6	Zinc	ILM04-1-M	mg/kg	73	J	61.1	J		17.75
57-12-5	Cyanide	ILM04-1-CN	mg/kg	0.15	B	0.34	B		77.55

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	LSB-03-4-6 / / 4/11/2002 / 4 to 6 ft		LSB-03-4-6-DUP / LSB-04-4-6 / 4/11/2002 / 4 to 6 ft		RPD
(Group Code)	**(Group Description)**							
1-VOA-s	**Volatile Organic Compounds - OLM04.2**							
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/kg	18	UJ	18	UJ	NC
74-87-3	Chloromethane	OLM04-2-V	ug/kg	18	UJ	18	UJ	NC
75-01-4	Vinyl Chloride	OLM04-2-V	ug/kg	18	UJ	18	UJ	NC
74-83-9	Bromomethane	OLM04-2-V	ug/kg	18	U	18	U	NC
75-00-3	Chloroethane	OLM04-2-V	ug/kg	18	UJ	18	UJ	NC
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/kg	18	U	5	J	NC
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/kg	18	U	18	U	NC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/kg	18	U	18	U	NC
67-64-1	Acetone	OLM04-2-V	ug/kg	48	U	34	U	NC
75-15-0	Carbon Disulfide	OLM04-2-V	ug/kg	18	U	18	U	NC
79-20-9	Methyl Acetate	OLM04-2-V	ug/kg	18	U	18	U	NC
75-09-2	Methylene Chloride	OLM04-2-V	ug/kg	28	U	43	U	NC
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/kg	18	U	18	U	NC
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/kg	18	UJ	18	UJ	NC
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/kg	18	U	18	U	NC
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/kg	18	U	18	U	NC
78-93-3	2-Butanone	OLM04-2-V	ug/kg	18	UJ	18	UJ	NC
67-66-3	Chloroform	OLM04-2-V	ug/kg	18	U	18	U	NC
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/kg	18	U	18	U	NC
110-82-7	Cyclohexane	OLM04-2-V	ug/kg	18	U	18	U	NC
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/kg	18	U	18	U	NC
71-43-2	Benzene	OLM04-2-V	ug/kg	18	U	18	U	NC
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/kg	18	U	18	U	NC
79-01-6	Trichloroethene	OLM04-2-V	ug/kg	18	U	18	U	NC
108-87-2	Metylcyclohexane	OLM04-2-V	ug/kg	18	U	18	U	NC
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/kg	18	U	18	U	NC
75-27-4	Bromodichloromethane	OLM04-2-V	ug/kg	18	U	18	U	NC
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/kg	18	U	18	U	NC
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/kg	18	U	18	U	NC
108-88-3	Toluene	OLM04-2-V	ug/kg	18	U	18	U	NC
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/kg	18	U	18	U	NC
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/kg	18	U	18	U	NC
127-18-4	Tetrachloroethene	OLM04-2-V	ug/kg	18	U	18	U	NC
591-78-6	2-Hexanone	OLM04-2-V	ug/kg	18	U	18	U	NC
124-48-1	Dibromochloromethane	OLM04-2-V	ug/kg	18	U	18	U	NC
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/kg	18	U	18	U	NC
108-90-7	Chlorobenzene	OLM04-2-V	ug/kg	18	U	18	U	NC
100-41-4	Ethylbenzene	OLM04-2-V	ug/kg	18	U	18	U	NC
1330-20-7	Xylenes (total)	OLM04-2-V	ug/kg	18	U	18	U	NC
100-42-5	Styrene	OLM04-2-V	ug/kg	18	U	18	U	NC
75-25-2	Bromoform	OLM04-2-V	ug/kg	18	U	18	U	NC
98-82-8	Isopropylbenzene	OLM04-2-V	ug/kg	18	U	18	U	NC
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/kg	18	U	18	U	NC
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/kg	18	U	18	U	NC
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/kg	18	U	18	U	NC
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/kg	18	U	18	U	NC
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/kg	18	U	18	U	NC
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/kg	18	U	18	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	LSB-03-4-6 4/11/2002 4 to 6 ft		LSB-03-4-6-DUP LSB-04-4-6 4/11/2002 4 to 6 ft		RPD
2-SV-1-s	**Semi-Volatile Organics -page 1 - OLM04.2**							
100-52-7	Benzaldehyde	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
108-95-2	Phenol	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
95-48-7	2-Methylphenol	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
98-86-2	Acetophenone	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
106-44-5	4-Methylphenol	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
67-72-1	Hexachloroethane	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
98-95-3	Nitrobenzene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
78-59-1	Isophorone	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
91-20-3	Naphthalene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
105-60-2	Caprolactam	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/kg	950	UJ	1300	UJ	NC
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/kg	950	UJ	1300	UJ	NC
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
208-96-8	Acenaphthylene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/kg	950	UJ	1300	UJ	NC
83-32-9	Acenaphthene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	LSB-03-4-6 / 4/11/2002 / 4 to 6 ft		LSB-03-4-6-DUP / LSB-04-4-6 / 4/11/2002 / 4 to 6 ft		RPD
3-SV-2-s	**Semi-Volatile Organics -page 2 - OLM04.2**							
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/kg	950	UJ	1300	UJ	NC
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/kg	950	UJ	1300	UJ	NC
132-64-9	Dibenzofuran	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
84-66-2	Diethylphthalate	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
86-73-7	Fluorene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/kg	950	UJ	1300	UJ	NC
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/kg	950	UJ	1300	UJ	NC
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
1912-24-9	Atrazine	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/kg	950	UJ	1300	UJ	NC
85-01-8	Phenanthrene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
120-12-7	Anthracene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
86-74-8	Carbazole	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
206-44-0	Fluoranthene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
129-00-0	Pyrene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
218-01-9	Chrysene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/kg	380	UJ	520	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	LSB-03-4-6 / / 4/11/2002 / 4 to 6 ft		LSB-03-4-6-DUP / LSB-04-4-6 / 4/11/2002 / 4 to 6 ft		RPD
4-P/PCBs-s	**Pestcide/PCB Organics - OLM04.2**							
319-84-6	alpha-BHC	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
319-85-7	beta-BHC	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
319-86-8	delta-BHC	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
76-44-8	Heptachlor	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
309-00-2	Aldrin	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
959-98-8	Endosulfan I	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
60-57-1	Dieldrin	OLM04-2-PP	ug/kg	3.8	UJ	5.2	UJ	NC
72-55-9	4,4'-DDE	OLM04-2-PP	ug/kg	3.8	UJ	5.2	UJ	NC
72-20-8	Endrin	OLM04-2-PP	ug/kg	3.8	UJ	5.2	UJ	NC
33213-65-9	Endosulfan II	OLM04-2-PP	ug/kg	3.8	UJ	5.2	UJ	NC
72-54-8	4,4'-DDD	OLM04-2-PP	ug/kg	3.8	UJ	5.2	UJ	NC
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/kg	3.8	UJ	5.2	UJ	NC
50-29-3	4,4'-DDT	OLM04-2-PP	ug/kg	3.8	UJ	5.2	UJ	NC
72-43-5	Methoxychlor	OLM04-2-PP	ug/kg	20	UJ	27	UJ	NC
53494-70-5	Endrin ketone	OLM04-2-PP	ug/kg	3.8	UJ	5.2	UJ	NC
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/kg	3.8	UJ	5.2	UJ	NC
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/kg	2	UJ	2.7	UJ	NC
8001-35-2	Toxaphene	OLM04-2-PP	ug/kg	200	UJ	270	UJ	NC
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/kg	38	UJ	52	UJ	NC
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/kg	77	UJ	100	UJ	NC
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/kg	38	UJ	52	UJ	NC
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/kg	38	UJ	52	UJ	NC
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/kg	38	UJ	52	UJ	NC
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/kg	38	UJ	52	UJ	NC
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/kg	38	UJ	52	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	LSB-03-4-6 / / 4/11/2002 / 4 to 6 ft		LSB-03-4-6-DUP / LSB-04-4-6 / 4/11/2002 / 4 to 6 ft		RPD	
5-Inorg-s	**Inorganic Analytes - ILM04.1**								
7429-90-5	Aluminum	ILM04-1-M	mg/kg	6360		7060			10.43
7440-36-0	Antimony	ILM04-1-M	mg/kg	29.8		27.6			7.67
7440-38-2	Arsenic	ILM04-1-M	mg/kg	9		9.1			1.10
7440-39-3	Barium	ILM04-1-M	mg/kg	74.2		72.4			2.46
7440-41-7	Beryllium	ILM04-1-M	mg/kg	0.34	B	0.35	B		2.90
7440-43-9	Cadmium	ILM04-1-M	mg/kg	2.8		2.8			0.00
7440-70-2	Calcium	ILM04-1-M	mg/kg	67300	J	52500	J		24.71
7440-47-3	Chromium	ILM04-1-M	mg/kg	11100		10200			8.45
7440-48-4	Cobalt	ILM04-1-M	mg/kg	5.6	B	6.1	B		8.55
7440-50-8	Copper	ILM04-1-M	mg/kg	29.2		29.2			0.00
7439-89-6	Iron	ILM04-1-M	mg/kg	14200		18300			25.23
7439-92-1	Lead	ILM04-1-M	mg/kg	118		113			4.33
7439-95-4	Magnesium	ILM04-1-M	mg/kg	2330		2240			3.94
7439-96-5	Manganese	ILM04-1-M	mg/kg	349		347			0.57
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.07	UJ	0.1	BJ		35.29
7440-02-0	Nickel	ILM04-1-M	mg/kg	13		14.6			11.59
7440-09-7	Potassium	ILM04-1-M	mg/kg	633	B	614	B		3.05
7782-49-2	Selenium	ILM04-1-M	mg/kg	1.9		1.8			5.41
7440-22-4	Silver	ILM04-1-M	mg/kg	0.16	U	0.15	U	NC	
7440-23-5	Sodium	ILM04-1-M	mg/kg	288	B	256	B		11.76
7440-28-0	Thallium	ILM04-1-M	mg/kg	1	B	1.1	B		9.52
7440-62-2	Vanadium	ILM04-1-M	mg/kg	19		20.6			8.08
7440-66-6	Zinc	ILM04-1-M	mg/kg	82.8	J	86.9	J		4.83
57-12-5	Cyanide	ILM04-1-CN	mg/kg	1.2		1.1			8.70

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	LSB-01-18-20 4/22/2002 18 to 20 ft		LSB-01-18-20-DUP LSB-35-18-20 4/22/2002 18 to 20 ft		RPD	
(Group Code)	**(Group Description)**								
1-VOA-s	**Volatile Organic Compounds - OLM04.2**								
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/kg	10	UJ	10	UJ	NC	
74-87-3	Chloromethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
75-01-4	Vinyl Chloride	OLM04-2-V	ug/kg	10	U	10	U	NC	
74-83-9	Bromomethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
75-00-3	Chloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/kg	3	J	3	J		0.00
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
67-64-1	Acetone	OLM04-2-V	ug/kg	5	J	6	J		18.18
75-15-0	Carbon Disulfide	OLM04-2-V	ug/kg	10	U	10	U	NC	
79-20-9	Methyl Acetate	OLM04-2-V	ug/kg	10	U	10	U	NC	
75-09-2	Methylene Chloride	OLM04-2-V	ug/kg	10	UJ	10	UJ	NC	
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC	
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/kg	10	UJ	10	UJ	NC	
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC	
78-93-3	2-Butanone	OLM04-2-V	ug/kg	10	U	10	U	NC	
67-66-3	Chloroform	OLM04-2-V	ug/kg	10	U	10	U	NC	
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
110-82-7	Cyclohexane	OLM04-2-V	ug/kg	10	U	10	U	NC	
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/kg	10	U	10	U	NC	
71-43-2	Benzene	OLM04-2-V	ug/kg	10	U	10	U	NC	
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
79-01-6	Trichloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC	
108-87-2	Metylcyclohexane	OLM04-2-V	ug/kg	10	U	10	U	NC	
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/kg	10	U	10	U	NC	
75-27-4	Bromodichloromethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/kg	10	U	10	U	NC	
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/kg	10	U	10	U	NC	
108-88-3	Toluene	OLM04-2-V	ug/kg	10	U	10	U	NC	
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/kg	10	U	10	U	NC	
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
127-18-4	Tetrachloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC	
591-78-6	2-Hexanone	OLM04-2-V	ug/kg	10	U	10	U	NC	
124-48-1	Dibromochloromethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
108-90-7	Chlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC	
100-41-4	Ethylbenzene	OLM04-2-V	ug/kg	10	U	10	U	NC	
1330-20-7	Xylenes (total)	OLM04-2-V	ug/kg	10	U	10	U	NC	
100-42-5	Styrene	OLM04-2-V	ug/kg	10	U	10	U	NC	
75-25-2	Bromoform	OLM04-2-V	ug/kg	10	U	10	U	NC	
98-82-8	Isopropylbenzene	OLM04-2-V	ug/kg	10	U	10	U	NC	
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC	
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC	
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC	
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC	
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/kg	10	U	10	U	NC	
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	LSB-01-18-20 4/22/2002 18 to 20 ft		LSB-01-18-20-DUP LSB-35-18-20 4/22/2002 18 to 20 ft		RPD
2-SV-1-s	Semi-Volatile Organics -page 1 - OLM04.2							
100-52-7	Benzaldehyde	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
108-95-2	Phenol	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
95-48-7	2-Methylphenol	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
98-86-2	Acetophenone	OLM04-2-SV	ug/kg	40	J	370	UJ	NC
106-44-5	4-Methylphenol	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
67-72-1	Hexachloroethane	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
98-95-3	Nitrobenzene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
78-59-1	Isophorone	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
91-20-3	Naphthalene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
105-60-2	Caprolactam	OLM04-2-SV	ug/kg	72	J	77	J	6.71
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/kg	910	UJ	930	UJ	NC
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/kg	910	UJ	930	UJ	NC
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
208-96-8	Acenaphthylene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/kg	910	UJ	930	UJ	NC
83-32-9	Acenaphthene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	LSB-01-18-20 / / 4/22/2002 / 18 to 20 ft		LSB-01-18-20-DUP / LSB-35-18-20 / 4/22/2002 / 18 to 20 ft		RPD
3-SV-2-s	**Semi-Volatile Organics -page 2 - OLM04.2**							
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/kg	910	UJ	930	UJ	NC
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/kg	910	UJ	930	UJ	NC
132-64-9	Dibenzofuran	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
84-66-2	Diethylphthalate	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
86-73-7	Fluorene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/kg	910	UJ	930	UJ	NC
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/kg	910	UJ	930	UJ	NC
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
1912-24-9	Atrazine	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/kg	1900	J	440	J	124.79
85-01-8	Phenanthrene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
120-12-7	Anthracene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
86-74-8	Carbazole	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
206-44-0	Fluoranthene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
129-00-0	Pyrene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
218-01-9	Chrysene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/kg	360	UJ	370	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	LSB-01-18-2(/ / 4/22/2002 / 18 to 20 ft		LSB-01-18-20-DUP / LSB-35-18-20 / 4/22/2002 / 18 to 20 ft		RPD
4-P/PCBs-s	**Pestcide/PCB Organics - OLM04.2**							
319-84-6	alpha-BHC	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
319-85-7	beta-BHC	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
319-86-8	delta-BHC	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
76-44-8	Heptachlor	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
309-00-2	Aldrin	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
959-98-8	Endosulfan I	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
60-57-1	Dieldrin	OLM04-2-PP	ug/kg	3.6	UJ	3.7	UJ	NC
72-55-9	4,4'-DDE	OLM04-2-PP	ug/kg	3.6	UJ	3.7	UJ	NC
72-20-8	Endrin	OLM04-2-PP	ug/kg	3.6	UJ	3.7	UJ	NC
33213-65-9	Endosulfan II	OLM04-2-PP	ug/kg	3.6	UJ	3.7	UJ	NC
72-54-8	4,4'-DDD	OLM04-2-PP	ug/kg	3.6	UJ	3.7	UJ	NC
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/kg	3.6	UJ	3.7	UJ	NC
50-29-3	4,4'-DDT	OLM04-2-PP	ug/kg	3.6	UJ	3.7	UJ	NC
72-43-5	Methoxychlor	OLM04-2-PP	ug/kg	19	UJ	19	UJ	NC
53494-70-5	Endrin ketone	OLM04-2-PP	ug/kg	3.6	UJ	3.7	UJ	NC
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/kg	3.6	UJ	3.7	UJ	NC
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
8001-35-2	Toxaphene	OLM04-2-PP	ug/kg	190	UJ	190	UJ	NC
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/kg	36	UJ	37	UJ	NC
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/kg	73	UJ	75	UJ	NC
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/kg	36	UJ	37	UJ	NC
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/kg	36	UJ	37	UJ	NC
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/kg	36	UJ	37	UJ	NC
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/kg	36	UJ	37	UJ	NC
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/kg	36	UJ	37	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	LSB-01-18-20 / / 4/22/2002 / 18 to 20 ft		LSB-01-18-20-DUP / LSB-35-18-20 / 4/22/2002 / 18 to 20 ft		RPD	
5-Inorg-s	**Inorganic Analytes - ILM04.1**								
7429-90-5	Aluminum	ILM04-1-M	mg/kg	1740		1430			19.56
7440-36-0	Antimony	ILM04-1-M	mg/kg	0.87	UJ	0.83	UJ	NC	
7440-38-2	Arsenic	ILM04-1-M	mg/kg	3.7		1.7	B		74.07
7440-39-3	Barium	ILM04-1-M	mg/kg	8.3	B	7.9	B		4.94
7440-41-7	Beryllium	ILM04-1-M	mg/kg	0.15	B	0.12	B		22.22
7440-43-9	Cadmium	ILM04-1-M	mg/kg	0.11	B	0.11	U	NC	
7440-70-2	Calcium	ILM04-1-M	mg/kg	182000	J	190000	J		4.30
7440-47-3	Chromium	ILM04-1-M	mg/kg	8.1		5.7			34.78
7440-48-4	Cobalt	ILM04-1-M	mg/kg	0.27	U	0.26	U	NC	
7440-50-8	Copper	ILM04-1-M	mg/kg	5.9	J	4.4	B		29.13
7439-89-6	Iron	ILM04-1-M	mg/kg	4800		4180			13.81
7439-92-1	Lead	ILM04-1-M	mg/kg	2.9		1.9	J		41.67
7439-95-4	Magnesium	ILM04-1-M	mg/kg	6110	J	5160	J		16.86
7439-96-5	Manganese	ILM04-1-M	mg/kg	183	J	164	J		10.95
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.06	U	0.05	U	NC	
7440-02-0	Nickel	ILM04-1-M	mg/kg	5.4	B	4.2	B		25.00
7440-09-7	Potassium	ILM04-1-M	mg/kg	369	B	366	B		0.82
7782-49-2	Selenium	ILM04-1-M	mg/kg	0.5	U	0.48	UJ	NC	
7440-22-4	Silver	ILM04-1-M	mg/kg	0.25	U	0.24	U	NC	
7440-23-5	Sodium	ILM04-1-M	mg/kg	203	BJ	239	BJ		16.29
7440-28-0	Thallium	ILM04-1-M	mg/kg	0.8	U	0.76	U	NC	
7440-62-2	Vanadium	ILM04-1-M	mg/kg	4.7	B	3.6	B		26.51
7440-66-6	Zinc	ILM04-1-M	mg/kg	14.7		13.9			5.59
57-12-5	Cyanide	ILM04-1-CN	mg/kg	0.06	B	0.04	U	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-01-2-4 / 4/8/2002 / 2 to 4 ft		RSB-01-2-4-DUP / RSB-30-2-4 / 4/8/2002 / 2 to 4 ft		RPD	
(Group Code)	**(Group Description)**								
1-VOA-s	**Volatile Organic Compounds - OLM04.2**								
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
74-87-3	Chloromethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
75-01-4	Vinyl Chloride	OLM04-2-V	ug/kg	21	U	26	U	NC	
74-83-9	Bromomethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
75-00-3	Chloroethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/kg	11	J	7	J		44.44
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/kg	21	U	26	U	NC	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
67-64-1	Acetone	OLM04-2-V	ug/kg	21	UJ	39	UJ	NC	
75-15-0	Carbon Disulfide	OLM04-2-V	ug/kg	21	U	26	U	NC	
79-20-9	Methyl Acetate	OLM04-2-V	ug/kg	21	U	26	U	NC	
75-09-2	Methylene Chloride	OLM04-2-V	ug/kg	48	UJ	47	UJ	NC	
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/kg	21	U	26	U	NC	
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/kg	21	U	26	U	NC	
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/kg	21	U	26	U	NC	
78-93-3	2-Butanone	OLM04-2-V	ug/kg	21	UJ	26	UJ	NC	
67-66-3	Chloroform	OLM04-2-V	ug/kg	21	U	26	U	NC	
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
110-82-7	Cyclohexane	OLM04-2-V	ug/kg	21	U	26	U	NC	
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/kg	21	U	26	U	NC	
71-43-2	Benzene	OLM04-2-V	ug/kg	21	U	26	U	NC	
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
79-01-6	Trichloroethene	OLM04-2-V	ug/kg	21	U	26	U	NC	
108-87-2	Metylcyclohexane	OLM04-2-V	ug/kg	21	U	26	U	NC	
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/kg	21	U	26	U	NC	
75-27-4	Bromodichloromethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/kg	21	U	26	U	NC	
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/kg	21	U	26	U	NC	
108-88-3	Toluene	OLM04-2-V	ug/kg	4	J	26	U	NC	
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/kg	21	U	26	U	NC	
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
127-18-4	Tetrachloroethene	OLM04-2-V	ug/kg	21	U	26	U	NC	
591-78-6	2-Hexanone	OLM04-2-V	ug/kg	21	UJ	26	UJ	NC	
124-48-1	Dibromochloromethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
108-90-7	Chlorobenzene	OLM04-2-V	ug/kg	21	U	26	U	NC	
100-41-4	Ethylbenzene	OLM04-2-V	ug/kg	21	U	26	U	NC	
1330-20-7	Xylenes (total)	OLM04-2-V	ug/kg	2	J	26	U	NC	
100-42-5	Styrene	OLM04-2-V	ug/kg	21	U	26	U	NC	
75-25-2	Bromoform	OLM04-2-V	ug/kg	21	U	26	U	NC	
98-82-8	Isopropylbenzene	OLM04-2-V	ug/kg	21	U	26	U	NC	
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/kg	21	U	26	U	NC	
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/kg	21	U	26	U	NC	
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/kg	21	U	26	U	NC	
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/kg	21	U	26	U	NC	
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/kg	21	U	26	U	NC	
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/kg	21	U	26	U	NC	

RPD = Relative Percent Difference
NC = Not Calculable

			Sample Code	RSB-01-2-4		RSB-01-2-4-DUP		RPD	
			Sample Name			RSB-30-2-4			
			Sample Date	4/8/2002		4/8/2002			
Cas Rn	Chemical Name	Analytic Method	Unit \\ Depth	2 to 4 ft		2 to 4 ft			
2-SV-1-s	**Semi-Volatile Organics -page 1 - OLM04.2**								
100-52-7	Benzaldehyde	OLM04-2-SV	ug/kg	1500	UJ	53	J	NC	
108-95-2	Phenol	OLM04-2-SV	ug/kg	150	J	480	UJ	NC	
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
95-48-7	2-Methylphenol	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
98-86-2	Acetophenone	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
106-44-5	4-Methylphenol	OLM04-2-SV	ug/kg	620	J	110	J		139.73
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
67-72-1	Hexachloroethane	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
98-95-3	Nitrobenzene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
78-59-1	Isophorone	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
91-20-3	Naphthalene	OLM04-2-SV	ug/kg	5600	J	1500	J		115.49
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
105-60-2	Caprolactam	OLM04-2-SV	ug/kg	1500	UJ	56	J	NC	
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/kg	1200	J	340	J		111.69
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/kg	160	J	480	UJ	NC	
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/kg	3800	UJ	1200	UJ	NC	
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/kg	3800	UJ	1200	UJ	NC	
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
208-96-8	Acenaphthylene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/kg	3800	UJ	1200	UJ	NC	
83-32-9	Acenaphthene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	RSB-01-2-4 4/8/2002 2 to 4 ft		RSB-01-2-4-DUP RSB-30-2-4 4/8/2002 2 to 4 ft			RPD
3-SV-2-s	**Semi-Volatile Organics -page 2 - OLM04.2**								
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/kg	3800	UJ	1200	UJ		
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/kg	3800	UJ	1200	UJ	NC	
132-64-9	Dibenzofuran	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
84-66-2	Diethylphthalate	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
86-73-7	Fluorene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/kg	3800	UJ	1200	UJ	NC	
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/kg	3800	UJ	1200	UJ	NC	
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
1912-24-9	Atrazine	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/kg	3800	UJ	1200	UJ	NC	
85-01-8	Phenanthrene	OLM04-2-SV	ug/kg	710	J	180	J		119.10
120-12-7	Anthracene	OLM04-2-SV	ug/kg	170	J	65	J		89.36
86-74-8	Carbazole	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
206-44-0	Fluoranthene	OLM04-2-SV	ug/kg	630	J	180	J		111.11
129-00-0	Pyrene	OLM04-2-SV	ug/kg	540	J	150	J		113.04
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/kg	330	J	96	J		109.86
218-01-9	Chrysene	OLM04-2-SV	ug/kg	390	J	130	J		100.00
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/kg	290	J	110	J		90.00
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/kg	230	J	87	J		90.22
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/kg	290	J	100	J		97.44
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/kg	1500	UJ	480	UJ	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-01-2-4 / 4/8/2002 / 2 to 4 ft		RSB-01-2-4-DUP / RSB-30-2-4 / 4/8/2002 / 2 to 4 ft		RPD
4-P/PCBs-s	**Pestcide/PCB Organics - OLM04.2**							
319-84-6	alpha-BHC	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
319-85-7	beta-BHC	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
319-86-8	delta-BHC	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
76-44-8	Heptachlor	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
309-00-2	Aldrin	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
959-98-8	Endosulfan I	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
60-57-1	Dieldrin	OLM04-2-PP	ug/kg	7.5	UJ	7.5	UJ	NC
72-55-9	4,4'-DDE	OLM04-2-PP	ug/kg	7.5	UJ	7.5	UJ	NC
72-20-8	Endrin	OLM04-2-PP	ug/kg	7.5	UJ	7.5	UJ	NC
33213-65-9	Endosulfan II	OLM04-2-PP	ug/kg	7.5	UJ	7.5	UJ	NC
72-54-8	4,4'-DDD	OLM04-2-PP	ug/kg	7.5	UJ	7.5	UJ	NC
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/kg	7.5	UJ	7.5	UJ	NC
50-29-3	4,4'-DDT	OLM04-2-PP	ug/kg	7.5	UJ	7.5	UJ	NC
72-43-5	Methoxychlor	OLM04-2-PP	ug/kg	39	UJ	39	UJ	NC
53494-70-5	Endrin ketone	OLM04-2-PP	ug/kg	7.5	UJ	7.5	UJ	NC
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/kg	7.5	UJ	7.5	UJ	NC
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/kg	3.9	UJ	3.9	UJ	NC
8001-35-2	Toxaphene	OLM04-2-PP	ug/kg	390	UJ	390	UJ	NC
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/kg	75	UJ	75	UJ	NC
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/kg	150	UJ	150	UJ	NC
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/kg	75	UJ	75	UJ	NC
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/kg	75	UJ	75	UJ	NC
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/kg	75	UJ	75	UJ	NC
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/kg	75	UJ	75	UJ	NC
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/kg	75	UJ	75	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-01-2-4 / 4/8/2002 / 2 to 4 ft		RSB-01-2-4-DUP / RSB-30-2-4 / 4/8/2002 / 2 to 4 ft		RPD
5-Inorg-s	**Inorganic Analytes - ILM04.1**							
7429-90-5	Aluminum	ILM04-1-M	mg/kg	11700	J	9390		21.91
7440-36-0	Antimony	ILM04-1-M	mg/kg	225	J	192	J	15.83
7440-38-2	Arsenic	ILM04-1-M	mg/kg	32.5	J	28.1		14.52
7440-39-3	Barium	ILM04-1-M	mg/kg	161	J	168		4.26
7440-41-7	Beryllium	ILM04-1-M	mg/kg	0.5	BJ	0.45	B	10.53
7440-43-9	Cadmium	ILM04-1-M	mg/kg	2.2	J	1.7	B	25.64
7440-70-2	Calcium	ILM04-1-M	mg/kg	148000	J	123000		18.45
7440-47-3	Chromium	ILM04-1-M	mg/kg	74600	J	65900		12.38
7440-48-4	Cobalt	ILM04-1-M	mg/kg	25.6	J	22.2		14.23
7440-50-8	Copper	ILM04-1-M	mg/kg	123	J	145		16.42
7439-89-6	Iron	ILM04-1-M	mg/kg	15600	J	16900		8.00
7439-92-1	Lead	ILM04-1-M	mg/kg	210	J	203		3.39
7439-95-4	Magnesium	ILM04-1-M	mg/kg	1420	BJ	1270	B	11.15
7439-96-5	Manganese	ILM04-1-M	mg/kg	204	J	175	J	15.30
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.46	J	0.38		19.05
7440-02-0	Nickel	ILM04-1-M	mg/kg	30.2	J	25.4		17.27
7440-09-7	Potassium	ILM04-1-M	mg/kg	193	BJ	254	B	27.29
7782-49-2	Selenium	ILM04-1-M	mg/kg	5.2	J	5.2		0.00
7440-22-4	Silver	ILM04-1-M	mg/kg	0.2	UJ	0.19	U	NC
7440-23-5	Sodium	ILM04-1-M	mg/kg	757	BJ	626	B	18.94
7440-28-0	Thallium	ILM04-1-M	mg/kg	17.1	J	14.8		14.42
7440-62-2	Vanadium	ILM04-1-M	mg/kg	24.5	J	26.6		8.22
7440-66-6	Zinc	ILM04-1-M	mg/kg	268	J	230		15.26
57-12-5	Cyanide	ILM04-1-CN	mg/kg	6.8	J	6.1		10.85

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-16-2-4 / / 4/9/2002 / 2 to 4 ft		RSB-16-2-4-DUP / RSB-31-2-4 / 4/9/2002 / 2 to 4 ft		RPD	
(Group Code)	(Group Description)								
1-VOA-s	**Volatile Organic Compounds - OLM04.2**								
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
74-87-3	Chloromethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
75-01-4	Vinyl Chloride	OLM04-2-V	ug/kg	16	U	12	U	NC	
74-83-9	Bromomethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
75-00-3	Chloroethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/kg	5	J	2	J		85.71
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/kg	16	U	12	U	NC	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
67-64-1	Acetone	OLM04-2-V	ug/kg	79	UJ	39	UJ	NC	
75-15-0	Carbon Disulfide	OLM04-2-V	ug/kg	16	U	12	U	NC	
79-20-9	Methyl Acetate	OLM04-2-V	ug/kg	16	U	12	U	NC	
75-09-2	Methylene Chloride	OLM04-2-V	ug/kg	20	UJ	12	UJ	NC	
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/kg	16	U	12	U	NC	
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/kg	16	U	12	U	NC	
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/kg	16	U	12	U	NC	
78-93-3	2-Butanone	OLM04-2-V	ug/kg	16	U	12	U	NC	
67-66-3	Chloroform	OLM04-2-V	ug/kg	16	U	12	U	NC	
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
110-82-7	Cyclohexane	OLM04-2-V	ug/kg	16	U	12	U	NC	
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/kg	16	U	12	U	NC	
71-43-2	Benzene	OLM04-2-V	ug/kg	16	U	12	U	NC	
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
79-01-6	Trichloroethene	OLM04-2-V	ug/kg	16	U	12	U	NC	
108-87-2	Metylcyclohexane	OLM04-2-V	ug/kg	16	U	12	U	NC	
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/kg	16	U	12	U	NC	
75-27-4	Bromodichloromethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/kg	16	U	12	U	NC	
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/kg	16	U	12	U	NC	
108-88-3	Toluene	OLM04-2-V	ug/kg	16	U	12	U	NC	
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/kg	16	U	12	U	NC	
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
127-18-4	Tetrachloroethene	OLM04-2-V	ug/kg	16	U	12	U	NC	
591-78-6	2-Hexanone	OLM04-2-V	ug/kg	16	U	12	U	NC	
124-48-1	Dibromochloromethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
108-90-7	Chlorobenzene	OLM04-2-V	ug/kg	16	U	12	U	NC	
100-41-4	Ethylbenzene	OLM04-2-V	ug/kg	16	U	12	U	NC	
1330-20-7	Xylenes (total)	OLM04-2-V	ug/kg	16	U	12	U	NC	
100-42-5	Styrene	OLM04-2-V	ug/kg	16	U	12	U	NC	
75-25-2	Bromoform	OLM04-2-V	ug/kg	16	U	12	U	NC	
98-82-8	Isopropylbenzene	OLM04-2-V	ug/kg	16	U	12	U	NC	
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/kg	16	U	12	U	NC	
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/kg	16	U	12	U	NC	
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/kg	16	U	12	U	NC	
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/kg	16	U	12	U	NC	
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/kg	16	U	12	U	NC	
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/kg	16	U	12	U	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-16-2-4 / 4/9/2002 / 2 to 4 ft		RSB-16-2-4-DUP / RSB-31-2-4 / 4/9/2002 / 2 to 4 ft		RPD	
2-SV-1-s	**Semi-Volatile Organics -page 1 - OLM04.2**								
100-52-7	Benzaldehyde	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
108-95-2	Phenol	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
95-48-7	2-Methylphenol	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
98-86-2	Acetophenone	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
106-44-5	4-Methylphenol	OLM04-2-SV	ug/kg	1600	J	1400	J		13.33
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
67-72-1	Hexachloroethane	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
98-95-3	Nitrobenzene	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
78-59-1	Isophorone	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
91-20-3	Naphthalene	OLM04-2-SV	ug/kg	1500	J	1900	J		23.53
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
105-60-2	Caprolactam	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/kg	640	J	550	J		15.13
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/kg	4900	U	860	J	NC	
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/kg	12000	U	12000	U	NC	
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/kg	12000	U	12000	U	NC	
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
208-96-8	Acenaphthylene	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/kg	12000	U	12000	U	NC	
83-32-9	Acenaphthene	OLM04-2-SV	ug/kg	4900	U	610	J	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	RSB-16-2-4 4/9/2002 2 to 4 ft		RSB-16-2-4-DUP RSB-31-2-4 4/9/2002 2 to 4 ft		RPD	
3-SV-2-s	**Semi-Volatile Organics -page 2 - OLM04.2**								
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/kg	12000	U	12000	U	NC	
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/kg	12000	U	12000	U	NC	
132-64-9	Dibenzofuran	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
84-66-2	Diethylphthalate	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
86-73-7	Fluorene	OLM04-2-SV	ug/kg	4900	U	750	J	NC	
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/kg	12000	U	12000	U	NC	
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/kg	12000	U	12000	U	NC	
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
1912-24-9	Atrazine	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/kg	12000	U	12000	U	NC	
85-01-8	Phenanthrene	OLM04-2-SV	ug/kg	4500	J	7600			51.24
120-12-7	Anthracene	OLM04-2-SV	ug/kg	810	J	1600	J		65.56
86-74-8	Carbazole	OLM04-2-SV	ug/kg	4900	U	790	J	NC	
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
206-44-0	Fluoranthene	OLM04-2-SV	ug/kg	7900		13000			48.80
129-00-0	Pyrene	OLM04-2-SV	ug/kg	7300		12000			48.70
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/kg	4700	J	8200			54.26
218-01-9	Chrysene	OLM04-2-SV	ug/kg	5000		8400			50.75
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/kg	4900	U	4900	U	NC	
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/kg	4700	J	7900			50.79
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/kg	3600	J	6300			54.55
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/kg	4500	J	8000			56.00
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/kg	2700	J	4300	J		45.71
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/kg	1100	J	990	J		10.53
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/kg	2500	J	3600	J		36.07

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	RSB-16-2-4 4/9/2002 2 to 4 ft		RSB-16-2-4-DUP RSB-31-2-4 4/9/2002 2 to 4 ft		RPD	
4-P/PCBs-s	**Pestcide/PCB Organics - OLM04.2**								
319-84-6	alpha-BHC	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
319-85-7	beta-BHC	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
319-86-8	delta-BHC	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
76-44-8	Heptachlor	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
309-00-2	Aldrin	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
959-98-8	Endosulfan I	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
60-57-1	Dieldrin	OLM04-2-PP	ug/kg	5	U	4.9	U	NC	
72-55-9	4,4'-DDE	OLM04-2-PP	ug/kg	5	U	4.9	U	NC	
72-20-8	Endrin	OLM04-2-PP	ug/kg	5.3	NJ	4.9	U	NC	
33213-65-9	Endosulfan II	OLM04-2-PP	ug/kg	7.6		4.9	U	NC	
72-54-8	4,4'-DDD	OLM04-2-PP	ug/kg	5	U	4.9	U	NC	
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/kg	5	U	4.9	U	NC	
50-29-3	4,4'-DDT	OLM04-2-PP	ug/kg	5	U	4.9	U	NC	
72-43-5	Methoxychlor	OLM04-2-PP	ug/kg	38	J	47	J		21.18
53494-70-5	Endrin ketone	OLM04-2-PP	ug/kg	11	NJ	16	J		37.04
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/kg	5	U	4.9	U	NC	
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/kg	2.6	U	2.5	U	NC	
8001-35-2	Toxaphene	OLM04-2-PP	ug/kg	260	U	250	U	NC	
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/kg	50	U	49	U	NC	
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/kg	100	U	100	U	NC	
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/kg	50	U	49	U	NC	
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/kg	50	U	49	U	NC	
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/kg	50	U	49	U	NC	
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/kg	50	U	49	U	NC	
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/kg	50	U	49	U	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-16-2-4 / / 4/9/2002 / 2 to 4 ft		RSB-16-2-4-DUP / RSB-31-2-4 / 4/9/2002 / 2 to 4 ft		RPD
5-Inorg-s	**Inorganic Analytes - ILM04.1**							
7429-90-5	Aluminum	ILM04-1-M	mg/kg	11700		8410		32.72
7440-36-0	Antimony	ILM04-1-M	mg/kg	20.4		18.2		11.40
7440-38-2	Arsenic	ILM04-1-M	mg/kg	49	R	42.7	R	13.74
7440-39-3	Barium	ILM04-1-M	mg/kg	219		247		12.02
7440-41-7	Beryllium	ILM04-1-M	mg/kg	1.5		1.1	B	30.77
7440-43-9	Cadmium	ILM04-1-M	mg/kg	3.5	J	11.8	J	108.50
7440-70-2	Calcium	ILM04-1-M	mg/kg	44500	J	41700	J	6.50
7440-47-3	Chromium	ILM04-1-M	mg/kg	6920		5910		15.74
7440-48-4	Cobalt	ILM04-1-M	mg/kg	25.3		49.5		64.71
7440-50-8	Copper	ILM04-1-M	mg/kg	426		412		3.34
7439-89-6	Iron	ILM04-1-M	mg/kg	54300	J	189000	J	110.73
7439-92-1	Lead	ILM04-1-M	mg/kg	325		417		24.80
7439-95-4	Magnesium	ILM04-1-M	mg/kg	1000	B	885	B	12.20
7439-96-5	Manganese	ILM04-1-M	mg/kg	195	J	610	J	103.11
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.3	J	0.46	J	42.11
7440-02-0	Nickel	ILM04-1-M	mg/kg	26.8	J	60.8	J	77.63
7440-09-7	Potassium	ILM04-1-M	mg/kg	520	B	430	B	18.95
7782-49-2	Selenium	ILM04-1-M	mg/kg	4.8	J	8	J	50.00
7440-22-4	Silver	ILM04-1-M	mg/kg	0.14	U	0.14	U	NC
7440-23-5	Sodium	ILM04-1-M	mg/kg	364	B	1040	B	96.30
7440-28-0	Thallium	ILM04-1-M	mg/kg	0.62	U	0.64	U	NC
7440-62-2	Vanadium	ILM04-1-M	mg/kg	12.4	B	11.5	B	7.53
7440-66-6	Zinc	ILM04-1-M	mg/kg	189	J	723	J	117.11
57-12-5	Cyanide	ILM04-1-CN	mg/kg	1.9		2.1		10.00

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-26-0-2 / - / 4/10/2002 / 0 to 2 ft		RSB-26-0-2-DUP / RSB-32-0-2 / 4/10/2002 / 0 to 2 ft		RPD
(Group Code)	**(Group Description)**							
1-VOA-s	**Volatile Organic Compounds - OLM04.2**							
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/kg	10	U	10	U	NC
74-87-3	Chloromethane	OLM04-2-V	ug/kg	10	U	10	U	NC
75-01-4	Vinyl Chloride	OLM04-2-V	ug/kg	10	U	10	U	NC
74-83-9	Bromomethane	OLM04-2-V	ug/kg	10	U	10	U	NC
75-00-3	Chloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/kg	10	U	2	J	NC
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/kg	10	U	10	U	NC
67-64-1	Acetone	OLM04-2-V	ug/kg	10	UJ	10	UJ	NC
75-15-0	Carbon Disulfide	OLM04-2-V	ug/kg	10	U	10	U	NC
79-20-9	Methyl Acetate	OLM04-2-V	ug/kg	10	U	10	U	NC
75-09-2	Methylene Chloride	OLM04-2-V	ug/kg	13	UJ	23	UJ	NC
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/kg	10	U	10	U	NC
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC
78-93-3	2-Butanone	OLM04-2-V	ug/kg	10	U	10	U	NC
67-66-3	Chloroform	OLM04-2-V	ug/kg	10	U	10	U	NC
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC
110-82-7	Cyclohexane	OLM04-2-V	ug/kg	10	U	10	U	NC
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/kg	10	U	10	U	NC
71-43-2	Benzene	OLM04-2-V	ug/kg	10	U	10	U	NC
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC
79-01-6	Trichloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC
108-87-2	Metylcyclohexane	OLM04-2-V	ug/kg	10	U	10	U	NC
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/kg	10	U	10	U	NC
75-27-4	Bromodichloromethane	OLM04-2-V	ug/kg	10	U	10	U	NC
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/kg	10	U	10	U	NC
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/kg	10	U	10	U	NC
108-88-3	Toluene	OLM04-2-V	ug/kg	10	U	10	U	NC
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/kg	10	U	10	U	NC
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC
127-18-4	Tetrachloroethene	OLM04-2-V	ug/kg	10	U	10	U	NC
591-78-6	2-Hexanone	OLM04-2-V	ug/kg	10	U	10	U	NC
124-48-1	Dibromochloromethane	OLM04-2-V	ug/kg	10	U	10	U	NC
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/kg	10	U	10	U	NC
108-90-7	Chlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC
100-41-4	Ethylbenzene	OLM04-2-V	ug/kg	10	U	10	U	NC
1330-20-7	Xylenes (total)	OLM04-2-V	ug/kg	10	U	10	U	NC
100-42-5	Styrene	OLM04-2-V	ug/kg	10	U	10	U	NC
75-25-2	Bromoform	OLM04-2-V	ug/kg	10	U	10	U	NC
98-82-8	Isopropylbenzene	OLM04-2-V	ug/kg	10	U	10	U	NC
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/kg	10	U	10	U	NC
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/kg	10	R	10	R	NC
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/kg	10	U	10	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-26-0-2 / / 4/10/2002 / 0 to 2 ft		RSB-26-0-2-DUP / RSB-32-0-2 / 4/10/2002 / 0 to 2 ft		RPD
2-SV-1-s	**Semi-Volatile Organics -page 1 - OLM04.2**							
100-52-7	Benzaldehyde	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
108-95-2	Phenol	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
95-48-7	2-Methylphenol	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
98-86-2	Acetophenone	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
106-44-5	4-Methylphenol	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
67-72-1	Hexachloroethane	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
98-95-3	Nitrobenzene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
78-59-1	Isophorone	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
91-20-3	Naphthalene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
105-60-2	Caprolactam	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/kg	9000	UJ	28000	UJ	NC
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/kg	9000	UJ	28000	UJ	NC
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
208-96-8	Acenaphthylene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/kg	9000	UJ	28000	UJ	NC
83-32-9	Acenaphthene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-26-0-2 / / 4/10/2002 / 0 to 2 ft		RSB-26-0-2-DUP / RSB-32-0-2 / 4/10/2002 / 0 to 2 ft		RPD	
3-SV-2-s	**Semi-Volatile Organics -page 2 - OLM04.2**								
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/kg	9000	UJ	28000	UJ	NC	
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/kg	9000	UJ	28000	UJ	NC	
132-64-9	Dibenzofuran	OLM04-2-SV	ug/kg	3600	UJ	1400	J	NC	
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
84-66-2	Diethylphthalate	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
86-73-7	Fluorene	OLM04-2-SV	ug/kg	570	J	2900	J		134.29
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/kg	9000	UJ	28000	UJ	NC	
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/kg	9000	UJ	28000	UJ	NC	
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
1912-24-9	Atrazine	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/kg	9000	UJ	28000	UJ	NC	
85-01-8	Phenanthrene	OLM04-2-SV	ug/kg	3700	J	13000	J		111.38
120-12-7	Anthracene	OLM04-2-SV	ug/kg	770	J	2600	J		108.61
86-74-8	Carbazole	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
206-44-0	Fluoranthene	OLM04-2-SV	ug/kg	5500	J	13000	J		81.08
129-00-0	Pyrene	OLM04-2-SV	ug/kg	4300	J	9300	J		73.53
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/kg	3000	J	6500	J		73.68
218-01-9	Chrysene	OLM04-2-SV	ug/kg	2900	J	6000	J		69.66
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/kg	2000	J	4300	J		73.02
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/kg	3000	J	5100	J		51.85
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/kg	2700	J	5000	J		59.74
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/kg	1600	J	3000	J		60.87
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/kg	3600	UJ	11000	UJ	NC	
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/kg	1500	J	11000	UJ	NC	

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NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-26-0-2 / / 4/10/2002 / 0 to 2 ft		RSB-26-0-2-DUP / RSB-32-0-2 / 4/10/2002 / 0 to 2 ft		RPD
4-P/PCBs-s	**Pestcide/PCB Organics - OLM04.2**							
319-84-6	alpha-BHC	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
319-85-7	beta-BHC	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
319-86-8	delta-BHC	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
76-44-8	Heptachlor	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
309-00-2	Aldrin	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
959-98-8	Endosulfan I	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
60-57-1	Dieldrin	OLM04-2-PP	ug/kg	4.4	NJ	3.8	UJ	NC
72-55-9	4,4'-DDE	OLM04-2-PP	ug/kg	3.6	UJ	3.8	UJ	NC
72-20-8	Endrin	OLM04-2-PP	ug/kg	3.6	UJ	3.8	UJ	NC
33213-65-9	Endosulfan II	OLM04-2-PP	ug/kg	3.6	UJ	3.8	UJ	NC
72-54-8	4,4'-DDD	OLM04-2-PP	ug/kg	3.6	UJ	3.8	UJ	NC
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/kg	3.6	UJ	3.8	UJ	NC
50-29-3	4,4'-DDT	OLM04-2-PP	ug/kg	6.6	J	3.8	UJ	NC
72-43-5	Methoxychlor	OLM04-2-PP	ug/kg	19	UJ	19	UJ	NC
53494-70-5	Endrin ketone	OLM04-2-PP	ug/kg	14	J	9.6	J	37.29
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/kg	3.6	UJ	3.8	UJ	NC
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/kg	1.9	UJ	1.9	UJ	NC
8001-35-2	Toxaphene	OLM04-2-PP	ug/kg	190	UJ	190	UJ	NC
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/kg	36	UJ	38	UJ	NC
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/kg	74	UJ	77	UJ	NC
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/kg	36	UJ	38	UJ	NC
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/kg	36	UJ	38	UJ	NC
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/kg	36	UJ	38	UJ	NC
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/kg	36	UJ	38	UJ	NC
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/kg	36	UJ	38	UJ	NC

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NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-26-0-2 / 4/10/2002 / 0 to 2 ft		RSB-26-0-2-DUP / RSB-32-0-2 / 4/10/2002 / 0 to 2 ft		RPD	
5-Inorg-s	**Inorganic Analytes - ILM04.1**								
7429-90-5	Aluminum	ILM04-1-M	mg/kg	4840		4990			3.05
7440-36-0	Antimony	ILM04-1-M	mg/kg	0.46	U	0.45	U	NC	
7440-38-2	Arsenic	ILM04-1-M	mg/kg	3.8		4.4	R	NC	
7440-39-3	Barium	ILM04-1-M	mg/kg	38.1	B	36.7	B		3.74
7440-41-7	Beryllium	ILM04-1-M	mg/kg	0.26	B	0.29	B		10.91
7440-43-9	Cadmium	ILM04-1-M	mg/kg	0.42	B	0.47	B		11.24
7440-70-2	Calcium	ILM04-1-M	mg/kg	145000	J	151000	J		4.05
7440-47-3	Chromium	ILM04-1-M	mg/kg	8.8		8.6			2.30
7440-48-4	Cobalt	ILM04-1-M	mg/kg	4.6	B	4.5	B		2.20
7440-50-8	Copper	ILM04-1-M	mg/kg	12.8		12.6			1.57
7439-89-6	Iron	ILM04-1-M	mg/kg	11800		11300			4.33
7439-92-1	Lead	ILM04-1-M	mg/kg	49.6		34.4			36.19
7439-95-4	Magnesium	ILM04-1-M	mg/kg	5550		7880			34.70
7439-96-5	Manganese	ILM04-1-M	mg/kg	272		359			27.58
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.05	UJ	0.12	J	NC	
7440-02-0	Nickel	ILM04-1-M	mg/kg	13.7		13.5			1.47
7440-09-7	Potassium	ILM04-1-M	mg/kg	774	B	895	B		14.50
7782-49-2	Selenium	ILM04-1-M	mg/kg	0.59	B	0.43	U	NC	
7440-22-4	Silver	ILM04-1-M	mg/kg	0.1	U	0.1	U	NC	
7440-23-5	Sodium	ILM04-1-M	mg/kg	169	B	171	B		1.18
7440-28-0	Thallium	ILM04-1-M	mg/kg	0.46	U	0.45	U	NC	
7440-62-2	Vanadium	ILM04-1-M	mg/kg	11.9		11.3			5.17
7440-66-6	Zinc	ILM04-1-M	mg/kg	63	J	51.7	J		19.70
57-12-5	Cyanide	ILM04-1-CN	mg/kg	0.09	B	0.08	B		11.76

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Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	RSB-08-8-10 4/12/2002 8 to 10 ft		RSB-08-8-10-DUP RSB-34-8-10 4/12/2002 8 to 10 ft		RPD
(Group Code)	**(Group Description)**							
1-VOA-s	**Volatile Organic Compounds - OLM04.2**							
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/kg	12	R	13	R	NC
74-87-3	Chloromethane	OLM04-2-V	ug/kg	12	UJ	13	UJ	NC
75-01-4	Vinyl Chloride	OLM04-2-V	ug/kg	12	U	13	U	NC
74-83-9	Bromomethane	OLM04-2-V	ug/kg	12	U	13	U	NC
75-00-3	Chloroethane	OLM04-2-V	ug/kg	12	U	13	U	NC
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/kg	12	U	3	J	NC
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/kg	12	U	13	U	NC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/kg	12	U	13	U	NC
67-64-1	Acetone	OLM04-2-V	ug/kg	12	UJ	13	UJ	NC
75-15-0	Carbon Disulfide	OLM04-2-V	ug/kg	12	U	13	U	NC
79-20-9	Methyl Acetate	OLM04-2-V	ug/kg	12	UJ	13	UJ	NC
75-09-2	Methylene Chloride	OLM04-2-V	ug/kg	57	UJ	55	UJ	NC
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/kg	12	U	13	U	NC
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/kg	1	J	13	U	NC
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/kg	12	U	13	U	NC
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/kg	12	U	13	U	NC
78-93-3	2-Butanone	OLM04-2-V	ug/kg	12	UJ	13	UJ	NC
67-66-3	Chloroform	OLM04-2-V	ug/kg	12	U	13	U	NC
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/kg	12	U	13	U	NC
110-82-7	Cyclohexane	OLM04-2-V	ug/kg	12	U	13	U	NC
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/kg	12	U	13	U	NC
71-43-2	Benzene	OLM04-2-V	ug/kg	12	U	13	U	NC
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/kg	12	U	13	U	NC
79-01-6	Trichloroethene	OLM04-2-V	ug/kg	12	U	13	U	NC
108-87-2	Metylcyclohexane	OLM04-2-V	ug/kg	12	U	13	U	NC
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/kg	12	U	13	U	NC
75-27-4	Bromodichloromethane	OLM04-2-V	ug/kg	12	U	13	U	NC
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/kg	12	U	13	U	NC
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/kg	12	U	13	U	NC
108-88-3	Toluene	OLM04-2-V	ug/kg	12	U	13	U	NC
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/kg	12	U	13	U	NC
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/kg	12	U	13	U	NC
127-18-4	Tetrachloroethene	OLM04-2-V	ug/kg	12	U	13	U	NC
591-78-6	2-Hexanone	OLM04-2-V	ug/kg	12	U	13	U	NC
124-48-1	Dibromochloromethane	OLM04-2-V	ug/kg	12	U	13	U	NC
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/kg	12	U	13	U	NC
108-90-7	Chlorobenzene	OLM04-2-V	ug/kg	12	U	13	U	NC
100-41-4	Ethylbenzene	OLM04-2-V	ug/kg	12	U	13	U	NC
1330-20-7	Xylenes (total)	OLM04-2-V	ug/kg	12	U	13	U	NC
100-42-5	Styrene	OLM04-2-V	ug/kg	12	U	13	U	NC
75-25-2	Bromoform	OLM04-2-V	ug/kg	12	U	13	U	NC
98-82-8	Isopropylbenzene	OLM04-2-V	ug/kg	12	U	13	U	NC
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/kg	12	U	13	U	NC
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/kg	12	U	13	U	NC
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/kg	12	U	13	U	NC
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/kg	12	U	13	U	NC
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/kg	12	U	13	U	NC
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/kg	12	U	13	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-08-8-10 / / 4/12/2002 / 8 to 10 ft		RSB-08-8-10-DUP / RSB-34-8-10 / 4/12/2002 / 8 to 10 ft		RPD
2-SV-1-s	**Semi-Volatile Organics -page 1 - OLM04.2**							
100-52-7	Benzaldehyde	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
108-95-2	Phenol	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
95-48-7	2-Methylphenol	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
98-86-2	Acetophenone	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
106-44-5	4-Methylphenol	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
67-72-1	Hexachloroethane	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
98-95-3	Nitrobenzene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
78-59-1	Isophorone	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
91-20-3	Naphthalene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
105-60-2	Caprolactam	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/kg	960	UJ	920	UJ	NC
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/kg	960	UJ	920	UJ	NC
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
208-96-8	Acenaphthylene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/kg	960	UJ	920	UJ	NC
83-32-9	Acenaphthene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-08-8-10 / / 4/12/2002 / 8 to 10 ft		RSB-08-8-10-DUP / RSB-34-8-10 / 4/12/2002 / 8 to 10 ft		RPD
3-SV-2-s	**Semi-Volatile Organics -page 2 - OLM04.2**							
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/kg	960	UJ	920	UJ	NC
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/kg	960	UJ	920	UJ	NC
132-64-9	Dibenzofuran	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
84-66-2	Diethylphthalate	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
86-73-7	Fluorene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/kg	960	UJ	920	UJ	NC
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/kg	960	UJ	920	UJ	NC
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
1912-24-9	Atrazine	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/kg	960	UJ	920	UJ	NC
85-01-8	Phenanthrene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
120-12-7	Anthracene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
86-74-8	Carbazole	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
206-44-0	Fluoranthene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
129-00-0	Pyrene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
218-01-9	Chrysene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/kg	380	UJ	370	UJ	NC

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NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-08-8-10 / 4/12/2002 / 8 to 10 ft		RSB-08-8-10-DUP / RSB-34-8-10 / 4/12/2002 / 8 to 10 ft		RPD
4-P/PCBs-s	**Pestcide/PCB Organics - OLM04.2**							
319-84-6	alpha-BHC	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
319-85-7	beta-BHC	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
319-86-8	delta-BHC	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
76-44-8	Heptachlor	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
309-00-2	Aldrin	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
959-98-8	Endosulfan I	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
60-57-1	Dieldrin	OLM04-2-PP	ug/kg	3.8	UJ	3.6	UJ	NC
72-55-9	4,4'-DDE	OLM04-2-PP	ug/kg	3.8	UJ	3.6	UJ	NC
72-20-8	Endrin	OLM04-2-PP	ug/kg	3.8	UJ	3.6	UJ	NC
33213-65-9	Endosulfan II	OLM04-2-PP	ug/kg	3.8	UJ	3.6	UJ	NC
72-54-8	4,4'-DDD	OLM04-2-PP	ug/kg	3.8	UJ	3.6	UJ	NC
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/kg	3.8	UJ	3.6	UJ	NC
50-29-3	4,4'-DDT	OLM04-2-PP	ug/kg	3.8	UJ	3.6	UJ	NC
72-43-5	Methoxychlor	OLM04-2-PP	ug/kg	20	UJ	19	UJ	NC
53494-70-5	Endrin ketone	OLM04-2-PP	ug/kg	3.8	UJ	3.6	UJ	NC
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/kg	3.8	UJ	3.6	UJ	NC
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/kg	2	UJ	1.9	UJ	NC
8001-35-2	Toxaphene	OLM04-2-PP	ug/kg	200	UJ	190	UJ	NC
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/kg	38	UJ	36	UJ	NC
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/kg	78	UJ	74	UJ	NC
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/kg	38	UJ	36	UJ	NC
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/kg	38	UJ	36	UJ	NC
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/kg	38	UJ	36	UJ	NC
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/kg	38	UJ	36	UJ	NC
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/kg	38	UJ	36	UJ	NC

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Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-08-8-10 / 4/12/2002 / 8 to 10 ft		RSB-08-8-10-DUP / RSB-34-8-10 / 4/12/2002 / 8 to 10 ft		RPD	
5-Inorg-s	**Inorganic Analytes - ILM04.1**								
7429-90-5	Aluminum	ILM04-1-M	mg/kg	3850		3160			19.69
7440-36-0	Antimony	ILM04-1-M	mg/kg	0.45	UJ	0.48	U	NC	
7440-38-2	Arsenic	ILM04-1-M	mg/kg	9.7		7.1			30.95
7440-39-3	Barium	ILM04-1-M	mg/kg	23.3	B	22	B		5.74
7440-41-7	Beryllium	ILM04-1-M	mg/kg	0.21	B	0.18	B		15.38
7440-43-9	Cadmium	ILM04-1-M	mg/kg	0.57	B	0.32	B		56.18
7440-70-2	Calcium	ILM04-1-M	mg/kg	114000	J	176000	J		42.76
7440-47-3	Chromium	ILM04-1-M	mg/kg	68.1		132			63.87
7440-48-4	Cobalt	ILM04-1-M	mg/kg	3.3	B	2.8	B		16.39
7440-50-8	Copper	ILM04-1-M	mg/kg	14.8		7.9			60.79
7439-89-6	Iron	ILM04-1-M	mg/kg	14100		10900			25.60
7439-92-1	Lead	ILM04-1-M	mg/kg	8.9	J	4.4			67.67
7439-95-4	Magnesium	ILM04-1-M	mg/kg	9320	J	4780	J		64.40
7439-96-5	Manganese	ILM04-1-M	mg/kg	241		210			13.75
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.05	U	0.05	UJ	NC	
7440-02-0	Nickel	ILM04-1-M	mg/kg	11.7		10.2			13.70
7440-09-7	Potassium	ILM04-1-M	mg/kg	661	B	685	B		3.57
7782-49-2	Selenium	ILM04-1-M	mg/kg	0.7	B	0.45	U	NC	
7440-22-4	Silver	ILM04-1-M	mg/kg	0.1	U	0.11	U	NC	
7440-23-5	Sodium	ILM04-1-M	mg/kg	216	B	154	B		33.51
7440-28-0	Thallium	ILM04-1-M	mg/kg	0.45	U	0.48	U	NC	
7440-62-2	Vanadium	ILM04-1-M	mg/kg	8.1	B	7.3	B		10.39
7440-66-6	Zinc	ILM04-1-M	mg/kg	82	J	27.9	J		98.45
57-12-5	Cyanide	ILM04-1-CN	mg/kg	0.03	B	0.03	U	NC	

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Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	URSD-7 / 11/6/2001 / 0 to 6 inch		URSD-7-DUP / URSD-13 / 11/6/2001 / 0 to 6 inch		RPD	
(Group Code)	**(Group Description)**								
1-VOA-s	**Volatile Organic Compounds - OLM04.2**								
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
74-87-3	Chloromethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
75-01-4	Vinyl Chloride	OLM04-2-V	ug/kg	14	U	16	U	NC	
74-83-9	Bromomethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
75-00-3	Chloroethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/kg	14	U	16	U	NC	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
67-64-1	Acetone	OLM04-2-V	ug/kg	41	U	70		NC	
75-15-0	Carbon Disulfide	OLM04-2-V	ug/kg	14	U	16	U	NC	
79-20-9	Methyl Acetate	OLM04-2-V	ug/kg	14	U	16	U	NC	
75-09-2	Methylene Chloride	OLM04-2-V	ug/kg	14	U	16	U	NC	
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/kg	14	U	16	U	NC	
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/kg	14	U	16	U	NC	
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/kg	14	U	16	U	NC	
78-93-3	2-Butanone	OLM04-2-V	ug/kg	4	J	17			123.81
67-66-3	Chloroform	OLM04-2-V	ug/kg	14	U	16	U	NC	
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
110-82-7	Cyclohexane	OLM04-2-V	ug/kg	14	U	16	U	NC	
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/kg	14	U	16	U	NC	
71-43-2	Benzene	OLM04-2-V	ug/kg	14	U	16	U	NC	
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
79-01-6	Trichloroethene	OLM04-2-V	ug/kg	14	U	16	U	NC	
108-87-2	Metylcyclohexane	OLM04-2-V	ug/kg	14	U	16	U	NC	
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/kg	14	U	16	U	NC	
75-27-4	Bromodichloromethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/kg	14	U	16	U	NC	
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/kg	14	UJ	16	UJ	NC	
108-88-3	Toluene	OLM04-2-V	ug/kg	2	J	16	U	NC	
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/kg	14	U	16	U	NC	
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
127-18-4	Tetrachloroethene	OLM04-2-V	ug/kg	14	U	16	U	NC	
591-78-6	2-Hexanone	OLM04-2-V	ug/kg	14	U	16	U	NC	
124-48-1	Dibromochloromethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
108-90-7	Chlorobenzene	OLM04-2-V	ug/kg	14	U	16	U	NC	
100-41-4	Ethylbenzene	OLM04-2-V	ug/kg	14	U	16	U	NC	
1330-20-7	Xylenes (total)	OLM04-2-V	ug/kg	14	U	16	U	NC	
100-42-5	Styrene	OLM04-2-V	ug/kg	14	U	16	U	NC	
75-25-2	Bromoform	OLM04-2-V	ug/kg	14	U	16	U	NC	
98-82-8	Isopropylbenzene	OLM04-2-V	ug/kg	14	U	16	U	NC	
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/kg	14	U	16	U	NC	
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/kg	14	U	16	U	NC	
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/kg	14	U	16	U	NC	
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/kg	14	U	16	U	NC	
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/kg	14	U	16	U	NC	
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/kg	14	U	16	U	NC	

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Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	URSD-7 / 11/6/2001 / 0 to 6 inch		URSD-7-DUP / URSD-13 / 11/6/2001 / 0 to 6 inch		RPD	
2-SV-1-s	**Semi-Volatile Organics -page 1 - OLM04.2**								
100-52-7	Benzaldehyde	OLM04-2-SV	ug/kg	55	J	14	J		118.84
108-95-2	Phenol	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
95-48-7	2-Methylphenol	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
98-86-2	Acetophenone	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
106-44-5	4-Methylphenol	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
67-72-1	Hexachloroethane	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
98-95-3	Nitrobenzene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
78-59-1	Isophorone	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
91-20-3	Naphthalene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
105-60-2	Caprolactam	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/kg	1200	UJ	1200	UJ	NC	
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/kg	1200	UJ	1200	UJ	NC	
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
208-96-8	Acenaphthylene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/kg	1200	UJ	1200	UJ	NC	
83-32-9	Acenaphthene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	URSD-7 11/6/2001 0 to 6 inch		URSD-7-DUP URSD-13 11/6/2001 0 to 6 inch		RPD
3-SV-2-s	**Semi-Volatile Organics -page 2 - OLM04.2**							
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/kg	1200	UJ	1200	UJ	NC
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/kg	1200	UJ	1200	UJ	NC
132-64-9	Dibenzofuran	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
84-66-2	Diethylphthalate	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
86-73-7	Fluorene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/kg	1200	UJ	1200	UJ	NC
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/kg	1200	UJ	1200	UJ	NC
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
1912-24-9	Atrazine	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/kg	1200	UJ	1200	UJ	NC
85-01-8	Phenanthrene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
120-12-7	Anthracene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
86-74-8	Carbazole	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
206-44-0	Fluoranthene	OLM04-2-SV	ug/kg	460	UJ	21	J	NC
129-00-0	Pyrene	OLM04-2-SV	ug/kg	460	UJ	19	J	NC
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
218-01-9	Chrysene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/kg	460	UJ	460	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	URSD-7 / / 11/6/2001 / 0 to 6 inch		URSD-7-DUP / URSD-13 / 11/6/2001 / 0 to 6 inch		RPD
4-P/PCBs-s	**Pestcide/PCB Organics - OLM04.2**							
319-84-6	alpha-BHC	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
319-85-7	beta-BHC	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
319-86-8	delta-BHC	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
76-44-8	Heptachlor	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
309-00-2	Aldrin	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
959-98-8	Endosulfan I	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
60-57-1	Dieldrin	OLM04-2-PP	ug/kg	4.6	UJ	4.6	UJ	NC
72-55-9	4,4'-DDE	OLM04-2-PP	ug/kg	4.6	UJ	4.6	UJ	NC
72-20-8	Endrin	OLM04-2-PP	ug/kg	4.6	UJ	4.6	UJ	NC
33213-65-9	Endosulfan II	OLM04-2-PP	ug/kg	4.6	UJ	4.6	UJ	NC
72-54-8	4,4'-DDD	OLM04-2-PP	ug/kg	4.6	UJ	4.6	UJ	NC
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/kg	4.6	UJ	4.6	UJ	NC
50-29-3	4,4'-DDT	OLM04-2-PP	ug/kg	4.6	UJ	4.6	UJ	NC
72-43-5	Methoxychlor	OLM04-2-PP	ug/kg	24	UJ	24	UJ	NC
53494-70-5	Endrin ketone	OLM04-2-PP	ug/kg	4.6	UJ	4.6	UJ	NC
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/kg	4.6	UJ	4.6	UJ	NC
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/kg	2.4	UJ	2.4	UJ	NC
8001-35-2	Toxaphene	OLM04-2-PP	ug/kg	240	UJ	240	UJ	NC
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/kg	46	UJ	46	UJ	NC
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/kg	94	UJ	93	UJ	NC
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/kg	46	UJ	46	UJ	NC
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/kg	46	UJ	46	UJ	NC
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/kg	46	UJ	46	UJ	NC
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/kg	46	UJ	46	UJ	NC
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/kg	46	UJ	46	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	URSD-7 11/6/2001 0 to 6 inch		URSD-7-DUP URSD-13 11/6/2001 0 to 6 inch		RPD	
5-Inorg-s	**Inorganic Analytes - ILM04.1**								
7429-90-5	Aluminum	ILM04-1-M	mg/kg	8130		6330			24.90
7440-36-0	Antimony	ILM04-1-M	mg/kg	0.66	UJ	0.8	UJ	NC	
7440-38-2	Arsenic	ILM04-1-M	mg/kg	3.5		2.8	B		22.22
7440-39-3	Barium	ILM04-1-M	mg/kg	54.6		69.2			23.59
7440-41-7	Beryllium	ILM04-1-M	mg/kg	0.45	B	0.29	B		43.24
7440-43-9	Cadmium	ILM04-1-M	mg/kg	0.11	U	0.13	U	NC	
7440-70-2	Calcium	ILM04-1-M	mg/kg	7850	J	129000	J		177.06
7440-47-3	Chromium	ILM04-1-M	mg/kg	13.4		10.9	J		20.58
7440-48-4	Cobalt	ILM04-1-M	mg/kg	6	B	5.5	B		8.70
7440-50-8	Copper	ILM04-1-M	mg/kg	14.7	R	13	R	NC	
7439-89-6	Iron	ILM04-1-M	mg/kg	13900		17200			21.22
7439-92-1	Lead	ILM04-1-M	mg/kg	9.6	J	6.7	J		35.58
7439-95-4	Magnesium	ILM04-1-M	mg/kg	3130	J	6150	J		65.09
7439-96-5	Manganese	ILM04-1-M	mg/kg	82.7		278			108.29
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.07	U	0.08	U	NC	
7440-02-0	Nickel	ILM04-1-M	mg/kg	18.8		17.7			6.03
7440-09-7	Potassium	ILM04-1-M	mg/kg	673	B	1350	B		66.93
7782-49-2	Selenium	ILM04-1-M	mg/kg	0.58	U	1.8		NC	
7440-22-4	Silver	ILM04-1-M	mg/kg	0.24	U	0.29	U	NC	
7440-23-5	Sodium	ILM04-1-M	mg/kg	432	B	462	B		6.71
7440-28-0	Thallium	ILM04-1-M	mg/kg	0.93	U	1.1	U	NC	
7440-62-2	Vanadium	ILM04-1-M	mg/kg	15.3		11.7	B		26.67
7440-66-6	Zinc	ILM04-1-M	mg/kg	65.9		50.6			26.27
57-12-5	Cyanide	ILM04-1-CN	mg/kg	0.24	B	0.15	U	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	WTSD-04-0-6 / 11/5/2001 / 0 to 6 inch		WTSD-04-0-6-DUP / WTSD-20-0-6 / 11/5/2001 / 0 to 6 inch		RPD	
(Group Code)	(Group Description)								
1-VOA-s	Volatile Organic Compounds - OLM04.2								
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
74-87-3	Chloromethane	OLM04-2-V	ug/kg	110	UJ	13	J	NC	
75-01-4	Vinyl Chloride	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
74-83-9	Bromomethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
75-00-3	Chloroethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
67-64-1	Acetone	OLM04-2-V	ug/kg	310	UJ	3600	J	NC	
75-15-0	Carbon Disulfide	OLM04-2-V	ug/kg	150	J	120	UJ	NC	
79-20-9	Methyl Acetate	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
75-09-2	Methylene Chloride	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
78-93-3	2-Butanone	OLM04-2-V	ug/kg	23	J	440	J		180.13
67-66-3	Chloroform	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
110-82-7	Cyclohexane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
71-43-2	Benzene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
107-06-2	1,2-Dichloroethane	OLM04-2-V,	ug/kg	110	UJ	120	UJ	NC	
79-01-6	Trichloroethene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
108-87-2	Metylcyclohexane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
75-27-4	Bromodichloromethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
108-88-3	Toluene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
127-18-4	Tetrachloroethene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
591-78-6	2-Hexanone	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
124-48-1	Dibromochloromethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
108-90-7	Chlorobenzene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
100-41-4	Ethylbenzene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
1330-20-7	Xylenes (total)	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
100-42-5	Styrene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
75-25-2	Bromoform	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
98-82-8	Isopropylbenzene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/kg	110	UJ	120	UJ	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code	WTSD-04-0-6		WTSD-04-0-6-DUP		RPD
			Sample Name			WTSD-20-0-6		
			Sample Date	11/5/2001		11/5/2001		
			Unit \\ Depth	0 to 6 inch		0 to 6 inch		
2-SV-1-s	**Semi-Volatile Organics -page 1 - OLM04.2**							
100-52-7	Benzaldehyde	OLM04-2-SV	ug/kg	150	J	93	J	46.91
108-95-2	Phenol	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
95-48-7	2-Methylphenol	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
98-86-2	Acetophenone	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
106-44-5	4-Methylphenol	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
67-72-1	Hexachloroethane	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
98-95-3	Nitrobenzene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
78-59-1	Isophorone	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
91-20-3	Naphthalene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
105-60-2	Caprolactam	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/kg	5500	UJ	5500	UJ	NC
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/kg	5500	UJ	5500	UJ	NC
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
208-96-8	Acenaphthylene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/kg	5500	UJ	5500	UJ	NC
83-32-9	Acenaphthene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	WTSD-04-0-6 / 11/5/2001 / 0 to 6 inch		WTSD-04-0-6-DUP / WTSD-20-0-6 / 11/5/2001 / 0 to 6 inch		RPD
3-SV-2-s	**Semi-Volatile Organics -page 2 - OLM04.2**							
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/kg	5500	UJ	5500	UJ	NC
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/kg	5500	UJ	5500	UJ	NC
132-64-9	Dibenzofuran	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
84-66-2	Diethylphthalate	OLM04-2-SV	ug/kg	72	J	2200	UJ	NC
86-73-7	Fluorene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/kg	5500	UJ	5500	UJ	NC
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/kg	5500	UJ	5500	UJ	NC
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
1912-24-9	Atrazine	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/kg	5500	UJ	5500	UJ	NC
85-01-8	Phenanthrene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
120-12-7	Anthracene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
86-74-8	Carbazole	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
206-44-0	Fluoranthene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
129-00-0	Pyrene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
218-01-9	Chrysene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/kg	2200	UJ	2200	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	WTSD-04-0-6 / 11/5/2001 / 0 to 6 inch		WTSD-04-0-6-DUP / WTSD-20-0-6 / 11/5/2001 / 0 to 6 inch		RPD
4-P/PCBs-s	**Pestcide/PCB Organics - OLM04.2**							
319-84-6	alpha-BHC	OLM04-2-PP	ug/kg	11	UJ	11	UJ	NC
319-85-7	beta-BHC	OLM04-2-PP	ug/kg	11	UJ	11	UJ	NC
319-86-8	delta-BHC	OLM04-2-PP	ug/kg	11	UJ	11	UJ	NC
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/kg	11	UJ	11	UJ	NC
76-44-8	Heptachlor	OLM04-2-PP	ug/kg	11	UJ	11	UJ	NC
309-00-2	Aldrin	OLM04-2-PP	ug/kg	11	UJ	11	UJ	NC
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/kg	11	UJ	11	UJ	NC
959-98-8	Endosulfan I	OLM04-2-PP	ug/kg	11	UJ	11	UJ	NC
60-57-1	Dieldrin	OLM04-2-PP	ug/kg	22	UJ	22	UJ	NC
72-55-9	4,4'-DDE	OLM04-2-PP	ug/kg	22	UJ	22	UJ	NC
72-20-8	Endrin	OLM04-2-PP	ug/kg	22	UJ	22	UJ	NC
33213-65-9	Endosulfan II	OLM04-2-PP	ug/kg	22	UJ	22	UJ	NC
72-54-8	4,4'-DDD	OLM04-2-PP	ug/kg	22	UJ	22	UJ	NC
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/kg	22	UJ	22	UJ	NC
50-29-3	4,4'-DDT	OLM04-2-PP	ug/kg	22	UJ	22	UJ	NC
72-43-5	Methoxychlor	OLM04-2-PP	ug/kg	110	UJ	110	UJ	NC
53494-70-5	Endrin ketone	OLM04-2-PP	ug/kg	22	UJ	22	UJ	NC
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/kg	22	UJ	22	UJ	NC
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/kg	25	J	17	J	38.10
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/kg	16	J	12	J	28.57
8001-35-2	Toxaphene	OLM04-2-PP	ug/kg	1100	UJ	1100	UJ	NC
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/kg	220	UJ	220	UJ	NC
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/kg	450	UJ	450	UJ	NC
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/kg	220	UJ	220	UJ	NC
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/kg	220	UJ	220	UJ	NC
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/kg	220	UJ	220	UJ	NC
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/kg	220	UJ	220	UJ	NC
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/kg	220	UJ	220	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

			Sample Code	WTSD-04-0-6		WTSD-04-0-6-DUP		RPD
			Sample Name			WTSD-20-0-6		
			Sample Date	11/5/2001		11/5/2001		
Cas Rn	Chemical Name	Analytic Method	Unit \\ Depth	0 to 6 inch		0 to 6 inch		
5-Inorg-s	**Inorganic Analytes - ILM04.1**							
7429-90-5	Aluminum	ILM04-1-M	mg/kg	847	J	943	J	10.73
7440-36-0	Antimony	ILM04-1-M	mg/kg	47.2	BJ	54.2	BJ	13.81
7440-38-2	Arsenic	ILM04-1-M	mg/kg	16.3	J	16.5	J	1.22
7440-39-3	Barium	ILM04-1-M	mg/kg	410	J	400	J	2.47
7440-41-7	Beryllium	ILM04-1-M	mg/kg	8.7	J	9.7	J	10.87
7440-43-9	Cadmium	ILM04-1-M	mg/kg	0.54	UJ	0.61	UJ	NC
7440-70-2	Calcium	ILM04-1-M	mg/kg	132000	J	160000	J	19.18
7440-47-3	Chromium	ILM04-1-M	mg/kg	6690	J	7460	J	10.88
7440-48-4	Cobalt	ILM04-1-M	mg/kg	4.2	BJ	3.6	BJ	15.38
7440-50-8	Copper	ILM04-1-M	mg/kg	24.6	BJ	26.9	BJ	8.93
7439-89-6	Iron	ILM04-1-M	mg/kg	91300	J	88500	J	3.11
7439-92-1	Lead	ILM04-1-M	mg/kg	38.6	J	47.2	J	20.05
7439-95-4	Magnesium	ILM04-1-M	mg/kg	919	BJ	1010	BJ	9.43
7439-96-5	Manganese	ILM04-1-M	mg/kg	5880	J	5860	J	0.34
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.34	UJ	0.38	UJ	NC
7440-02-0	Nickel	ILM04-1-M	mg/kg	9.5	BJ	10.6	BJ	10.95
7440-09-7	Potassium	ILM04-1-M	mg/kg	581	BJ	630	BJ	8.09
7782-49-2	Selenium	ILM04-1-M	mg/kg	3	UJ	3.3	UJ	NC
7440-22-4	Silver	ILM04-1-M	mg/kg	1.2	UJ	1.6	BJ	NC
7440-23-5	Sodium	ILM04-1-M	mg/kg	840	BJ	1010	BJ	18.38
7440-28-0	Thallium	ILM04-1-M	mg/kg	4.7	UJ	5.3	UJ	NC
7440-62-2	Vanadium	ILM04-1-M	mg/kg	1.5	UJ	1.7	UJ	NC
7440-66-6	Zinc	ILM04-1-M	mg/kg	536	J	527	J	1.69
57-12-5	Cyanide	ILM04-1-CN	mg/kg	0.64	UJ	0.72	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Hiteman Leather
Soil Sediment Duplicates
for Data Usability

			Sample Code	BSB-05-0-2		BSB-05-0-2-DUP		
			Sample Name			BSB-07-0-2		
			Sample Date	4/3/2002		4/3/2002		RPD
Cas Rn	Chemical Name	Analytic Method	Unit \\ Depth	0 to 2 ft		0 to 2 ft		
(Group Code)	**(Group Description)**							
6WetChem-s	**Created by SUPER on 08/03/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	4	U	4	J	NC
pH	pH	SW9045C	S.U.	11		11		0.00
TOC	Total Organic Carbon	Lloyd Kahn	mg/kg	52800		87200		49.14
Grain Size	**Created by SUPER on 9/6/2002**							
Grain-4	No. 4 Sieve	ASTM-D421	%	53		67		23.33
Grain-10	No. 10 Sieve	ASTM-D421	%	13		8.8		38.53
Grain-20	No. 20 Sieve	ASTM-D421	%	10		6.9		36.69
Grain-40	No. 40 Sieve	ASTM-D421	%	7.8		5.5		34.59
Grain-60	No. 60 Sieve	ASTM-D421	%	4.6		3.3		32.91
Grain-120	No. 120 Sieve	ASTM-D421	%					
Grain-140	No. 140 Sieve	ASTM-D421	%	5.1		3.8		29.21
Grain-200	No. 200 Sieve	ASTM-D421	%	1.4		1		33.33
Grain-270	No. 270 Sieve	ASTM-D421	%					
Grain-325	No. 325 Sieve	ASTM-D421	%					
Grain-400	No. 400 Sieve	ASTM-D421	%					
HexChr-s	**Created by SUPER on 08/22/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	4	U	4	J	NC

RPD = Relative Percent Difference
NC = Not Calculable

			Sample Code	LSB-03-4-6		LSB-03-4-6-DUP		
			Sample Name			LSB-04-4-6		
			Sample Date	4/11/2002		4/11/2002		RPD
Cas Rn	Chemical Name	Analytic Method	Unit \\ Depth	4 to 6 ft		4 to 6 ft		
(Group Code)	**(Group Description)**							
6WetChem-s	**Created by SUPER on 08/03/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	6	U	7	U	NC
pH	pH	SW9045C	S.U.	7.7		7.8		1.29
TOC	Total Organic Carbon	Lloyd Kahn	mg/kg	73100		78700		7.38
Grain Size	**Created by SUPER on 9/6/2002**							
Grain-4	No. 4 Sieve	ASTM-D421	%	76		52		37.50
Grain-10	No. 10 Sieve	ASTM-D421	%	3.2		6.4		66.67
Grain-20	No. 20 Sieve	ASTM-D421	%	5.2		10		63.16
Grain-40	No. 40 Sieve	ASTM-D421	%	4.3		8.5		65.63
Grain-60	No. 60 Sieve	ASTM-D421	%	2.9		6		69.66
Grain-120	No. 120 Sieve	ASTM-D421	%					
Grain-140	No. 140 Sieve	ASTM-D421	%	3.6		7.7		72.57
Grain-200	No. 200 Sieve	ASTM-D421	%	1.1		2.4		74.29
Grain-270	No. 270 Sieve	ASTM-D421	%					
Grain-325	No. 325 Sieve	ASTM-D421	%					
Grain-400	No. 400 Sieve	ASTM-D421	%					
HexChr-s	**Created by SUPER on 08/22/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	6	U	7	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	LSB-01-18-20 / / 4/22/2002 / 18 to 20 ft		LSB-01-18-20-DUP / LSB-35-18-20 / 4/22/2002 / 18 to 20 ft		RPD
(Group Code)	**(Group Description)**							
6WetChem-s	**Created by SUPER on 08/03/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	4	U	4	U	NC
pH	pH	SW9045C	S.U.	8.3		8.3		0.00
TOC	Total Organic Carbon	Lloyd Kahn	mg/kg	56000		65000		14.88
Grain Size	**Created by SUPER on 9/6/2002**							
Grain-4	No. 4 Sieve	ASTM-D421	%	79		73		7.89
Grain-10	No. 10 Sieve	ASTM-D421	%	8.7		8.1		7.14
Grain-20	No. 20 Sieve	ASTM-D421	%	6		8		28.57
Grain-40	No. 40 Sieve	ASTM-D421	%	3		4.4		37.84
Grain-60	No. 60 Sieve	ASTM-D421	%	0.9		1.5		50.00
Grain-120	No. 120 Sieve	ASTM-D421	%					
Grain-140	No. 140 Sieve	ASTM-D421	%	1		2		66.67
Grain-200	No. 200 Sieve	ASTM-D421	%	0.4		0.6		40.00
Grain-270	No. 270 Sieve	ASTM-D421	%					
Grain-325	No. 325 Sieve	ASTM-D421	%					
Grain-400	No. 400 Sieve	ASTM-D421	%					
HexChr-s	**Created by SUPER on 08/22/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	4	U	4	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-01-2-4 / 4/8/2002 / 2 to 4 ft		RSB-01-2-4-DUP / RSB-30-2-4 / 4/8/2002 / 2 to 4 ft		RPD
(Group Code)	**(Group Description)**							
6WetChem-s	**Created by SUPER on 08/03/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	14	UJ	7	UJ	NC
pH	pH	SW9045C	S.U.	7.2		7.2		0.00
TOC	Total Organic Carbon	Lloyd Kahn	mg/kg	49600		111000		76.46
Grain Size	**Created by SUPER on 9/6/2002**							
Grain-4	No. 4 Sieve	ASTM-D421	%	9.4		5.8		47.37
Grain-10	No. 10 Sieve	ASTM-D421	%	8		6.1		26.95
Grain-20	No. 20 Sieve	ASTM-D421	%	15		15		0.00
Grain-40	No. 40 Sieve	ASTM-D421	%	13		13		0.00
Grain-60	No. 60 Sieve	ASTM-D421	%	9.2		10		8.33
Grain-120	No. 120 Sieve	ASTM-D421	%					
Grain-140	No. 140 Sieve	ASTM-D421	%	17		18		5.71
Grain-200	No. 200 Sieve	ASTM-D421	%	6.2		7		12.12
Grain-270	No. 270 Sieve	ASTM-D421	%					
Grain-325	No. 325 Sieve	ASTM-D421	%					
Grain-400	No. 400 Sieve	ASTM-D421	%					
HexChr-s	**Created by SUPER on 08/22/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	14	UJ	7	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

			Sample Code	RSB-16-2-4		RSB-16-2-4-DUP		RPD
			Sample Name			RSB-31-2-4		
			Sample Date	4/9/2002		4/9/2002		
Cas Rn	Chemical Name	Analytic Method	Unit \\ Depth	2 to 4 ft		2 to 4 ft		
(Group Code)	**(Group Description)**							
6WetChem-s	**Created by SUPER on 08/03/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	14	U	7	U	NC
pH	pH	SW9045C	S.U.	5.6		5.5		1.80
TOC	Total Organic Carbon	Lloyd Kahn	mg/kg	76700		72700		5.35
Grain Size	**Created by SUPER on 9/6/2002**							
Grain-4	No. 4 Sieve	ASTM-D421	%	24		6.9		110.68
Grain-10	No. 10 Sieve	ASTM-D421	%	12		14		15.38
Grain-20	No. 20 Sieve	ASTM-D421	%	15		18		18.18
Grain-40	No. 40 Sieve	ASTM-D421	%	12		15		22.22
Grain-60	No. 60 Sieve	ASTM-D421	%	9.3		11		16.75
Grain-120	No. 120 Sieve	ASTM-D421	%					
Grain-140	No. 140 Sieve	ASTM-D421	%	12		15		22.22
Grain-200	No. 200 Sieve	ASTM-D421	%	3.6		4.5		22.22
Grain-270	No. 270 Sieve	ASTM-D421	%					
Grain-325	No. 325 Sieve	ASTM-D421	%					
Grain-400	No. 400 Sieve	ASTM-D421	%					
HexChr-s	**Created by SUPER on 08/22/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	14	U	7	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	RSB-26-0-2 / / 4/10/2002 / 0 to 2 ft		RSB-26-0-2-DUP / RSB-32-0-2 / 4/10/2002 / 0 to 2 ft		RPD
(Group Code)	**(Group Description)**							
6WetChem-s	**Created by SUPER on 08/03/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	4	U	4	U	NC
pH	pH	SW9045C	S.U.	8.3		8.1		2.44
TOC	Total Organic Carbon	Lloyd Kahn	mg/kg	44100		40200		9.25
Grain Size	**Created by SUPER on 9/6/2002**							
Grain-4	No. 4 Sieve	ASTM-D421	%	25		34		30.51
Grain-10	No. 10 Sieve	ASTM-D421	%	20		19		5.13
Grain-20	No. 20 Sieve	ASTM-D421	%	24		20		18.18
Grain-40	No. 40 Sieve	ASTM-D421	%	13		10		26.09
Grain-60	No. 60 Sieve	ASTM-D421	%	5.1		4.3		17.02
Grain-120	No. 120 Sieve	ASTM-D421	%					
Grain-140	No. 140 Sieve	ASTM-D421	%	5		4.5		10.53
Grain-200	No. 200 Sieve	ASTM-D421	%	1.6		1.7		6.06
Grain-270	No. 270 Sieve	ASTM-D421	%					
Grain-325	No. 325 Sieve	ASTM-D421	%					
Grain-400	No. 400 Sieve	ASTM-D421	%					
HexChr-s	**Created by SUPER on 08/22/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	4	U	4	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	RSB-08-8-10 4/12/2002 8 to 10 ft		RSB-08-8-10-DUP RSB-34-8-10 4/12/2002 8 to 10 ft		RPD
(Group Code)	**(Group Description)**							
6WetChem-s	**Created by SUPER on 08/03/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	4	U	4	U	NC
pH	pH	SW9045C	S.U.	8		8		0.00
TOC	Total Organic Carbon	Lloyd Kahn	mg/kg	2400		38600		176.59
Grain Size	**Created by SUPER on 9/6/2002**							
Grain-4	No. 4 Sieve	ASTM-D421	%	47		64		30.63
Grain-10	No. 10 Sieve	ASTM-D421	%	21		14		40.00
Grain-20	No. 20 Sieve	ASTM-D421	%	13		9.4		32.14
Grain-40	No. 40 Sieve	ASTM-D421	%	6		3.9		42.42
Grain-60	No. 60 Sieve	ASTM-D421	%	2.9		2		36.73
Grain-120	No. 120 Sieve	ASTM-D421	%					
Grain-140	No. 140 Sieve	ASTM-D421	%	3.4		2.3		38.60
Grain-200	No. 200 Sieve	ASTM-D421	%	1		0.7		35.29
Grain-270	No. 270 Sieve	ASTM-D421	%					
Grain-325	No. 325 Sieve	ASTM-D421	%					
Grain-400	No. 400 Sieve	ASTM-D421	%					
HexChr-s	**Created by SUPER on 08/22/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	4	U	4	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Hiteman Leather
Soil Sediment Duplicates
for Data Usability

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\ Depth	URSD-7 / 11/6/2001 / 0 to 6 inch		URSD-7-DUP / URSD-13 / 11/6/2001 / 0 to 6 inch		RPD
(Group Code)	**(Group Description)**							
6WetChem-s	**Created by SUPER on 08/03/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	11	UJ	6.6	UJ	NC
pH	pH	SW9045C	S.U.	8.1		8		1.24
TOC	Total Organic Carbon	Lloyd Kahn	mg/kg	20700	U	38800		60.84
Grain Size	**Created by SUPER on 9/6/2002**							
Grain-4	No. 4 Sieve	ASTM-D421	%					
Grain-10	No. 10 Sieve	ASTM-D421	%					
Grain-20	No. 20 Sieve	ASTM-D421	%					
Grain-40	No. 40 Sieve	ASTM-D421	%	49		16.09		101.12
Grain-60	No. 60 Sieve	ASTM-D421	%	9.93		8.24		18.60
Grain-120	No. 120 Sieve	ASTM-D421	%	10.27		8.09		23.75
Grain-140	No. 140 Sieve	ASTM-D421	%					
Grain-200	No. 200 Sieve	ASTM-D421	%	9.02		9.19		1.87
Grain-270	No. 270 Sieve	ASTM-D421	%	4.72		7.94		50.87
Grain-325	No. 325 Sieve	ASTM-D421	%	2.68		5.52		69.27
Grain-400	No. 400 Sieve	ASTM-D421	%	3.17		5.48		53.41
HexChr-s	**Created by SUPER on 08/22/2001**							
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	11	UJ	6.6	UJ	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	WTSD-04-0-6 11/5/2001 0 to 6 inch		WTSD-04-0-6-DUP WTSD-20-0-6 11/5/2001 0 to 6 inch		RPD	
(Group Code)	**(Group Description)**								
6WetChem-s	**Created by SUPER on 08/03/2001**								
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	500	U	5	UJ	NC	
pH	pH	SW9045C	S.U.	7.1		7.6		6.80	
TOC	Total Organic Carbon	Lloyd Kahn	mg/kg	175000	J	278000		45.47	
Grain Size	**Created by SUPER on 9/6/2002**								
Grain-4	No. 4 Sieve	ASTM-D421	%						
Grain-10	No. 10 Sieve	ASTM-D421	%						
Grain-20	No. 20 Sieve	ASTM-D421	%						
Grain-40	No. 40 Sieve	ASTM-D421	%	18.12		29.56		47.99	
Grain-60	No. 60 Sieve	ASTM-D421	%	14.12		10.3		31.29	
Grain-120	No. 120 Sieve	ASTM-D421	%	23.64		18.49		24.45	
Grain-140	No. 140 Sieve	ASTM-D421	%						
Grain-200	No. 200 Sieve	ASTM-D421	%	17.81		13.99		24.03	
Grain-270	No. 270 Sieve	ASTM-D421	%	8.5		8.2		3.59	
Grain-325	No. 325 Sieve	ASTM-D421	%	3.17		3.54		11.03	
Grain-400	No. 400 Sieve	ASTM-D421	%	1.64		2.09		24.13	
HexChr-s	**Created by SUPER on 08/22/2001**								
7440-47-3H	Chromium (+6)	SW7196A	mg/kg	500	U	5	UJ	NC	

RPD = Relative Percent Difference
NC = Not Calculable

Hiteman Leather
Soil Sediment Duplicates
for Data Usability

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	RSB-49-8-10 MB0NL2 10/24/2002 8 to 10 ft		RSB-52-8-10 MB0NH2 10/24/2002 8 to 10 ft		RPD	RSS-03 MB0NG6 10/23/2002 to		RSS-10 MB0NH1 10/23/2002 to		RPD
5-Inorg-s	**Inorganic Analytes - ILM04.1**												
7429-90-5	Aluminum	ILM04-1-M	mg/kg	1830		2160		16.54	7940		8990		12.40
7440-36-0	Antimony	ILM04-1-M	mg/kg	0.75	U	0.76	U	NC	0.64	B	0.6	U	NC
7440-38-2	Arsenic	ILM04-1-M	mg/kg	3.5		4.5	J	25.00	7.9		9.6		19.43
7440-39-3	Barium	ILM04-1-M	mg/kg	12.3	B	14.3	B	15.04	209		216		3.29
7440-41-7	Beryllium	ILM04-1-M	mg/kg	0.23	B	0.21	B	9.09	0.7	B	0.57	B	20.47
7440-43-9	Cadmium	ILM04-1-M	mg/kg	0.09	U	0.09	U	NC	0.76	B	0.92	B	19.05
7440-70-2	Calcium	ILM04-1-M	mg/kg	253000		240000		5.27	12600	J	14600	J	14.71
7440-47-3	Chromium	ILM04-1-M	mg/kg	4.9	J	5.1	J	4.00	104		109		4.69
7440-48-4	Cobalt	ILM04-1-M	mg/kg	2.2	B	2.5	B	12.77	8.1	B	9.3	B	13.79
7440-50-8	Copper	ILM04-1-M	mg/kg	9.2	R	44.7	J	NC	22.2	J	28.7	J	25.54
7439-89-6	Iron	ILM04-1-M	mg/kg	5330		6070		12.98	18700	J	24700	J	27.65
7439-92-1	Lead	ILM04-1-M	mg/kg	6.5	J	7.6		15.60	175		189		7.69
7439-95-4	Magnesium	ILM04-1-M	mg/kg	4850		6220		24.75	2920		3000		2.70
7439-96-5	Manganese	ILM04-1-M	mg/kg	180		242		29.38	1210		1360		11.67
7439-97-6	Mercury	ILM04-1-M	mg/kg	0.1	R	0.1	R	0.00	0.24	R	0.24	R	NC
7440-02-0	Nickel	ILM04-1-M	mg/kg	9.1		7.5	B	19.28	16.9	J	21.3	J	23.04
7440-09-7	Potassium	ILM04-1-M	mg/kg	542	B	447	B	19.21	1360	B	1480	B	8.45
7782-49-2	Selenium	ILM04-1-M	mg/kg	0.64	U	0.65	UJ	NC	1.4	B	3.2		78.26
7440-22-4	Silver	ILM04-1-M	mg/kg	0.24	U	0.24	U	NC	0.81	B	2.3	B	95.82
7440-23-5	Sodium	ILM04-1-M	mg/kg	164	B	103	B	45.69	112	B	164	B	37.68
7440-28-0	Thallium	ILM04-1-M	mg/kg	0.67	U	0.67	U	NC	2	U	2.1	U	NC
7440-62-2	Vanadium	ILM04-1-M	mg/kg	5.6	B	5.4	B	3.64	18		22.2		20.90
7440-66-6	Zinc	ILM04-1-M	mg/kg	33.8		36.8		8.50	252		329		26.51
57-12-5	Cyanide	ILM04-1-CN	mg/kg	0.35	B	0.18	B	64.15	0.23	B	0.23	B	0.00

RPD = Relative Percent Difference

ATTACHMENT 2
GROUNDWATER AND SURFACE WATER SAMPLE DUPLICATE PAIR DATA AND RELATIVE PERCENT DIFFERENCES

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	MW-8S-R2 5/21/2002		MW-8S-R2-DUP RMW-22 5/21/2002		RPD
(Group Code)	**(Group Description)**							
1-LCVOANew	**50 Analytes Method Code OLC03-2-V**							
75-71-8	Dichlorodifluoromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
74-87-3	Chloromethane	OLC03-2-V	ug/l	0.5	U	0.89		56.12
75-01-4	Vinyl Chloride	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
74-83-9	Bromomethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-00-3	Chloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-69-4	Trichlorofluoromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-35-4	1,1-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
67-64-1	Acetone	OLC03-2-V	ug/l	5	U	5	U	NC
75-15-0	Carbon Disulfide	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
79-20-9	Methyl Acetate	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-09-2	Methylene Chloride	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
156-60-5	trans-1,2-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
1634-04-4	Methyl Tert-Butyl Ether	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-34-3	1,1-Dichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
156-59-2	cis-1,2-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
78-93-3	2-Butanone	OLC03-2-V	ug/l	5	U	5	U	NC
74-97-5	Bromochloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
67-66-3	Chloroform	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
71-55-6	1,1,1-Trichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
110-82-7	Cyclohexane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
56-23-5	Carbon Tetrachloride	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
71-43-2	Benzene	OLC03-2-V	ug/l	0.5	UJ	0.5	UJ	NC
107-06-2	1,2-Dichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
79-01-6	Trichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	UJ	NC
108-87-2	Metylcyclohexane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
78-87-5	1,2-Dichloropropane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-27-4	Bromodichloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
10061-01-5	cis-1,3-Dichloropropene	OLC03-2-V	ug/l	0.5	UJ	0.5	UJ	NC
108-10-1	4-Methyl-2-pentanone	OLC03-2-V	ug/l	5	U	5	U	NC
108-88-3	Toluene	OLC03-2-V	ug/l	0.5	U	0.5	UJ	NC
10061-02-6	trans-1,3-Dichloropropene	OLC03-2-V	ug/l	0.5	UJ	0.5	UJ	NC
79-00-5	1,1,2-Trichloroethane	OLC03-2-V	ug/l	0.5	UJ	0.5	UJ	NC
127-18-4	Tetrachloroethene	OLC03-2-V	ug/l	0.5	U	0.5	UJ	NC
591-78-6	2-Hexanone	OLC03-2-V	ug/l	5	UJ	5	UJ	NC
124-48-1	Dibromochloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
106-93-4	1,2-Dibromoethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
108-90-7	Chlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
100-41-4	Ethylbenzene	OLC03-2-V	ug/l	0.5	U	0.5	UJ	NC
1330-20-7	Xylenes (total)	OLC03-2-V	ug/l	0.5	U	0.5	UJ	NC
100-42-5	Styrene	OLC03-2-V	ug/l	0.5	U	0.5	UJ	NC
75-25-2	Bromoform	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
98-82-8	Isopropylbenzene	OLC03-2-V	ug/l	0.5	U	0.5	UJ	NC
79-34-5	1,1,2,2-Tetrachloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
541-73-1	1,3-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
106-46-7	1,4-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
95-50-1	1,2-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
96-12-8	1,2-Dibromo-3-chloropropane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
120-82-1	1,2,4-Trichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
87-61-6	1,2,3-Trichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	MW-8S-R2 5/21/2002		MW-8S-R2-DUP RMW-22 5/21/2002		RPD
2-SV-1-w	**Created by SUPER on 08/03/2001**							
100-52-7	Benzaldehyde	OLM04-2-SV	ug/l	10	U	10	U	NC
108-95-2	Phenol	OLM04-2-SV	ug/l	10	U	10	U	NC
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/l	10	U	10	U	NC
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/l	10	U	10	U	NC
95-48-7	2-Methylphenol	OLM04-2-SV	ug/l	10	U	10	U	NC
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/l	10	UJ	10	UJ	NC
98-86-2	Acetophenone	OLM04-2-SV	ug/l	10	U	10	U	NC
106-44-5	4-Methylphenol	OLM04-2-SV	ug/l	10	U	10	U	NC
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/l	10	U	10	U	NC
67-72-1	Hexachloroethane	OLM04-2-SV	ug/l	10	U	10	U	NC
98-95-3	Nitrobenzene	OLM04-2-SV	ug/l	10	U	10	U	NC
78-59-1	Isophorone	OLM04-2-SV	ug/l	10	U	10	U	NC
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/l	10	U	10	U	NC
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/l	10	U	10	U	NC
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/l	10	U	10	U	NC
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/l	10	U	10	U	NC
91-20-3	Naphthalene	OLM04-2-SV	ug/l	10	U	2	J	NC
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/l	10	U	10	U	NC
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/l	10	U	10	U	NC
105-60-2	Caprolactam	OLM04-2-SV	ug/l	10	U	10	U	NC
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/l	10	U	10	U	NC
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/l	10	U	0.8	J	NC
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/l	10	U	10	U	NC
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/l	10	U	10	U	NC
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/l	25	U	25	U	NC
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/l	10	U	10	U	NC
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/l	10	U	10	U	NC
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/l	25	U	25	U	NC
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/l	10	U	10	U	NC
208-96-8	Acenaphthylene	OLM04-2-SV	ug/l	10	U	10	U	NC
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/l	25	U	25	U	NC
83-32-9	Acenaphthene	OLM04-2-SV	ug/l	10	U	10	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	MW-8S-R2 / 5/21/2002		MW-8S-R2-DUP / RMW-22 / 5/21/2002		RPD
3-SV-2-w	**Created by SUPER on 08/03/2001**							
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/l	25	U	25	U	NC
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/l	25	U	25	U	NC
132-64-9	Dibenzofuran	OLM04-2-SV	ug/l	10	U	10	U	NC
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/l	10	U	10	U	NC
84-66-2	Diethylphthalate	OLM04-2-SV	ug/l	0.6	J	10	U	NC
86-73-7	Fluorene	OLM04-2-SV	ug/l	10	U	10	U	NC
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/l	10	U	10	U	NC
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/l	25	U	25	U	NC
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/l	25	U	25	U	NC
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/l	10	U	10	U	NC
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/l	10	U	10	U	NC
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/l	10	UJ	10	UJ	NC
1912-24-9	Atrazine	OLM04-2-SV	ug/l	10	U	10	U	NC
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/l	25	UJ	25	UJ	NC
85-01-8	Phenanthrene	OLM04-2-SV	ug/l	10	U	10	U	NC
120-12-7	Anthracene	OLM04-2-SV	ug/l	10	U	10	U	NC
86-74-8	Carbazole	OLM04-2-SV	ug/l	10	U	10	U	NC
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
206-44-0	Fluoranthene	OLM04-2-SV	ug/l	10	U	10	U	NC
129-00-0	Pyrene	OLM04-2-SV	ug/l	10	U	10	U	NC
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/l	10	U	10	U	NC
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/l	10	U	10	U	NC
218-01-9	Chrysene	OLM04-2-SV	ug/l	10	U	10	U	NC
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/l	140	D	10	U	NC
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/l	10	U	10	U	NC
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/l	10	U	10	U	NC
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/l	10	U	10	U	NC
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/l	10	U	10	U	NC
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/l	10	U	10	U	NC
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/l	10	U	10	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	MW-8S-R2 5/21/2002		MW-8S-R2-DUP RMW-22 5/21/2002		RPD
4-P/PCBs-w	**Created by SUPER on 08/03/2001**							
319-84-6	alpha-BHC	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
319-85-7	beta-BHC	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
319-86-8	delta-BHC	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
76-44-8	Heptachlor	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
309-00-2	Aldrin	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
959-98-8	Endosulfan I	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
60-57-1	Dieldrin	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
72-55-9	4,4'-DDE	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
72-20-8	Endrin	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
33213-65-9	Endosulfan II	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
72-54-8	4,4'-DDD	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
50-29-3	4,4'-DDT	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
72-43-5	Methoxychlor	OLM04-2-PP	ug/l	0.5	U	0.5	U	NC
53494-70-5	Endrin ketone	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
8001-35-2	Toxaphene	OLM04-2-PP	ug/l	5	U	5	U	NC
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/l	1	U	1	U	NC
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/l	2	U	2	U	NC
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/l	1	U	1	U	NC
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/l	1	U	1	U	NC
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/l	1	U	1	U	NC
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/l	1	U	1	U	NC
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/l	1	U	1	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	MW-8S-R2 / 5/21/2002		MW-8S-R2-DUP / RMW-22 / 5/21/2002		RPD	
5-Inorg-w	**Created by SUPER on 08/03/2001**								
7429-90-5	Aluminum	ILM04-1-M	ug/l	18.5	U	58	B	NC	
7440-36-0	Antimony	ILM04-1-M	ug/l	3.8	U	3.8	U	NC	
7440-38-2	Arsenic	ILM04-1-M	ug/l	3	U	3	U	NC	
7440-39-3	Barium	ILM04-1-M	ug/l	18.4	B	18.3	B		0.54
7440-41-7	Beryllium	ILM04-1-M	ug/l	0.3	U	0.3	U	NC	
7440-43-9	Cadmium	ILM04-1-M	ug/l	0.5	U	0.5	U	NC	
7440-70-2	Calcium	ILM04-1-M	ug/l	128000		128000			0.00
7440-47-3	Chromium	ILM04-1-M	ug/l	0.8	U	0.8	U	NC	
7440-48-4	Cobalt	ILM04-1-M	ug/l	1.2	U	1.2	U	NC	
7440-50-8	Copper	ILM04-1-M	ug/l	1.4	U	1.4	U	NC	
7439-89-6	Iron	ILM04-1-M	ug/l	26.6	B	34.8	B		26.71
7439-92-1	Lead	ILM04-1-M	ug/l	2.8	U	2.8	U	NC	
7439-95-4	Magnesium	ILM04-1-M	ug/l	38700		38900			0.52
7439-96-5	Manganese	ILM04-1-M	ug/l	32.7		32.8			0.31
7439-97-6	Mercury	ILM04-1-M	ug/l	0.1	U	0.1	U	NC	
7440-02-0	Nickel	ILM04-1-M	ug/l	1.7	U	1.7	U	NC	
7440-09-7	Potassium	ILM04-1-M	ug/l	2700	B	2680	B		0.74
7782-49-2	Selenium	ILM04-1-M	ug/l	2.2	U	2.2	U	NC	
7440-22-4	Silver	ILM04-1-M	ug/l	1.1	U	1.1	U	NC	
7440-23-5	Sodium	ILM04-1-M	ug/l	20700		20300			1.95
7440-28-0	Thallium	ILM04-1-M	ug/l	3.5	U	3.5	U	NC	
7440-62-2	Vanadium	ILM04-1-M	ug/l	0.7	U	0.7	U	NC	
7440-66-6	Zinc	ILM04-1-M	ug/l	1.4	U	1.4	U	NC	
57-12-5	Cyanide	ILM04-1-CN	ug/l	1.6	B	1.5	B		6.45

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	RMW-18D-R1 5/23/2002		RMW-18D-R1-DUP RMW-25 5/23/2002		RPD
(Group Code)	**(Group Description)**							
1-LCVOANew	**50 Analytes Method Code OLC03-2-V**							
75-71-8	Dichlorodifluoromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
74-87-3	Chloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-01-4	Vinyl Chloride	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
74-83-9	Bromomethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-00-3	Chloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-69-4	Trichlorofluoromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-35-4	1,1-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
67-64-1	Acetone	OLC03-2-V	ug/l	5	U	5	U	NC
75-15-0	Carbon Disulfide	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
79-20-9	Methyl Acetate	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-09-2	Methylene Chloride	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
156-60-5	trans-1,2-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
1634-04-4	Methyl Tert-Butyl Ether	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-34-3	1,1-Dichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
156-59-2	cis-1,2-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
78-93-3	2-Butanone	OLC03-2-V	ug/l	5	U	5	U	NC
74-97-5	Bromochloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
67-66-3	Chloroform	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
71-55-6	1,1,1-Trichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
110-82-7	Cyclohexane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
56-23-5	Carbon Tetrachloride	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
71-43-2	Benzene	OLC03-2-V	ug/l	0.5	UJ	0.5	UJ	NC
107-06-2	1,2-Dichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
79-01-6	Trichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
108-87-2	Metylcyclohexane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
78-87-5	1,2-Dichloropropane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-27-4	Bromodichloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
10061-01-5	cis-1,3-Dichloropropene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
108-10-1	4-Methyl-2-pentanone	OLC03-2-V	ug/l	5	U	5	U	NC
108-88-3	Toluene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
10061-02-6	trans-1,3-Dichloropropene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
79-00-5	1,1,2-Trichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
127-18-4	Tetrachloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
591-78-6	2-Hexanone	OLC03-2-V	ug/l	5	U	5	U	NC
124-48-1	Dibromochloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
106-93-4	1,2-Dibromoethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
108-90-7	Chlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
100-41-4	Ethylbenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
1330-20-7	Xylenes (total)	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
100-42-5	Styrene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
75-25-2	Bromoform	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
98-82-8	Isopropylbenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
79-34-5	1,1,2,2-Tetrachloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
541-73-1	1,3-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
106-46-7	1,4-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
95-50-1	1,2-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
96-12-8	1,2-Dibromo-3-chloropropane	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
120-82-1	1,2,4-Trichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	NC
87-61-6	1,2,3-Trichlorobenzene	OLC03-2-V	ug/l	0.5	UJ	0.5	UJ	NC

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NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	RMW-18D-R1 / / 5/23/2002		RMW-18D-R1-DUP / RMW-25 / 5/23/2002		RPD
2-SV-1-w	**Created by SUPER on 08/03/2001**							
100-52-7	Benzaldehyde	OLM04-2-SV	ug/l	10	U	10	U	NC
108-95-2	Phenol	OLM04-2-SV	ug/l	10	U	10	U	NC
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/l	10	U	10	U	NC
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/l	10	U	10	U	NC
95-48-7	2-Methylphenol	OLM04-2-SV	ug/l	10	U	10	U	NC
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/l	10	U	10	U	NC
98-86-2	Acetophenone	OLM04-2-SV	ug/l	10	U	10	U	NC
106-44-5	4-Methylphenol	OLM04-2-SV	ug/l	10	U	10	U	NC
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/l	10	U	10	U	NC
67-72-1	Hexachloroethane	OLM04-2-SV	ug/l	10	U	10	U	NC
98-95-3	Nitrobenzene	OLM04-2-SV	ug/l	10	U	10	U	NC
78-59-1	Isophorone	OLM04-2-SV	ug/l	10	U	10	U	NC
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/l	10	U	10	U	NC
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/l	10	U	10	U	NC
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/l	10	U	10	U	NC
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/l	10	U	10	U	NC
91-20-3	Naphthalene	OLM04-2-SV	ug/l	10	U	10	U	NC
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/l	10	U	10	U	NC
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/l	10	U	10	U	NC
105-60-2	Caprolactam	OLM04-2-SV	ug/l	10	U	10	U	NC
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/l	10	U	10	U	NC
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/l	10	U	10	U	NC
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/l	10	U	10	U	NC
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/l	10	U	10	U	NC
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/l	25	U	25	U	NC
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/l	10	U	10	U	NC
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/l	10	U	10	U	NC
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/l	25	U	25	U	NC
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/l	10	U	10	U	NC
208-96-8	Acenaphthylene	OLM04-2-SV	ug/l	10	U	10	U	NC
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/l	25	U	25	U	NC
83-32-9	Acenaphthene	OLM04-2-SV	ug/l	10	U	10	U	NC

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NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	RMW-18D-R1 5/23/2002		RMW-18D-R1-DUP RMW-25 5/23/2002		RPD
3-SV-2-w	**Created by SUPER on 08/03/2001**							
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/l	25	U	25	U	NC
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/l	25	U	25	U	NC
132-64-9	Dibenzofuran	OLM04-2-SV	ug/l	10	U	10	U	NC
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/l	10	U	10	U	NC
84-66-2	Diethylphthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
86-73-7	Fluorene	OLM04-2-SV	ug/l	10	U	10	U	NC
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/l	10	U	10	U	NC
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/l	25	U	25	U	NC
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/l	25	U	25	U	NC
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/l	10	U	10	U	NC
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/l	10	U	10	U	NC
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/l	10	U	10	U	NC
1912-24-9	Atrazine	OLM04-2-SV	ug/l	10	U	10	U	NC
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/l	25	U	25	U	NC
85-01-8	Phenanthrene	OLM04-2-SV	ug/l	10	U	10	U	NC
120-12-7	Anthracene	OLM04-2-SV	ug/l	10	U	10	U	NC
86-74-8	Carbazole	OLM04-2-SV	ug/l	10	U	10	U	NC
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
206-44-0	Fluoranthene	OLM04-2-SV	ug/l	10	U	10	U	NC
129-00-0	Pyrene	OLM04-2-SV	ug/l	10	U	10	U	NC
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/l	10	U	10	U	NC
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/l	10	U	10	U	NC
218-01-9	Chrysene	OLM04-2-SV	ug/l	10	U	10	U	NC
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/l	10	U	10	U	NC
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/l	10	U	10	U	NC
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/l	10	U	10	U	NC
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/l	10	U	10	U	NC
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/l	10	U	10	U	NC
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/l	10	U	10	U	NC
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/l	10	U	10	U	NC

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NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit	RMW-18D-R1 / 5/23/2002		RMW-18D-R1-DUP / RMW-25 / 5/23/2002		RPD
4-P/PCBs-w	**Created by SUPER on 08/03/2001**							
319-84-6	alpha-BHC	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
319-85-7	beta-BHC	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
319-86-8	delta-BHC	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
76-44-8	Heptachlor	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
309-00-2	Aldrin	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
959-98-8	Endosulfan I	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
60-57-1	Dieldrin	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
72-55-9	4,4'-DDE	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
72-20-8	Endrin	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
33213-65-9	Endosulfan II	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
72-54-8	4,4'-DDD	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
50-29-3	4,4'-DDT	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
72-43-5	Methoxychlor	OLM04-2-PP	ug/l	0.5	U	0.5	U	NC
53494-70-5	Endrin ketone	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/l	0.1	U	0.1	U	NC
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/l	0.05	U	0.05	U	NC
8001-35-2	Toxaphene	OLM04-2-PP	ug/l	5	U	5	U	NC
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/l	1	U	1	U	NC
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/l	2	U	2	U	NC
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/l	1	U	1	U	NC
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/l	1	U	1	U	NC
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/l	1	U	1	U	NC
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/l	1	U	1	U	NC
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/l	1	U	1	U	NC

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	RMW-18D-R1 5/23/2002		RMW-18D-R1-DUP RMW-25 5/23/2002		RPD	
5-Inorg-w	**Created by SUPER on 08/03/2001**								
7429-90-5	Aluminum	ILM04-1-M	ug/l	1310	R	2830	R	NC	
7440-36-0	Antimony	ILM04-1-M	ug/l	3.8	U	3.8	U	NC	
7440-38-2	Arsenic	ILM04-1-M	ug/l	3	U	3	U	NC	
7440-39-3	Barium	ILM04-1-M	ug/l	79.5	B	89.8	B		12.17
7440-41-7	Beryllium	ILM04-1-M	ug/l	0.3	U	0.3	U	NC	
7440-43-9	Cadmium	ILM04-1-M	ug/l	0.5	U	0.5	U	NC	
7440-70-2	Calcium	ILM04-1-M	ug/l	95700		150000			44.20
7440-47-3	Chromium	ILM04-1-M	ug/l	12.8		15.8			20.98
7440-48-4	Cobalt	ILM04-1-M	ug/l	1.2	U	1.6	B	NC	
7440-50-8	Copper	ILM04-1-M	ug/l	2.9	B	8	B		93.58
7439-89-6	Iron	ILM04-1-M	ug/l	1830	J	5680	J		102.53
7439-92-1	Lead	ILM04-1-M	ug/l	2.8	UJ	2.8	UJ	NC	
7439-95-4	Magnesium	ILM04-1-M	ug/l	16300	J	23200	J		34.94
7439-96-5	Manganese	ILM04-1-M	ug/l	58.6	J	187	J		104.56
7439-97-6	Mercury	ILM04-1-M	ug/l	0.1	U	0.1	U	NC	
7440-02-0	Nickel	ILM04-1-M	ug/l	11.3	B	15.4	B		30.71
7440-09-7	Potassium	ILM04-1-M	ug/l	2290	B	2800	B		20.04
7782-49-2	Selenium	ILM04-1-M	ug/l	3.2	BJ	2.2	U	NC	
7440-22-4	Silver	ILM04-1-M	ug/l	1.1	U	1.1	U	NC	
7440-23-5	Sodium	ILM04-1-M	ug/l	7060	J	7300	J		3.34
7440-28-0	Thallium	ILM04-1-M	ug/l	3.5	U	3.5	U	NC	
7440-62-2	Vanadium	ILM04-1-M	ug/l	2.3	B	6.5	B		95.45
7440-66-6	Zinc	ILM04-1-M	ug/l	6	B	15.7	B		89.40
57-12-5	Cyanide	ILM04-1-CN	ug/l	1.8	BJ	2.1	BJ		15.38

RPD = Relative Percent Difference
NC = Not Calculable

			Sample Code	MW-8S-R2		MW-8S-R2-DUP		RPD
			Sample Name			RMW-22		
			Sample Date	5/21/2002		5/21/2002		
Cas Rn	Chemical Name	Analytic Method	Unit \\					
(Group Code)	**(Group Description)**							
6-WetChem	**Created by SUPER on 9/6/2002**							
CACO3-A	Alkalinity as CaCO3	MCAWW310-1	mg/l	220		240		8.70
CACOA-H	Hardness as CaCO3	SM2340B	mg/l	Not analyzed		Not analyzed		
BOD	Biochemical Oxygen Demand	MCAWW405-1	mg/l	9		10		10.53
COD	Chemical Oxygen Demand	SM5220D	mg/l	30	U	30	U	NC
TOC	Total Organic Carbon	MCAWW415-1	mg/l	18		18		0.00
7440-47-3H	Chromium (+6)	SW7196A	mg/l	0.03	U	0.03	U	NC
CL	Chloride	MCAWW325-3	mg/l	42		42		0.00
NH3	Nitrogen, Ammonia	MCAWW350-1	mg/l	0.4		0.4		0.00
NO3/NO2	Nitrogen, Nitrate-Nitrite	MCAWW353-2	mg/l	10	U	10	U	NC
TKN	Nitrogen, Total Kjeldahl	MCAWW351-	mg/l	0.5	U	2.2		125.93
SO4	Sulfate	MCAWW375-	mg/l	310		290		6.67
TDS	Total Dissolved Solids	MCAWW160-1	mg/l	620		620		0.00
TSS	Total Suspended Solids	MCAWW160-2	mg/l	15		10	U	NC
pH	pH	SW9045C	S.U.	Not analyzed		Not analyzed		

RPD = Relative Percent Difference
NC = Not Calculable

			Sample Code	RMW-18D-R1		RMW-18D-R1-DUP			
			Sample Name			RMW-25		RPD	
			Sample Date	5/23/2002		5/23/2002			
Cas Rn	Chemical Name	Analytic Method	Unit \\						
(Group Code)	**(Group Description)**								
6-WetChem	**Created by SUPER on 9/6/2002**								
CACO3-A	Alkalinity as CaCO3	MCAWW310-1	mg/l	230		260		12.24	
CACOA-H	Hardness as CaCO3	SM2340B	mg/l	Not analyzed		Not analyzed			
BOD	Biochemical Oxygen Demand	MCAWW405-1	mg/l	3		3	U	NC	
COD	Chemical Oxygen Demand	SM5220D	mg/l	30	U	30	U	NC	
TOC	Total Organic Carbon	MCAWW415-1	mg/l	10		12		18.18	
7440-47-3H	Chromium (+6)	SW7196A	mg/l	0.03	U	0.03	U	NC	
CL	Chloride	MCAWW325-3	mg/l	11		11		0.00	
NH3	Nitrogen, Ammonia	MCAWW350-1	mg/l	0.6		0.5		18.18	
NO3/NO2	Nitrogen, Nitrate-Nitrite	MCAWW353-2	mg/l	1.7		1.7		0.00	
TKN	Nitrogen, Total Kjeldahl	MCAWW351-	mg/l	1.9		2		5.13	
SO4	Sulfate	MCAWW375-	mg/l	93		95		2.13	
TDS	Total Dissolved Solids	MCAWW160-1	mg/l	320		300		6.45	
TSS	Total Suspended Solids	MCAWW160-2	mg/l	69		59		15.63	
pH	pH	SW9045C	S.U.	Not analyzed		Not analyzed			

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	MW-11D 11/8/2001		MW-11D-DUP MW-20D 11/8/2001		RPD	
(Group Code)	**(Group Description)**								
6-WetChem	**Created by SUPER on 9/6/2002**								
CACO3-A	Alkalinity as CaCO3	MCAWW310-1	mg/l	Analyzed for Chrom-6 Only					
CACOA-H	Hardness as CaCO3	SM2340B	mg/l						
BOD	Biochemical Oxygen Demand	MCAWW405-1	mg/l						
COD	Chemical Oxygen Demand	SM5220D	mg/l						
TOC	Total Organic Carbon	MCAWW415-1	mg/l						
7440-47-3H	Chromium (+6)	SW7196A	mg/l	0.02	UJ	0.02	UJ	NC	
CL	Chloride	MCAWW325-3	mg/l						
NH3	Nitrogen, Ammonia	MCAWW350-1	mg/l						
NO3/NO2	Nitrogen, Nitrate-Nitrite	MCAWW353-2	mg/l						
TKN	Nitrogen, Total Kjeldahl	MCAWW351-	mg/l						
SO4	Sulfate	MCAWW375-	mg/l						
TDS	Total Dissolved Solids	MCAWW160-1	mg/l						
TSS	Total Suspended Solids	MCAWW160-2	mg/l						
pH	pH	SW9045C	S.U.						

RPD = Relative Percent Difference
NC = Not Calculable

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	URSW-8 11/6/2001		URSW-8-DUP URSW-13 11/6/2001		RPD
(Group Code)	(Group Description)							
6-WetChem	**Created by SUPER on 9/6/2002**			Not analyzed		Not analyzed		
CACO3-A	Alkalinity as CaCO3	MCAWW310-1	mg/l	300		300		0.00
CACOA-H	Hardness as CaCO3	SM2340B	mg/l	270		270		0.00
BOD	Biochemical Oxygen Demand	MCAWW405-1	mg/l	Not analyzed		Not analyzed		
COD	Chemical Oxygen Demand	SM5220D	mg/l	Not analyzed		Not analyzed		
TOC	Total Organic Carbon	MCAWW415-1	mg/l	Not analyzed		Not analyzed		
7440-47-3H	Chromium (+6)	SW7196A	mg/l	0.02	U	0.02	U	NC
CL	Chloride	MCAWW325-3	mg/l	Not analyzed		Not analyzed		
NH3	Nitrogen, Ammonia	MCAWW350-1	mg/l	Not analyzed		Not analyzed		
NO3/NO2	Nitrogen, Nitrate-Nitrite	MCAWW353-2	mg/l	Not analyzed		Not analyzed		
TKN	Nitrogen, Total Kjeldahl	MCAWW351-	mg/l	Not analyzed		Not analyzed		
SO4	Sulfate	MCAWW375-	mg/l	Not analyzed		Not analyzed		
TDS	Total Dissolved Solids	MCAWW160-1	mg/l	330		330		0.00
TSS	Total Suspended Solids	MCAWW160-2	mg/l	11		10	U	NC
pH	pH	SW9045C	S.U.	Not analyzed		Not analyzed		

RPD = Relative Percent Difference
NC = Not Calculable

ATTACHMENT 3
FIELD BLANK AND TRIP BLANK SAMPLE DATA

			Sample Code	FB-110501-MW	FB-110501-SD	FB-110601-SD	FB-110701-MW	FB-110701-SD
			Sample Name					
			Sample Date	11/5/2001	11/5/2001	11/6/2001	11/7/2001	11/7/2001
Cas Rn	Chemical Name	Analytic Method	Unit \\					
(Group Code)	**(Group Description)**							
1-VOA-w	**Created by SUPER on 08/03/2001**							
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/l	Analyzed for	Not Analyzed	Not Analyzed	Analyzed for	Not Analyzed
74-87-3	Chloromethane	OLM04-2-V	ug/l	Chrom-6 Only	for VOCs	for VOCs	Chrom-6 Only	for VOCs
75-01-4	Vinyl Chloride	OLM04-2-V	ug/l					
74-83-9	Bromomethane	OLM04-2-V	ug/l					
75-00-3	Chloroethane	OLM04-2-V	ug/l					
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/l					
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/l					
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/l					
67-64-1	Acetone	OLM04-2-V	ug/l					
75-15-0	Carbon Disulfide	OLM04-2-V	ug/l					
79-20-9	Methyl Acetate	OLM04-2-V	ug/l					
75-09-2	Methylene Chloride	OLM04-2-V	ug/l					
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/l					
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/l					
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/l					
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/l					
78-93-3	2-Butanone	OLM04-2-V	ug/l					
67-66-3	Chloroform	OLM04-2-V	ug/l					
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/l					
110-82-7	Cyclohexane	OLM04-2-V	ug/l					
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/l					
71-43-2	Benzene	OLM04-2-V	ug/l					
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/l					
79-01-6	Trichloroethene	OLM04-2-V	ug/l					
108-87-2	Metylcyclohexane	OLM04-2-V	ug/l					
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/l					
75-27-4	Bromodichloromethane	OLM04-2-V	ug/l					
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/l					
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/l					
108-88-3	Toluene	OLM04-2-V	ug/l					
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/l					
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/l					
127-18-4	Tetrachloroethene	OLM04-2-V	ug/l					
591-78-6	2-Hexanone	OLM04-2-V	ug/l					
124-48-1	Dibromochloromethane	OLM04-2-V	ug/l					
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/l					
108-90-7	Chlorobenzene	OLM04-2-V	ug/l					

			Sample Code	FB-110501-MW		FB-110501-SD		FB-110601-SD		FB-110701-MW		FB-110701-SD	
			Sample Name										
			Sample Date	11/5/2001		11/5/2001		11/6/2001		11/7/2001		11/7/2001	
Cas Rn	Chemical Name	Analytic Method	Unit \\										
100-41-4	Ethylbenzene	OLM04-2-V	ug/l										
1330-20-7	Xylenes (total)	OLM04-2-V	ug/l										
100-42-5	Styrene	OLM04-2-V	ug/l										
75-25-2	Bromoform	OLM04-2-V	ug/l										
98-82-8	Isopropylbenzene	OLM04-2-V	ug/l										
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/l										
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/l										
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/l										
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/l										
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/l										
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/l										
2-SV-1-w	**Created by SUPER on 08/03/2001**												
100-52-7	Benzaldehyde	OLM04-2-SV	ug/l			11	U	10	U			11	U
108-95-2	Phenol	OLM04-2-SV	ug/l			11	U	10	U			11	U
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/l			11	U	10	U			11	U
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/l			11	U	10	U			11	U
95-48-7	2-Methylphenol	OLM04-2-SV	ug/l			11	U	10	U			11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/l			11	U	10	U			11	U
98-86-2	Acetophenone	OLM04-2-SV	ug/l			11	U	10	U			11	U
106-44-5	4-Methylphenol	OLM04-2-SV	ug/l			11	U	10	U			11	U
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/l			11	U	10	U			11	U
67-72-1	Hexachloroethane	OLM04-2-SV	ug/l			11	U	10	U			11	U
98-95-3	Nitrobenzene	OLM04-2-SV	ug/l			11	U	10	U			11	U
78-59-1	Isophorone	OLM04-2-SV	ug/l			11	U	10	U			11	U
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/l			11	U	10	U			11	U
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/l			11	U	10	U			11	U
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/l			11	U	10	U			11	U
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/l			11	U	10	U			11	U
91-20-3	Naphthalene	OLM04-2-SV	ug/l			11	U	10	U			11	U
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/l			11	U	10	U			11	U
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/l			11	U	10	U			11	U
105-60-2	Caprolactam	OLM04-2-SV	ug/l			11	U	10	U			11	U
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/l			11	U	0.4	J			11	U
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/l			11	U	10	U			11	U
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/l			11	UJ	10	UJ			11	UJ
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/l			11	U	10	U			11	U
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/l			27	U	25	U			27	U
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/l			11	U	10	U			11	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-110501-MW 11/5/2001		FB-110501-SD 11/5/2001		FB-110601-SD 11/6/2001		FB-110701-MW 11/7/2001		FB-110701-SD 11/7/2001	
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/l			11	U	10	U			11	U
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/l			27	U	25	U			27	U
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/l			11	U	10	U			11	U
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/l			11	U	10	U			11	U
208-96-8	Acenaphthylene	OLM04-2-SV	ug/l			11	U	10	U			11	U
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/l			27	U	25	U			27	U
83-32-9	Acenaphthene	OLM04-2-SV	ug/l			11	U	10	U			11	U
3-SV-2-w	**Created by SUPER on 08/03/2001**												
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/l			27	U	25	U			27	UJ
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/l			27	U	25	U			27	U
132-64-9	Dibenzofuran	OLM04-2-SV	ug/l			11	U	10	U			11	U
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/l			11	U	10	U			11	U
84-66-2	Diethylphthalate	OLM04-2-SV	ug/l			11	U	10	U			11	U
86-73-7	Fluorene	OLM04-2-SV	ug/l			11	U	10	U			11	U
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/l			11	U	10	U			11	U
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/l			27	U	25	U			27	U
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/l			27	U	25	U			27	UJ
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/l			11	U	10	U			11	U
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/l			11	U	10	U			11	U
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/l			11	U	10	U			11	U
1912-24-9	Atrazine	OLM04-2-SV	ug/l			11	UJ	10	UJ			11	U
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/l			27	U	25	U			27	U
85-01-8	Phenanthrene	OLM04-2-SV	ug/l			11	U	10	U			11	U
120-12-7	Anthracene	OLM04-2-SV	ug/l			11	U	10	U			11	U
86-74-8	Carbazole	OLM04-2-SV	ug/l			11	U	10	U			11	U
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/l			11	U	10	U			11	U
206-44-0	Fluoranthene	OLM04-2-SV	ug/l			11	U	10	U			11	U
129-00-0	Pyrene	OLM04-2-SV	ug/l			11	U	10	U			11	U
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/l			11	U	10	U			0.2	J
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/l			11	U	10	U			11	U
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/l			11	U	10	U			11	U
218-01-9	Chrysene	OLM04-2-SV	ug/l			11	U	10	U			11	U
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/l			0.9	J	1	J			12	
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/l			11	UJ	10	UJ			0.3	J
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/l			11	U	10	U			11	U
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/l			11	U	10	U			11	U
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/l			11	U	10	U			11	U
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/l			11	U	10	U			11	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-110501-MW 11/5/2001		FB-110501-SD 11/5/2001		FB-110601-SD 11/6/2001		FB-110701-MW 11/7/2001		FB-110701-SD 11/7/2001	
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/l			11	U	10	U			11	U
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/l			11	U	10	U			11	UJ
4-P/PCBs-w	**Created by SUPER on 08/03/2001**												
319-84-6	alpha-BHC	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
319-85-7	beta-BHC	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
319-86-8	delta-BHC	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
76-44-8	Heptachlor	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
309-00-2	Aldrin	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
959-98-8	Endosulfan I	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
60-57-1	Dieldrin	OLM04-2-PP	ug/l			0.1	U	0.1	U			0.1	U
72-55-9	4,4'-DDE	OLM04-2-PP	ug/l			0.1	U	0.1	U			0.1	U
72-20-8	Endrin	OLM04-2-PP	ug/l			0.1	U	0.1	U			0.1	U
33213-65-9	Endosulfan II	OLM04-2-PP	ug/l			0.1	U	0.1	U			0.1	U
72-54-8	4,4'-DDD	OLM04-2-PP	ug/l			0.1	U	0.1	U			0.1	U
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/l			0.1	U	0.1	U			0.1	U
50-29-3	4,4'-DDT	OLM04-2-PP	ug/l			0.1	U	0.1	U			0.1	U
72-43-5	Methoxychlor	OLM04-2-PP	ug/l			0.5	U	0.5	U			0.5	U
53494-70-5	Endrin ketone	OLM04-2-PP	ug/l			0.1	U	0.1	U			0.1	U
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/l			0.1	U	0.1	U			0.1	U
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/l			0.05	U	0.05	U			0.05	U
8001-35-2	Toxaphene	OLM04-2-PP	ug/l			5	U	5	U			5	U
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/l			1	U	1	U			1	U
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/l			2	U	2	U			2	U
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/l			1	U	1	U			1	U
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/l			1	U	1	U			1	U
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/l			1	U	1	U			1	U
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/l			1	U	1	U			1	U
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/l			1	U	1	U			1	U
5-Inorg-w	**Created by SUPER on 08/03/2001**												
7429-90-5	Aluminum	ILM04-1-M	ug/l			106	B	98.7	B			74.6	B
7440-36-0	Antimony	ILM04-1-M	ug/l			2.5	U	2.5	U			2.5	UJ
7440-38-2	Arsenic	ILM04-1-M	ug/l			1.8	U	1.8	U			1.8	U
7440-39-3	Barium	ILM04-1-M	ug/l			1.2	U	1.2	U			1.2	U
7440-41-7	Beryllium	ILM04-1-M	ug/l			0.3	U	0.3	U			0.3	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-110501-MW 11/5/2001		FB-110501-SD 11/5/2001		FB-110601-SD 11/6/2001		FB-110701-MW 11/7/2001		FB-110701-SD 11/7/2001	
7440-43-9	Cadmium	ILM04-1-M	ug/l			0.4	U	0.4	U			0.4	U
7440-70-2	Calcium	ILM04-1-M	ug/l			460	U	460	U			460	U
7440-47-3	Chromium	ILM04-1-M	ug/l			0.5	U	0.5	U			0.5	U
7440-48-4	Cobalt	ILM04-1-M	ug/l			1	U	1	U			1	U
7440-50-8	Copper	ILM04-1-M	ug/l			1.5	U	1.5	U			1.5	U
7439-89-6	Iron	ILM04-1-M	ug/l			19.4	U	19.4	U			19.4	U
7439-92-1	Lead	ILM04-1-M	ug/l			1.9	UJ	1.9	UJ			1.9	U
7439-95-4	Magnesium	ILM04-1-M	ug/l			34.4	U	34.4	U			34.4	U
7439-96-5	Manganese	ILM04-1-M	ug/l			1.5	U	1.5	U			1.5	UJ
7439-97-6	Mercury	ILM04-1-M	ug/l			0.1	U	0.1	U			0.1	UJ
7440-02-0	Nickel	ILM04-1-M	ug/l			0.9	U	0.9	U			0.9	U
7440-09-7	Potassium	ILM04-1-M	ug/l			135	B	160	B			127	B
7782-49-2	Selenium	ILM04-1-M	ug/l			2.2	U	2.2	U			2.2	UJ
7440-22-4	Silver	ILM04-1-M	ug/l			0.9	U	0.9	U			0.9	U
7440-23-5	Sodium	ILM04-1-M	ug/l			819	B	806	B			461	B
7440-28-0	Thallium	ILM04-1-M	ug/l			3.5	U	3.5	U			3.5	U
7440-62-2	Vanadium	ILM04-1-M	ug/l			1.1	U	1.1	U			1.1	U
7440-66-6	Zinc	ILM04-1-M	ug/l			8.5	U	8.5	U			8.5	U
57-12-5	Cyanide	ILM04-1-CN	ug/l			1.9	U	2.1	B			1.9	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-110801-MW 11/8/2001		FB-040202-SB 4/2/2002		FB-040302-SB 4/3/2002		FB-040402-SB 4/4/2002	
(Group Code)	**(Group Description)**										
1-VOA-w	**Created by SUPER on 08/03/2001**										
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/l	Analyzed for		10	UJ	10	UJ	10	UJ
74-87-3	Chloromethane	OLM04-2-V	ug/l	Metals and		10	U	10	U	10	U
75-01-4	Vinyl Chloride	OLM04-2-V	ug/l	Chrom-6 only		10	U	10	U	10	U
74-83-9	Bromomethane	OLM04-2-V	ug/l			10	U	10	U	10	U
75-00-3	Chloroethane	OLM04-2-V	ug/l			10	U	10	U	10	U
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/l			10	UJ	10	UJ	10	UJ
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/l			10	U	10	U	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/l			10	U	10	U	10	U
67-64-1	Acetone	OLM04-2-V	ug/l			57	J	34	J	310	JD
75-15-0	Carbon Disulfide	OLM04-2-V	ug/l			10	U	10	U	10	U
79-20-9	Methyl Acetate	OLM04-2-V	ug/l			10	U	10	U	10	U
75-09-2	Methylene Chloride	OLM04-2-V	ug/l			1	J	1	J	1	J
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/l			10	U	10	U	10	U
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/l			10	U	10	U	10	U
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/l			10	U	10	U	10	U
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/l			10	U	10	U	10	U
78-93-3	2-Butanone	OLM04-2-V	ug/l			10	UJ	10	UJ	10	UJ
67-66-3	Chloroform	OLM04-2-V	ug/l			36		35		33	
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/l			10	U	10	U	10	U
110-82-7	Cyclohexane	OLM04-2-V	ug/l			10	U	10	U	10	U
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/l			10	U	10	U	10	U
71-43-2	Benzene	OLM04-2-V	ug/l			10	U	10	U	10	U
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/l			10	U	10	U	10	U
79-01-6	Trichloroethene	OLM04-2-V	ug/l			10	U	10	U	10	U
108-87-2	Metylcyclohexane	OLM04-2-V	ug/l			10	U	10	U	10	U
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/l			10	U	10	U	10	U
75-27-4	Bromodichloromethane	OLM04-2-V	ug/l			5	J	5	J	5	J
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/l			10	U	10	U	10	U
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/l			10	U	10	U	10	U
108-88-3	Toluene	OLM04-2-V	ug/l			10	U	10	U	10	U
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/l			10	U	10	U	10	U
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/l			10	U	10	U	10	U
127-18-4	Tetrachloroethene	OLM04-2-V	ug/l			10	U	10	U	10	U
591-78-6	2-Hexanone	OLM04-2-V	ug/l			10	UJ	10	UJ	10	UJ
124-48-1	Dibromochloromethane	OLM04-2-V	ug/l			10	U	10	U	10	U
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/l			10	U	10	U	10	U
108-90-7	Chlorobenzene	OLM04-2-V	ug/l			10	U	10	U	10	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-110801-MW 11/8/2001		FB-040202-SB 4/2/2002		FB-040302-SB 4/3/2002		FB-040402-SB 4/4/2002	
100-41-4	Ethylbenzene	OLM04-2-V	ug/l			10	U	10	U	10	U
1330-20-7	Xylenes (total)	OLM04-2-V	ug/l			10	U	10	U	10	U
100-42-5	Styrene	OLM04-2-V	ug/l			10	U	10	U	10	U
75-25-2	Bromoform	OLM04-2-V	ug/l			10	U	10	U	10	U
98-82-8	Isopropylbenzene	OLM04-2-V	ug/l			10	U	10	U	10	U
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/l			10	U	10	U	10	U
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/l			10	U	10	U	10	U
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/l			10	U	10	U	10	U
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/l			10	U	10	U	10	U
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/l			10	R	10	R	10	R
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/l			10	U	10	U	10	U
2-SV-1-w	**Created by SUPER on 08/03/2001**										
100-52-7	Benzaldehyde	OLM04-2-SV	ug/l			10	UJ	10	UJ	10	UJ
108-95-2	Phenol	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
95-48-7	2-Methylphenol	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
98-86-2	Acetophenone	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
106-44-5	4-Methylphenol	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
67-72-1	Hexachloroethane	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
98-95-3	Nitrobenzene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
78-59-1	Isophorone	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
91-20-3	Naphthalene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
105-60-2	Caprolactam	OLM04-2-SV	ug/l			2	J	13		10	U
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/l			26	UJ	25	U	25	U
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/l			10	UJ	10	U	10	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-110801-MW 11/8/2001		FB-040202-SB 4/2/2002		FB-040302-SB 4/3/2002		FB-040402-SB 4/4/2002	
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/l			26	UJ	25	U	25	U
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
208-96-8	Acenaphthylene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/l			26	UJ	25	U	25	U
83-32-9	Acenaphthene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
3-SV-2-w	**Created by SUPER on 08/03/2001**										
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/l			26	UJ	25	U	25	U
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/l			26	UJ	25	U	25	U
132-64-9	Dibenzofuran	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
84-66-2	Diethylphthalate	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
86-73-7	Fluorene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/l			26	UJ	25	U	25	U
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/l			26	UJ	25	U	25	U
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
1912-24-9	Atrazine	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/l			26	UJ	25	U	25	U
85-01-8	Phenanthrene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
120-12-7	Anthracene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
86-74-8	Carbazole	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
206-44-0	Fluoranthene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
129-00-0	Pyrene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
218-01-9	Chrysene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/l			4	J	16		7	J
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-110801-MW 11/8/2001		FB-040202-SB 4/2/2002		FB-040302-SB 4/3/2002		FB-040402-SB 4/4/2002	
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/l			10	UJ	10	U	10	U
4-P/PCBs-w	**Created by SUPER on 08/03/2001**										
319-84-6	alpha-BHC	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
319-85-7	beta-BHC	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
319-86-8	delta-BHC	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
76-44-8	Heptachlor	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
309-00-2	Aldrin	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
959-98-8	Endosulfan I	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
60-57-1	Dieldrin	OLM04-2-PP	ug/l			0.1	UJ	0.1	U	0.1	U
72-55-9	4,4'-DDE	OLM04-2-PP	ug/l			0.1	UJ	0.1	U	0.1	U
72-20-8	Endrin	OLM04-2-PP	ug/l			0.1	UJ	0.1	U	0.1	U
33213-65-9	Endosulfan II	OLM04-2-PP	ug/l			0.1	UJ	0.1	U	0.1	U
72-54-8	4,4'-DDD	OLM04-2-PP	ug/l			0.1	UJ	0.1	U	0.1	U
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/l			0.1	UJ	0.1	U	0.1	U
50-29-3	4,4'-DDT	OLM04-2-PP	ug/l			0.1	UJ	0.1	U	0.1	U
72-43-5	Methoxychlor	OLM04-2-PP	ug/l			0.5	UJ	0.5	U	0.5	U
53494-70-5	Endrin ketone	OLM04-2-PP	ug/l			0.1	UJ	0.1	U	0.1	U
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/l			0.1	UJ	0.1	U	0.1	U
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/l			0.05	UJ	0.05	U	0.05	U
8001-35-2	Toxaphene	OLM04-2-PP	ug/l			5	UJ	5	U	5	U
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/l			1	UJ	1	U	1	U
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/l			2	UJ	2	U	2	U
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/l			1	UJ	1	U	1	U
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/l			1	UJ	1	U	1	U
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/l			1	UJ	1	U	1	U
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/l			1	UJ	1	U	1	U
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/l			0.018	UJ	1	U	1	U
5-Inorg-w	**Created by SUPER on 08/03/2001**										
7429-90-5	Aluminum	ILM04-1-M	ug/l	76.5	B	19.6	U	25.9	B	27.2	B
7440-36-0	Antimony	ILM04-1-M	ug/l	2.5	UJ	6.4	B	2.7	B	2.2	U
7440-38-2	Arsenic	ILM04-1-M	ug/l	1.8	U	2	U	2	U	2	U
7440-39-3	Barium	ILM04-1-M	ug/l	1.2	U	1.3	B	0.74	B	0.67	B
7440-41-7	Beryllium	ILM04-1-M	ug/l	0.3	U	0.2	U	0.2	U	0.2	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-110801-MW 11/8/2001		FB-040202-SB 4/2/2002		FB-040302-SB 4/3/2002		FB-040402-SB 4/4/2002	
7440-43-9	Cadmium	ILM04-1-M	ug/l	0.4	U	0.4	U	0.4	U	0.4	U
7440-70-2	Calcium	ILM04-1-M	ug/l	460	U	21	B	229	B	228	B
7440-47-3	Chromium	ILM04-1-M	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
7440-48-4	Cobalt	ILM04-1-M	ug/l	1	U	0.7	U	0.7	U	0.7	U
7440-50-8	Copper	ILM04-1-M	ug/l	1.5	U	1	U	1	U	1	U
7439-89-6	Iron	ILM04-1-M	ug/l	19.4	U	17.4	B	220		119	
7439-92-1	Lead	ILM04-1-M	ug/l	1.9	U	1.1	U	1.1	U	1.1	U
7439-95-4	Magnesium	ILM04-1-M	ug/l	34.4	U	68.3	B	84.8	B	83	B
7439-96-5	Manganese	ILM04-1-M	ug/l	1.5	UJ	1.1	B	4	B	2	B
7439-97-6	Mercury	ILM04-1-M	ug/l	0.1	UJ	0.1	U	0.1	U	0.1	U
7440-02-0	Nickel	ILM04-1-M	ug/l	0.9	U	0.9	U	0.9	U	0.9	U
7440-09-7	Potassium	ILM04-1-M	ug/l	139	B	132	U	132	U	132	U
7782-49-2	Selenium	ILM04-1-M	ug/l	2.2	UJ	2.1	U	2.1	U	2.1	U
7440-22-4	Silver	ILM04-1-M	ug/l	0.9	U	0.78	B	1	B	0.54	B
7440-23-5	Sodium	ILM04-1-M	ug/l	781	B	158	U	250	B	196	B
7440-28-0	Thallium	ILM04-1-M	ug/l	3.5	U	2.2	U	2.2	U	2.2	U
7440-62-2	Vanadium	ILM04-1-M	ug/l	1.1	U	0.4	U	0.4	U	0.4	U
7440-66-6	Zinc	ILM04-1-M	ug/l	8.5	U	10.9	B	8.1	B	1.6	U
57-12-5	Cyanide	ILM04-1-CN	ug/l	1.9	U	2.1	B	3.3	B	2.9	B

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-040502-SB 4/5/2002		FB-040802-EN2 4/8/2002		FB-040802-SB 4/8/2002		FB-040802-TAP2 4/8/2002		FB-040902-SB 4/10/2002	
(Group Code)	**(Group Description)**												
1-VOA-w	**Created by SUPER on 08/03/2001**												
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/l	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
74-87-3	Chloromethane	OLM04-2-V	ug/l	10	U	10	UJ	10	UJ	10	UJ	10	UJ
75-01-4	Vinyl Chloride	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
74-83-9	Bromomethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
75-00-3	Chloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/l	10	UJ	10	U	10	U	10	U	10	U
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
67-64-1	Acetone	OLM04-2-V	ug/l	5	J	10		24		16		18	
75-15-0	Carbon Disulfide	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
79-20-9	Methyl Acetate	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
75-09-2	Methylene Chloride	OLM04-2-V	ug/l	10	U	17		40	J	46	J	37	J
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
78-93-3	2-Butanone	OLM04-2-V	ug/l	10	UJ	10	U	10	U	10	U	10	U
67-66-3	Chloroform	OLM04-2-V	ug/l	31		36		10	U	4	J	10	U
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
110-82-7	Cyclohexane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
71-43-2	Benzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
79-01-6	Trichloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
108-87-2	Metylcyclohexane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
75-27-4	Bromodichloromethane	OLM04-2-V	ug/l	5	J	5	J	10	U	2	J	10	U
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
108-88-3	Toluene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
127-18-4	Tetrachloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
591-78-6	2-Hexanone	OLM04-2-V	ug/l	10	UJ	10	U	10	U	10	U	10	U
124-48-1	Dibromochloromethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
108-90-7	Chlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-040502-SB 4/5/2002		FB-040802-EN2 4/8/2002		FB-040802-SB 4/8/2002		FB-040802-TAP2 4/8/2002		FB-040902-SB 4/10/2002	
100-41-4	Ethylbenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
1330-20-7	Xylenes (total)	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
100-42-5	Styrene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
75-25-2	Bromoform	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
98-82-8	Isopropylbenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/l	10	R	10	R	10	R	10	R	10	R
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U	10	U
2-SV-1-w	**Created by SUPER on 08/03/2001**												
100-52-7	Benzaldehyde	OLM04-2-SV	ug/l	10	U			6	J	10	U	12	U
108-95-2	Phenol	OLM04-2-SV	ug/l	10	U			10	U	10	R	12	U
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/l	10	U			10	U	10	R	12	U
95-48-7	2-Methylphenol	OLM04-2-SV	ug/l	10	U			10	U	10	R	12	U
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/l	10	UJ			10	U	10	U	12	U
98-86-2	Acetophenone	OLM04-2-SV	ug/l	10	U			3	J	10	U	12	U
106-44-5	4-Methylphenol	OLM04-2-SV	ug/l	10	U			10	U	10	R	12	U
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
67-72-1	Hexachloroethane	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
98-95-3	Nitrobenzene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
78-59-1	Isophorone	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/l	10	U			10	U	10	R	12	U
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/l	10	U			10	U	10	R	12	U
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/l	10	U			10	U	10	R	12	U
91-20-3	Naphthalene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
105-60-2	Caprolactam	OLM04-2-SV	ug/l	5	J			10	U	10	U	12	U
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/l	10	U			10	U	10	R	12	U
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/l	10	U			10	U	10	R	12	U
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/l	25	U			25	U	25	R	29	U
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit.\\	FB-040502-SB		FB-040802-EN2		FB-040802-SB		FB-040802-TAP2		FB-040902-SB	
				4/5/2002		4/8/2002		4/8/2002		4/8/2002		4/10/2002	
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/l	25	U			25	U	25	U	29	U
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
208-96-8	Acenaphthylene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/l	25	U			25	U	25	U	29	U
83-32-9	Acenaphthene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
3-SV-2-w	**Created by SUPER on 08/03/2001**												
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/l	25	UJ			25	U	25	R	29	U
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/l	25	U			25	U	25	R	29	U
132-64-9	Dibenzofuran	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
84-66-2	Diethylphthalate	OLM04-2-SV	ug/l	10	U			3	J	10	U	12	U
86-73-7	Fluorene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/l	25	U			25	U	25	U	29	U
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/l	25	U			25	U	25	R	29	U
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
1912-24-9	Atrazine	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/l	25	U			25	U	25	R	29	U
85-01-8	Phenanthrene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
120-12-7	Anthracene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
86-74-8	Carbazole	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/l	10	U			1	J	10	U	12	U
206-44-0	Fluoranthene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
129-00-0	Pyrene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
218-01-9	Chrysene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/l	1	J			1	J	1	J	9	J
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U

			Sample Code	FB-040502-SB		FB-040802-EN2		FB-040802-SB		FB-040802-TAP2		FB-040902-SB	
			Sample Name										
			Sample Date	4/5/2002		4/8/2002		4/8/2002		4/8/2002		4/10/2002	
Cas Rn	Chemical Name	Analytic Method	Unit \\										
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/l	10	U			10	U	10	U	12	U
4-P/PCBs-w	**Created by SUPER on 08/03/2001**												
319-84-6	alpha-BHC	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
319-85-7	beta-BHC	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
319-86-8	delta-BHC	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
76-44-8	Heptachlor	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
309-00-2	Aldrin	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
959-98-8	Endosulfan I	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
60-57-1	Dieldrin	OLM04-2-PP	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
72-55-9	4,4'-DDE	OLM04-2-PP	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
72-20-8	Endrin	OLM04-2-PP	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
33213-65-9	Endosulfan II	OLM04-2-PP	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
72-54-8	4,4'-DDD	OLM04-2-PP	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
50-29-3	4,4'-DDT	OLM04-2-PP	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
72-43-5	Methoxychlor	OLM04-2-PP	ug/l	0.5	U			0.5	U	0.5	U	0.5	U
53494-70-5	Endrin ketone	OLM04-2-PP	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/l	0.05	U			0.05	U	0.05	U	0.05	U
8001-35-2	Toxaphene	OLM04-2-PP	ug/l	5	U			5	U	5	U	5	U
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/l	1	U			1	U	1	U	1	U
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/l	2	U			2	U	2	U	2	U
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/l	1	U			1	U	1	U	1	U
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/l	1	U			1	U	1	U	1	U
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/l	1	U			1	U	1	U	1	U
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/l	1	U			1	U	1	U	1	U
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/l	1	U			1	U	1	U	1	U
5-Inorg-w	**Created by SUPER on 08/03/2001**												
7429-90-5	Aluminum	ILM04-1-M	ug/l	46.2	B			20.6	B	19.6	U	26.4	B
7440-36-0	Antimony	ILM04-1-M	ug/l	2.2	U			2.2	U	2.2	U	2.6	B
7440-38-2	Arsenic	ILM04-1-M	ug/l	2	U			2	U	2	U	2	U
7440-39-3	Barium	ILM04-1-M	ug/l	1	B			0.5	B	43.7	B	2.8	B
7440-41-7	Beryllium	ILM04-1-M	ug/l	0.2	U			0.2	U	0.2	U	0.2	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-040502-SB 4/5/2002		FB-040802-EN2 4/8/2002		FB-040802-SB 4/8/2002		FB-040802-TAP2 4/8/2002		FB-040902-SB 4/10/2002	
7440-43-9	Cadmium	ILM04-1-M	ug/l	0.4	U			0.4	U	0.4	U	0.4	U
7440-70-2	Calcium	ILM04-1-M	ug/l	225	B			19.4	U	92300		81.1	B
7440-47-3	Chromium	ILM04-1-M	ug/l	0.5	U			0.5	U	0.5	U	0.5	U
7440-48-4	Cobalt	ILM04-1-M	ug/l	0.7	U			0.7	U	0.7	U	0.7	U
7440-50-8	Copper	ILM04-1-M	ug/l	1	U			1	U	1	U	1	U
7439-89-6	Iron	ILM04-1-M	ug/l	63.6	B			9.5	U	9.5	U	23.5	B
7439-92-1	Lead	ILM04-1-M	ug/l	1.2	B			1.1	U	1.1	U	1.1	U
7439-95-4	Magnesium	ILM04-1-M	ug/l	132	B			63.4	B	9770		76.8	B
7439-96-5	Manganese	ILM04-1-M	ug/l	1.8	B			0.3	U	0.51	B	0.8	B
7439-97-6	Mercury	ILM04-1-M	ug/l	0.1	U			0.1	U	0.1	U	0.1	U
7440-02-0	Nickel	ILM04-1-M	ug/l	0.9	U			0.9	U	0.9	U	0.9	U
7440-09-7	Potassium	ILM04-1-M	ug/l	132	U			132	U	3070	B	132	U
7782-49-2	Selenium	ILM04-1-M	ug/l	2.1	U			2.1	U	2.1	U	2.1	U
7440-22-4	Silver	ILM04-1-M	ug/l	0.5	U			0.5	U	0.5	U	0.5	U
7440-23-5	Sodium	ILM04-1-M	ug/l	158	U			158	U	9030		158	U
7440-28-0	Thallium	ILM04-1-M	ug/l	2.2	U			2.2	U	2.2	U	2.2	U
7440-62-2	Vanadium	ILM04-1-M	ug/l	0.4	U			0.4	U	0.4	U	0.4	U
7440-66-6	Zinc	ILM04-1-M	ug/l	1.6	U			1.6	U	5.8	B	2.9	B
57-12-5	Cyanide	ILM04-1-CN	ug/l	1.2	B			2.6	B	2	B	0.6	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-041002-SB 4/10/2002		FB-041102-SB 4/11/2002		FB-041202-SB 4/12/2002		FB-042202-SB 4/22/2002	
(Group Code)	**(Group Description)**										
1-VOA-w	**Created by SUPER on 08/03/2001**										
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/l	10	UJ	10	UJ	10	UJ	10	U
74-87-3	Chloromethane	OLM04-2-V	ug/l	10	UJ	10	UJ	10	UJ	10	U
75-01-4	Vinyl Chloride	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
74-83-9	Bromomethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
75-00-3	Chloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
67-64-1	Acetone	OLM04-2-V	ug/l	16		4	J	3	J	10	UJ
75-15-0	Carbon Disulfide	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
79-20-9	Methyl Acetate	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
75-09-2	Methylene Chloride	OLM04-2-V	ug/l	31	J	17		7	J	10	U
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
78-93-3	2-Butanone	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
67-66-3	Chloroform	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
110-82-7	Cyclohexane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
71-43-2	Benzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/l	10	U	10	U	5	J	10	U
79-01-6	Trichloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
108-87-2	Metylcyclohexane	OLM04-2-V	ug/l	10	U	10	U	10	U	2	J
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
75-27-4	Bromodichloromethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/l	10	U	10	UJ	10	UJ	10	U
108-88-3	Toluene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
127-18-4	Tetrachloroethene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
591-78-6	2-Hexanone	OLM04-2-V	ug/l	10	U	10	UJ	10	UJ	10	U
124-48-1	Dibromochloromethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
108-90-7	Chlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-041002-SB 4/10/2002		FB-041102-SB 4/11/2002		FB-041202-SB 4/12/2002		FB-042202-SB 4/22/2002	
100-41-4	Ethylbenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
1330-20-7	Xylenes (total)	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
100-42-5	Styrene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
75-25-2	Bromoform	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
98-82-8	Isopropylbenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/l	10	R	10	R	10	R	10	R
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/l	10	U	10	U	10	U	10	U
2-SV-1-w	**Created by SUPER on *08/03/2001***										
100-52-7	Benzaldehyde	OLM04-2-SV	ug/l	11	U	10	UJ	10	U	10	U
108-95-2	Phenol	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
95-48-7	2-Methylphenol	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/l	11	U	10	UJ	10	U	10	UJ
98-86-2	Acetophenone	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
106-44-5	4-Methylphenol	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
67-72-1	Hexachloroethane	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
98-95-3	Nitrobenzene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
78-59-1	Isophorone	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
91-20-3	Naphthalene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
105-60-2	Caprolactam	OLM04-2-SV	ug/l	11	U	4	J	4	J	3	J
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	UJ
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/l	26	U	25	U	25	U	25	U
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-041002-SB 4/10/2002		FB-041102-SB 4/11/2002		FB-041202-SB 4/12/2002		FB-042202-SB 4/22/2002	
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/l	26	U	25	UJ	25	U	25	UJ
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	UJ
208-96-8	Acenaphthylene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/l	26	U	25	U	25	U	25	U
83-32-9	Acenaphthene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
3-SV-2-w	**Created by SUPER on 08/03/2001**										
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/l	26	U	25	UJ	25	U	25	UJ
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/l	26	U	25	U	25	U	25	U
132-64-9	Dibenzofuran	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	UJ
84-66-2	Diethylphthalate	OLM04-2-SV	ug/l	11	U	10	U	10	U	2	J
86-73-7	Fluorene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/l	26	U	25	U	25	U	25	UJ
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/l	26	U	25	U	25	U	25	UJ
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
1912-24-9	Atrazine	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/l	26	U	25	U	25	U	25	U
85-01-8	Phenanthrene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
120-12-7	Anthracene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
86-74-8	Carbazole	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
206-44-0	Fluoranthene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
129-00-0	Pyrene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	UJ
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
218-01-9	Chrysene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/l	11	U	5	J	2	J	26	
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-041002-SB 4/10/2002		FB-041102-SB 4/11/2002		FB-041202-SB 4/12/2002		FB-042202-SB 4/22/2002	
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/l	11	U	10	U	10	U	10	U
4-P/PCBs-w	**Created by SUPER on 08/03/2001**										
319-84-6	alpha-BHC	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	U
319-85-7	beta-BHC	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	U
319-86-8	delta-BHC	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	U
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	U
76-44-8	Heptachlor	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	U
309-00-2	Aldrin	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	UJ
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	U
959-98-8	Endosulfan I	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	U
60-57-1	Dieldrin	OLM04-2-PP	ug/l	0.11	U	0.1	U	0.11	U	0.1	U
72-55-9	4,4'-DDE	OLM04-2-PP	ug/l	0.11	U	0.1	U	0.11	U	0.1	UJ
72-20-8	Endrin	OLM04-2-PP	ug/l	0.11	U	0.1	U	0.11	U	0.1	U
33213-65-9	Endosulfan II	OLM04-2-PP	ug/l	0.11	U	0.1	U	0.11	U	0.1	U
72-54-8	4,4'-DDD	OLM04-2-PP	ug/l	0.11	U	0.1	U	0.11	U	0.1	U
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/l	0.11	U	0.1	U	0.11	U	0.1	U
50-29-3	4,4'-DDT	OLM04-2-PP	ug/l	0.11	U	0.1	U	0.11	U	0.1	U
72-43-5	Methoxychlor	OLM04-2-PP	ug/l	0.53	U	0.52	U	0.53	U	0.5	U
53494-70-5	Endrin ketone	OLM04-2-PP	ug/l	0.11	U	0.1	U	0.11	U	0.1	U
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/l	0.11	U	0.1	U	0.11	U	0.1	U
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	U
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/l	0.053	U	0.052	U	0.053	U	0.05	U
8001-35-2	Toxaphene	OLM04-2-PP	ug/l	5.3	U	5.2	U	5.3	U	5	U
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/l	1.1	U	1	U	1.1	U	1	U
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/l	2.1	U	2.1	U	2.1	U	2	U
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/l	1.1	U	1	U	1.1	U	1	U
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/l	1.1	U	1	U	1.1	U	1	U
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/l	1.1	U	1	U	1.1	U	1	U
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/l	1.1	U	1	U	1.1	U	1	U
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/l	1.1	U	1	U	1.1	U	1	U
5-Inorg-w	**Created by SUPER on 08/03/2001**										
7429-90-5	Aluminum	ILM04-1-M	ug/l	39.2	B	45.6	B	141	B	51.3	B
7440-36-0	Antimony	ILM04-1-M	ug/l	2.2	U	2.2	U	2.2	U	3.8	U
7440-38-2	Arsenic	ILM04-1-M	ug/l	2	U	2	U	2	U	3	U
7440-39-3	Barium	ILM04-1-M	ug/l	0.89	B	0.88	B	1.6	B	2.8	B
7440-41-7	Beryllium	ILM04-1-M	ug/l	0.2	U	0.2	U	0.2	U	0.3	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-041002-SB 4/10/2002		FB-041102-SB 4/11/2002		FB-041202-SB 4/12/2002		FB-042202-SB 4/22/2002	
7440-43-9	Cadmium	ILM04-1-M	ug/l	0.4	U	0.4	U	0.4	U	0.5	U
7440-70-2	Calcium	ILM04-1-M	ug/l	286	B	360	B	984	B	233	B
7440-47-3	Chromium	ILM04-1-M	ug/l	2	B	0.76	B	2.7	B	0.8	U
7440-48-4	Cobalt	ILM04-1-M	ug/l	0.7	U	0.7	U	0.7	U	1.2	U
7440-50-8	Copper	ILM04-1-M	ug/l	1	U	1	U	1	U	1.4	U
7439-89-6	Iron	ILM04-1-M	ug/l	105		128		401		64.4	B
7439-92-1	Lead	ILM04-1-M	ug/l	1.1	U	1.1	U	1.1	U	2.8	UJ
7439-95-4	Magnesium	ILM04-1-M	ug/l	86.5	B	99.1	B	182	B	24.8	U
7439-96-5	Manganese	ILM04-1-M	ug/l	2	B	1.8	B	9.7	B	1.6	B
7439-97-6	Mercury	ILM04-1-M	ug/l	0.1	U	0.1	U	0.1	U	0.1	U
7440-02-0	Nickel	ILM04-1-M	ug/l	0.9	U	0.9	U	0.9	U	1.7	U
7440-09-7	Potassium	ILM04-1-M	ug/l	132	U	132	U	132	U	143	B
7782-49-2	Selenium	ILM04-1-M	ug/l	2.1	U	2.1	U	2.1	U	2.2	UJ
7440-22-4	Silver	ILM04-1-M	ug/l	0.5	U	0.5	U	0.5	U	1.1	U
7440-23-5	Sodium	ILM04-1-M	ug/l	158	U	205	B	158	U	622	B
7440-28-0	Thallium	ILM04-1-M	ug/l	2.2	U	2.2	U	2.2	U	3.5	U
7440-62-2	Vanadium	ILM04-1-M	ug/l	0.4	U	0.4	U	0.4	U	0.7	U
7440-66-6	Zinc	ILM04-1-M	ug/l	3.1	B	3.1	B	6	B	2.3	B
57-12-5	Cyanide	ILM04-1-CN	ug/l	0.66	B	0.6	U	0.78	B	0.7	U

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	FB-072502 7/25/2002
(Group Code)	(Group Description)			
1-VOA-w	**Created by SUPER on 08/03/2001**			
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/l	Analyzed for Metals only
74-87-3	Chloromethane	OLM04-2-V	ug/l	
75-01-4	Vinyl Chloride	OLM04-2-V	ug/l	
74-83-9	Bromomethane	OLM04-2-V	ug/l	
75-00-3	Chloroethane	OLM04-2-V	ug/l	
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/l	
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/l	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/l	
67-64-1	Acetone	OLM04-2-V	ug/l	
75-15-0	Carbon Disulfide	OLM04-2-V	ug/l	
79-20-9	Methyl Acetate	OLM04-2-V	ug/l	
75-09-2	Methylene Chloride	OLM04-2-V	ug/l	
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/l	
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/l	
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/l	
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/l	
78-93-3	2-Butanone	OLM04-2-V	ug/l	
67-66-3	Chloroform	OLM04-2-V	ug/l	
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/l	
110-82-7	Cyclohexane	OLM04-2-V	ug/l	
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/l	
71-43-2	Benzene	OLM04-2-V	ug/l	
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/l	
79-01-6	Trichloroethene	OLM04-2-V	ug/l	
108-87-2	Metylcyclohexane	OLM04-2-V	ug/l	
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/l	
75-27-4	Bromodichloromethane	OLM04-2-V	ug/l	
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/l	
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/l	
108-88-3	Toluene	OLM04-2-V	ug/l	
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/l	
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/l	
127-18-4	Tetrachloroethene	OLM04-2-V	ug/l	
591-78-6	2-Hexanone	OLM04-2-V	ug/l	
124-48-1	Dibromochloromethane	OLM04-2-V	ug/l	
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/l	
108-90-7	Chlorobenzene	OLM04-2-V	ug/l	

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-072502 / 7/25/2002
100-41-4	Ethylbenzene	OLM04-2-V	ug/l	
1330-20-7	Xylenes (total)	OLM04-2-V	ug/l	
100-42-5	Styrene	OLM04-2-V	ug/l	
75-25-2	Bromoform	OLM04-2-V	ug/l	
98-82-8	Isopropylbenzene	OLM04-2-V	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/l	
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/l	
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/l	
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/l	
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/l	
2-SV-1-w	**Created by SUPER on 08/03/2001**			
100-52-7	Benzaldehyde	OLM04-2-SV	ug/l	
108-95-2	Phenol	OLM04-2-SV	ug/l	
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/l	
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/l	
95-48-7	2-Methylphenol	OLM04-2-SV	ug/l	
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/l	
98-86-2	Acetophenone	OLM04-2-SV	ug/l	
106-44-5	4-Methylphenol	OLM04-2-SV	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/l	
67-72-1	Hexachloroethane	OLM04-2-SV	ug/l	
98-95-3	Nitrobenzene	OLM04-2-SV	ug/l	
78-59-1	Isophorone	OLM04-2-SV	ug/l	
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/l	
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/l	
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/l	
91-20-3	Naphthalene	OLM04-2-SV	ug/l	
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/l	
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/l	
105-60-2	Caprolactam	OLM04-2-SV	ug/l	
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/l	
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/l	
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/l	
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/l	
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/l	
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/l	

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	FB-072502 7/25/2002
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/l	
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/l	
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/l	
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/l	
208-96-8	Acenaphthylene	OLM04-2-SV	ug/l	
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/l	
83-32-9	Acenaphthene	OLM04-2-SV	ug/l	
3-SV-2-w	**Created by SUPER on 08/03/2001**			
51-28-5	2,4-*Dinitrophenol*	OLM04-2-SV	ug/l	
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/l	
132-64-9	Dibenzofuran	OLM04-2-SV	ug/l	
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/l	
84-66-2	Diethylphthalate	OLM04-2-SV	ug/l	
86-73-7	Fluorene	OLM04-2-SV	ug/l	
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/l	
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/l	
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/l	
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/l	
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/l	
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/l	
1912-24-9	Atrazine	OLM04-2-SV	ug/l	
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/l	
85-01-8	Phenanthrene	OLM04-2-SV	ug/l	
120-12-7	Anthracene	OLM04-2-SV	ug/l	
86-74-8	Carbazole	OLM04-2-SV	ug/l	
84-74-2	Di-*n*-butylphthalate	OLM04-2-SV	ug/l	
206-44-0	Fluoranthene	OLM04-2-SV	ug/l	
129-00-0	Pyrene	OLM04-2-SV	ug/l	
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/l	
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/l	
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/l	
218-01-9	Chrysene	OLM04-2-SV	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/l	
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/l	
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/l	
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/l	
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/l	

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-072502 / 7/25/2002	
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/l		
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/l		
4-P/PCBs-w	**Created by SUPER on 08/03/2001**				
319-84-6	alpha-BHC	OLM04-2-PP	ug/l		
319-85-7	beta-BHC	OLM04-2-PP	ug/l		
319-86-8	delta-BHC	OLM04-2-PP	ug/l		
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/l		
76-44-8	Heptachlor	OLM04-2-PP	ug/l		
309-00-2	Aldrin	OLM04-2-PP	ug/l		
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/l		
959-98-8	Endosulfan I	OLM04-2-PP	ug/l		
60-57-1	Dieldrin	OLM04-2-PP	ug/l		
72-55-9	4,4'-DDE	OLM04-2-PP	ug/l		
72-20-8	Endrin	OLM04-2-PP	ug/l		
33213-65-9	Endosulfan II	OLM04-2-PP	ug/l		
72-54-8	4,4'-DDD	OLM04-2-PP	ug/l		
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/l		
50-29-3	4,4'-DDT	OLM04-2-PP	ug/l		
72-43-5	Methoxychlor	OLM04-2-PP	ug/l		
53494-70-5	Endrin ketone	OLM04-2-PP	ug/l		
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/l		
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/l		
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/l		
8001-35-2	Toxaphene	OLM04-2-PP	ug/l		
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/l		
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/l		
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/l		
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/l		
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/l		
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/l		
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/l		
5-Inorg-w	**Created by SUPER on 08/03/2001**				
7429-90-5	Aluminum	ILM04-1-M	ug/l	57.7	U
7440-36-0	Antimony	ILM04-1-M	ug/l	1.6	U
7440-38-2	Arsenic	ILM04-1-M	ug/l	1.3	U
7440-39-3	Barium	ILM04-1-M	ug/l	1.7	B
7440-41-7	Beryllium	ILM04-1-M	ug/l	0.77	B

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	FB-072502 7/25/2002	
7440-43-9	Cadmium	ILM04-1-M	ug/l	0.2	U
7440-70-2	Calcium	ILM04-1-M	ug/l	11.2	U
7440-47-3	Chromium	ILM04-1-M	ug/l	0.6	U
7440-48-4	Cobalt	ILM04-1-M	ug/l	0.4	U
7440-50-8	Copper	ILM04-1-M	ug/l	0.6	U
7439-89-6	Iron	ILM04-1-M	ug/l	8.7	U
7439-92-1	Lead	ILM04-1-M	ug/l	0.73	B
7439-95-4	Magnesium	ILM04-1-M	ug/l	6	U
7439-96-5	Manganese	ILM04-1-M	ug/l	0.5	U
7439-97-6	Mercury	ILM04-1-M	ug/l	0.1	U
7440-02-0	Nickel	ILM04-1-M	ug/l	0.92	B
7440-09-7	Potassium	ILM04-1-M	ug/l	24.2	U
7782-49-2	Selenium	ILM04-1-M	ug/l	2.9	U
7440-22-4	Silver	ILM04-1-M	ug/l	0.7	U
7440-23-5	Sodium	ILM04-1-M	ug/l	152	U
7440-28-0	Thallium	ILM04-1-M	ug/l	2.6	U
7440-62-2	Vanadium	ILM04-1-M	ug/l	0.66	B
7440-66-6	Zinc	ILM04-1-M	ug/l	0.7	U
57-12-5	Cyanide	ILM04-1-CN	ug/l	1.5	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	TB-051402		TB-051502		TB-051602		TB-052102		TB-052202		TB-052302	
				5/14/2002		5/15/2002		5/16/2002		5/21/2002		5/22/2002		5/23/2002	
(Group Code)	**(Group Description)**														
1-LCVOANew	**50 Analytes Method Code OLC03-2-V**														
75-71-8	Dichlorodifluoromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
74-87-3	Chloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-01-4	Vinyl Chloride	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
74-83-9	Bromomethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-00-3	Chloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-69-4	Trichlorofluoromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U
75-35-4	1,1-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
67-64-1	Acetone	OLC03-2-V	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
75-15-0	Carbon Disulfide	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
79-20-9	Methyl Acetate	OLC03-2-V	ug/l	0.5	R	0.5	R	0.5	U	0.5	U	0.5	U	0.5	U
75-09-2	Methylene Chloride	OLC03-2-V	ug/l	0.5	U	0.17	J	0.5	U	0.5	U	0.5	U	0.5	U
156-60-5	trans-1,2-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1634-04-4	Methyl Tert-Butyl Ether	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U
75-34-3	1,1-Dichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
156-59-2	cis-1,2-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
78-93-3	2-Butanone	OLC03-2-V	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
74-97-5	Bromochloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
67-66-3	Chloroform	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.64	J	0.45	J	0.5	U
71-55-6	1,1,1-Trichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
110-82-7	Cyclohexane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
56-23-5	Carbon Tetrachloride	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U
71-43-2	Benzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	UJ
107-06-2	1,2-Dichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
79-01-6	Trichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
108-87-2	Metylcyclohexane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
78-87-5	1,2-Dichloropropane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-27-4	Bromodichloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
10061-01-5	cis-1,3-Dichloropropene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U
108-10-1	4-Methyl-2-pentanone	OLC03-2-V	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
108-88-3	Toluene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
10061-02-6	trans-1,3-Dichloropropene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
79-00-5	1,1,2-Trichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
127-18-4	Tetrachloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
591-78-6	2-Hexanone	OLC03-2-V	ug/l	5	U	5	U	5	U	5	U	5	UJ	5	UJ
124-48-1	Dibromochloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
106-93-4	1,2-Dibromoethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	TB-051402 5/14/2002		TB-051502 5/15/2002		TB-051602 5/16/2002		TB-052102 5/21/2002		TB-052202 5/22/2002		TB-052302 5/23/2002	
108-90-7	Chlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
100-41-4	Ethylbenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1330-20-7	Xylenes (total)	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U
100-42-5	Styrene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-25-2	Bromoform	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	R	0.5	U	0.5	U
98-82-8	Isopropylbenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
79-34-5	1,1,2,2-Tetrachloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
541-73-1	1,3-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	R	0.5	U	0.5	U
106-46-7	1,4-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	R	0.5	U	0.5	U
95-50-1	1,2-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	R	0.5	U	0.5	U
96-12-8	1,2-Dibromo-3-chloropropane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	R	0.5	U	0.5	U
120-82-1	1,2,4-Trichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	R	0.5	U	0.5	U
87-61-6	1,2,3-Trichlorobenzene	OLC03-2-V	ug/l	0.5	UJ	0.5	UJ	0.5	U	0.5	R	0.5	U	0.5	U

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	TB-110601-SW 11/6/2001	
(Group Code)	(Group Description)				
1-VOA-w	**Created by SUPER on 08/03/2001**				
75-71-8	Dichlorodifluoromethane	OLM04-2-V	ug/l	10	U
74-87-3	Chloromethane	OLM04-2-V	ug/l	10	U
75-01-4	Vinyl Chloride	OLM04-2-V	ug/l	10	U
74-83-9	Bromomethane	OLM04-2-V	ug/l	10	U
75-00-3	Chloroethane	OLM04-2-V	ug/l	10	U
75-69-4	Trichlorofluoromethane	OLM04-2-V	ug/l	10	U
75-35-4	1,1-Dichloroethene	OLM04-2-V	ug/l	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLM04-2-V	ug/l	10	U
67-64-1	Acetone	OLM04-2-V	ug/l	32	
75-15-0	Carbon Disulfide	OLM04-2-V	ug/l	10	U
79-20-9	Methyl Acetate	OLM04-2-V	ug/l	10	U
75-09-2	Methylene Chloride	OLM04-2-V	ug/l	10	U
156-60-5	trans-1,2-Dichloroethene	OLM04-2-V	ug/l	10	U
1634-04-4	Methyl Tert-Butyl Ether	OLM04-2-V	ug/l	10	U
75-34-3	1,1-Dichloroethane	OLM04-2-V	ug/l	10	U
156-59-2	cis-1,2-Dichloroethene	OLM04-2-V	ug/l	10	U
78-93-3	2-Butanone	OLM04-2-V	ug/l	10	U
67-66-3	Chloroform	OLM04-2-V	ug/l	10	U
71-55-6	1,1,1-Trichloroethane	OLM04-2-V	ug/l	10	U
110-82-7	Cyclohexane	OLM04-2-V	ug/l	10	U
56-23-5	Carbon Tetrachloride	OLM04-2-V	ug/l	10	U
71-43-2	Benzene	OLM04-2-V	ug/l	10	U
107-06-2	1,2-Dichloroethane	OLM04-2-V	ug/l	10	U
79-01-6	Trichloroethene	OLM04-2-V	ug/l	10	U
108-87-2	Metylcyclohexane	OLM04-2-V	ug/l	10	U
78-87-5	1,2-Dichloropropane	OLM04-2-V	ug/l	10	U
75-27-4	Bromodichloromethane	OLM04-2-V	ug/l	10	U
10061-01-5	cis-1,3-Dichloropropene	OLM04-2-V	ug/l	10	U
108-10-1	4-Methyl-2-pentanone	OLM04-2-V	ug/l	10	U
108-88-3	Toluene	OLM04-2-V	ug/l	3	J
10061-02-6	trans-1,3-Dichloropropene	OLM04-2-V	ug/l	10	U
79-00-5	1,1,2-Trichloroethane	OLM04-2-V	ug/l	10	U
127-18-4	Tetrachloroethene	OLM04-2-V	ug/l	10	U
591-78-6	2-Hexanone	OLM04-2-V	ug/l	10	U
124-48-1	Dibromochloromethane	OLM04-2-V	ug/l	10	U
106-93-4	1,2-Dibromoethane	OLM04-2-V	ug/l	10	U
108-90-7	Chlorobenzene	OLM04-2-V	ug/l	10	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	TB-110601-SW 11/6/2001	
100-41-4	Ethylbenzene	OLM04-2-V	ug/l	10	U
1330-20-7	Xylenes (total)	OLM04-2-V	ug/l	10	U
100-42-5	Styrene	OLM04-2-V	ug/l	10	U
75-25-2	Bromoform	OLM04-2-V	ug/l	10	U
98-82-8	Isopropylbenzene	OLM04-2-V	ug/l	10	U
79-34-5	1,1,2,2-Tetrachloroethane	OLM04-2-V	ug/l	10	U
541-73-1	1,3-Dichlorobenzene	OLM04-2-V	ug/l	10	U
106-46-7	1,4-Dichlorobenzene	OLM04-2-V	ug/l	10	U
95-50-1	1,2-Dichlorobenzene	OLM04-2-V	ug/l	10	U
96-12-8	1,2-Dibromo-3-chloropropane	OLM04-2-V	ug/l	10	U
120-82-1	1,2,4-Trichlorobenzene	OLM04-2-V	ug/l	10	U

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\ Depth	FB102202-SB MB0NG0 10/22/2002 to		FB102402-SB MB0NG2 10/24/2002 to		WB101702 MB0NL3 10/23/2002 to		FB102302-SB MB0NG1 10/23/2002 to		FB102302-SS MB0NG3 10/23/2002 to	
5-Inorg-w	**Inorganic Analytes - ILM04.1**												
7429-90-5	Aluminum	ILM04-1-M	ug/l	10.4	U	47.3	B	16.3	B	10.4	U	10.4	U
7440-36-0	Antimony	ILM04-1-M	ug/l	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
7440-38-2	Arsenic	ILM04-1-M	ug/l	2.9	U	2.9	U	3.2	BJ	2.9	U	2.9	U
7440-39-3	Barium	ILM04-1-M	ug/l	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
7440-41-7	Beryllium	ILM04-1-M	ug/l	0.1	U	0.35	B	0.33	B	0.1	U	0.1	U
7440-43-9	Cadmium	ILM04-1-M	ug/l	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
7440-70-2	Calcium	ILM04-1-M	ug/l	110	B	478	B	148	B	121	B	43.5	B
7440-47-3	Chromium	ILM04-1-M	ug/l	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U
7440-48-4	Cobalt	ILM04-1-M	ug/l	1	U	1	U	1	U	1	U	1	U
7440-50-8	Copper	ILM04-1-M	ug/l	1.5	B	1.3	U	1.3	U	1.5	B	1.3	U
7439-89-6	Iron	ILM04-1-M	ug/l	32.7	B	63.4	B	18.1	U	32	B	18.1	U
7439-92-1	Lead	ILM04-1-M	ug/l	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U
7439-95-4	Magnesium	ILM04-1-M	ug/l	7.5	U	63.9	B	51.1	B	9.8	B	16.2	B
7439-96-5	Manganese	ILM04-1-M	ug/l	2.3	B	0.3	U	0.3	U	0.72	B	0.3	U
7439-97-6	Mercury	ILM04-1-M	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
7440-02-0	Nickel	ILM04-1-M	ug/l	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
7440-09-7	Potassium	ILM04-1-M	ug/l	27	B	37.7	B	16.6	U	41.3	B	41.1	B
7782-49-2	Selenium	ILM04-1-M	ug/l	3	UJ	3	UJ	3	UJ	3	UJ	3	UJ
7440-22-4	Silver	ILM04-1-M	ug/l	1.3	B	1.1	U	1.1	U	1.1	U	1.1	B
7440-23-5	Sodium	ILM04-1-M	ug/l	473	U	473	U	473	U	473	U	473	U
7440-28-0	Thallium	ILM04-1-M	ug/l	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U
7440-62-2	Vanadium	ILM04-1-M	ug/l	1	U	1	U	1	U	1	U	1	U
7440-66-6	Zinc	ILM04-1-M	ug/l	1.6	U	11.9	B	9.2	B	1.6	U	1.6	U
57-12-5	Cyanide	ILM04-1-CN	ug/l	2.4	B	3.3	B	3	B	2.4	B	2	B

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-051402-GW 5/14/2002		FB-051502-GW 5/15/2002		FB-051602-GW 5/16/2002		FB-052102-GW 5/21/2002		FB-052202-GW 5/22/2002		FB-052302-GW 5/23/2002	
(Group Code)	**(Group Description)**														
1-LCVOANew	**50 Analytes Method Code OLC03-2-V**														
75-71-8	Dichlorodifluoromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
74-87-3	Chloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-01-4	Vinyl Chloride	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
74-83-9	Bromomethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-00-3	Chloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-69-4	Trichlorofluoromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U
75-35-4	1,1-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
67-64-1	Acetone	OLC03-2-V	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
75-15-0	Carbon Disulfide	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
79-20-9	Methyl Acetate	OLC03-2-V	ug/l	0.5	R	0.5	R	0.5	U	0.5	U	0.5	U	0.5	U
75-09-2	Methylene Chloride	OLC03-2-V	ug/l	0.5	U	0.21	J	0.5	U	0.5	U	0.5	U	0.5	U
156-60-5	trans-1,2-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1634-04-4	Methyl Tert-Butyl Ether	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U
75-34-3	1,1-Dichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
156-59-2	cis-1,2-Dichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
78-93-3	2-Butanone	OLC03-2-V	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
74-97-5	Bromochloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
67-66-3	Chloroform	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.46	J	0.5	U	0.5	U
71-55-6	1,1,1-Trichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
110-82-7	Cyclohexane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
56-23-5	Carbon Tetrachloride	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U
71-43-2	Benzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U
107-06-2	1,2-Dichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
79-01-6	Trichloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
108-87-2	Metylcyclohexane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
78-87-5	1,2-Dichloropropane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
75-27-4	Bromodichloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
10061-01-5	cis-1,3-Dichloropropene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U
108-10-1	4-Methyl-2-pentanone	OLC03-2-V	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
108-88-3	Toluene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
10061-02-6	trans-1,3-Dichloropropene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
79-00-5	1,1,2-Trichloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
127-18-4	Tetrachloroethene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
591-78-6	2-Hexanone	OLC03-2-V	ug/l	5	U	5	U	5	U	5	U	5	UJ	5	U
124-48-1	Dibromochloromethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
106-93-4	1,2-Dibromoethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-051402-GW 5/14/2002		FB-051502-GW 5/15/2002		FB-051602-GW 5/16/2002		FB-052102-GW 5/21/2002		FB-052202-GW 5/22/2002		FB-052302-G 5/23/2002
108-90-7	Chlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
100-41-4	Ethylbenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
1330-20-7	Xylenes (total)	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5
100-42-5	Styrene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
75-25-2	Bromoform	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
98-82-8	Isopropylbenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
79-34-5	1,1,2,2-Tetrachloroethane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
541-73-1	1,3-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
106-46-7	1,4-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
95-50-1	1,2-Dichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
96-12-8	1,2-Dibromo-3-chloropropane	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
120-82-1	1,2,4-Trichlorobenzene	OLC03-2-V	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
87-61-6	1,2,3-Trichlorobenzene	OLC03-2-V	ug/l	0.5	UJ	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5
2-SV-1-w	**Created by SUPER on 08/03/2001**													
100-52-7	Benzaldehyde	OLM04-2-SV	ug/l	10	U	10	U	0.9	J	10	U	10	U	10
108-95-2	Phenol	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
111-44-4	bis(2-Chloroethyl)ether	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
95-57-8	2-Chlorophenol	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
95-48-7	2-Methylphenol	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
108-60-1	2,2'-oxybis(1-Chloropropane)	OLM04-2-SV	ug/l	10	U	10	UJ	10	UJ	10	UJ	10	U	10
98-86-2	Acetophenone	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
106-44-5	4-Methylphenol	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
621-64-7	N-Nitroso-di-n-propylamine	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
67-72-1	Hexachloroethane	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
98-95-3	Nitrobenzene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
78-59-1	Isophorone	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
88-75-5	2-Nitrophenol	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
105-67-9	2,4-Dimethylphenol	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
111-91-1	bis(2-Chloroethoxy)methane	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
120-83-2	2,4-Dichlorophenol	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
91-20-3	Naphthalene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
106-47-8	4-Chloroaniline	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
87-68-3	Hexachlorobutadiene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
105-60-2	Caprolactam	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
59-50-7	4-Chloro-3-methylphenol	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
91-57-6	2-Methylnaphthalene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
77-47-4	Hexachlorocyclopentadiene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
88-06-2	2,4,6-Trichlorophenol	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10

Cas Rn	Chemical Name	Analytic Method	Sample Code / Sample Name / Sample Date / Unit \\	FB-051402-GW 5/14/2002		FB-051502-GW 5/15/2002		FB-051602-GW 5/16/2002		FB-052102-GW 5/21/2002		FB-052202-GW 5/22/2002		FB-052302-GW 5/23/2002	
95-95-4	2,4,5-Trichlorophenol	OLM04-2-SV	ug/l	25	U	25	U	25	U	25	U	25	U	25	U
92-52-4	1,1'-Biphenyl	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
91-58-7	2-Chloronaphthalene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
88-74-4	2-Nitroaniline	OLM04-2-SV	ug/l	25	U	25	U	25	U	25	U	25	U	25	U
131-11-3	Dimethylphthalate	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
606-20-2	2,6-Dinitrotoluene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
208-96-8	Acenaphthylene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
99-09-2	3-Nitroaniline	OLM04-2-SV	ug/l	25	U	25	U	25	U	25	U	25	U	25	U
83-32-9	Acenaphthene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
3-SV-2-w	**Created by SUPER on 08/03/2001**														
51-28-5	2,4-Dinitrophenol	OLM04-2-SV	ug/l	25	U	25	U	25	U	25	U	25	U	25	U
100-02-7	4-Nitrophenol	OLM04-2-SV	ug/l	25	U	25	U	25	U	25	U	25	U	25	U
132-64-9	Dibenzofuran	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
121-14-2	2,4-Dinitrotoluene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
84-66-2	Diethylphthalate	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
86-73-7	Fluorene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
7005-72-3	4-Chlorophenyl-phenylether	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
100-01-6	4-Nitroaniline	OLM04-2-SV	ug/l	25	U	25	U	25	U	25	U	25	U	25	U
534-52-1	4,6-Dinitro-2-methylphenol	OLM04-2-SV	ug/l	25	U	25	U	25	U	25	U	25	U	25	U
86-30-6	N-Nitrosodiphenylamine	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
101-55-3	4-Bromophenyl-phenylether	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
118-74-1	Hexachlorobenzene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	UJ	10	U	10	U
1912-24-9	Atrazine	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
87-86-5	Pentachlorophenol	OLM04-2-SV	ug/l	25	U	25	UJ	25	UJ	25	UJ	25	U	25	U
85-01-8	Phenanthrene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
120-12-7	Anthracene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
86-74-8	Carbazole	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
84-74-2	Di-n-butylphthalate	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
206-44-0	Fluoranthene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
129-00-0	Pyrene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
85-68-7	Butylbenzylphthalate	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
91-94-1	3,3'-Dichlorobenzidine	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
56-55-3	Benzo(a)anthracene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
218-01-9	Chrysene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	OLM04-2-SV	ug/l	0.7	J	10	U	0.5	J	0.8	J	1	J	0.9	J
117-84-0	Di-n-octylphthalate	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
205-99-2	Benzo(b)fluoranthene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
207-08-9	Benzo(k)fluoranthene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10	U

			Sample Code	FB-051402-GW		FB-051502-GW		FB-051602-GW		FB-052102-GW		FB-052202-GW		FB-052302-GV
			Sample Name											
			Sample Date	5/14/2002		5/15/2002		5/16/2002		5/21/2002		5/22/2002		5/23/2002
Cas Rn	Chemical Name	Analytic Method	Unit \\											
50-32-8	Benzo(a)pyrene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
193-39-5	Indeno(1,2,3-cd)pyrene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
53-70-3	Dibenz(a,h)anthracene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
191-24-2	Benzo(g,h,i)perylene	OLM04-2-SV	ug/l	10	U	10	U	10	U	10	U	10	U	10
4-P/PCBs-w	**Created by SUPER on 08/03/2001**													
319-84-6	alpha-BHC	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
319-85-7	beta-BHC	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
319-86-8	delta-BHC	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
58-89-9	gamma-BHC (Lindane)	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
76-44-8	Heptachlor	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
309-00-2	Aldrin	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
1024-57-3	Heptachlor epoxide	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
959-98-8	Endosulfan I	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
60-57-1	Dieldrin	OLM04-2-PP	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
72-55-9	4,4'-DDE	OLM04-2-PP	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
72-20-8	Endrin	OLM04-2-PP	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
33213-65-9	Endosulfan II	OLM04-2-PP	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
72-54-8	4,4'-DDD	OLM04-2-PP	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
1031-07-8	Endosulfan sulfate	OLM04-2-PP	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
50-29-3	4,4'-DDT	OLM04-2-PP	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
72-43-5	Methoxychlor	OLM04-2-PP	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
53494-70-5	Endrin ketone	OLM04-2-PP	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
7421-93-4	Endrin aldehyde	OLM04-2-PP	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
5103-71-9	alpha-Chlordane	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
5103-74-2	gamma-Chlordane	OLM04-2-PP	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05
8001-35-2	Toxaphene	OLM04-2-PP	ug/l	5	U	5	U	5	U	5	U	5	U	5
12674-11-2	Aroclor-1016	OLM04-2-PP	ug/l	1	U	1	U	1	U	1	U	1	U	1
11104-28-2	Aroclor-1221	OLM04-2-PP	ug/l	2	U	2	U	2	U	2	U	2	U	2
11141-16-5	Aroclor-1232	OLM04-2-PP	ug/l	1	U	1	U	1	U	1	U	1	U	1
53469-21-9	Aroclor-1242	OLM04-2-PP	ug/l	1	U	1	U	1	U	1	U	1	U	1
12672-29-6	Aroclor-1248	OLM04-2-PP	ug/l	1	U	1	U	1	U	1	U	1	U	1
11097-69-1	Aroclor-1254	OLM04-2-PP	ug/l	1	U	1	U	1	U	1	U	1	U	1
11096-82-5	Aroclor-1260	OLM04-2-PP	ug/l	1	U	1	U	1	U	1	U	1	U	1
5-Inorg-w	**Created by SUPER on 08/03/2001**													
7429-90-5	Aluminum	ILM04-1-M	ug/l	83.5	B	79.9	B	18.5		26	B	239	R	292
7440-36-0	Antimony	ILM04-1-M	ug/l	3.8	U	3.8	U	3.8	U	3.8	U	3.8	U	3.8
7440-38-2	Arsenic	ILM04-1-M	ug/l	3	U	3	U	3	U	3	U	3	U	3

Cas Rn	Chemical Name	Analytic Method	Sample Code Sample Name Sample Date Unit \\	FB-051402-GW 5/14/2002		FB-051502-GW 5/15/2002		FB-051602-GW 5/16/2002		FB-052102-GW 5/21/2002		FB-052202-GW 5/22/2002		FB-052302-GW 5/23/2002	
7440-39-3	Barium	ILM04-1-M	ug/l	0.4	U	0.4	U	0.4	U	0.4	U	1.2	B	1.2	B
7440-41-7	Beryllium	ILM04-1-M	ug/l	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
7440-43-9	Cadmium	ILM04-1-M	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
7440-70-2	Calcium	ILM04-1-M	ug/l	334	B	95.7	U	95.7	U	95.7	U	1240	B	1390	B
7440-47-3	Chromium	ILM04-1-M	ug/l	0.8	U	0.8	U	0.8	U	0.8	U	2.7	B	1.8	B
7440-48-4	Cobalt	ILM04-1-M	ug/l	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
7440-50-8	Copper	ILM04-1-M	ug/l	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
7439-89-6	Iron	ILM04-1-M	ug/l	23.5	B	17	U	17	U	17	U	79.7	B	91.2	B
7439-92-1	Lead	ILM04-1-M	ug/l	2.8	U	2.8	U	2.8	U	2.8	U	2.8	UJ	2.8	U
7439-95-4	Magnesium	ILM04-1-M	ug/l	42.9	B	24.8	U	24.8	U	24.8	U	153	B	194	B
7439-96-5	Manganese	ILM04-1-M	ug/l	0.72	B	0.4	U	0.4	U	0.4	U	3	B	3	B
7439-97-6	Mercury	ILM04-1-M	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
7440-02-0	Nickel	ILM04-1-M	ug/l	1.7	U	1.7	U	1.7	U	1.7	U	2	B	1.7	U
7440-09-7	Potassium	ILM04-1-M	ug/l	56.6	B	48.4	B	48.3	B	56.4	B	220	B	227	B
7782-49-2	Selenium	ILM04-1-M	ug/l	2.2	U	2.2	UJ	2.2	U	2.2	U	2.7	B	2.2	U
7440-22-4	Silver	ILM04-1-M	ug/l	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
7440-23-5	Sodium	ILM04-1-M	ug/l	461	B	378	B	302	U	302	U	902	B	768	B
7440-28-0	Thallium	ILM04-1-M	ug/l	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U
7440-62-2	Vanadium	ILM04-1-M	ug/l	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
7440-66-6	Zinc	ILM04-1-M	ug/l	1.4	U	1.4	U	1.7	B	1.4	U	10.6	B	10.3	B
57-12-5	Cyanide	ILM04-1-CN	ug/l	1.2	B	1.9	B	0.7	U	1.2	B	1.8	BJ	2	B